City of Visalia

East Side Regional Park & Groundwater Recharge Project

Final Environmental Impact Report
State Clearinghouse No. 2014121076

City of Visalia, California
October 2023

Prepared for:
City of Visalia
California

Prepared by:
Provost & Pritchard Consulting Group
Visalia, California

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1. Introduction

The City of Visalia prepared a Draft Environmental Impact Report (DEIR) for the East Side Regional Park & Groundwater Recharge Project (Project). In accordance with the California Environmental Quality Act (CEQA), a Notice of Availability was published in the Visalia Times Delta, a newspaper of general circulation in the Project area, announcing that the DEIR was available for a 45-day public and agency review and comment period from February 2, 2023 through March 20, 2023. The review and comment period was also announced to interested agencies through circulation by the State Clearinghouse of the Governor's Office of Planning and Research as required by CEQA.

A Final Environmental Impact Report (FEIR) shall be prepared following the close of the announced DEIR public comment period. Section 15132 of the Guidelines implementing CEQA requires that the FEIR shall consist of:

1. The draft EIR or a revision of the draft.
2. Comments and recommendations received on the draft EIR either verbatim or in summary.
3. A list of persons, organizations, and agencies commenting on the draft EIR.
4. The responses of the Lead Agency to significant environmental points raised in the review and consultation process.
5. Any other information added by the Lead Agency,

The above required contents are organized in this FEIR as follows:

Chapter 2 – A list of persons, organization, and agencies commenting on the DEIR.
Chapter 3 – Responses from the City of Visalia (Lead Agency) to significant environmental points raised in the review and consultation process.
Chapter 4 – FEIR Clarifications to the DEIR (as a result of comments, recommendations, or responses.)
Chapter 5 – The original Draft EIR.
Chapter 6 – Attachments to the Final EIR

2. Persons, Organizations, and Agencies Commenting on Draft EIR

San Joaquin Valley Air Pollution Control District, via email, letter dated March 17, 2023

California Department of Transportation, via email, letter dated March 22, 2023

California Department of Fish and Wildlife, via email, letter dated March 28, 2023

3. Comments Received on the Draft EIR and Responses

Public Comments Received on Environmental Issues & Responses

This section contains comments on environmental issues received during the public review period of the Draft EIR and responses to those comments.

Three comment letters were received from the agencies listed in Chapter 2. Scanned versions of these letters have been inserted in the following pages and are identified alphabetically. The individual comments within each letter are identified numerically.

None of these comments identified a new, unavoidable significant effect, nor did they result in a finding that the proposed mitigation measures in the EIR will not reduce potential effects to less than significant levels. Instead, the comments resulted in minor changes that serve merely to clarify information in the EIR. Accordingly, pursuant to CEQA Guidelines Section 15073.5, recirculation of the EIR is not required.

Letter A – San Joaquin Valley Air Pollution Control District (SJVAPCD)
(March 17, 2023)

SJVAPCD Letter A Comments and City Responses

Comment A/1

Based on information provided to APCD, Project specific annual criteria pollutant emissions from construction and operation are not expected to exceed any of the significance thresholds as identified in the District's Guidance for Assessing and Mitigating Air Quality Impacts (GAMAQI): https://www.valleyair.org/transportation/GAMAQI.pdf.

Response A/1

Comment noted. The City of Visalia concurs with the Air District's finding that the Project is not expected to exceed any of the significance thresholds identified in the Air District's GAMAQI.

Comment A/1a

APCD recommends, to reduce impacts from construction-related diesel exhaust emissions, the Project should utilize the cleanest available off-road construction equipment, including the latest tier equipment.

Response A/1a

Comment noted. As stated on Page 3-39 of the DEIR, and confirmed by SJVAPCD in Comment A/1, the annual emissions from the construction phase of Phase 1, 2, and 3 of the Project would be less than the applicable SJVAPCD emission thresholds for criteria pollutants. The construction emissions are therefore considered less than significant solely from compliance with the SJVAPCD applicable Regulation VIII control measures. Therefore, no mitigation or application of additional reduction methods is warranted.

Comment A/2

The DEIR stated "Since the Project is located outside the recommended buffer distances associated with the sources found in Appendix C Table 4, the Project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, there would be no impact." The District concurs with this assessment in regard to the operation emissions of the Project. However, the District recommends the City evaluate the health risk to sensitive receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) associated with the Project's construction related toxic emissions and mitigate any potentially significant risk to help limit exposure of sensitive receptors to emissions.

To determine the potential construction related health impacts on surrounding receptors (residences, businesses, hospitals, day-care facilities, health care facilities, etc.) a Prioritization and/or a Health Risk Assessment (HRA) should be performed for the Project. These health risk determinations should quantify and characterize potential Toxic Air Contaminants (TACs) identified by the Office of Environmental Health Hazard Assessment/California Air Resources Board (OEHHA/CARB) that pose a present or potential hazard to human health.

The health risk analysis should evaluate all potential air emissions from construction of the Project, including multi-year construction (e.g., to diesel exhaust emitted from heavy-duty off-road earth moving equipment during construction)..

A "Prioritization" is the recommended method for a conservative screening-level health risk assessment. The Prioritization should be performed using the California Air Pollution Control Officers Association's (CAPCOA) methodology.

The District recommends that a more refined analysis, in the form of an HRA, be performed for any Project resulting in a Prioritization score of 10 or greater. This is because the prioritization results are a conservative health risk representation, while the detailed HRA provides a more accurate health risk evaluation.

To assist land use agencies and Project proponents with Prioritization analyses, the District has created a prioritization calculator based on the aforementioned CAPCOA guidelines, which can be found here: http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Utilities/PRIORITIZATION-CALCULATOR.xls

Prior to performing an HRA, it is strongly recommended that land use agencies/ Project proponents develop and submit for District review a health risk modeling protocol that outlines the sources and methodologies that will be used to perform the HRA. This step will ensure all components are addressed when performing the HRA.

A development Project would be considered to have a potentially significant health risk if the HRA demonstrates that the Project-related health impacts would exceed the District's significance threshold of 20 in a million for carcinogenic risk, or 1.0 for either the Acute or Chronic Hazard Indices.

A Project with a significant health risk would trigger all feasible mitigation measures. The District strongly recommends that development Projects that result in a significant health risk not be approved by the land use agency.

The District is available to review HRA protocols and analyses. For HRA submittals please provide the following information electronically to the District for review:

- HRA (AERMOD) modeling files
- HARP2 files
- Summary of emissions source locations, emissions rates, and emission factor calculations and methodologies.

For assistance, please contact the District's Technical Services Department by:

- E-Mailing inquiries to: hramodeler@valleyair.org
- Calling (559) 230-5900

Recommended Measure: Development Projects resulting in TAC emissions should be located an adequate distance from residential areas and other sensitive receptors in accordance to CARB's Air Quality and Land Use Handbook: A Community Health Perspective located at https://ww3.arb.ca.gov/ch/handbook.pdf.

Response A/2

Comment noted. A Health Risk Assessment was prepared using the air emissions provided in Appendix A of the Draft EIR. 100% of the on-site construction exhaust PM_{10} emissions were assumed to be Diesel Particulate Matter and modeled to occur over the course of 6.86 years, 5 days a week, during normal business hours of 8 a.m. to 5 p.m. The sensitive receptors nearest to the Project site, a total of 61, were modeled. These receptors

consist of residences to the west of proposed Tower Road, across Road 152, and along East Mineral King Avenue and East Houston Avenue. The maximum exposed individual cancer risk was determined to be 16.05 in one million. As the Air District's threshold of significance is 20 in one million, impacts are less than significant. Results of this analysis can be found in Attachment A of the Final EIR.

Comment A/3

Since the Project consists of recreational development, gas-powered lawn and garden equipment have the potential to result in an increase of NO_X and $PM_{2.5}$ emissions. Utilizing electric lawn care equipment can provide residents with immediate economic, environmental, and health benefits. The District recommends the Project proponent consider the District's Clean Green Yard Machines (CGYM) program which provides incentive funding for replacement of existing gas powered lawn and garden equipment. More information on the District CGYM program and funding can be found at: http://www.valleyair.org/grants/cgym.htm and http://valleyair.org/grants/cgym-commercial.htm.

Response A/3

Comment noted. As stated in Comment A/1, the Project will not exceed applicable District air quality thresholds. Therefore, additional compliance mitigation is not warranted.

Comment A/4

To support and accelerate the installation of electric vehicle charging equipment and development of required infrastructure, the District offers incentives to public agencies, businesses, and property owners of multi-unit dwellings to install electric charging infrastructure (Level 2 and 3 chargers). The purpose of the District's Charge Up! Incentive program is to promote clean air alternative-fuel technologies and the use of low or zero-emission vehicles. The District recommends that the City and Project proponents install electric vehicle chargers at Project sites, and at strategic locations.

Please visit www.valleyair.org/grants/chargeup.htm for more information.

Response A/4

Comment noted. As stated in Comment A/1, the Project will not exceed applicable District air quality thresholds. Therefore, no mitigation or application of additional reduction methods is warranted.

Comment A/5

APCD issues permits for many types of air pollution sources, and regulates some activities that do not require permits. A Project subject to District rules and regulations would reduce its impacts on air quality through compliance with the APCD's regulatory framework. In general, a regulation is a collection of individual rules, each of which deals with a specific topic. As an example, Regulation II (Permits) includes District Rule 2010 (Permits Required), Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), and several other rules pertaining to APCD permitting requirements and processes.

The list of rules below is neither exhaustive nor exclusive. Current APCD rules can be found online at: www.valleyair.org/rules/1ruleslist.htm. To identify other APCD rules or regulations that apply to future Projects, or to obtain information about District permit requirements, the Project proponents are strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (209) 557-6446.

Stationary Source emissions include any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. District Rule 2010 (Permits Required) requires operators of emission sources to obtain an Authority to Construct (ATC) and Permit to Operate (PTO) from the District. District Rule 2201 (New and Modified Stationary Source Review) requires that new and modified stationary sources of emissions mitigate their emissions using Best Available Control Technology (BACT).

This Project may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and may require District permits. Prior to construction, the Project proponent should submit to the District an application for an ATC. For further information or assistance, the Project proponent may contact the District's SBA Office at (559) 230-5888.

The Project is subject to District Rule 9510 because it will receive a Project-level discretionary approval from a public agency and will equal or exceed 9,000 square feet of space.

The purpose of District Rule 9510 is to reduce the growth in both NOx and PM emissions associated with development and transportation Projects from mobile and area sources; specifically, the emissions associated with the construction and subsequent operation of development Projects. The ISR Rule requires developers to mitigate their NOx and PM emissions by incorporating clean air design elements into their Projects. Should the proposed development Project clean air design elements be insufficient to meet the required emission reductions, developers must pay a fee that ultimately funds incentive Projects to achieve off-site emissions reductions.

Per Section 5.0 of the ISR Rule, an Air Impact Assessment (AIA) application is required to be submitted no later than applying for Project-level approval from a public agency. As of the date of this letter, the District has not received an AIA application for this Project. Please inform the Project proponent to immediately submit an AIA application to APCD to comply with District Rule 9510 so that proper mitigation and clean air design under ISR can be incorporated into the Project's design.

Information about how to comply with District Rule 9510 can be found online at: http://www.valleyair.org/ISR/ISRHome.htm.

The AIA application form can be found online at: http://www.valleyair.org/ISR/ISRFormsAndApplications.htm.

District staff is available to provide assistance and can be reached by phone at (559) 230-5900 or by email at ISR@valleyair.org.

In the event an existing building will be renovated, partially demolished or removed, the Project may be subject to District Rule 4002. This rule requires a thorough inspection for asbestos to be conducted before any regulated facility is demolished or renovated. Information on how to comply with District Rule 4002 can be found online at: http://www.valleyair.org/busind/comply/asbestosbultn.htm.

The Project may be subject to District Rule 4601 since it may utilize architectural coatings. Architectural coatings are paints, varnishes, sealers, or stains that are applied to structures, portable buildings, pavements or curbs. The purpose of this rule is to limit VOC emissions from architectural coatings. In addition, this rule specifies architectural coatings storage, cleanup and labeling requirements. Additional information on how to comply with District Rule 4601 requirements can be found online at: http://www.valleyair.org/rules/currntrules/r4601.pdf.

The Project proponent may be required to submit a Construction Notification Form or submit and receive approval of a Dust Control Plan prior to commencing any earthmoving activities as described in Regulation

VIII, specifically Rule 8021 – Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities.

Should the Project result in at least 1-acre in size, the Project proponent shall provide written notification to the District at least 48 hours prior to the Project proponents intent to commence any earthmoving activities pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). Also, should the Project result in the disturbance of 5-acres or more, or will include moving, depositing, or relocating more than 2,500 cubic yards per day of bulk materials, the Project proponent shall submit to the District a Dust Control Plan pursuant to District Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities). For additional information regarding the written notification or Dust Control Plan requirements, please contact District Compliance staff at (559) 230-5950.

The application for both the Construction Notification and Dust Control Plan can be found online at: https://www.valleyair.org/busind/comply/PM10/forms/DCP-Form.docx.

Information about District Regulation VIII can be found online at:
http://www.valleyair.org/busind/comply/pm10/compliance_pm10.htm.
The Project may also be subject to the following District rules: Rule 4102 (Nuisance) and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations).

Response A/5

Comments noted. The Project would be required to comply with all applicable regulations of the SJVAPCD. The City of Visalia understands that an AIA application will need to be submitted prior to final discretionary approval., and will proceed accordingly.

Letter B – California Department of Transportation (Caltrans)
(March 22, 2023 – Received after Comment Period closed on March 20, 2023)

Caltrans Letter B Comments and City Responses

Note: For clarification purposes, the Commenter provided some comments based on the Traffic Impact Study (TIS) that was prepared for the Project. The DEIR combined mitigation measures listed in the TIS, resulting in a discrepancy between mitigation measure numbering between the DEIR and the TIS. The TIS can be found in Appendix M of the DEIR attached.

Comment B/1

The analysis for the "Near-Term Opening Year or (Project Opening Year) was year 2018. Caltrans suggests that the "Near-Term Opening Year" of the Project be updated to the best estimated timeframe (since we are currently in year 2023). Thus, results from the analysis for all subject locations should be updated to a more realistic year of the Projects opening day.

Response B/1

Comment noted. As depicted in the DEIR, Level of Service conditions at Intersections 2 and 5 would not meet established thresholds for the Existing Plus Project (Full Build Out), Near-Term Opening Year, and Horizon Year scenarios. As depicted in Tables 3-17, 3-16, and 3-26, the LOS would continue to decrease at intersections 2 and 5 through the Horizon Year scenario. Therefore, it is reasonable to assume that intersections 2 and 5 would not meet established thresholds for an updated opening day scenario. In addition, the average delay for all other study area intersections for the Near-Term Opening Year scenario must decrease by approximately 9 or more seconds before reaching unacceptable levels of service. As a result, an updated analysis for opening year conditions would, in all likelihood, remain consistent with the results presented in the TIS.

Comment B/2

As a point of information, for Mitigation Measures, MM TR-1 thru MM TR-6, the majority of the recommended mitigations at SR 198 and Lovers Lane interchange area were already included in Caltrans Project (06-0W900) which tentatively is scheduled to be in construction late summer 2023. For more information, please contact the Caltrans Project manager, Shavonne Conley at (559) 383-5609 or Shavonne.Conley@dot.ca.gov.

Response B/2

Comment noted.

Comment B/3

Regarding Table E-2 of the TIS, please add a "type of control" column (TWSC, signal, etc.) for the intersections listed. Please check and verify the same for Tables 3-17, 3-27, 3-37, and 3-47.

Response B/3

Comment noted. The Commenter requests that the tables in the TIS reflect the traffic controls anticipated in the listed intersections. Figures 3-11b, 3-12b, 3-13a, 3-13b, 3-13c, 3-18b, 3-19b, 3-20, 3-22b, 3-23b, 3-25b, 3-26b, 3-27a, 3-27b, and 3-27c depict the proposed traffic controls along the proposed Tower Street alignment. This comment does not address the adequacy of the EIR, and no further response is required.

Comment B/4

For Mitigation Measures, MM TR-11 and MM TR-12, for Noble Avenue at Road 156, please be advised that widening on Road 156 may impact the bridge structure. The SR 198 bridge structure may have to be upgraded to accommodate the recommended mitigation.

Response B/4

Comment noted. The City will ensure that Project implementation will be in accordance with Caltrans regulations and guidelines.

Comment B/5

For Mitigation Measures, MM TR-15 and MM TR-16, it is recommended to "Widen the SR 198 mainline from 2 to 3 travel lanes …". Please check if this should be the recommended mitigation for the deceleration lane (at the off-ramp) and the acceleration lane (for the on-ramp) instead of 3 lanes in each direction?

Response B/5

Comment noted. Mitigation Measures MM TR-15 and MM TR-16 correctly indicate the recommended mitigation to achieve acceptable levels of service. Tables 4-5 and 4-6 will be amended to reflect the correct number of mainline travel lanes.

Comment B/6

For Mitigation Measure, MM TR-18, it is stated "in the NB left-turn lane, lengthen the storage pocket from 100-feet to 325-feet". Currently there is not enough distance to extend the existing left-turn pocket to the recommended length due to spacing between the intersections (available spacing between intersections is approximately 250). Therefore, lengthening the NB left-turn lane to the maximum allowable should be the recommended mitigation.

Response B/6

For clarity, the commenter refers to MM TR-18, however the context of this comment pertains to MM TR-16. MM TR-16 will be modified to satisfy comment B/6. This modification does not constitute "significant new information" within the scope of CEQA Guidelines Section 15088.5(a), and nothing further is required.

Comment B/7

For Mitigation Measure, MM TR-39, location #18, SR 216 at Tower Road, a roundabout intersection control mitigation should also be considered and evaluated for future mitigation measure, not just traffic signal.

Response B/7

Comment noted. An Intersection Control Evaluation (ICE) was prepared for the Houston Avenue (SR 216) at Tower Street intersection and includes an evaluation of a roundabout. The ICE for the SR-216 at Tower Street is attached as Attachment B.

Comment B/8

It is Caltrans policy to analyze all potential intersection improvement solutions. An Intersection Control Evaluation (ICE) report is required for any proposed intersection improvement, in accordance with Traffic Operations Policy Directive No. 13-02, dated: August 30, 2013 (http://www.dot.ca.gov/hq/traffops/policy/13-02.pdf).

Response B/8

Comment noted. The Project would be required to comply with all applicable regulations of Caltrans. The City of Visalia understands that an ICE report is required for any intersection improvements under Caltrans jurisdiction and the ICE reports will be prepared and submitted to Caltrans for review prior to making any final decision regarding intersection improvements.

Comment B/9

Any new Project that may require employing full control at state highway intersections (i.e., to control all approaching traffic via use of signal, stop or yield control) must consider all three intersection control strategies (stop, roundabout, and signal) and the supporting design configurations per the Intersection Control Evaluation (ICE) guidelines. ICE establishes a context and performance-based evaluation process to produce engineering recommendations on intersection traffic control strategies and geometric configurations for location specific needs and conditions. The first step of the ICE process will constitute conceptual approval by Caltrans Traffic Operations Office. The Project opening day mitigation at an intersection must be evaluated per the ICE procedure. This new policy will affect the engineering process to determine the intersection improvement on any State Route.

Response B/9

See Response to Comment B/8.

Comment B/10

The ICE requirements can be found on the Caltrans website: http://www.dot.ca.gov/hq/traffops/liaisons/ice.html.

Response B/10

Comment noted.

Comment B/11

For Mitigation Measure, MM TR-39, on page E-19, under "Special Events Traffic Impact", please be advised that a Traffic Management Plan (TMP) may be needed to manage and minimize congestion in the area from Project-related traffic, generated at large events.

Response B/11

Comment noted.

Comment B/12

Please note that SR 216 at Tower Road as well as Mineral King at Tower Road are the two main arterials (without the interchange scenarios) that need to be managed during a Project-related large event. With the interchange scenarios, the new ramp intersections, as well as the Mineral King Avenue/Tower Road intersection and the Houston Avenue/Tower Road intersection may be impacted.

Response B/12

Comment noted.

Comment B/13

It is recommended that location # 25, driveway #3, be used as an additional access point during the large events to relieve congestion on Tower Road.

Response B/13

Comment noted. If and when a TMP is required and implemented, additional access points will be assessed for large events.

Comment B/14

Page 10, paragraph 1.2.1 "Intersection Analysis", states that Synchro 9 software program was used and Highway Capacity Manual 2010 and 2000 methodology were utilized for the analysis.

Caltrans acknowledges that this TIS was conducted in 2019 when the new versions of Synchro and HCM methodology had not yet been upgraded. If the TIS is updated, it is requested that the latest version of Synchro and HCM be used.

Response B/14

Comment noted.

Comment B/15

Please clarify the statement on Page 147, paragraph 3.8, Cumulative Year 2040 Plus Project With Tower Street Interchange, Alternatives 1 and 2 Traffic Conditions, as stated, "Alternative 1 encompasses the elimination of Mineral King Avenue from Tower Street …".

Response B/15

As noted in Section 3.8 (first paragraph) on Page 147 of the TIS, study area intersections were evaluated considering the elimination of Mineral King Avenue between Tower Street and Road 152 with the implementation of the Tower Street interchange. This represents conditions at study area intersections under the Alternative 1 scenario.

Comment B/16

Caltrans predicts that the elimination of Mineral King Avenue at this location will disrupt the east-west circulation on this frontage road. Additionally, the main purpose of the new interchange is to provide

accessibility and continuous flow of traffic at this location for both north-south (Tower Street) as well as east-west (Mineral King Avenue) movements.

Response B/16

Comment noted. As noted in Section 3.8 (first paragraph) on Page 147 of the TIS, study area intersections were evaluated considering the elimination of Mineral King Avenue between Tower Street and Road 152 with the implementation of the Tower Street interchange. This represents conditions at study area intersections under the Alternative 1 scenario. The TIS also includes an evaluation of Horizon Year conditions with the Tower Street interchange and Mineral King Avenue between Tower Street and Road 152 (See Section 3.7 on Page 123).

Comment B/17

Please clarify the statement on page 147, paragraph 3.8, as stated 'Villoy Avenue will terminate at the cul-de-sac to the west of Tower Street …", however, the figures (with Tower Street interchange scenarios) show Villoy Avenue intersecting with Tower Street as location #23.

Response B/17

As noted in Section 3.8 (second paragraph) on Page 147 of the TIS, study area intersections were evaluated considering the termination of Villoy Avenue just west of Tower Street (cul-de-sac). This represents conditions at study area intersections under the Alternative 2 scenario. Figures 3-40b, 3-41b, 3-42a, 3-42b, 3-42c depicts a T-Intersection for intersection #23.

Comment B/18

Figures 3-30b, 3-32b, 3-34b, 3-34c, 3-36b, 3-37b, 3-38b, 3-38c, 3-40b, 3-41b, 3-42a, 3-42b, 3-42c shows Tower Street at the new interchange, with intersection locations # 26 & #27, having 3 through-lanes in each direction. Tower Street was originally proposed to be a 4-lane divided roadway throughout the area. Please note that Tower Street north of the future interchange is shown as 4-lane divided street. Would a 6-lane configuration for Tower Street at the interchange be needed? Please be aware that the bridge structure would also need to be widened for 6-lanes.

Response B/18

Comment noted. The preliminary Tower Street interchange configuration showed three travel lanes in each direction with a transition to two travel lanes in each direction just north of the interchange. Results of the Horizon Year analysis (With the Project) shows that three travel lanes in each direction at the Tower Street interchange would achieve LOS A/B conditions at ramp intersections and LOS C conditions along Tower Street at the interchange (V/C less than 0.17). A V/C ratio less than 0.85 generally indicates that adequate capacity is available, and vehicles are not expected to experience significant queues and delays. Therefore, it can be presumed that two travel lanes in each direction at the interchange would, in all likelihood, meet acceptable levels of service.

Comment B/19

Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the Project and related development in this area of the City or County. The assessment should include the following:

a. Pedestrian walkways should link this Project to transit facilities, bicycle pathways and other walkways in the surrounding area.
b. Coordinating connections to local and regional bicycle pathways should be done to further encourage the use of bicycles for commuter and recreational purposes.
c. Transit service and bus stop accommodations should be extended to within ¼ mile of the Project site.

Response B/19

As the Project is developed, multi-modal feature service needs such as a bus stop, pedestrian pathways, and bicycle pathways will be implemented.

Comment B/20

Caltrans recommends the Project implement "smart growth" principles regarding parking solutions, providing alternative transportation choices to residents and employees. Alternative transportation choices may include but are not limited to parking for carpools/vanpools, car-share and/or ride-share programs.

Response B/20

The Project will evaluate and potentially implement smart growth features such as parking solutions and car-share and/or ride-share programs during the design phase.

Comment B/21

Based on Caltrans Vehicle Miles Traveled (VMT)-Focused Transportation Impact Study Guide, dated May 20, 2020, and effective as of July 1, 2020, Caltrans seeks to reduce single occupancy vehicle trips, provide a safe transportation system, reduce per capita VMT, increase accessibility to destinations via cycling, walking, carpooling, transit and reduce greenhouse gas (GHG) emissions. Caltrans recommends that the Project proponent continue to work with the City or County to further implement improvements to reduce VMT and offer a variety of transportation modes for its residents.

Response B/21

Comment noted.

Letter C – California Department of Fish and Wildlife (CDFW)
(March 28, 2023 – Received after Comment Period closed on March 20, 2023)

CDFW Letter C Comments and City Responses

Comment C/1

The DEIR indicates in Bio-5 that pre-construction surveys will be performed to evaluate the Project site for SWHA. CDFW is concerned that this will not be sufficient in detecting SWHA and adequately determining presence/absence of the species. CDFW recommends a qualified wildlife biologist conduct surveys for nesting SWHA following the entire survey methodology developed by the SWHA Technical Advisory Committee (SWHA TAC 2000) prior to Project implementation (during CEQA analysis). CDFW recommends that results of protocol-level surveys for SWHA be included in the Final EIR (FEIR) for the Project.

CDFW also recommends that if any activity will take place during the SWHA nesting season (March 1 through September 15), and active SWHA nests are present, a minimum ½-mile no-disturbance buffer be delineated and maintained around each nest, regardless of when it was detected by surveys or incidentally, until the breeding season has ended or until a qualified biologist has determined that the birds have fledged and are no longer reliant upon the nest or parental care for survival, to prevent nest abandonment and other take of SWHA as a result of Project activities.

SWHA detection warrants consultation with CDFW to discuss how to avoid take or, if avoidance is not feasible, to acquire an Incidental Take Permit (ITP) prior to ground disturbing activities, pursuant to Fish and Game Code section 2081 subdivision (b).

Response C/1

Numerous biological surveys have been conducted by Live Oak Associates (LOA) in the Project vicinity, including protocol level SWHA surveys, the most recent of which was completed for the Visalia Basin G Project in March 2023. No foraging SWHAs or SWHA nests were ever observed on or within 0.5 miles of the Project site or larger vicinity during these surveys. Based on these surveys, the City maintains that there is a low probability of SWHA nesting on or within 0.5 miles of the Project site and that preconstruction surveys out to 0.5 miles and avoidance or active nests are reasonable measures to assure a less than significant impact to SWHAs and avoid Project "Take" of SWHAs.

Since BIO-5a of the DEIR MMRP only stipulates preconstruction surveys for nesting birds and raptors be conducted out to 500 ft, the City will extend this distance to 0.5 miles for the SHWA, as that is CDFWs recommended buffer around an active SWHA nest and is the survey area recommended by the SWHA Technical Advisory Committee. This modification to MM BIO-5a does not constitute "significant new information" within the scope of CEQA Guidelines Section 15088.5(a), and nothing further is required.

Recommendations by LOA in the response to CDFW Comment 3: General Comments, below, would satisfy CDFW concerns about consulting CDFW if SWHA nesting is detected during surveys.

Comment C/2

The California Fish and Game Commission (Commission) determined that listing four bumble bee species "may be warranted" on June 12, 2019, advancing all four species to candidacy. The Commission's determination was challenged in court soon after, and candidacy was stayed during much of the ensuing litigation. A California court of appeal ultimately upheld the Commission's determination, and the state

Supreme Court declined to review the case. On September 30, 2022, the court of appeal issued remittitur in the litigation, which had the legal effect of reinstating candidacy for all four bumble bee species.

As of September 30, 2022, CBB, Franklin's bumble bee, Western bumble bee, and Suckley's Cuckoo bumble bee are again candidate species under CESA and as such, receive the same legal protection afforded to an endangered or threatened species (Fish & G. Code, §§ 2074.2 & 2085). It is illegal to import, export, take (hunt, pursue, catch, capture, or kill, or attempt engage in any of these activities), possess, purchase, or sell the four candidate bumble bee species or any part or product thereof (Fish & G. Code, §§ 86, 2080, 2085).

The DEIR does not mention any evaluation done for CBB. The California Natural Diversity Database (CNDDB) records indicate that CBB have the potential to occur in the Project vicinity (CDFW 2023). Suitable CBB habitat includes areas of grasslands and upland scrub that contain requisite habitat elements, such as small mammal burrows. CBB primarily nest in late February through late October underground in abandoned small mammal burrows but may also nest under perennial bunch grasses or thatched annual grasses, under brush piles, in old bird nests, and in dead trees or hollow logs (Williams et al. 2014; Hatfield et al. 2015). Overwintering sites utilized by CBB mated queens include soft, disturbed soil (Goulson 2010), or under leaf litter or other debris (Williams et al. 2014). Therefore, potential ground disturbance and vegetation removal associated with Project implementation may significantly impact local CBB populations. While the land on the Project site and its adjacent plots are mostly active agricultural lands, to the west of the Project site are patches of ruderal grassland habitat. CDFW recommends the City of Visalia assess these habitat areas near the Project area for potentially suitable CBB habitat. If suitable CBB habitat exists in areas of planned Project-related ground disturbance, equipment staging, or materials laydown, potential CBB nesting sites in these areas would have to be avoided with a 50-foot no disturbance buffer to reduce to less-than-significant the Project-related impacts to the species.

CBB detection warrants consultation with CDFW to discuss how to avoid take or, if avoidance is not feasible, to acquire an ITP prior to ground disturbing activities, pursuant to Fish and Game Code section 2081 subdivision (b).

Response C/2

As CDFW has stated in its comment, there has been much discussion regarding the Candidate listing status of the CBB. At the time of LOA's analyses, the CBB was not officially a State Candidate species and impacts to this species were not addressed in LOA's biological reports.

The CNDDB records show a single report of this species occurring in the Visalia area (CDFW 2023). This record describes collections of this species from over 50 years ago in 1954 and 1961. Exact locations of these collections are unknown and generally mapped as Visalia.

In its comment above, CDFW describes suitable habitat for this species as areas of grasslands and upland scrub that contain requisite habitat elements, such as small mammal burrows. CDFW acknowledges that these habitats are absent from the Project site but appear to be concerned with Project impacts to potential habitat outside the Project APE that may result in harm to individual CBB. In reviewing current and historical aerial photography back to 1956, as well as recent SWHA surveys for the Visalia Basin G Project that included the entire Eastside Regional Park Project APE, suitable habitat for CBB is absent from the Project site and immediately surrounding lands. Furthermore, the entire Project APE and surrounding lands have provided unsuitable habitat for the CBB since at least 1956, as observed on historic aerial photos of the area, as these lands have been used for agricultural and/or commercial uses during this time.

The City has no plans to impact lands outside the Project APE and would, therefore, not be impacting CBB habitat or individual CBB that CDFW believes may be present on nearby lands.

As a result, the City concludes that the Project would have no impact on CBB habitat or individuals.

Comment C/3

Bio-3b states: "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed." Meanwhile Bio-6 states: "On discovery of any active nests or listed species near work areas, the biologist shall determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question." Both of these measures are predicated on the discovery of a listed species on the worksite. Bio-3b indicates that all work will be stopped while Bio-6 appears to indicate that work will continue with construction setback distances. These measures are in conflict with one another and CDFW recommends resolution of the conflicting measures Bio-3b, Bio-6 and Bio-7 and clearly indicating in the FEIR what the process of construction activities will be upon potential listed species discovery.

CDFW also recommends that adequate protocol-level surveys are conducted for sensitive biological species so that adequate permits can be acquired prior to construction in order to mitigate the risk of potential take of listed species. As proposed, the Project has not had appropriate, protocol-level surveys conducted for species and is assuming risk to listed species that would result in unauthorized take, a significant impact that cannot be mitigated.

Response C/3

The City agrees with CDFW's comment on the inconsistencies in the language within MMs BIO-3b, BIO-6, and BIO-7 of the DEIR MMRP pertaining to procedures in the event a listed species is discovered during preconstruction or monitoring surveys, or by a worker during construction.

To rectify this, the language of MM BIO-3b will be modified. The current language of MM BIO-3b allows a qualified biologist to determine appropriate avoidance measures for listed species potentially found on or near the site during preconstruction surveys. This will be changed to include a requirement that the Project will contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on appropriate avoidance measures if a listed species is observed within or near the Project area during preconstruction surveys. This change would provide a consistent approach to procedures stated in all the measures of the MMRP concerning the potential observation of a listed species.

CDFW is also concerned with the inadequacy of protocol-level surveys for sensitive species so that appropriate permits can be issued, if needed, prior to construction. The only sensitive species with any potential to occur on or near the site that would also require a permit for potential Project impacts are the SWHA and tricolored blackbird, as these are State-listed species. Tricolored blackbird breeding habitat is absent from the Project site, as determined through numerous LOA surveys of the site. However, MM BIO-5 has conservatively included the tricolored blackbird in the list of species to be included in preconstruction surveys. MM BIO-5a will be modified to expressly As previously stated in the SWHA response above, protocol SWHA surveys have been recently completed for the Visalia Basin G Project. This survey incidentally covered the entire Eastside Regional Park Project site and surrounding lands mostly out to 0.5 miles surrounding the site.

Not only were SWHAs not observed, but other sensitive species including the tricolored blackbird were also not observed.

Past survey results, as well as the preconstruction surveys and other measures proposed in the MMRP, as amended per LOAs recommendations, would adequately protect the Project from the risk of Take of a listed species.

4. FEIR Revisions to the DEIR

The following revisions to the Draft EIR are made as a result of public comments and/or responses to those comments.

Section 3.4.4 a) on Page 3-59 is revised as shown below:

- **BIO-5 (Pre-construction Survey)**
    - A qualified biologist shall conduct pre-construction surveys specific to the following species: Swainson's hawk, white-tailed kite, tricolored blackbird, northern harrier, burrowing owl, loggerhead shrike, palled bat, western mastiff bat, and American badger.
        - **BIO -5a Nesting Birds:**
            - If activities must occur within nesting bird season (February 1 to August 31), the survey shall include the proposed work area and surrounding lands within 0.5 miles for Swainson's hawk and within 500 feet for all other nesting birds.
            - If no active nests are observed, no further mitigation is required.
            - Raptor nests are considered "active" upon the nest-building stage.
            - All other nests are considered "active" by the presence of eggs or young.

Table 6-1: Mitigation and Monitoring Reporting Program on Page 6-5 is revised as shown below:

BIO – 5a: Nesting Birds
• If activities must occur within nesting bird season (February 1 to August 31), the survey shall include the proposed work area and surrounding lands within 0.5 miles for Swainson's hawk and within 500 feet for all other nesting birds. • If no active nests are observed, no further mitigation is required. • Raptor nests are considered "active" upon the nest-building stage. • All other nests are considered "active" by the presence of eggs or young.

Section 3.4.4 a) on Page 3-58 is revised as shown below:

- **BIO-3b:**
    - Workers shall inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area.
    - "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on ~~how to proceed~~ appropriate avoidance

measures if a listed species is observed within or near the Project area during preconstruction surveys.

Table 6-1: Mitigation and Monitoring Reporting Program on Page 6-3 through 6-4 is revised as shown below:

BIO – 3b: Best Management Practices (BMPs)
• Workers shall inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. • "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on ~~how to proceed~~ appropriate avoidance measures if a listed species is observed within or near the Project area during preconstruction surveys.

Section 3.16.5 on Page 3-167 is revised as shown below:

- **TR-16 - Lovers Lane and Mineral King Avenue**
    - In the northbound left-turn lane, lengthen the storage pocket from 100 feet to ~~325 feet~~ the maximum feasible distance (approximately 250 feet).
    - In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
    - In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

Table 6-1: Mitigation and Monitoring Reporting Program on Page 6-17 is revised as shown below:

TR-16 - Lovers Lane and Mineral King Avenue
• In the northbound left-turn lane, lengthen the storage pocket from 100 feet to ~~325 feet~~ the maximum allowable distance (approximately 250 feet). • In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet. • In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

Attachment A found in Chapter 6 of this Final EIR is added to the Draft EIR as Appendix S.

Attachment B found in Chapter 6 of this Final EIR is appended to Appendix M of the Draft EIR.

5. Draft EIR

City of Visalia

East Side Regional Park & Groundwater Recharge Project

Draft Environmental Impact Report
State Clearinghouse No. 2014121076

Visalia, California
February 2023

Prepared for:

City of Visalia
315 E. Acequia Avenue
Visalia, CA 93291

Prepared by:
Provost & Pritchard Consulting Group
400 E. Main Street, Suite 300
Visalia, CA 93291

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Report Prepared for:

City of Visalia
315 E. Acequia Ave
Visalia, CA 93291

Contact:
Rebecca Keenan, P.E.
Senior Civil Engineer
Public Works Department
(559) 713-4541

Report Prepared by:

Provost & Pritchard Consulting Group
400 E. Main Street, Suite 300
Visalia, CA 93291

Contact:

Rick Darnley, Project Manager
(559) 636-1166

Project Team Members

Dawn E. Marple, Principal Planner
Mary E. Beatie, Senior Planner Emeritus
Jeffrey O'Neal, AICP, Senior Planner, QA/QC
Jarred Olsen, AICP, Associate Planner
Amy Wilson, Associate Planner
Ryan McKelvey, Assistant Planner
Kaitlin Palys, Associate Water Resources Specialist
Matt Klinchuch, PE, Project Engineer
Randy Hopkins, PE, Recharge Basin Engineer
Richard Moss, PE, Water Rights Specialist
Jason Thomas, GIS Specialist
Jackie Lancaster, Project Administrator

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Acronyms and Abbreviations

AB	Assembly Bill
AE	Applied Earthworks, Inc.
AFV	Alternative Fuel Vehicles
AHERA	Asbestos Hazard Emergency Response Act
AMSL	Above Mean Sea Level
APCD	Air Pollution Control District
APE	Area of Potential Effect
APS	Alternative Planning Strategy
AQAP	Air Quality Attainment Plan
AQMD	Air Quality Management District
AQP	Air Quality Plan
ASCE	American Society of Civil Engineers
AST	Aboveground Storage Tanks
BA	Biological Assessment
BAU	Business As Usual
BE	Biological Evaluation
BGS	Below Ground Surface
BMP	Best Management Practices
BPS	Best Performance Standards
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAL FIRE	California Department of Forestry and Fire Prevention
CalGreen	California Green Building Code
Cal/OSHA	California Occupational Safety and Health Administration
CalEEMod	California Emissions Estimator Model
CAFE	Corporate Average Fuel Economy
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CARB	California Air Resources Board
CBC	California Building Code
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFR	Code of Federal Regulations

CGP ..... Construction General Permit
CGS ..... California Geological Survey
CHRIS ..... California Historical Resources Information System
CIE ..... International Commission on Illumination
City ..... City of Visalia
CLOMR ..... Conditional Letter of Map Revision
CNDDB ..... California Natural Diversity Database
CNPS ..... California Native Plant Society
CO ..... Carbon Monoxide
COS ..... College of the Sequoias
County ..... Tulare County
CPUC ..... California Public Utilities Commission
CRHR ..... California Register of Historical Resources
CVP ..... Central Valley Project
CWA ..... Clean Water Act
dB ..... decibels
DEIR ..... Draft Environmental Impact Report
DOC ..... California Department of Conservation
DOT ..... (United States) Department of Transportation
DTSC ..... California Department of Toxic Substances Control
DWR ..... California Department of Water Resources
EA ..... Environmental Assessment
EB ..... eastbound
EIR ..... Environmental Impact Report
EPA ..... Environmental Protection Agency
EPAct ..... The Energy Policy Act of 1992
EPCA ..... Energy Policy and Conservation Act
ESA ..... Endangered Species Act
ESA ..... Environmental Site Assessment
FEIR ..... Final Environmental Impact Report
FEMA ..... Federal Emergency Management Agency
FHWA ..... Federal Highway Administration
FIRM ..... Flood Insurance Rate Map
FMMP ..... Farmland Mapping and Monitoring Program
FPPA ..... Farmland Protection Policy Act

FT ..... Feet
Gal ..... Gallons
GC ..... Government Code
GHG ..... Greenhouse Gas
GIS ..... Geographic Information System
GP ..... General Plan
HAP ..... Hazardous Air Pollutants
HDM ..... Highway Design Manual
HSC ..... Health and Safety Code
Hz ..... hertz
IDDE ..... Illicit Discharge Detection And Elimination
In/sec ..... inches per second
IPaC ..... (United States Fish and Wildlife Service) Information for Planning and Consultation system
IS ..... Initial Study
IS/MND ..... Initial Study/Mitigated Negative Declaration
ISR ..... Indirect Source Review
ITE ..... Institute of Transportation Engineers
KDWCD ..... Kaweah Delta Water Conservation District
km ..... kilometers
KSJRA ..... Kaweah and St. John's Rivers Association
LAFCo ..... Local Agency Formation Commission
Ldn ..... Day/Night Average Sound Level
LF ..... linear feet
LOS ..... Level of Service
MBTA ..... Migratory Bird Treaty Act
MEIR ..... Master Environmental Impact Report
mgd ..... million gallons per day
MJLHMP ..... Multi-Jurisdiction Local Hazard Mitigation Plan
MMRP ..... Mitigation Monitoring and Reporting Program
MMT ..... Million Metric Tons
MND ..... Mitigated Negative Declaration
MPF ..... Multi-Purpose Facility
MPO ..... Metropolitan Planning Organization
MOU ..... memorandum of understanding
MRZ ..... Mineral Resource Zone

MS4 ..... (Small) Municipal Separate Storm Systems
$MTCO_2e$ ..... Metric tons of carbon dioxide equivalent
NAAQS ..... National Ambient Air Quality Standards
NAGPRA ..... Native American Graves Protection and Repatriation Act
NAHC ..... Native American Heritage Commission
ND ..... Negative Declaration
NEPA ..... National Environmental Policy Act
NFIP ..... National Flood Insurance Program
NFPA ..... National Fire Protection Association
NHPA ..... National Historic Preservation Act
NOA ..... Notice of Availability
NOI ..... Notice of Intent
NOC ..... Notice of Completion
NOP ..... Notice of Preparation
NOS ..... Notice of Scoping
NO_2 ..... nitrogen dioxide
NO_x ..... nitrogen oxides
NPDES ..... National Pollutant Discharge Elimination System
NRCS ..... Natural Resources Conservation Service
NRHP ..... National Register of Historic Places
NTU ..... Nephelometric Turbidity Unit
NWP ..... Nationwide General Permit
OHP ..... Office of Historic Preservation
O_3 ..... ozone
OPR ..... Office of Planning and Research
QP ..... Quasi-Public
Pb ..... lead
PBDB ..... Paleobiology Database
PM_{10} ..... Particulate Matter 10 Microns In Size
$PM_{2.5}$ ..... Particulate Matter 2.5 Microns In Size
ppb ..... parts per billion
ppm ..... parts per million
PPV ..... Peak Particle Velocity
PRC ..... Public Resources Code
PRD ..... Permit Registration Documents

Project ..... East Side Regional Park & Groundwater Recharge Project
RHNA ..... Regional Housing Needs Allocation
ROG ..... Reactive Organic Gases
RTP ..... Regional Transportation Plan
RWQCB ..... Regional Water Quality Control Board
SB ..... Senate Bill
SCAQMD ..... South Coast Air Quality Management District
SCE ..... Southern California Edison Company
SCH ..... State Clearinghouse
SCS ..... Sustainable Communities Strategy
SDC ..... Seismic Design Category
SGMA ..... Sustainasble Groundwater Management Act
SHPO ..... State Historic Preservation Officer
SIP ..... State Implementation Plan
SJVAB ..... San Joaquin Valley Air Basin
SJVAPCD ..... San Joaquin Valley Air Pollution Control District
SJVCEO ..... San Joaquin Valley Clean Energy Organization
SLAMS ..... State and Local Air Monitoring Stations
SMARA ..... Surface Mining and Reclamation Act
SOC ..... Statement of Overriding Considerations
SoCalGas ..... Southern California Gas Company
SO_2 ..... sulfur dioxide
SO_x ..... sulfur oxide
SPL ..... Sound Pressure Level
SR ..... State Route
SSJVIC ..... Southern San Joaquin Valley Information Center
SWANCC ..... Solid Waste Agency of Northern Cook County
SWMP ..... Storm Water Master Plan
SWPPP ..... Storm Water Pollution Prevention Plan
SWRCB ..... State Water Resources Control Board
TAC ..... Toxic Air Contaminants
TCAG ..... Tulare County Association of Governments
TCEHSD ..... Tulare County Environmental Health Services Division
TCR ..... Transportation Concept Reports
TID ..... Tulare Irrigation District

TIP ..... Transportation Improvement Program
TIS ..... Traffic Impact Study
UCMP ..... University of California Museum of Paleontology
USACE ..... United States Army Corps of Engineers
USBR ..... United States Bureau of Reclamation
USDA ..... United States Department of Agriculture
USFWS ..... United States Fish and Wildlife Service
UST ..... Underground Storage Tanks
UWMP ..... Urban Water Management Plan
VdB ..... vibration velocity
VECC ..... Visalia Emergency Communication Center
VFD ..... Visalia Fire Department
VMT ..... Vehicle Miles Traveled
VPD ..... Visalia Police Department
VRPA ..... VRPA Technologies, Inc.
VUSD ..... Visalia Unified School District
µg/m^3 ..... micrograms per cubic meter
USPS ..... United States Postal Service
WB ..... westbound
WCP ..... Water Conservation Plant
WDR ..... Waste Discharge Requirements
WEAP ..... Worker Environmental Awareness Program
WOTUS ..... Waters of the United States

Executive Summary

ES.1 Introduction

The City of Visalia (City) has prepared this Draft Environmental Impact Report (DEIR) for the proposed East Side Regional Park & Groundwater Recharge Project (Project) in compliance with the California Environmental Quality Act (CEQA).

ES.2 Objectives for the Project

- Establish a groundwater recharge facility that will optimally capture east-to-west flowing surface water from waterways up-gradient of the City for longer-term storage and replenishment of declining groundwater reserves, thereby preserving a more sustainable supply of groundwater for long-term potable water use by the City;
- Facilitate a water exchange between the City and Tulare Irrigation District (TID), by exchanging imported Central Valley Project (CVP) surface water supplies into the Kaweah River up-gradient of the City for tertiary-treated recycled water from the City's recently upgraded Water Conservation Plant located down-gradient of the City;
- Utilize the groundwater recharge facility for storm-water layoff capacity on an as-needed basis to capture east-to-west flowing stormwater from Mill Creek up-gradient of the City to reduce potential flooding along Mill Creek as it passes through the City;
- Complete a fourth city-wide, regional scale recreational facility, this one located in the eastern quadrant of the City, consistent with the 2030 General Plan and meeting the goal for park space within a ¼ mile walking radius of adjacent residential neighborhoods for that quadrant.
- Restore Mill Creek to a more historical alignment and riparian character.

ES.3 Project and Alternatives Summary

The Project consists of the construction and operation of an approximately 248-acre regional park with groundwater recharge facilities in the northeastern area of the City. The total Project area including planned street improvements spans approximately 286 acres. The Project will include Tower Street as a new arterial roadway, improvements to Houston Avenue and Road 152, an amendment to the City General Plan to change the planned land use of the Project Site with concurrent rezoning, and the annexation of a portion of the land from the County of Tulare (County).

Alternatives Considered but Rejected include many of the same components of the Project. The Tower Street extension, Houston Avenue and Road 152 improvements, and General Plan, zoning changes, and annexation are all contained in the rejected alternatives. The two alternatives differ from the preferred alternative primarily regarding configuration of the regional park facilities and the presence or absence of sports lighting.

This DEIR also considers the No Project Alternative, under which the land would retain its current land use and zoning, no portion will be annexed from the County, Tower Street will not be built, Houston Avenue and Road 152 improvements will not occur, and the regional park and groundwater recharge basins will not be constructed.

ES.4 Public Involvement Process

The development of the DEIR is designed to involve the public in the decision-making process. The CEQA process requires open discussion to determine the scope of a proposed Project and environmental topics of potential concern. The following sections identify the public processes that have been undertaken for the Project.

ES.4.1 Notice of Preparation of the Draft EIR

The City provided a Notice of Preparation (NOP) comment period for a duration of 30 days beginning on December 23, 2014 and ending on January 22, 2015 (**Appendix A**). This NOP was combined with a Notice of Scoping (NOS). The NOP/NOS had multiple purposes: to inform public agencies and the general public of the East Side Regional Park & Groundwater Recharge Project scoping process; to solicit comments to assist the City in determining environmental impacts relating to the proposed Alternatives; and to identify potential feasible and reasonable mitigation for such impacts that should be considered in this EIR. The NOP/NOS was sent via United States Postal Service (USPS) mail to a number of local, State, and federal agencies; to interest groups; and to owners and residents of property within 300 feet of the Project. The NOP/NOS was filed with the State Clearinghouse (SCH) on December 23, 2014 and was assigned SCH Number 2014121076. The NOP/NOS was also published in the Visalia Times-Delta on December 23, 2014.

ES.4.2 Notice of Completion of the Draft EIR and Public Review Period

Following completion of the DEIR, a Notice of Completion (NOC) for the DEIR was filed with the SCH and the Tulare County Clerk's Office and was mailed to interested public agencies and individuals on January 19, 2023 to initiate a 45-day DEIR public and State review period. The review period runs from January 19, 2023 through March 6, 2023. Comments should be submitted to the City prior to the end of the comment period and should be in writing if possible. Comments should be directed to:

City of Visalia
Attn: Rebecca Keenan
315 E. Acequia Avenue
Visalia, CA 93291
Email: Rebecca.Keenan@visalia.city

Additional copies of this DEIR are available for review for the following locations:

City of Visalia website at
http://www.visalia.city/depts/community_development/planning/ceqa_environmental_review.asp

Visalia Branch Library
200 W. Oak Avenue
Visalia, CA 93291
(559) 713-2700

ES.5 Summary of Impacts

This DEIR has identified potentially significant adverse environmental impacts requiring mitigation measures in the areas of Biological Resources, Cultural Resources, Noise and Vibration, and Traffic and Transportation. For all other environmental topics, either no impacts were identified, or impacts were determined to be less than significant. **Table ES-1** below provides a summary of the Project's potential environmental effects, each impact's level of potential significance, potentially significant adverse impacts, and mitigation measures to avoid or reduce the impact to a less than significant level or to the greatest degree feasible. After mitigation measures

are identified, the DEIR indicates the level of impact that would remain following incorporation of mitigation. The identified levels of significance assume implementation of all permit and approval requirements of federal, State, and local law and regulations applicable to the Project, standard conditions of approval, and construction best management practices.

Table ES 1. Summary of Environmental Impacts

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Aesthetics			
Impact I-a. The removal of the pecan and walnut orchards would open additional viewsheds from the west, allowing for increased views of the Sierra Nevada mountains. Although the Project would constitute a substantial change of the existing scenic vista, it would not do so in a detrimental way.	Less than Significant Impact	None	Less than Significant Impact
Impact I-b. State Route (SR) 198, which abuts the Project site to the south, is eligible to be listed as a State Scenic Highway but is not officially designated. The proposed Project design emphasizes the importance of providing attractive facilities, such as the re-channelization of Mill Creek to a meandering stream and the integration of recharge basins as attractive park features.	No Impact	None	No Impact
Impact I-c. The aesthetics of the park design will not only improve the visual character, but will also give the public access to enjoy features that are not currently visible or accessible. Therefore, the Project would serve to enhance the aesthetic character of the site rather than degrade it.	Less than Significant Impact	None	Less than Significant Impact
Impact I-d. Skyglow is artificial lighting from urbanized uses that alters the rural landscape and, in sufficient quantity, lights up the nighttime sky, thus reducing the darkness of the night sky and the visibility of the stars. Development of the Project would include the addition of new lighting for security purposes as well as to illuminate the facility for nighttime uses or activities over several hundred acres. To minimize lighting effects, the Project would comply with Section 17.30.015.H of the Visalia Zoning Ordinance which prohibits on-site lighting from directly or indirectly illuminating adjacent properties or public rights-of-way. The City's existing code requirements and policies would minimize impacts for potential Project lighting and glare impacts.	Less than Significant Impact	None	Less than Significant
Agricultural and Forestry Resources			
Impact II-a. The City foresaw the necessary conversion of farmland when adopting the 2030 General Plan Update. The EIR prepared in conjunction with the General Plan Update concluded that there would be significant and unavoidable impacts concerning the conversion of farmland. In certifying the EIR, the City Council adopted Resolution No. 2014-37, which contained a Statement of Overriding Considerations declaring that	Potentially Significant Impact	None feasible	Significant and Unavoidable

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
the significant loss of agriculture was outweighed by the benefits that would result from its conversion, and that there were no feasible mitigation measures that could reduce the impact to a less than significant level. The General Plan designates narrow strips (i.e., buffers) that parallel and abut Mill Creek and Packwood Creek as Conservation; however, the overall Project site is designated as Parks/Recreation. Development of the site for recreational and other uses was addressed by the General Plan and the associated EIR and determined to be significant and unavoidable and a SOC was adopted, no further analysis is required (Guidelines Section 15152(d)(1)).			
Impact II-b. The Project proposes to amend the City's General Plan to reflect the entirety of the Project site as Parks/Recreation, with a corresponding change of zoning to Quasi-Public (QP).	No Impact	None	No Impact
Impact II-c. The Project would not conflict with zoning for, or cause rezoning of, forest land or timberland. No designated forest land or timberland is present at the Project Site.	No Impact	None	No Impact
Impact II-d. The Project will not result in the loss of forest land or conversion of forest land to non-forest use, given that no designated forest land or timberland is present at the site.	No Impact	None	No Impact
Impact II-e. The Project does not involve any other components beyond those previously discussed under Impact II-a which would result in the conversion of farmland to non-agricultural use.	Less than Significant Impact	None	Less than Significant Impact
Air Quality			
Impact III-a. The Project would be consistent with the currently adopted General Plan for the City and is therefore consistent with the population growth and vehicle miles traveled (VMT) applied in the plan. Therefore, the Project would be consistent with the growth assumptions used in the applicable Air Quality Plans (AQPs). As a result, the Project will not conflict with or obstruct implementation of any AQPs.	No Impact	None	No Impact
Impact III-b. The analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project will be constructed independently of each other and would not overlap. The annual emissions from the construction phase of Phase 1, 2, and 3 of the Project would be less than the applicable San Joaquin Valley Air Pollution Control District (SJVAPCD) emission thresholds for criteria pollutants as shown in Table 3-10. The construction emissions are therefore considered less than significant with the	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
compliance to the SJVAPCD applicable Regulation VIII control measures, which are provided below. If Phase 1, 2, or 3 of the Project is constructed simultaneously with another phase, the SJVAPCD threshold for Nitrogen Oxides (NOx) emissions would be exceeded. Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the Project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent Projects most substantial air quality impact. Table 3-11 delineates operational emissions by phase. Appendix A contains Tables 12, 13, 14, 15, and 16 summarizing the Projects operational impacts by pollutant. Results show that Project operational emissions would not exceed applicable emission thresholds.			
Impact III-c. The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard.	Less than Significant Impact	None	Less than Significant Impact
Impact III-d. An evaluation of nearby land uses completed by VRPA Technologies, Inc.(VRPA) showed that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Appendix A-Table 4, the Project would not expose sensitive receptors to substantial pollutant concentrations.	No Impact	None	No Impact
Impact III-e. The Project would not generate odorous emissions but would attract people to its site for recreational activities. It should be noted that the Double D Dairy, LLC is located approximately 0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance. Given the size of the dairy, it is not anticipated that people attracted to the Project would be impacted by odors from Double D Dairy, LLC.	Less than Significant Impact	None	Less than Significant Impact
Biological Resources			
Impact IV-a. The California Natural Diversity Data Base (CDFW 2016d) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and immediately surrounding the Project Site (*Exeter, Visalia, Monson, Ivanhoe, Woodlake, Rocky Hill, Lindsay, Cairns Corner,* and *Tulare*). An official species list was obtained using the USFWS Information for Planning and Conservation (IPaC) system for federally listed species with the potential to be affected by the Project (USFWS 2016).	Potentially Significant Impact	Bio 1-a, 1-b, 1-c, Bio 2-a, 2-b, 2-c, Bio 3-a, 3-b, Bio 4-a, 4-b, 4-c, Bio 5-a, 5-b, 5-c, 5-d	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Special status species occur within 3.1 miles (5 kilometers) of the Project site and may be impacted.			
Impact IV-b. Natural communities of special concern are limited to sporadic riparian habitat associated within Packwood Creek and Mill Creek. The value of this riparian habitat as a natural community of special concern has been diminished due to the fragmented nature of the woodland and close proximity of urban and suburban developments. Orchard, vineyard, ruderal, irrigation ditches, and agricultural basins are regionally abundant and/or a result of human manipulation and would not be considered natural communities of special concern. Because riparian habitats on site are extremely marginal and fragmented and other habitats are not considered sensitive (with the exception of jurisdictional waters), future Project construction would have a less than significant impact on these habitats.	Less than Significant Impact	None	Less than Significant Impact
Impact IV-c. The Project would result in potentially significant impacts to potential jurisdictional waters. The anticipated level and duration of impact would vary depending on the phasing and ultimate buildout of the project. Very minor direct, permanent impacts are anticipated with the initial phase of the project, which would entail tying into Mill Creek Ditch and Packwood Creek for the installation of the stormwater basins. During this initial phase, it is anticipated that a few hundred square feet of potential jurisdictional waters would be affected from installation of control structures to divert water from Mill and Packwood Creeks into the basins under gravity flow at specific locations. Any fill, placement of control structures, placement of rip-rap or other permanent erosion control measures within jurisdictional waters would be considered direct, permanent impact. Additionally, sedimentation and transport of polluted runoff into seasonal drainages has the potential to occur as a result of Project activities.	Potentially Significant Impact	Bio 6, Bio-7-a, 7-b, 7-c, 7-d, Bio-8, Bio 9	Less than Significant Impact
Impact IV-d. The site does not contain important movement corridors for native wildlife. Furthermore, the site would function in much the same manner as it does now, after the Project is complete. Birds using the Pacific flyway will continue to do so following Project development.	Less than Significant Impact	None	Less than Significant Impact
Impact IV-e. With the exception of potential removal of valley oaks on site, the Project appears to be in compliance with all other provisions of the County of Tulare General Plan polices. No known Habitat Conservation Plans are in effect for the area.	Potentially Significant Impact	Bio-10	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Impact IV-f. Special status animal species would use the site for foraging only due to the marginal and fragmented habitats. Because riparian habitat on site is extremely marginal and fragmented and other habitats are not considered sensitive (with the exception of jurisdictional waters) there would be a less than significant impact.	Less than Significant Impact	None	Less than Significant Impact
Cultural Resources			
Impact V-a. The Cultural Resources Inventory conducted by Applied Earthworks (AE) identified five potential historical resources within the proposed Project study area. Two of these resources are historic bridges which have been designated as ineligible for the National Register of Historic Places (NRHP); these bridges have not been evaluated for the California Register of Historical Resources (CRHR), but the report found in **Appendix G** concluded that neither bridge appears to exhibit any characteristics that would make it significant at a local or state or federal level.	Potentially Significant Impact	CR-1	Less than Significant Impact
Impact V-b. Refer to Impact V-a.	Potentially Significant Impact	CR-1	Less than Significant Impact
Impact V-c. The Paleontological Technical Memorandum provided by AE determined that the Project area has a Low to High Potential for paleontological resources dependent on depth of ground disturbance. The Cultural Resources Inventory conducted by AE did not identify any unique geologic features within the Project area. Project construction would not be expected to disturb any previously undisturbed or unknown paleontological resources or any unique geologic features.	Potentially Significant Impact	CR-2, CR-3	Less than Significant Impact
Impact V-d. Although there is no indication that the Project would result in the disturbance of any human remains, in the event that human remains are encountered the following mitigation measure shall be implemented.	Potentially Significant Impact	CR-4	Less than Significant Impact
Geology and Soils			
Impact VI-a-i. There are no known active earthquake faults in the Visalia area; therefore, the Project Site does not fall within or adjacent to a Fault-Rupture Hazard Zone.	Less than Significant Impact	None	Less than Significant Impact
Impact VI-a-ii. All proposed structures must be designed to comply with the California Building Code (CBC). The intent of the CBC is to provide minimum standards to safeguard against major failures and loss of life by providing for structures that will: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage; and 3) resist major earthquakes without collapse. The CBC bases	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
seismic design on minimum lateral seismic forces ("ground shaking"), and operates on the principal that providing appropriate foundations, among other aspects, helps to protect buildings from failure during earthquakes. Compliance with CBC would reduce impacts to less than significant.			
Impact VI-a-iii. Geotechnical investigations conducted at the Project Site by Technicon Engineering Services, Inc. in 2014 and 2015 indicated that groundwater at the Project site was at a depth greater than 70 feet below ground surface (bgs) and that generally subsurface soils had a density greater than what is typical for significant liquefaction potential. The potential for liquefaction at the Project site is considered to be low due to the absence of near-surface groundwater and the generally dense cohesive nature of the subsurface materials.	Less than Significant Impact	None	Less than Significant
Impact VI-a-iv. The Project site is not in an area susceptible to slope failure or landslides.	No Impact	None	None
Impact VI-b. Surface soils at the Project site have been mapped as having K factors of 0.15 to 0.24, which are considered low to moderate for soil erosion susceptibility. This combined with the generally flat terrain of the Project setting indicates that potential for substantial soil erosion or loss of topsoil is less than significant. Additionally, soil conservation would be addressed by the City's site review process and grading plan approvals.	Less than Significant Impact	None	Less than Significant Impact
Impact VI-c. As the Project is located on the Valley floor, no geologic landforms exist on or near the site that would result in a landslide event. Excavation, grading, and fill operations associated with construction could alter existing slope profiles making them unstable as a result of over-excavation of slope material, steepening of the slope, or increased loading. However, destabilization of natural or constructed slopes is unlikely to occur as surface topography at the project site is relatively flat. The Project is required to implement erosion prevention measures as part of its Stormwater Pollution Prevention Plan (SWPPP). Additionally, standard engineering design features and construction procedures would be implemented to maintain stable slopes and excavations during construction.	Less than Significant Impact	None	Less than Significant Impact
Impact VI-d. Surface soils at the Project are identified as Nord fine sandy loam and Grangeville sandy loam. Both the Grangeville sandy loam and Nord fine sandy loam soil types are characterized as having low shrink-swell potential. Additionally, based	No Impact	None	No Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
on information presented in the City 2030 General Plan Update EIR, there are no expansive soils located at the Project site.			
Impact VI-e. Soil permeability is a consideration for projects that require septic system installation. The Project would tie into the City sewer and Cal Water services. The City has determined that capacity exists to serve the Project. As planned, the Project would not involve the installation of a septic tank or an alternative wastewater disposal system.	No Impact	None	No Impact
Greenhouse Gas Emissions			
Impact VII-a. Results of the analysis show that Greenhouse Gas (GHG) emissions in the year 2020 are 2,187.47 $MTCO_2eq$./year, which is below a threshold of 7,000 $MTCO_2eq$./year for GHG emissions.	Less than Significant Impact	None	Less than Significant Impact
Impact VII-b. The Project incorporates various best performance standards (BPS) including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The types of facilities incorporated into the Project coincide with the pedestrian infrastructure-based mitigation measures included in the SJVAPCDs Mitigation Measures document. Those measures include providing pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths and direct pedestrian connections. The Project incorporates the following identified existing and proposed community measures assisting the City achieve its 2020 15% and 2030 30% reduction goals. Expansion of bicycle paths, lanes, and trails: Based on the assessment above, the Project will further the achievement of the City's GHG reduction goals and will not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emissions of GHG.	Less than Significant Impact	None	Less than Significant Impact
Hazards and Hazardous Materials			
Impact VIII-a and b. Construction of the Project components will necessitate the transport and use of small amounts of hazardous materials, such as gasoline, diesel, and oil. These materials would be used in excavation equipment, generators, and other typical construction equipment and would be contained in vessels designed for safe storage. Although appropriate handling and disposal practices would result in low potential for accidental release of hazardous materials during the construction phases,	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
there is the potential for small leaks or spills. Standard construction and operational SWPPP Best Management Practices (BMPs), including the installation of regulated spill containment at each tank, will minimize the potential for the release of construction-related fuels and other hazardous materials. These BMPs will also help control storm water contamination from spills or leaks, control the amount of runoff from the site, and require proper disposal or recycling of hazardous materials.			
Impact VIII c. The Project is located approximately 0.5 mile southeast of Golden West High School. There are no schools either existing or proposed within a one-quarter mile radius.	No Impact	None	No Impact
Impact VIII d. The Project is not located on any designated hazardous materials site; therefore, no significant hazards would be created.	No Impact	None	No Impact
Impact VIII e. The Project is not located within the safety zones or airport influence areas of any public or public use airport, no safety hazards are present.	No Impact	None	No Impact
Impact VIII f. The Project is not located within the vicinity of a private airstrip; therefore, no safety hazards would be posed.	No Impact	None	No Impact
Impact VIII g. The Project does not currently contain any public accessed routes that would be needed for an emergency response or emergency evacuation. Completion of the Project would actually increase emergency accessibility via construction of Tower Street as a new arterial roadway, which would include new local street connections to the existing stub-streets in the residential subdivisions to the west of Project. The Project would also provide three points of ingress/egress from the site.	Less than Significant Impact	None	Less than Significant Impact
Impact VIII h. The Project is located in an area designated as “Unzoned” by Cal Fire; therefore, the area is not subject to significant risk involving wildland fire. Further, the Project does not involve residential housing.	No Impact	None	No Impact
Hydrology and Water Quality			
Impact IX-a. Implementation of the Project could result in violations of water quality standards or waste discharge requirements as a result of proposed changes in existing drainage patterns, both in the short-term due to erosion and sedimentation during construction activities and in the long term based upon necessary recontouring of the site to establish recharge basins, external and internal roadways and parking areas and other sports fields and activity areas. Construction activities undertaken to implement subsequent development projects associated with build-out of the Project	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
would include excavation, soil stockpiling, boring, and/or grading activities that strip existing vegetation. Soil erosion is probable during construction which may result in water quality impairments if it is not sufficiently retained from reaching receiving waters. Water quality impairments may include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Sediment from Project-induced erosion could also ultimately accumulate in downstream drainage facilities and interfere with stream flow, thereby aggravating downstream flooding conditions. Since the Project would exceed the 1-acre disturbed area threshold, Regional Water Quality Control Board (RWQCB) will require a SWPPP. The SWPPP would include the best management erosion control measures. In addition, the Project includes facilities and features designed to capture and retain all run-off that will be generated by site development on-site for infiltration or controlled release to the City's storm drain collection system.			
Impact IX-b. When available, agreements between the City and TID will allow for the Project to take an average of approximately 5,500 AF per year. Based on the geotechnical investigation prepared by Technicon, infiltration rates based on a double ring infiltration test show a range between 5 and 129 gallons (gal)/square-feet (sf)/day which is the equivalent of 0.3 cubic-feet per second (cfs)/acre to 8.7 cfs/acre. With the 129 gal/sf/day outlier removed, the average is more in the range of 21 gal/sf/day, or approximately 1.4 cfs/acre. This rate will vary depending on location and is expected to slow down with time after the basins have had time to fill. Given that the Project will contribute to improve groundwater supplies and lead to a net increase in aquifer volume, there will be no negative effects.	Less than Significant Impact	None	Less than Significant Impact
Impact IX-c. Mill Creek is planned to be re-aligned to accommodate park amenities while maintaining the creeks current capacity. The channel boundaries, bed surface, irregularities, obstructions, vegetation and channel meandering are to be considered in hydraulic computations to allow the creek to convey the current capacity without restriction. The restoration of Mill Creek to more closely resemble the riparian corridor that existed in the 1937 photo, shown in Figure 2-4 , could potentially lead to its utilization as habitat by a number of bird and amphibian species. This would constitute a beneficial change to the environmental baseline.	Less than Significant Impact	None	Less than Significant

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
As part of the Project, an evaluation of the floodway status of all the channels must be made. If the channels are not designated floodways on the local Flood Insurance Rate Maps (FIRMs), no Federal Emergency Management Act (FEMA) applications would be required. If, however, any of them are designated as floodways by FEMA (not as 100-year Special Flood Hazard Areas) then work with FEMA to authorize changes in the floodway would be required. This would take the form of a flood study demonstrating that the proposed changes will not result in an increase in flood surface elevations alongside of, upstream of or downstream of the Project. The City would then apply for a Conditional Letter of Map Revision (CLOMR) from FEMA. Once that is approved, the work can be done. At that point, as-built plans would be submitted to FEMA demonstrating that the work conforms to the approved CLOMR and a Letter of Map Revision would be issued. A Lake or Streambed Alteration Agreement would likely be required with the California Department of Fish and Wildlife due to the work within and adjacent to Packwood Creek and Mill Creek. Because there will be work performed within waters of the United States (Packwood Creek and Mill Creek) a Clean Water Act Section 404 Nationwide Permit and 401 Certification would likely be required with the United States Army Corps of Engineers and RWQCB, respectively. The Mill Creek channel restoration design aims at reconstructing the creek channel to a stable geometric configuration that is self-sustaining and in balance with imposed flow and sediment regimes and the character of the catchment landscape. This design would minimization future erosion or siltation. Any impacts would be less than significant.			
Impact IX-d. As part of the Project, Mill Creek would be realigned, returning it to a more natural meandering channel alignment and riparian character that more closely resembles how it existed in 1937. The restored Mill Creek would potentially be utilized as habitat by a number of bird and amphibian species, and would be a benefit to the environment. This realignment would not change the creeks flow, or capacity. The site storm water runoff would be accommodated by strategically located drainage facilities that would direct storm water runoff from the Project into the basins. The storm water	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
runoff basins are located along the west side adjacent to Tower Street and along the east side adjacent to Road 152. Each basin would include a low flow channel that allows for small volumes of water to be conveyed through the basins without filling up the entire basin and also allows more flexibility in gravity flowing water from the ditches or creeks. In an effort to minimize depth and maintain bi-directional flow, the channels are only one to two feet in depth and approximately 20 feet (ft) wide. Therefore, the Project would alter the course of a stream, it would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off of the Project site.			
Impact IX-e and f. Analysis of future Tower Street has been limited to south of the future Mineral King/Tower Street intersection, approximately 1300 feet north of the centerline intersection of SR 198 and Tower Street. At Race Avenue, preliminary plans show water from the west half of Tower Street would be routed into the subdivision to the west. In all other cases, Tower Street runoff is captured and routed to depressed basins at McKinley Avenue or to on-site underground and depressed storage facilities. On-site, the park site was divided into three areas to determine capacity needs. The park area south of Mill Creek is one separate drainage area and the area north of Mill Creek is divided into to two drainage areas generally split on a north south line through the softball complex that reaches the center northern most baseball complex then turns east to the west edge of Basins A-B-C. Due to the proposed top of bank elevations for the recharge basins and the low flow line elevations of drop inlets it is not practical to gravity flow storm water runoff into the basins. If the City prefers, a pump system can be designed to take water generated from the site and from Tower Street that would be deposited into one or more of the proposed recharge basins. Capacity of the Dog Park Basin and the McKinley Avenue Basins are based on the City's Storm Water Master Plan (SWMP) retention design with gentle side slopes (generally 6:1 (H:V)) and a foot of freeboard. The basins capacities can be increased by deepening the basins. Criteria for preliminary sizing the basins are based on the City's SWMP using Table 3-6, Rational Method Runoff Coefficients and Design Criteria for Storm-water Basins. A Storage Volume value of 0.191 for Residential – High Density Land Use was selected based on the combination of open space and	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
developed space including roads and parking lots shown on the master plan park layout. Capacity of the underground basins are calculated from Storm-Tech MC-3500 Chambers and based on a 9-inch stone foundation depth. Each of the proposed parking lots would contain a system of chambers to allow for efficient routing of storm lines. If needed, it is possible to locate the chambers under designed play areas if the parking lots do not develop as proposed on the Park Master Plan.			
Impact IX-g and h. The Project area is covered by both FEMA Flood Zone AE and X (Panel 06107C0954). For Zone AE, elevations have been established that would need to be respected when designing buildings, support structures, and critical equipment. In general, for the proposed site the AE elevations range from a low of 352 ft on the west side to a high of 355 ft on the east side. Additionally, the park master plan areas that are not scheduled for recreation facilities/uses are primarily located along Tower Street and are scheduled to be raised mounds. No housing is proposed as part of this Project and no structures would impede or redirect flood flows.	Less than Significant Impact	None	Less than Significant Impact
Impact IX-i. In the context of the Project, the significant and unavoidable risk identified in the General Plan Update EIR can be considered a baseline condition. The risks of dam failure as a result of a seismic event are preexisting and will not be increased in any way due to Project implementation. Conversely, the basins would serve to minimally reduce risk of flooding due to dam failure, as they could capture a portion of the flood flows. Given this slight beneficial impact, and that flood risk due to dam failure is a baseline environmental condition, impacts would be less than significant.	Less than Significant Impact	None	Less than Significant Impact
Impact IX-j. The Project area is located sufficiently inland to be out of what would be considered a potential hazard area for seiches, tsunamis, and sea level rise. In addition, the location of the park area makes the potential for mudflows also remote.	No Impact	None	No Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Land Use and Planning			
Impact X-a. The Project is located on the far eastern edge of the City, at the outer boundary of existing development and therefore would not divide the community.	No Impact	None	No Impact
Impact X-b. Prior to pursuing development of the Project, the City will need to obtain approval from the Local Agency Formation Commission (LAFCo) of the approximately 129 acres lying north of Mill Creek to Houston Avenue. As part of the annexation, the City would apply to pre-zone the annexation area to the QP zone under the City's zoning ordinance to facilitate the Project. Approval by LAFCo of the annexation and pre-zoning will bring the property into the city limits and nullify the County's AE-20 (Exclusive Agricultural – 20-Acre Minimum) zoning. Upon approval of the annexation, the City would take an action to amend the official zone map consistent with the pre-zoning. The new QP zone will take effect 30-days after the City action. In addition to the annexation and pre-zoning, the City would need to perfect a General Plan Amendment for approximately 42 acres of the annexation area currently designated for Low, Medium, and High Density Residential located in the northern third of the Project site. The change in land use would affect less than 0.4 percent of land within the City's Sphere of Influence planned for Residential uses. These lands would be designated for Parks/Recreation consistent with the land use designation for the portion of the Project site already within the City limits and lying south of Mill Creek. The majority of the southern two-thirds of the Project Site is located within Tier I of the City's Urban Development Boundary, while the remainder (which is planned for residential use) is within Tier III, the Urban Growth Boundary. The General Plan contains criteria to determine whether land within Tier III can be developed, however it applies only to residential, commercial, and industrial development. Therefore, once these lands are annexed into the City and designated as QP zone, the tier distinctions would no longer apply for the development of the Project.	Less than Significant Impact	None	Less than Significant Impact
Impact X-c. There are no habitat conservation plans or natural community plans in the vicinity of the Project.	No Impact	None	No Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Mineral Resources			
Impact XI-a. The easternmost portion of the Project site, lies within an MRZ-3a zone, an area of moderate potential for mineral deposits of economic value. Although the MRZ-3a zone exists within the Project boundaries, the Project would not exploit the untapped potential of the known mineral resource present. The mineral resource would not be removed from the site, but development of the site with recharge basins and predominantly open recreational areas would not result in the loss of availability of a known mineral resource through compliance with local, State, and federal legislation and permitting. The Project would not devalue the mineral resource integrity of the site or result in the removal or alteration of the known mineral resources present.	Less than Significant Impact	None	Less than Significant Impact
Impact XI-b. See discussion under Impact XI-a. Considering that the Project would not remove or significantly alter the MRZ-3a geologic reserve, the Project would result in less than significant impacts to the availability of the known mineral resource for future recovery.	Less than Significant Impact	None	Less than Significant Impact
Noise			
Impact XII-a. Implementation of the Project has the potential to result in short-term construction noise impacts to surrounding land uses due to construction activities. Construction noise represents a short-term impact on ambient noise levels. During the construction phase of any future development projects, noise from construction activities would add to the ambient noise environment in the immediate area. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Phase 3 of the Project would impact sensitive receivers directly to the west of the Project and exceed the City's Stationary Noise Source criteria for the hourly equivalent sound level.	Potentially Significant Impact	NOI-1, NOI-2, NOI-3	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Impact XII-b. Ambient vibration levels in residential areas are typically 50 VdB, which is well below human perception. The operation of heating/air conditioning systems and slamming of doors produce typical indoor vibrations that are noticeable to humans but not considered adverse or significant. Construction activity can result in ground vibration, depending upon the types of equipment used and proximity to receptors. Operation of construction equipment causes ground vibrations, which spread through the ground and diminish in strength with distance from the source generating the vibration. Building structures that are founded on the soil in the vicinity of the construction site respond to these vibrations, with varied results. Ground vibrations as a result of typical construction activities very rarely reach vibration levels that would damage structures but can cause low rumbling sounds and detectable vibrations for buildings very close to the site. Construction activities that generally create the most severe vibrations are blasting and impact pile driving. Neither of these activities would be needed to construct the Project.	Potentially Significant Impact	NOI-4	Less than Significant Impact
Impact XII-c. VRPA Technology, Inc. Noise Study evaluated the impact of the Project to the modeled sensitive receivers evaluated in the study area. The results indicate that the changes in noise levels, as a result of the Project, are insignificant. There would be minimal changes in the traffic noise exposure levels at various setbacks of 60, 65, 70, 75, and 80 Leq(h) dBA for the major streets and roads within the study area. Stationary Noise impacts were evaluated for Phase 2 in Impact XII-a. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site would be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time.	Potentially Significant Impact	NOI-1, NOI-2, NOI-3	Less than Significant Impact
Impact XII-d. Implementation of the Project has the potential to result in short-term noise impacts to surrounding land uses due to construction activities. Construction noise represents a short-term impact on ambient noise levels. Although most of the types of exterior construction activities associated with the general plan update would not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible.	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
During the construction phase of any future development projects, noise from construction activities would add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels.			
Impact XII-e. The Project is not located within five miles of a public airport or public use airport. Therefore, the Project would not result in the stated impact.	No Impact	None	No Impact
Impact XII-f. The Project is not located within the vicinity of a private airstrip. Therefore, the Project would not result in the stated impact.	No Impact	None	No Impact
Population and Housing			
Impact XIII-a. Project components are intended to address and accommodate expected growth, rather than inducing it. The recreational facilities and road improvements of the Project are addressed within the City's General Plan, and are intended to accommodate the anticipated future growth of the City. The extension of roads and development of Tower Street is intended to provide access to the East Side Regional Park and to improve traffic flow. This Project would not result in an indirect induction of population growth.	No Impact	None	No Impact
Impact XIII-b. There is no housing located on the Project site, therefore implementation of the Project would not result in the displacement of any amount of existing housing.	No Impact	None	No Impact
Impact XIII-c. As stated in Impact XIII-b, there is no housing located on the site; therefore, the Project would in no way displace substantial or insubstantial numbers of people.	No Impact	None	No Impact
Public Services			
Impact XIV-a-i. The Project is within the service area of the Visalia Fire Department Station 56 (Station 56), which is located 1.2 miles southwest of the Project. The Visalia Fire Department (VFD) provides services within the city limits. Thus, after the annexation of the northern portion of the Project site into the city limits, the entire extent of the Project area would be served by VFD. According to the City's General Plan, "VFD staffs five paramedic engine companies, one truck company and Battalion Chief daily, from five fire station locations. The engines and truck are staffed with three personnel The Project site is within the VFDs target response time area.	No Impact	None	No Impact
Impact XIV-a-ii. The northern portion of the Project site is currently served by the Tulare County Sheriff. Following annexation, the Visalia Police Department (VPD) would provide service to the entire Project area. The VPDs main headquarters is located in	No Impact	None	No Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Downtown Visalia and leads two substations that engage in district-based operations. Both the main headquarters and the District 1 substation would sufficiently serve the Project area.[1]			
Impact XIV-a-iii. The Project would not include any residential development, nor would it directly or indirectly induce population growth. Project implementation would not result in an increase in students at any school.	No Impact	None	No Impact
Impact XIV-a-iv. The Project would include the conversion of agricultural and residential planned land uses to a regional park and recharge facility. Therefore, the development of this Project would not have an adverse impact on parks and recreation; rather, it would improve the City's recreational facilities and decrease dependence on existing parks.	No Impact	None	No Impact
Impact XIV-a-v. The Project would not generate, directly or indirectly, any new residences or businesses that could lead to the need for the expansion of existing public facilities or the creation of new facilities.	No Impact	None	No Impact
Recreation			
Impact XV-a. The Project would reduce the need for additional recreational facilities, would not result in residential development, and meets the expectations of the City's General Plan. Any impacts would be less than significant.	Less than Significant Impact	None	Less than Significant Impact
Impact XV-b. The physical and environmental impacts of this Project are outlined throughout this EIR. The primary source of environmental impacts, though minor, would occur during the construction phase of the Project. The potential environmental impacts would involve ground-disturbance, air pollution from ground disturbance and construction equipment, noise, hydrological, and biological impacts. All of these impacts are discussed in greater detail within their respective Impact Analysis sections.	Potentially Significant Impact	Various Mitigation Measures throughout the document.	Less than Significant Impact

[1] City of Visalia 2014. Draft Environmental Impact Report – Chapter 3.9: Settings, Impacts, and Mitigation, Public Services, Facilities and Utilities. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-1 to 3.9-3. Date Accessed: 8/8/2016

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Transportation/Traffic			
Impact XVI-a. The potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections and road segments both in the near term and long term. The Project would be inconsistent with City General Plan identifies in T-P-9, considering the exceedance of levels of service. Described below are recommended improvements at study area intersections and segments for various scenarios that would in most cases mitigate the potential significant impacts to acceptable levels of service and thereby reducing the impact to less than significant. It should be noted that statements of significance for the improvements identified below are related to Project impacts.	Potentially Significant Impact	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable
Impact XVI-b. Impacts are identified in Impact XVI-a. Mitigation measures MM TR-1 through MMTR-56 would be implemented to minimize all feasibly mitigated impacts due to exceedances of level of service (LOS) standards, travel demand measures and other standards developed by the Tulare County Congestion Process Steering Committee Congestion Management Program	Potentially Significant Impact	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable
Impact XVI-c. The nearest airport of any kind is the Exeter Airport, located 7.2 miles southeast of the Project. The next nearest airport is the Visalia Municipal Airport, located approximately 7.6 miles west of the Project.	No Impact	None	No Impact
Impact XVI-d. The Project would create additional streets and new intersections. These streets and intersections are required to be constructed to Public Works Standards.	Potentially Significant	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13	Less than Significant

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Impact XVI-e. The project proposes multiple vehicular access points to the project location and would not create barriers to existing streets.	Potentially Significant	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Less than Significant
Impact XVI-f. The Project would be providing additional trails for pedestrian and bicycle traffic and is isolated from a public transportation route. The City General Plan Circulation Element identifies in policy T-P-33 to work with transit operators to establish transit stops adjacent to regional parks. To be consistent with the City General Plan and the City General Plan Environmental Impact Report, the City would be required to work with transit operators on establishing a public transportation stop within a reasonable vicinity of the regional park.	Potentially Significant	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable
Utilities and Service Systems			
Impact XVII-a. The City Water Conservation Plant (WCP) recently underwent extensive upgrades. The WCP is located about one mile southwest of the intersection of State Highway 99 and Highway 198. Prior to the upgrades, the WCP was discharging approximately 13 million gallons per day (mgd) of effluent under Waste Discharge Requirements (WDR) from the California RWQCB, Central Valley Region to City owned holding basins and Mill Creek. The reason for the extensive upgrades to the WCP was for conversion from secondary level treatment to advanced tertiary treatment to comply with RWQCD waste discharge requirements. This resulted in the issuance of an updated WDR Order for the WCP. The tertiary treated recycled water	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
is planned for use by nearly 10,000 acres of farmland within the City and TID and for the City's Valley Oak Golf Course and Plaza Park. The design capacity and permit capacity of the recent upgrade is 22 mgd with provisions to expand to 26 mgd. These upgrades to the WCP accommodate the anticipated wastewater discharge from the full buildout of the City's recently adopted General Plan land uses and therefore, the Project would not significantly impact the existing permit issued by the RWQCB.			
Impact XVII-b. While the WCP upgrade would have the potential to cause significant environmental impacts, the City certified an environmental impact report including a SOC to allow these impacts. The Project was not the impetus requiring the expansion and is not anticipated to place any significant demand on the City's wastewater treatment facilities or Cal Water's domestic water system; therefore, impacts relating to the upgrade of the WCP are not eligible for consideration in relation to the Project.	Less than Significant Impact	None	Less than Significant Impact
Impact XVII-c. The Project would involve the realignment and other minor improvements to Mill Creek and Packwood Creek, which are identified as main drains within the City's stormwater drainage system. Project components also include the construction of groundwater recharge basins, which would serve a dual function as stormwater layoff basins, which would control and limit potential impacts from seasonal floods. These components would have the potential to cause significant environmental effects and are described and analyzed in this EIR. Other than those discussed in Chapter 3 of this document impacts would not occur as a result of the Project.	Less than Significant Impact	None	Less than Significant Impact
Impact XVII-d. The recreational facilities, including splash pads and areas that require irrigation, would require the use of water throughout construction and operation. Provided by Cal Water. The City is located in an area that is currently in conditions of groundwater overdraft, therefore water conservation is extremely important. The groundwater recharge basins, however, would ensure that the Project would have a net positive impact on water supplies given that they would also be used to receive surface waters that normally would not be recharged. The Project is designed to recharge surface water that is available from Mill Creek, Oakes Ditch and Packwood Creek. An agreement has been made with the Tulare Irrigation District for long-term exchange of water supplies. The City would deliver treated effluent to TID from its WCP on the west side of town and in exchange TID would provide a portion of its	Less than Significant Impact	None	Less than Significant Impact

Summary of Potential Impact			
Environmental Impact	**Level of Significance Before Mitigation**	**Mitigation Measures**	**Level of Significance After Mitigation**
Central Valley Project water supplies in certain higher flow year types marked by what is called "Uncontrolled Season" that would be available for delivery into the Project. Therefore, no net loss of water supplies would result from the Project.			
Impact XVII-e. The Project is not expected to result in a significant increase in wastewater. The recent upgrade of the City's WCP would ensure that capacity for wastewater treatment continues to exceed the growth in supply that would occur in conjunction with the City's anticipated growth.	No Impact	None	No Impact
Impact XVII-f. The Project is not anticipated to generate a large amount of solid waste. As of 2014, the landfill that would serve the Project, the Visalia Landfill, had a maximum capacity of 18,630,666 cubic yards and a remaining capacity of 16,145,591 cubic yards. The landfill is not expected to reach capacity until 2024.	No Impact	None	No Impact
Impact XVII-g. Solid waste would be collected from the proposed facilities and transported to the Visalia Disposal Site, in compliance with all federal, State, and local statutes and regulations.	No Impact	None	No Impact

1 Introduction

1.1 Purpose of the Draft Environmental Impact Report

This Draft Environmental Impact Report (DEIR) is prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the implementation of the proposed East Side Regional Park & Groundwater Recharge Project (Project). This document is prepared in conformance with CEQA (California Public Resources Code Section 21000, et seq.) and the CEQA Guidelines (California Code of Regulations, Title 14, Chapter 3, Section 15000, et seq.).

The purpose of this DEIR is to inform decision-makers, representatives of affected or responsible agencies, the public, and other interested parties of the potential environmental effects that may result from implementation of the Project. This DEIR describes potential impacts relating to a wide variety of environmental issues and along with methods by which these impacts can be mitigated or avoided.

This summary is provided in accordance with the CEQA Guidelines Section 15123. As stated in CEQA Guidelines Section 15123(a), "an environmental impact report (EIR) shall contain a brief summary of the proposed actions and its [*sic*] consequences. The language of the summary should be as clear and simple as reasonably practical." As required by the Guidelines, this DEIR includes (1) a summary description of the Project; (2) a discussion of the areas of controversy associated with the project; (3) identification of the alternatives evaluated and the environmentally superior alternative; and (4) a synopsis of environmental impacts and recommended mitigation measures.

To account for the possibility that the City may seek federal grant funding or federal permits or other federal approvals to construct any portion of the Project, the technical studies evaluating Biological Resources, Potential Waters of the United States, and Cultural and Historical Resources have been completed at a level adequate for the federal lead agency to complete an Environmental Assessment (EA) pursuant to the National Environmental Policy Act (NEPA) regulations.

1.2 Content of the DEIR

The City has prepared this DEIR for the Project in compliance with CEQA. This DEIR fully evaluates the potential direct, indirect, and cumulative environmental impacts associated with the Project (as further described within) for a regional park and groundwater recharge facility, as well as a No Project Alternative.

Specific areas of analysis will include all resource categories included in Appendix G to the CEQA Guidelines (as of the release date of the Notice of Preparation/Notice of Scoping, December 23, 2014), as follows: aesthetics, agricultural and forest resources, air quality, biological resources, cultural resources, geology and soils, greenhouse gas (GHG) emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems. Additionally, a consideration of cumulative impacts is included.

1.3 Organization of the DEIR

Executive Summary: Summarizes the content and determinations of this DEIR:

Chapter 1 – Introduction: Explains the purpose of an EIR, its content, and the environmental review process.

Chapter 2 –Project Description: Includes a detailed description of the Project.

Chapter 3 – Impact Analysis: Includes analysis of each of the topical areas consistent with Appendix G.

Chapter 4 – Analysis of Alternatives: Includes analysis of Alternatives 1 and 2 and the No Project Alternative.

Chapter 5 – Significant and Unavoidable Impacts: Describes any potential significant environmental impacts that cannot be fully mitigated and are therefore unavoidable and summarizes the substantial evidence contained in the DEIR that provides the economic, legal, social, technological or other benefits that would result from the Project in the event that the City chooses to adopt a Statement of Overriding Considerations on a basis that these benefits override the potentially significant and unavoidable effects that may result.

Chapter 6 – Mitigation Monitoring and Reporting Program (MMRP): In order to ensure that the mitigation measures and project revisions identified in the DEIR are implemented, the City shall adopt a program for monitoring or reporting on the revisions which it has required in the project and the measures it has imposed to mitigate or avoid significant environmental effects. This program will summarize the significant environmental impacts and their corresponding mitigation measures, the agency or agencies responsible for carrying out the mitigation, and who determines when the mitigation has been satisfied. A public agency may delegate reporting or monitoring responsibilities to another public agency or to a private entity that accepts the delegation; however, until mitigation measures have been completed the lead agency remains responsible for ensuring that implementation of the mitigation measures occurs in accordance with the program.

Chapter 7 – List of Preparers: Provides a list of key personnel involved in the preparation of the DEIR.

Appendices – Following the text of this DEIR, several appendices have been included as supporting or technical reference material.

1.4 Use of the DEIR

If found adequate, the DEIR will be certified as a Final Environmental Impact Report (FEIR) by the City for the purpose of disclosing potential environmental impacts resulting from the construction and operation of the Project. The FEIR will incorporate responses to all comments received on the DEIR and will also identify all mitigation measures the City is required to implement to reduce potential impacts. Additionally, the FEIR may also be used by various other public agencies when considering the issuance of their own permits for the Project. The following Responsible Agencies may utilize the FEIR in the issuance of any discretionary permits or approvals prior to construction of all or portions of the Project:

- California Department of Fish and Wildlife
- Regional Water Quality Control Board – Central Valley Region
- State Water Resources Control Board
- California Department of Transportation
- San Joaquin Valley Air Pollution Control District
- Tulare County Airport Land Use Commission
- County of Tulare

1.5 Public Involvement

The development of the EIR from draft to final is designed to involve the public and other potentially affected parties and agencies in the decision-making process. The CEQA process requires open discussion and interaction to determine the scope of a Project and environmental topics that are of potential concern. The following sections identify the public processes that have been undertaken for the Project.

1.5.1 Notice of Preparation of the DEIR

In accordance with CEQA, the City circulated an NOP of an EIR for 30 days beginning on December 23, 2014 and ending on January 22, 2015 (**Appendix A**). This NOP was combined with an NOS. The purpose of the

NOP/NOS was to inform the public agencies and the general public of the City's intention to prepare an EIR for the Project and to solicit comments to assist the City in determining environmental impacts relating to the Project and to identify potential feasible and reasonable mitigation for such impacts or alternatives that would reduce impacts that should be considered in this EIR. The NOP/NOS was sent via USPS mail to a number of local, State, and federal agencies; to interest groups; and to owners and residents of property within 300 feet of the Project. The NOP/NOS was filed with the SCH of the Governor's Office of Planning and Research on December 23, 2014. The NOP/NOS was also published in the *Visalia Times-Delta* on December 23, 2014.

Appendix A contains the NOP/NOS documents along with the mailing lists of those who were sent the NOP/NOS. This appendix includes the reviewing agency letter prepared and distributed by the SCH on December 23, 2014.

Comments received as a result of the NOP/NOS are attached as **Appendix A** hereto and helped direct the analysis presented in this EIR. Comments included discussion of the following general points:

- Concerns regarding noise generated by nighttime activities;
- A need for more group picnic areas;
- Access to Road 152;
- Odors from dog park;
- Concerns regarding width of setbacks on north and east boundaries;
- Desire for a "hands-off" habitat area;
- Desire for archery facilities;
- Concern regarding building in 100-year flood zone.
- Desire for permeable paving where possible;
- Desire for City garden bed space;
- Desire for play structures dispersed closer to soccer fields and more splash parks;
- Concerns regarding bike access;

In addition to the NOP/NOS meeting, four Community Workshops were held on February 11, February 12, March 26, and June 18, 2015. These workshops ultimately resulted in the formulation of two concepts, A1 and B1. On August 17, 2015, the City Council reviewed both concepts and selected Concept B1 as the Project to be evaluated in this EIR, described in **Chapter 2, Project Description**. Concept A1 is evaluated in **Chapter 4**, as an Alternative.

1.5.2 Notice of Availability and Distribution of the DEIR

On January 19, 2023, a Notice of Availability (NOA) was published in the *Visalia Times-Delta* and mailed to interested agencies and to individuals that had previously requested such notice in writing to initiate a 45-day DEIR public review period.

In addition to the NOA, a NOC transmittal form were received by the SCH in the Governor's Office of Planning and Research on January 19, 2023.

The DEIR is now available for review and comment by public agencies and the general public for the same 45-day duration. In order to make a well-informed decision about whether to carry out the Project, the City welcomes comments and will receive written comments between January 19, 2023 and March 6, 2023. The City must receive written comments no later than 5:00 p.m. on March 6, 2023. Any written comments should be directed to:

City of Visalia
Attn: Rebecca Keenan
315 East Acequia Avenue
Visalia, CA 93291
or

Email: Rebecca.Keenan@visalia.city

Additional copies of this DEIR are available for review at the following locations:

City of Visalia website at http://www.visalia.city/depts/community_development/planning/ceqa_environmental_review.asp

Visalia Branch Library
200 W. Oak Avenue
Visalia, CA 93291
(559) 713-2700

1.6 FEIR

Following the closure of the 45-day DEIR public review and comment period, the City will review comments received, prepare written responses, make any necessary changes to the DEIR, and prepare and publish the FEIR. The FEIR will be the document considered by the City for certification. The FEIR, pursuant to CEQA Guidelines Section 15132, will incorporate:

- The DEIR or a revision of the draft;
- Comments and recommendations received on the DEIR either verbatim or in summary;
- A list of persons, organizations, and public agencies commenting on the DEIR;
- The responses of the Lead Agency to significant environmental points raised in the review and consultation process; and
- Any other information added by the Lead Agency.

If the City chooses to certify the FEIR and approve the Project, it will be required to adopt findings relating to significant impacts. In the event that impacts are mitigated to the greatest extent feasible but remain significant and unavoidable, the City will be required to make findings pursuant to CEQA Guidelines Section 15091 and determine that the benefits of the project outweigh the impacts through the adoption of a SOC pursuant to CEQA Guidelines Section 15093.

If the City chooses not to certify the FEIR and denies the Project, no additional CEQA review would be required.

2 Project Description

2.1 Project Location and Boundaries

The City of Visalia (City) encompasses approximately 37.94 square miles and lies within northwestern Tulare County (County) in the central San Joaquin Valley (**Figure 2-1**). The Project evaluated in this DEIR is located partially within the City and partially within the County; one of the actions necessary for Project implementation is annexation of the unincorporated areas into the City.

As shown on **Figure 2-2**, the Project area evaluated in this DEIR comprises approximately 286 acres situated in the northeast quadrant of the City, lying north of State Route (SR) 198 and east of North McAuliff Street. Approximately 130 acres of the Project site, lying north of Mill Creek and south of Houston Avenue, Assessor Parcel Numbers (APNs) 103-110-24, -25, -26, -27, -28, -29, -32, and -33, are currently situated in the County and will need to be annexed to the City. The APNs within the City limits are 103-500-001, -002, -003; 103-510-002, -003, -004, -005, -006, -007 -008, and -009. The Project Site is generally bounded as follows: on the south by the proposed realigned Mineral King Avenue; on the west by existing single-family residences and proposed Tower Street; on the east by Road 152; and on the north by Houston Avenue (called Ivanhoe Drive within Tulare County). This segment of Houston Avenue is also designated as SR 216.

2.2 Environmental Setting

The Project location is in an area that has historically been predominately agricultural. The San Joaquin Valley, like most of California, experiences a Mediterranean climate with warm, dry summers and cool, moist winters. The City experiences annual precipitation rates of approximately 10.93 inches, of which 85% falls between October and March.[2]

Surrounding. The northerly portion of the Project is located at the far easterly edge of city limits and would be annexed by the City. Land to the north, south and east within the unincorporated portion of the County are agricultural, commercial, and rural residential uses. There are also County commercial uses to the south and east of the Project, fronting Noble Avenue and Mineral King Avenue, both of which are frontage roads to SR 198. Land to the west lies within the city limits and contains urban uses – predominantly single-family residential development. There is one rural single-family parcel fronting on Mineral King Avenue directly south of the agricultural tail water/recharge basin.

Adjacent to the west of the Tower Street alignment is an existing Southern California Edison (SCE) high-voltage transmission line corridor approximately 150 feet in width. The portion of the corridor south of Mill Creek is owned in fee title by the City. The portion of the corridor north of Mill Creek is primarily owned in fee title by SCE with a small portion owned in fee title by the City. The portions not owned by SCE are subject to an easement.

The City has approved a plan for the construction of a multi-use trail called the Greenway Trail. The Greenway Trail project, once constructed, would be within the SCE power line corridor. The trail is planned to begin where Cameron Creek crosses Road 148 approximately 1.2 miles south of SR 198. The trail would extend north for 2.7 miles within the SCE power line corridor traveling along the west edge of the Project site and connecting to the existing St. John's River Trail. The St. John's River Trail lies approximately a 0.25-mile north of Houston Avenue and runs east-west along the south bank of the St. John's River. The City has received a Caltrans Active

[2] (U.S. Climate Data. 2020). https://www.usclimatedata.com/climate/visalia/california/united-states/usca1204 Accessed on August 23, 2020.

Transportation Planning Grant funding to construct the portion of the trail from Mineral King Avenue to Mill Creek. In the meantime, design and environmental clearance tasks are in progress.

Cutler Park, owned and maintained by the County, is located approximately 0.75-mile to the northeast of the Project along Ivanhoe Road/SR 216 at the St. John's River. Cutler Park is a small rural park with access to the St. John's River and offers playgrounds, grassy areas, trails, and general outdoor nature areas.

Project Site. The Project site has historically been and is currently used for agricultural purposes. There are multiple orchards in various stages, such as removal, planting, and harvesting, on the site. Two seasonal channels traverse the property: Mill Creek, and Packwood Creek. Three irrigation ditches traverse a portion of and terminate on the property or along the property boundary: Fleming Ditch, Oakes Ditch and one unnamed ditch. The unnamed ditch originates on the property as a bifurcation of Oakes Ditch (**Appendix D**). A portion of the Project site south of Packwood Creek and fronting along Mineral King Avenue is currently fallow with two depressed areas; the depressed area in the southeast corner was utilized in the past as a temporary parking lot. A portion of the Project site north of Packwood Creek and in the southwest corner contains an existing agricultural recharge basin.

2.3 Project Components

The purpose of the Project would be to co-locate city-wide/regional park amenities for both passive and active recreational uses, amongst functional groundwater recharge/storm water layoff basins. The Project would allocate approximately 148 acres park uses and approximately 104 acres for recharge/storm water facility purposes. The primary components of the Project are described in more detail below.

2.3.1 Groundwater Recharge and Storm Water Layoff Basins

The groundwater recharge/storm water layoff basins would comprise approximately 104 acres and the site storm water runoff basins would comprise approximately 3.13 acres (**Figure 2-3**). The Project integrates both types of basins into the layout of the park amenities.

The site storm water runoff would be accommodated by strategically-located drainage facilities that would direct storm water runoff from the Project into the basins. The storm water runoff basins are located along the west side adjacent to Tower Street and along the east side adjacent to Road 152.

The Project would utilize the three existing waterways flowing through the property (Mill Creek, Packwood Creek, and Oakes Ditch) for groundwater recharge and storm water layoff functions. The dual-function design would include new control structures to divert recharge and layoff waters from these waterways into the basins, move water between basins, and return water to Mill Creek or Packwood Creek as needed.

Currently, the Oakes Ditch traverses the site east to west and goes underground to a drop inlet at the west end of the Project boundary. The inlet ultimately feeds a pipeline into an existing agricultural recharge basin outside the Project. As part of the Project, Oakes Ditch would be incorporated across the site as the low flow lines of one of the recharge basins. Oakes Ditch would then terminate within the recharge basin. The drop inlet and the pipeline would be removed as part of this Project.

2.3.2 Regional Park Amenities

The regional park amenities generally span across the entire Project site. The active recreational amenities would comprise approximately 139 acres. The passive amenities would utilize approximately 130 acres, which includes the groundwater recharge and storm water layoff facilities described above. These amenities would include the following (**Figure 2-5**):

- Four (4) lighted and fenced adult softball fields (325' to outfield fence)
- Four (4) lighted and fenced youth baseball Fields (225' to outfield fence)
- Five (5) lighted full-size soccer fields (210' X 330')
- Cricket field
- Lighted tennis courts
- Lighted pickleball courts
- Lighted full basketball court
- 18-hole disc golf course
- Amphitheater with seating capacity of 1,500
- Community center building (approx. 30,000 sq. ft.) including outdoor swimming pools
- Dog park (approx. 3 acres)
- Multi-use trails with fitness equipment
- Event and open space turf areas
- Children's adventure play areas and splash pad
- Picnic areas (formal and informal)
- Agriculture education barn
- Resource center
- Maintenance yard
- Parking areas

To enhance the aesthetics of the park, the Project also proposes to realign Mill Creek to replicate its historical meandering alignment from 1937 as shown in **Figure 2-4**.

2.3.3 Access and Roadways

Mineral King Avenue. Currently there are two segments of Mineral King Avenue: one segment runs east to west; and the other curves off of the main segment to the north and would run through the Project before realigning with the main road. The straight east-west roadway segment would be referred to as the Mineral King Avenue (frontage road). The curvilinear segment of Mineral King Avenue would be referred to as Mineral King Avenue (existing re-alignment) west of Tower Street and the Mineral King Avenue (proposed re-alignment) east of Tower Street (arterial roadway). The Project proposes to construct the Mineral King Avenue (proposed re-alignment) east of Tower Street in a mirror image of the existing re-alignment located on the west side of Tower Street to retain access from the east-west frontage road to Road 152 (see **Figure 2-9**).

The existing and proposed re-alignments of Mineral King Avenue would have their alignments finalized and be constructed as part of the future Caltrans interchange at the intersection of Tower Street and SR 198. When this future interchange moves forward, a separate environmental document would be prepared by Caltrans.

Tower Street. To provide access to the Project a new arterial roadway (Tower Street) would be constructed along the western edge of the Project site. Tower Street would be built to City standards for an arterial roadway with an ultimate right-of-way of 110 feet. Tower Street would connect to Mineral King Avenue (frontage road) at the south and Houston Avenue (SR 216) at the north. Existing stub streets and roadway connections would be extended east across the 150-foot-wide SCE corridor to connect to Tower Street—from south to north, Mineral King Avenue (frontage road), Mineral King Avenue (existing re-alignment), Villoy Avenue, Murray Avenue, Race Avenue, Douglas Avenue, and McKinley Avenue.

These connections would be designed to allow the incorporation of the crossings of the Greenway Trail (a separate project) within the SCE corridor.

The improvements to the intersection of Tower Street and Houston Avenue (SR 216) would be made and a stop sign would be added. Later, Caltrans may either provide a signalized intersection or a roundabout pursuant to Caltrans direction and standards. This is not part of this Project's activities and would be addressed by Caltrans in a separate environmental review.

In addition to the connections from the west, two park entrances would be constructed off Tower Street generally at the easterly alignments of Villoy Avenue and McKinley Avenue. These entrance points lead to an internal roadway system that provides circulation within the park. Areas for parking are available immediately off this internal roadway system.

Houston Avenue (SR 216). Currently, SR 216 exists as a four-lane divided roadway between Lovers Lane and McAuliff Street and as a two-lane roadway between McAuliff Street and Road 152.

Road 152. Improvements and underground utility extensions along Road 152 (western half of the road) would consist of a 10-foot roadway widening, grading, sidewalks, and curb and gutter.

2.3.4 Annexation and Land Use Approvals

Prior to pursuing development of the Project, the City would need to amend the General Plan Land Use designation of approximately 42 acres in the northern area from Low Density Residential, Medium Density Residential, and High Density Residential to Parks/Recreation consistent with the remaining 88 acres area north of Mill Creek and the portion already within the city limits. The City would also pre-zone the 130 acres between Mill Creek and Houston Avenue to the Quasi-Public (QP) zone district, under which the Project uses are permitted and which is also consistent with the area already within the city limits (**Figure 2-6**); the unincorporated acreage is currently zoned AE-20 (Exclusive Agricultural – 20-Acre Minimum) by the County. The City would then apply to the Tulare County Local Agency Formation Commission (LAFCo) for annexation of the northern 130 acres. LAFCo's approval and subsequent perfection of the annexation would bring the property into the city limits, at which time the City's zoning would take effect.

The majority of the southern two-thirds of the Project Site is located within Tier I of the City's Urban Development Boundary, while the remainder (which is planned for residential use) is within Tier III, the Urban Growth Boundary. The City's General Plan contains criteria to determine whether land within Tier III can be developed; however, it applies only to residential, commercial, and industrial development. Therefore, the City Council's decision to annex the land for the regional park use constitutes the necessary criteria to allow the Project to be developed in the Tier 3 Urban Growth Boundary.

2.3.5 Site Plan Review

Proposed Concept Plans A1 and B1 were the subject of Site Plan Review on July 22, 2015. City Departments providing review comments included (**Appendix B**):

- Fire Department –Required fire hydrants and provided accessibility comments and conditions.
- Police Department – Comments were given related to sufficient lighting, accessibility, and visibility. Primarily in support of Concept B1 as that concept provides the most accessibility and visibility.
- Public Works (sewer/water/storm drain) – Comments required the Project to comply with City Ordinance No. 13.08 and water features must use recirculated water.
- Solid Waste – No comment.
- Planning – Comments were given regarding the annexation, general plan amendment, change of zone, and lighting and noise concerns.
- Building – No comment.
- Traffic Safety Division – Required a Traffic Impact Analysis.
- Engineering – Comments required the Project to comply with City Standards.

- Parks & Recreation – Preserve valley oak trees.

Ultimately, the Site Plan Review Committee noted that the project should revise and proceed with the entitlement process.

The Project is intended to be built in three phases over an extended period of time, the duration of which is currently unknown. Timing of construction of each phase would be largely dependent on funding. As the project moves forward from phase to phase, construction-level engineering drawings for site grading, utility installation, roadway construction, and other improvements would need to be completed and approved by the City before construction can begin.

2.3.6 Construction Phasing

As noted, the Project would be constructed in multiple phases. The first phase would include the development of the groundwater recharge and stormwater layoff basins. The second phase would include the construction of Tower Street and Road 152 frontage improvements as well as the construction of the following park amenities: Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exists. The third phase would include construction of the remainder of the park amenities (**Figure 2-9**).

2.3.7 Early Approvals

After the circulation of the NOP, the City adopted two (2) Mitigated Negative Declarations in 2018 (SCH No. 2018041014) and 2020 (SCH No. 2019129021) in response to grant opportunities available for two portions of the Project, the Multi-Purpose Facility (MPF) (Basins F & G) and Basins "D" and "E" , respectively. These areas are denoted in **Figure 2-5**. These analyses of the MNDs can be found in **Appendix Q** and are integrated into this Project EIR. Construction on a portion of the MPF will start soon, the environmental setting will not change significantly.

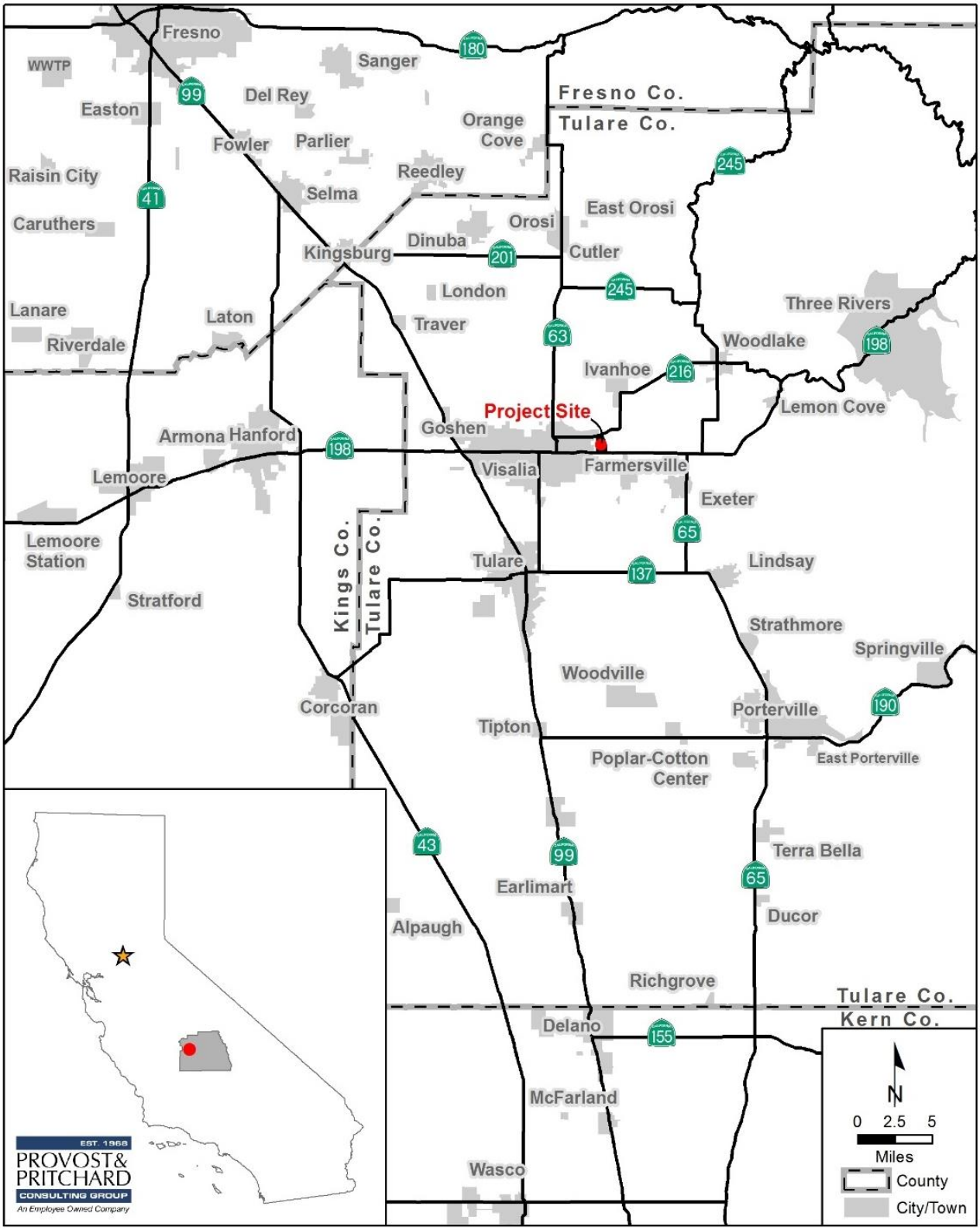


Figure 2-1. Regional Location Map

Figure 2-2. Project Study Boundary Map

Figure 2-3. Proposed Stormwater and Recharge Basins Map

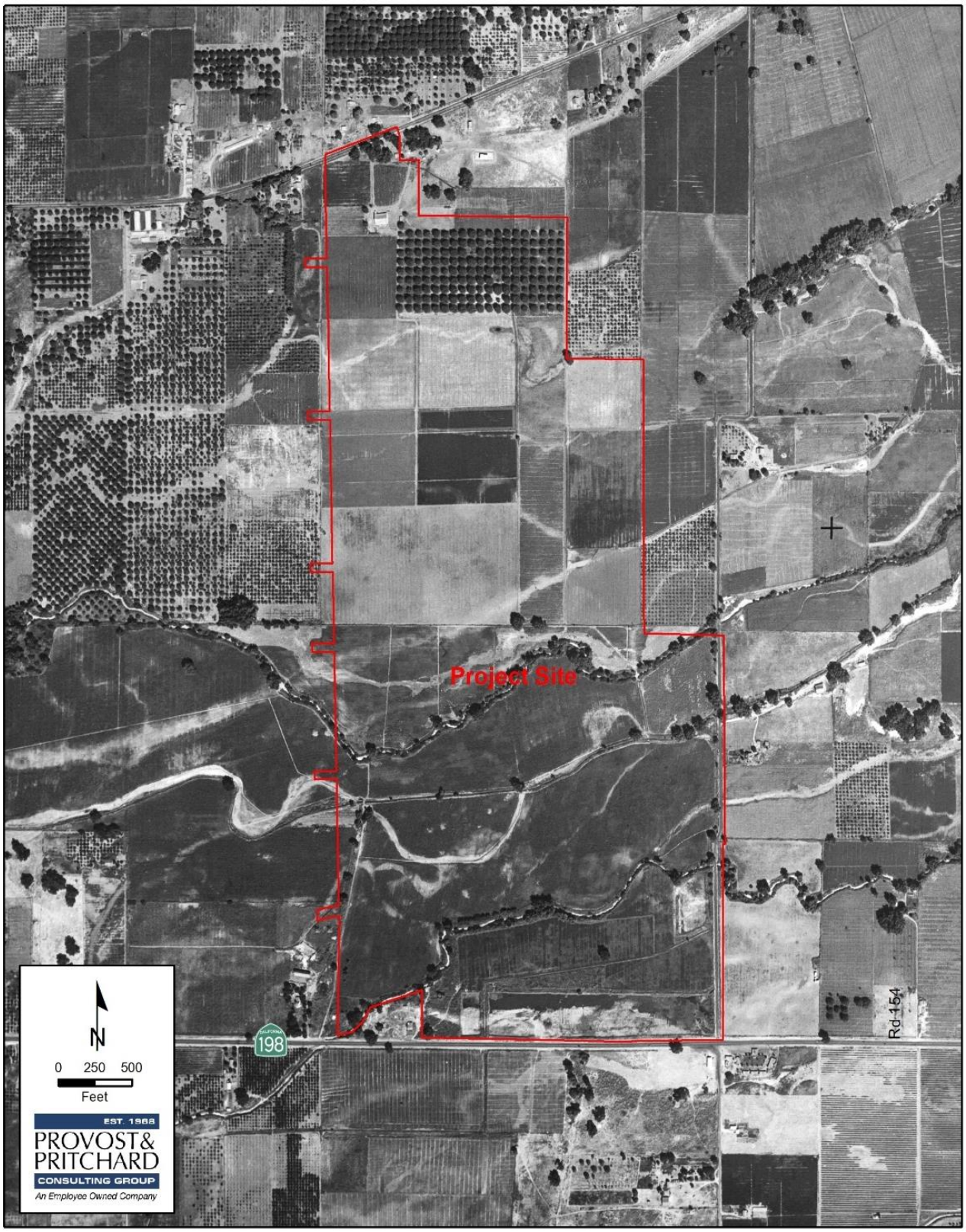


Figure 2-4. 1937 Aerial Photo of Mill Creek

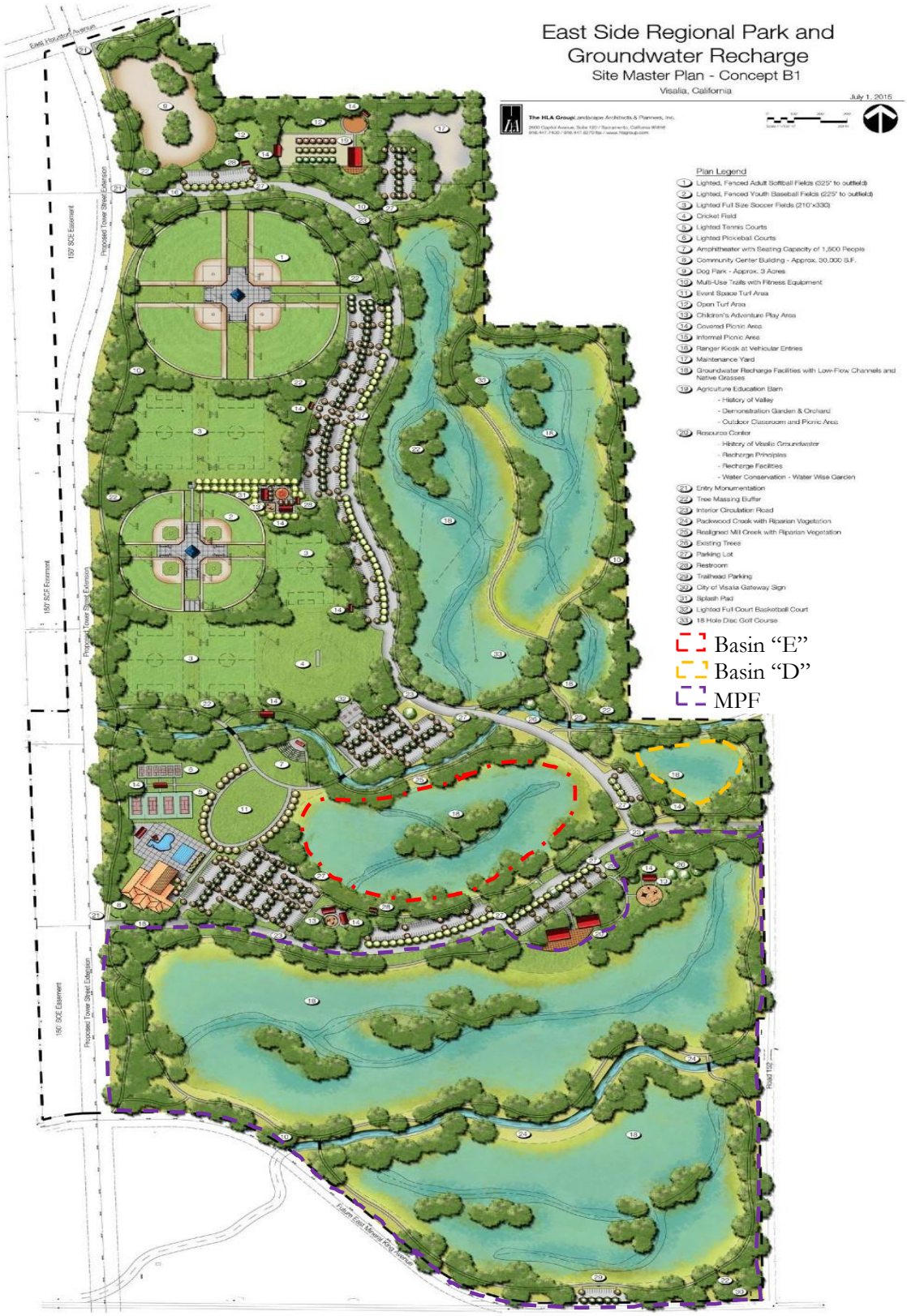


Figure 2-5. Concept B1 - Project

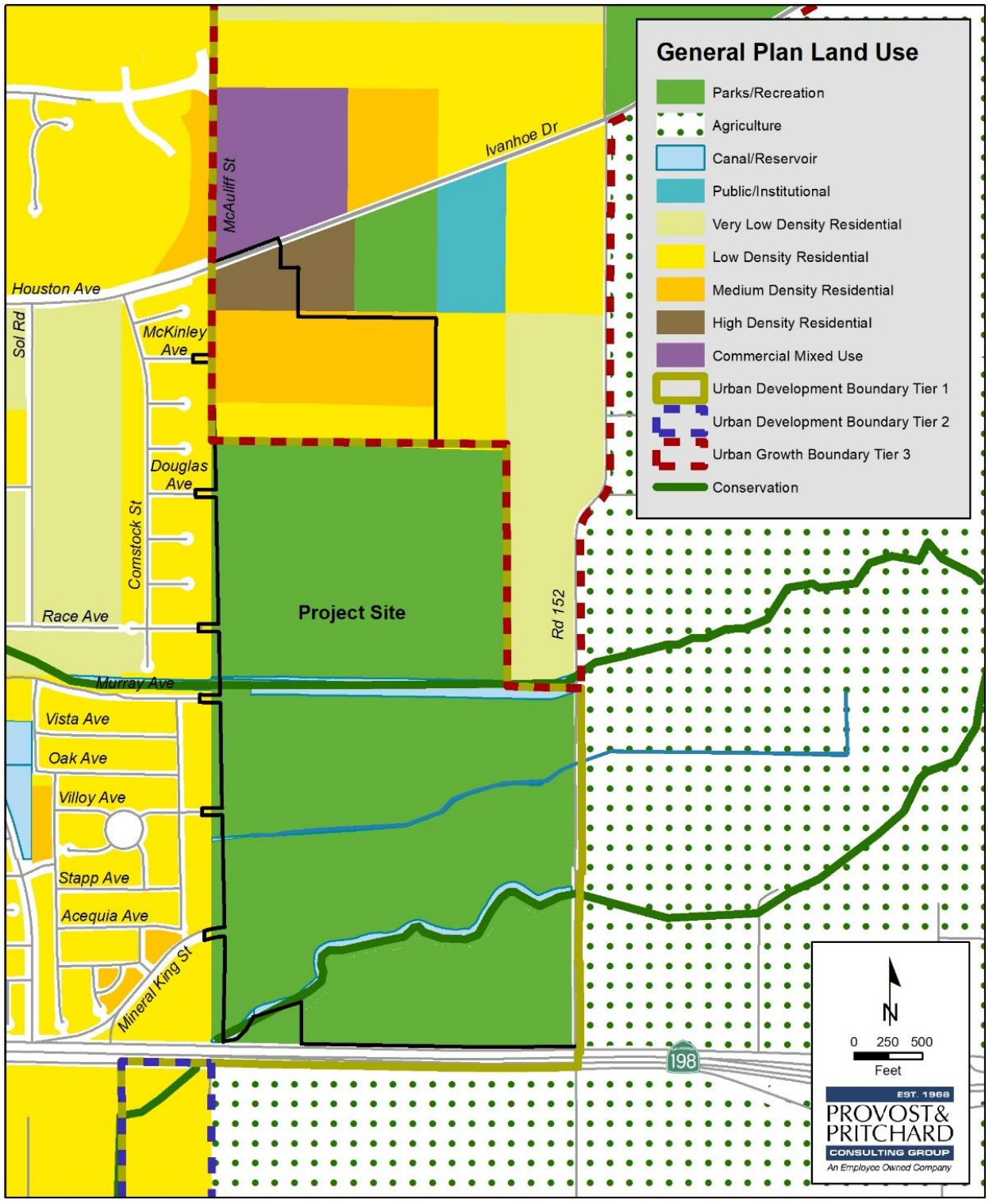


Figure 2-6. City of Visalia General Plan Map

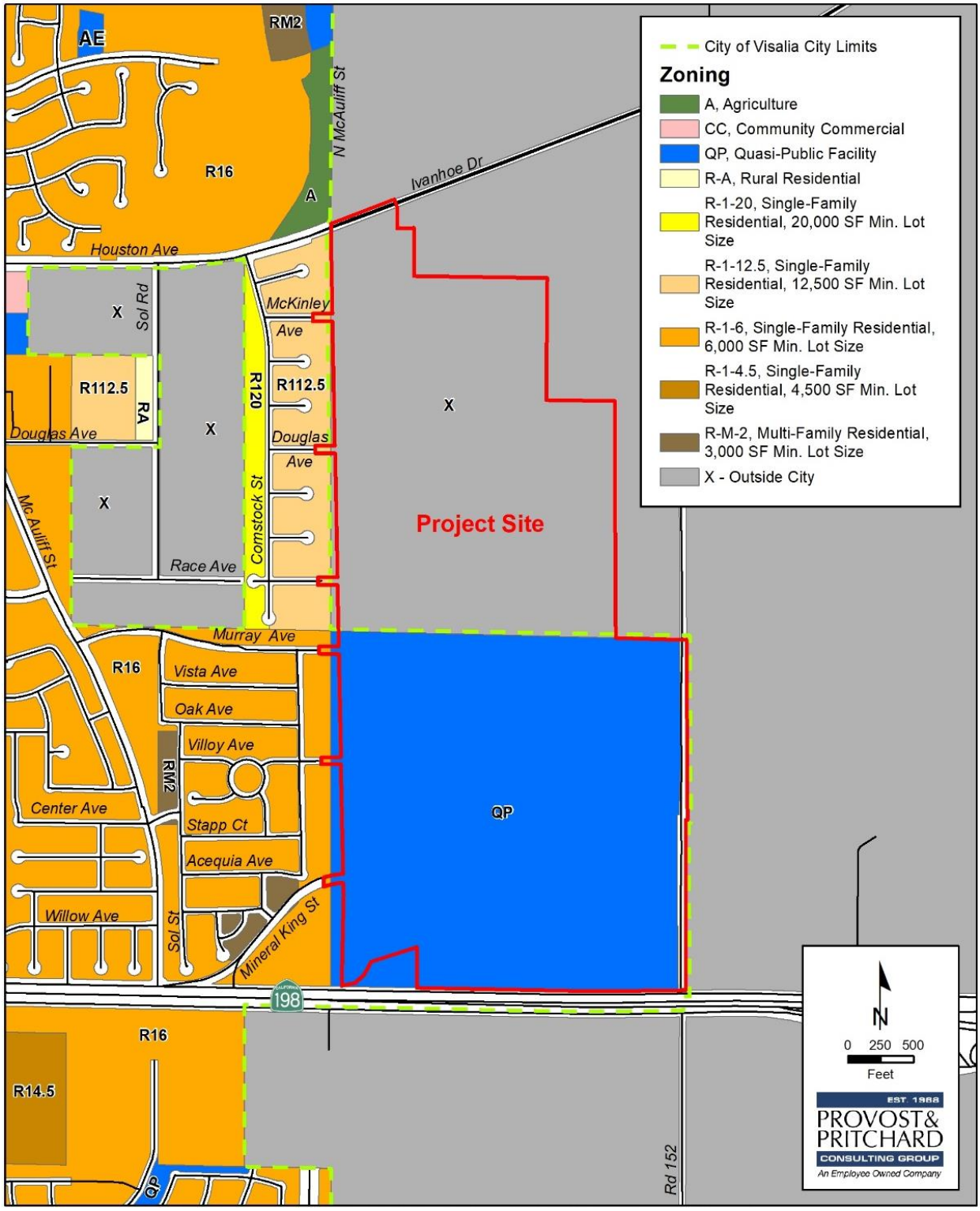


Figure 2-7. City of Visalia Zoning Map as of December 23, 2014

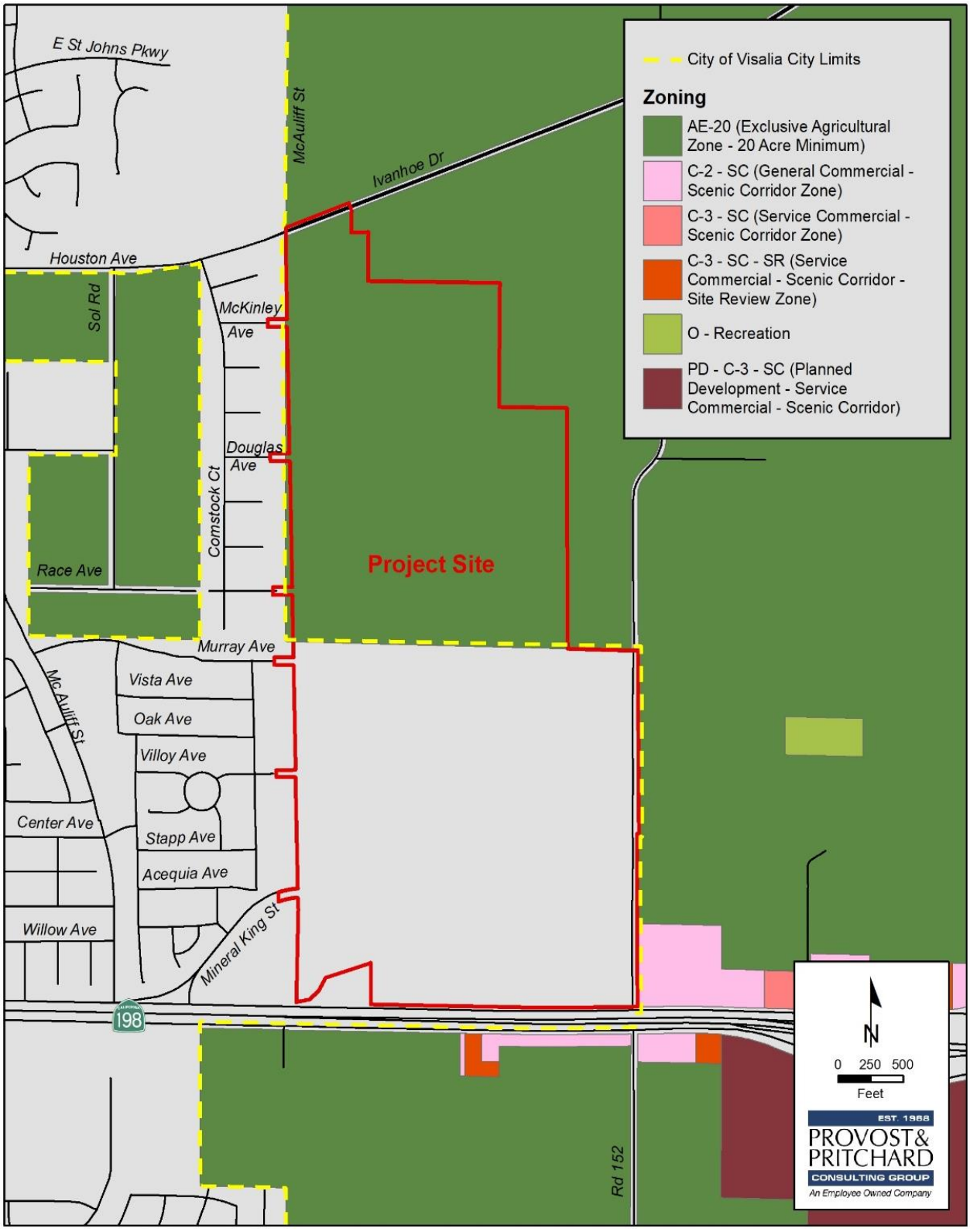


Figure 2-8. County of Tulare Zoning Map as of December 23, 2014

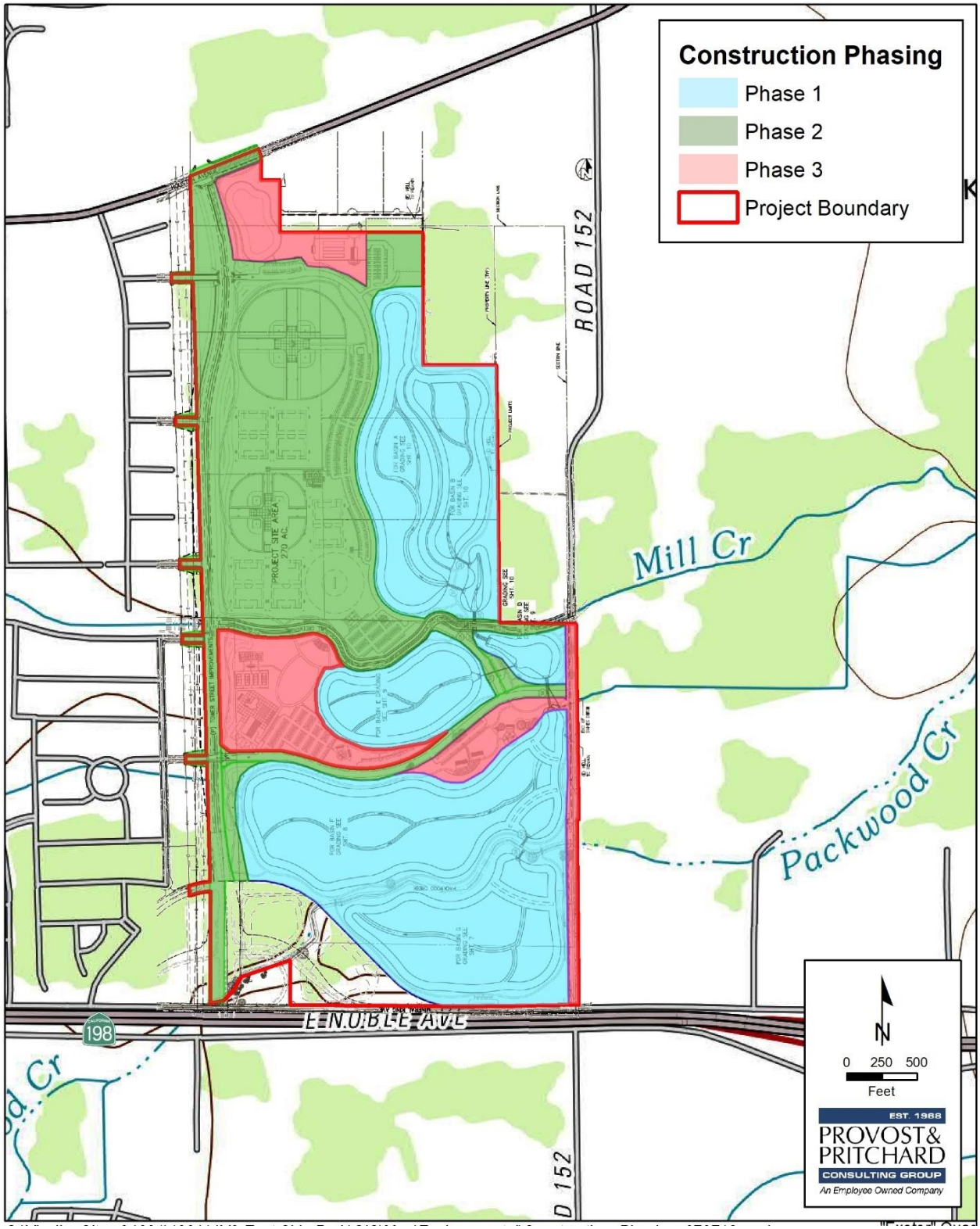


Figure 2-9. Construction Phasing

3 Impact Analysis

3.1 Aesthetics

Table 3-1. Aesthetics

Aesthetics				
Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

3.1.1 Environmental Setting

The following description of the environmental setting for the Project is found in the City's General Plan EIR. The Project is located on the flat, agricultural plain of the San Joaquin Valley, about 10 miles west of the beginning of the Sierra Nevada foothills. The high mountain peaks, about 40 miles distant, create a dramatic backdrop on clear days. With a population of some 130,231, Visalia is the largest city in Tulare County, but retains what residents describe as a "small town feel." The City has grown concentrically around its historic core and is surrounded by productive agricultural land.

Views of the Sierra Nevada range to the east and agricultural lands beyond the edges of the city help define the overall image and character of Visalia. Valley oak trees, both individually and in groves, also provide an important scenic feature and link to the natural setting of the San Joaquin Valley. Some groves are protected as part of regional parkland, while others are on agricultural land or within the city itself. Visalia's regular urban grid overlays the natural forms of the Kaweah Delta. While the St. John's River plays an important role in defining the City's edge to the north-east, the smaller creeks and ditches generally have little visibility in the urbanized environment today. Preserving and re-establishing the City's natural waterway system and valley oak tree groves with parks, conservation areas, and trailways is a goal of the proposed [General] Plan.

The 44-mile stretch of State Route 198 between State Route 99 and Sequoia National Park is classified as eligible for State Scenic Highway status, but is not officially designated…While the City has not requested official designation, it has evaluated the corridor in the Scenic Highways Element of the existing General Plan and has taken steps to preserve and enhance the corridors scenic quality."[3]

Light and Glare

The Project site is primarily in agricultural use with rural uses to the north, south, and east and single-family residential uses to the west. There are few on-site sources ambient light and there are no sources of glare. Light

[3] City of Visalia, 2014. General Plan DEIR – Chapter 3.13: Visual Resources http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30504. Pages 3.13-1 and 3.13-2. Date Accessed: 7/6/2016

sources are located primarily along the western boundary of the Project and consist primarily of residential subdivision street lighting.

3.1.2 Regulatory Setting

Federal

There are no federal regulations pertaining to aesthetics that are relevant to the Project.

State

California Environmental Quality Act (CEQA)

CEQA establishes that it is the policy of the State to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic, and historic environmental qualities." (California Public Resources Code Section 21001(b)).

California Scenic Highways Program

Recognizing the value of scenic areas and the value of views from roads in such areas, the State Legislature established the California Scenic Highway Program in 1963. Under this program, State highway segments are designated as eligible for inclusion as scenic routes. Once the local jurisdictions through which a roadway passes have established a corridor protection program, the State may officially designate a roadway as a scenic route. Projects must then be evaluated for their impact on the scenic qualities of the corridor. Each designated corridor is monitored by the State and its designation may be revoked if a local government fails to enforce the provisions of the corridor protection program.

As stated in the Environmental Setting above, SR 198 through the Project vicinity is classified as eligible for State Scenic Highway status but is not officially designated.

Local

City of Visalia General Plan

- Policy LU-P-37: Adopt specific development standards for scenic entryways (gateways) and roadway corridors into the City, including special setback and landscape standards, open space and park development, and/or land use designations.

City of Visalia Municipal Code

Section 17.30.015.H – Lighting: No on-site lighting shall directly or indirectly illuminate adjacent properties or the public street which provides access. The lights and standards to be used for the Project shall be subject to the requirements set forth by the City's Site Plan Review Committee.

City of Visalia Valley Oak Ordinance

The City's Valley Oak Ordinance provides basic standards, measures, and compliance requirements for the preservation and protection of native valley oak trees and landmark trees. The Ordinance prohibits destruction of valley oak trees except with an oak tree removal permit. A permit may be granted only if it is found that the oak tree is in danger of falling on a structure or is host for a plant, pest, or disease endangering other species; if removal is necessary to allow the reasonable enjoyment of private property; or if urban forestry or land management practices warrant removal. If a tree removal permit is granted, the tree must either be replaced by planting new oak trees at the specified mitigation ratio on the same property, or by paying mitigation fees to be

used by the City to plant new oak trees at other locations, consistent with the City Oak Tree Mitigation Policy.[4] As described in **Appendix F**, the Project site does contain valley oak trees

Other

Internationally-Recognized Guidelines

The International Commission on Illumination (CIE) provides guidelines for light levels for building facades.

CIE 150-2003 excerpts for reference:

Table 3-2. Environmental lighting zone

Zone	Surrounding	Lighting Environment	Examples
E1	Natural	Intrinsically dark	National parks or protected sites
E2	Rural	Low district brightness	Industrial or residential rural areas
E3	Suburban	Medium district brightness	Industrial or residential suburbs
E4	Urban	High district brightness	Town Centers and commercial areas

Table 3-3. Maximum values for intensity of luminaires in designated directions

Light Technical Parameter	Application Conditions	Environmental Zones			
		E1	E2	E3	E4
Luminous intensity emitted by luminaries	Pre-curfew	2,500 cd	7,500 cd	10,000 cd	25,000 cd
	Post-curfew hours	0 cd*	500 cd	1,000 cd	2,500 cd

*Note: If the luminaire is for public (road) lighting then this value may be up to 500 cd.

[4] City of Visalia, 2007. Oak Tree Mitigation Policy. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=3800 Page 1. Date Access: 11/6/2017.

3.1.3 Photos of the Project Site and Vicinity

Figure 3-1. Villoy Avenue looking East

Figure 3-2. Road 152 looking West

Figure 3-3. Road 152 looking Southwest

Figure 3-4. Road 152 at Packwood Creek

Figure 3-5. Road 152 at Packwood Creek

Figure 3-6. Road 152 at Oaks Ditch

Figure 3-7. Road 152 at Oaks Ditch

Figure 3-8. Road 152 at Mill Creek

Figure 3-9. Road 152 at Mill Creek

Figure 3-10. Road 152 north of Mill Creek looking West

Figure 3-11. Avenue 216 looking south along Tower Road

Figure 3-12. Villoy Avenue at Powerline Easement looking South

Figure 3-13. Villoy Avenue looking North at Powerline Easement

3.1.4 Impact Assessment

a) Would the project have a substantial adverse effect on a scenic vista?

Less than Significant Impact. The Project would change the use of the site from agricultural use to a combination of park facilities and groundwater recharge and storm-water layoff basins. While both uses are considered open-space uses, the view-shed for adjacent properties and the vicinity would convert from rows of dense orchards on a relatively flat horizontal aspect to undulating ground with excavated basins cleared of orchards and replaced with induced turf and other landscaping, including park-use related structures and amenities, parking areas, trails, and lighting. Views of agricultural lands beyond the City's edge, including croplands, orchards, vineyards, and open rangelands, contribute to Visalia's visual character. The removal of the pecan and walnut orchards would open additional viewsheds from the west, allowing for increased views of the Sierra Nevada mountains. Although the Project would constitute a substantial change of the existing scenic vista, it would not do so in a detrimental way. The impact would be less than significant.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. SR 198, which abuts the Project to the south, is eligible to be listed as a State Scenic Highway but is not officially designated. The Project design emphasizes the importance of providing attractive facilities, such as the re-channelization of Mill Creek to a meandering stream and the integration of recharge basins as attractive park features. There would be no impact.

c) Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Less than Significant Impact. The proposed design of the park and recharge facilities would focus on incorporating the existing channels as attractive features with the express purpose of maximizing the visual

quality of the site. The two creeks and the irrigation ditches on the Project site are surrounded by privately-owned pecan and walnut orchards and are currently blocked from public view. The aesthetics of the park design would not only improve the site's visual character but would also allow and encourage the public to enjoy features that are not currently visible or accessible. Therefore, the Project would serve to enhance the aesthetic character of the site rather than degrade it. Impacts would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less than Significant Impact. Skyglow is artificial lighting from urbanized uses that alters the rural landscape and, in sufficient quantity, lights up the nighttime sky, thus reducing the darkness of the night sky and the visibility of the stars. Development of the Project would include the addition of new lighting for security purposes, as well as to illuminate the facility for nighttime uses or activities over a nearly 300-acre area. This lighting would reduce the ambient darkness of the nighttime sky and could be a substantial source of light and glare.

To minimize lighting effects, the Project would comply with Section 17.30.015.H of the Visalia Zoning Ordinance which prohibits on-site lighting from directly or indirectly illuminating adjacent properties or public rights-of-way. The City has not established a numerical threshold of significance for what would be considered substantial light or glare; thus, this EIR analyzes light generated by the Project against CIE 150-2003, an internationally-recognized standard set for light and glare. These standards can be found above in **Section 0** of this document.

Although lighting would be designed to minimize spillover effects, lighting on the Project site could cause some spillover into adjacent areas. Furthermore, bright lighting of the park facility, particularly during evening hours, would contribute to skyglow.

Constructing the Project with shielded and downward-facing lights, as encouraged by the City zoning regulations, would minimize lighting effects. Lighting effects would also be minimized during site operation by turning off the lights for sports fields that are not in use. Similarly, lighting effects on adjacent land uses would be minimized by buffer landscaping and sound-mitigating walls. Thus, the Project skyglow effects would be limited, similar to the effects of a high school football stadium, and of shorter duration than the effects of numerous commercial and industrial uses that are brightly illuminated all night.

A Photometric and Glare Impact analysis (**Figure 3-14, Appendix O**) was prepared and superimposed onto the Concept Plans A1 and B1, juxtaposed with the existing residential developments to the west of the Project Site. Color gradients represent the intensity of glare that would be observed from that location, with the darkest of greens representing up to 500 candelas, to the darkest of reds representing greater than 150,000 candelas. For reference, 500 candelas are equivalent to the glare generated from a 100-watt light bulb, and 25,000 candelas are comparable to high-beam headlights. Two residential subdivisions to the west of the Project site would receive minimal amount of glare from the Project, an amount comparable to pre- and post-curfew light levels expected in a suburban residential area. Light spillage from the Project at the property line would be less than 0.01 for both horizontal foot-candles (ground illumination) and vertical foot-candles (wall illumination). For comparison, local roads are typically illuminated between 0.3 and 0.8 foot-candles, or 300 times greater than the proposed property line illuminance. Illumination would be greatest at the Project west property line at 464 candelas, comparable to a 100-watt light bulb.

With implementation of the City's existing code requirements and policies, potential lighting and glare impacts for the Project are considered less than significant.

Figure 3-14. Project Light Glare Analysis

3.1.5 Cumulative Impacts

Less than Significant Impact. There are a total of four projects that have been proposed or approved within four miles of the Project. (See **Appendix R** for full list of projects) Implementation of the Project in combination with these related projects would result in more developed urban area. While many of the related projects, including this Project, would be visible from public and private properties, the related projects are too distant from each other to have a cumulatively considerable aesthetic effect. In addition, the development of the four projects is expected to occur in accordance with adopted plans and regulations of either the City or the County, depending upon specific location. Therefore, no cumulative impacts related to aesthetics would occur.

3.2 Agriculture and Forestry Resources

Table 3-4. Agriculture and Forest Resources

Agriculture and Forest Resources				
Would the project:	**Potentially Significant Impact**	**Less than Significant With Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☒	☐

3.2.1 Environmental Setting

Agriculture has been the predominant land use in the Project area since the late 1800s. Due to the region's rich soils, water resources, and favorable geographic and climatic conditions, agricultural activity in and around Visalia is highly productive. Visalia's agricultural heritage has contributed significantly to the City's economy – much of the region's economic activity is related to the cultivation, processing, and distribution of agricultural products – as well as its visual and cultural character. Historically, City's General Plan policies have acknowledged the value of the areas agricultural resources and sought to preserve them through urban growth management strategies and monitoring despite a prevalence of development pressures on local landowners and a growing urban population.[5]

Farmland, consisting primarily of pecan and walnut orchards, is the prominent land use within the Project Site.

[5] City of Visalia. General Plan Update 2030 – Chapter 2: Land Use. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30474 Date Accessed: 7/6/2016

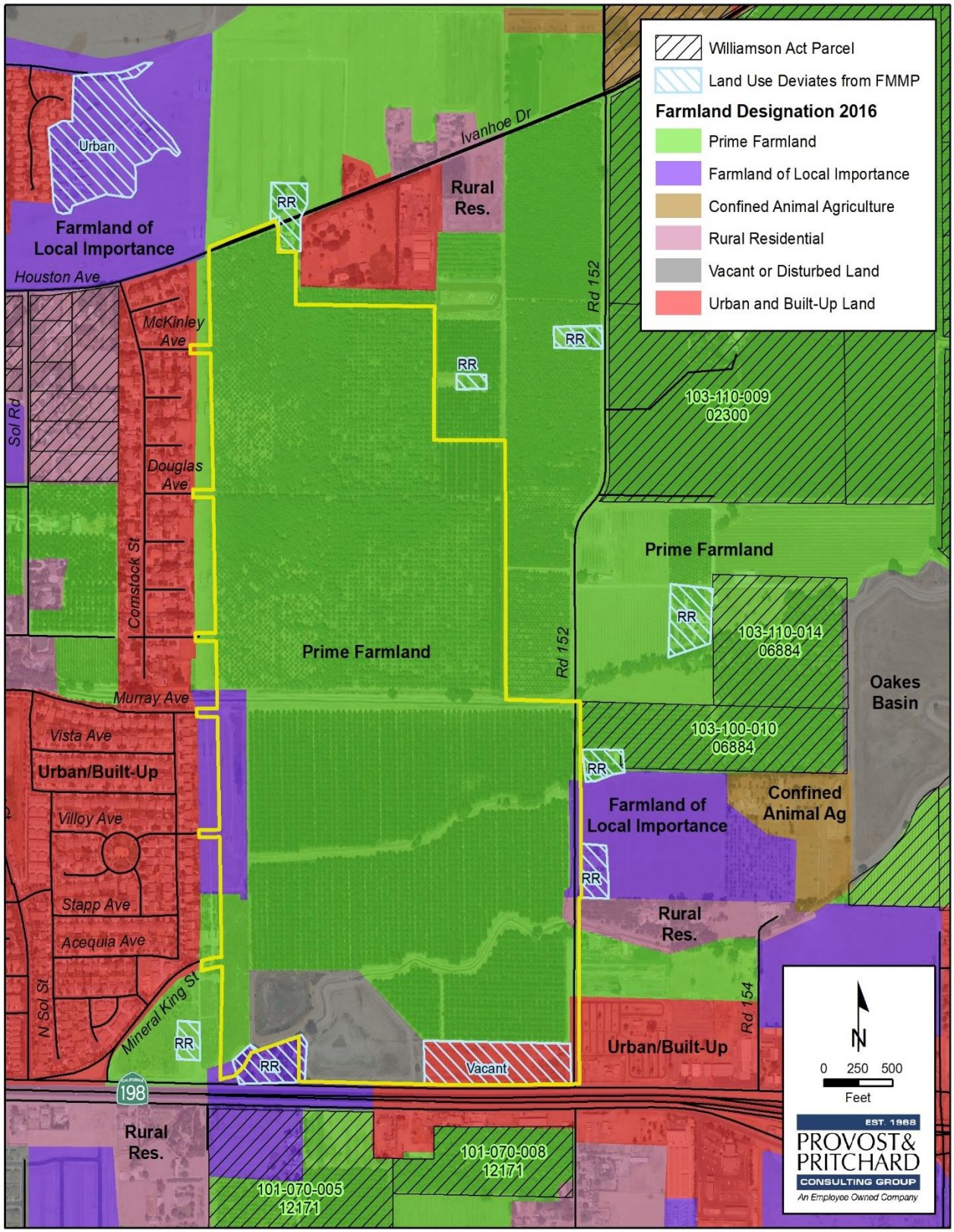


Figure 3-15. Farmland Designation Map

3.2.2 Regulatory Setting

Federal

United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS)

The USDA NRCS soil maps and farmland uses provide comprehensive information necessary for understanding, managing, conserving, and sustaining the nation's limited soil resources. In addition to many other natural resource conservation programs, the NRCS manages the Farmland Protection Program, which provides funds to help purchase development rights to keep productive farmland in agricultural uses. Working through existing programs, USDA joins with State, Tribal, or local governments to acquire conservation easements or other interests from landowners.

The NRCS also classifies soils according to their suitability for agricultural use. The categories of the NRCS Soil Capability Classification System are as follows:

- Class I Soils have few limitations that restrict their use;
- Class II Soils have moderate limitations that reduce the choice of plants or that require moderate conservation practices;
- Class III Soils have severe limitations that reduce the choice of plants or that require special conservation practices, or both;
- Class IV Soils have very severe limitations that reduce the choice of plants or that require very careful management, or both;
- Class V Soils are not likely to erode but have other limitations, impractical to remove, that limit their use;
- Class VI Soils have severe limitations that make them generally unsuitable for cultivation; and
- Class VII Soils have very severe limitations that make them unsuitable for cultivation

Federal Farmland Protection Policy Act

The NRCS oversees the Farmland Protection Policy Act (FPPA) (7 United States Code [USC] Section 4201, et seq.; see also 7 Code of Federal Regulations [CFR] 658). The FPPA (a subtitle of the 1981 Farm Bill) is national legislation designed to protect farmland. The FPPA states its purpose is to "minimize the extent to which federal programs contribute to the unnecessary conversion of farmland to nonagricultural uses." The FPPA applies to projects and programs that are sponsored or financed in whole or in part by the federal government. The FPPA does not apply to private construction projects not subject to federal permitting and licensing, projects planned and completed without assistance from a federal agency, federal projects related to national defense during a national emergency, or projects proposed on land already committed to urban development. The FPPA spells out requirements to ensure federal programs to the extent practical are compatible with State, local, and private programs and policies to protect farmland and calls for the use of the Land Evaluation and Site Assessment (LESA) system to aid in analysis. Because the City may ultimately seek some federal funding for transportation or other capital improvements related to this Project, this document addresses the FPPA as an applicable regulation.

State

California Department of Conservation, Division of Land Resource Protection

As part of the Farmland Mapping & Monitoring Program (FMMP), the California Department of Conservation (DOC) applies the NRCS soil classifications to identify agricultural lands, and these agricultural designations

are used in planning for the present and future of California's agricultural land resources. These designated agricultural lands are included in the Important Farmland Maps. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. The DOC has a minimum mapping unit of 10 acres, with parcels that are smaller than 10 acres being absorbed into the surrounding classifications.

The list below provides a comprehensive description of all the categories mapped by the DOC.

- Prime Farmland. Farmland that has the best combination of physical and chemical features able to sustain long-term agricultural production. This land has the soil quality, growing season, and moisture supply needed to produce sustained high yields. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Farmland of Statewide Importance. Farmland similar to Prime Farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Land must have been used for irrigated agricultural production at some time during the four years prior to the mapping date.
- Unique Farmland. Farmland of lesser quality soils used for the production of the State's leading agricultural crops. This land is usually irrigated but may include non-irrigated orchards or vineyards as found in some climatic zones in California. Land must have been cropped at some time during the four years prior to the mapping date.
- Farmland of Local Importance. Land of importance to the local agricultural economy as determined by each county's board of supervisors and a local advisory committee.
- Grazing Land. Land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen Association, University of California Cooperative Extension, and other groups interested in the extent of grazing activities. The minimum mapping unit for Grazing Land is 40 acres.
- Urban and Built-up Land. Land occupied by structures with a building density of at least 1 unit to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This land is used for residential, industrial, commercial, institutional, public administrative purposes, railroad and other transportation yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment, water control structures, and other developed purposes.
- Other Land. Land not included in any other mapping category. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry or aquaculture facilities; strip mines and borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land.

As shown in **Figure 3-15**, approximately 89% of the Project site is designated Prime Farmland, approximately 9% is designated Farmland of Local Importance, and approximately 2% is designated Urban and Built-Up Land.

California Land Conservation Act (Williamson Act)

The California Land Conservation Act of 1965, commonly referred to as the Williamson Act, is promulgated in California Government Code (GC) Sections 51200-51297.4. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space uses in return for reduced property tax assessments. Private land within locally designated agricultural preserve areas is eligible for enrollment under Williamson Act contracts. However, an agricultural preserve must consist of no less than 100 acres. In order to meet this requirement two or more parcels may be combined if they are contiguous or if they are in common ownership.

The Williamson Act program is administered by the DOC in conjunction with local governments, which administer the individual contract arrangements with landowners. The landowner commits the parcel to a 10-year period, or a 20-year period for property restricted by a Farmland Security Zone Contract, wherein no conversion to a non-agricultural use is permitted. Each year the contract automatically renews unless a notice of non-renewal is filed. In return, the land is taxed at a rate based on the actual use of the land for agricultural purposes as opposed to its unrestricted market value. A landowner may also submit an application for immediate cancellation, provided that the cancellation is consistent with the criteria stated in the California Land Conservation Act and those adopted by the affected county or city. Non-renewal or immediate cancellation does not change the zoning of the property. Participation in the Williamson Act program is dependent on city or county adoption and implementation of the program and is voluntary for landowners.[6]

The Project site does not contain any land subject to a Williamson Act contract; the closest Williamson Act parcels are located 60 feet to the east and 200 feet south of the Project, respectively.

Farmland Security Zone Act

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the State Legislature is 1999 to ensure that long-term farmland preservation is part of public policy. Farmland Security Zone Act contracts are sometimes referred to as "Super Williamson Act Contracts." Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone classification automatically renews each year for an additional 20 years. In return for a further 35% reduction in the taxable value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property is precluded from developing the property into nonagricultural uses.7

California Farmland Conservancy Program

The California Farmland Conservancy Program (Public Resources Code Section 10200, et seq.) supports the voluntary granting of agricultural conservation easements from landowners to qualified nonprofit organizations, such as land trusts, as well as local governments. Conservation easements are voluntarily established restrictions that are permanently attached to property deeds, with the general purpose of retaining land in its natural, open-space, agricultural, or other condition while preventing uses that are deemed inconsistent with the specific conservation purposes expressed in the easements. Agricultural conservation easements define conservation purposes that are tied to keeping land available for continued use as farmland. Such farmlands remain in private ownership and the landowner retains all farmland use authority, but the farmland is restricted in its ability to be subdivided or used for nonagricultural purposes, such as urban uses. Potential impacts on conservation easements would be addressed in subsequent project-level documents.

California Environmental Quality Act (CEQA) Definition of Agricultural Lands

Public Resources Code Section 21060.1 defines "agricultural land" for the purposes of assessing environmental impacts using the FMMP. The FMMP was established in 1982 to assess the location, quality, and quantity of agricultural lands and the conversion of these lands. The FMMP provides analysis of agricultural land use and land use changes throughout California. This Project is being evaluated pursuant to CEQA.

Local

City of Visalia General Plan Update

- Policy LU-P-14: Recognize the importance of agriculture-related business to the City and region,

[6] California Department of Conservation. Williamson Act Program. http://www.conservation.ca.gov/dlrp/lca/Pages/Index.aspx. Date Accessed: 1/2015.
[7] Farmland Security Zone Act. http://www.consrv.ca.gov/dlrp/lca/farmland_security_zones/Pages/Index.aspx. Date Accessed: 1/21/2015.

- Policy LU-P-25: Provide planning and technical support for the relocation of agricultural operations currently located in the City to compatible locations in the Planning Area or the County.
- Policy LU-P-30: Maintain greenbelts, or agricultural/open space buffer areas, between Visalia and other communities by implementing growth boundaries and working with County and land developers to prevent premature urban growth north of the St. Johns River and other sensitive locations within the timeframe of this General Plan.
- Policy LU-P-44: Develop land use and site design measures for areas adjacent to high-voltage power facilities. Measures will include landscape buffers and mandatory setbacks from substations and transmission towers and lines.

3.2.3 Impact Assessment

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

Potentially Significant Impact. Construction of the Project would result in the conversion of approximately 253 acres of Prime Farmland and 21 acres of Farmland of Local Importance as shown on **Figure 3-15.** However, the Project would result in groundwater recharge in a region plagued by groundwater overdraft.

Implementation of the groundwater recharge component of the Project would increase the sustainability of groundwater levels and thereby helping the sustainability of agricultural efforts in the region and reducing the potential for the fallowing of farmland.

The Project site is located in Growth Area boundaries Tier II and Tier III. General Plan Policy LU-P-34 directs the City to "Create and adopt a mitigation program to address conversion of Prime Farmland and Farmland of Statewide Important in Tiers II and III." This policy however exempts public facilities, including regional parks and recharge basins.

The City foresaw the necessary conversion of farmland when adopting the 2030 General Plan Update. The EIR prepared in conjunction with the General Plan Update concluded that there would be significant and unavoidable impacts concerning the conversion of farmland. In certifying the EIR, the City Council adopted Resolution No. 2014-37, which contained a SOC declaring that the significant loss of agriculture was outweighed by the benefits that would result from its conversion, and that there were no feasible mitigation measures that could reduce the impact to a less than significant level. The General Plan designates narrow strips (i.e., buffers) that parallel and abut Mill Creek and Packwood Creek as Conservation; however, the overall Project site is designated as Parks/Recreation. Development of the site for recreational and other uses was addressed by the General Plan and the associated EIR and the impacts were determined to be significant and unavoidable and an SOC was adopted, no further analysis is required (Guidelines Section 15152(d)(1)).

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The portion of the site located within the Visalia City limits is currently zoned QP. The portion within unincorporated the County is zoned AE-20 (Agricultural). Recreational facilities are permitted by right within the City's QP zone; however, they are not permitted within the County's AE-20 zone. The Project would amend the City's General Plan to reflect the entirety of the Project site as Parks/Recreation,[8] with a corresponding change of zoning to QP. Given that the zoning of the Project site would no longer allow agriculture, there would not be a conflict with agricultural zoning. The site does not contain any land subject to a Williamson Act contract. There would be no impact.

[8] The creek buffer areas will remain designated as Conservation.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. The Project would not conflict with zoning for, or cause rezoning of, forest land or timberland. No designated forest land or timberland is present at the Project Site. There would be no impact.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

No Impact. The Project would not result in the loss of forest land or conversion of forest land to non-forest use, given that no designated forest land or timberland is present at the site.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Less than Significant Impact. The Project does not involve any other components beyond those previously discussed under Impact a) above that would result in the conversion of farmland to non-agricultural use.

3.2.4 Cumulative Impacts

Potentially Significant Impact. There are a total of four projects that have been proposed or approved within four miles of the Project. Implementation of this Project in combination with these related projects would result in the conversion of Prime Farmland and Farmland of Local Importance. The City General Plan includes policies that limit the conversion of Important Farmland areas to the minimum extent needed to accommodate long-term growth, and phasing development in such a way that prevents the possibility of reducing the viability of remaining farmland. There would be a cumulatively considerable impact to the conversion of Prime Farmland and Farmland of Local Importance; this impact would be significant and unavoidable.

3.3 Air Quality

Table 3-5. Air Quality

Air Quality					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d)	Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒
e)	Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

3.3.1 Environmental Setting

VRPA Technologies, Inc. prepared an *Air Quality and Greenhouse Gas Impact Assessment* in March 2019. The following information can be found in **Appendix C** of this document.

The Project lies within the central portion of the San Joaquin Valley in Tulare County. The Project is located near the eastern border of the City at an elevation of approximately 331 feet above sea level with the surrounding area mostly flat.

The County, including the City, is located in the San Joaquin Valley Air Basin (SJVAB), one of the most polluted air basins in the Country –The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. The climate in the County is classified as Mediterranean, with moist cool winters and dry warm summers.

The SJVAB comprises eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the States geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapis prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographical features result in weak airflow that becomes restricted vertically by high barometric

pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500 – 3,000 feet).

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO) for example, may form high concentrations when wind speed is low. During the winter, County experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble, so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. Inhalable particulate matter at 10 micrometers (PM_{10}) is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high-pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces consideration precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the Valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, Bakersfield at the southern end of the valley receives less than 6 inches per year and the City received on average 10.93 inches per year.

In addition to climatic conditions, air pollution can be caused by human/socioeconomic conditions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, and agriculture. These are called anthropogenic, or human-caused, sources of emissions. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

CO emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contribute 65 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles contribute another 17 percent. Motor vehicles account for significant portions of regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For the County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides, and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in the County consist of agricultural production and processing operations, wine production, and marketing operations.

The primary contributors of PM_{10} emissions in the San Joaquin Valley are fugitive windblown dust from "open" fields (38%) and road dust from both paved and unpaved roads (38%). Farming activities only contribute 14% of the PM_{10}.

The SJVAB is regulated by the San Joaquin Valley Air Pollution Control District (SJVAPCD) and the California Air Resources Board (CARB). SJVAPCD and CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, Inhalable Particulate Matter at 2.5 micrometers ($PM_{2.5}$), and PM_{10}. The closest monitoring station to the Project is the N. Church Street Monitoring Station. The station monitors particulates, ozone, CO, and nitrogen dioxide (NO_2) in parts per million (ppm).

Table 3-6. Maximum Pollutant Level Proximate to Project

Maximum Pollutant Levels at N. Church Street Monitoring Station						
Pollutant	Time Averaging	2011	2012	2013	Standards	
		Maximums	Maximums	Maximums	National	State
Ozone (O_3)	1-hour	0.119 ppm	0.111 ppm	0.095 ppm	-	0.090 ppm
Ozone (O_3)	8-hour	0.084 ppm	0.094 ppm	0.084 ppm	0.075 ppm	0.070 ppm
Carbon Monoxide (CO)	8-hour	0.105 ppm	0.108 ppm	0.095 ppm	9.0 ppm	9.0 ppm
Nitrogen Dioxide (NO_2)	1-hour	0.058 ppm	0.061 ppm	0.062 ppm	100 ppb (0.100 ppm)	0.18 ppm
Nitrogen Dioxide (NO_2)	Annual Average	0.012 ppm	0.012 ppm	0.012 ppm	0.053 ppm	0.030 ppm
Particulates (PM_{10})	24-hour	78.1 µg/m^3	76.2 µg/m^3	160.0 µg/m^3	150 µg/m^3	50 µg/m^3
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	33.4 µg/m^3	37.3 µg/m^3	43.2 µg/m^3	-	20 µg/m^3
Particulates ($PM_{2.5}$)	24-hour	73.2 µg/m^3	76.2 µg/m^3	124.6 µg/m^3	35 µg/m^3	-
Particulates ($PM_{2.5}$)	Federal Annual Arithmetic Mean	16.0 µg/m^3	14.7 µg/m^3	18.9 µg/m^3	12 µg/m^3	12 µg/m^3

CARB Website, 2015

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in County follow (**Appendix C)**.

Ozone (1-hour and 8-hour)

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), Nitrogen Oxides (NO_X), and sunlight in order to form. ROG and NO_X are emitted from various sources throughout the

County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate number of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NO_X and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the United State Environmental Protection Agency's (EPA) health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields. Ozone also damages natural ecosystems, such as forests and foothill communities and some man-made materials, such as rubber, paint, and plastic.

High concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than do adults. Teenagers spend at least twice as much time as adults in active sports and outdoor activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

CARB found ozone levels in the SJVAB in nonattainment of federal and State standards (**Appendix C**).

Particulate Matter (PM_{10} and $PM_{2.5}$)

Particulate matter pollution consists of very small liquid and solid particles that can remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM_{10} refers to particles less than or equal to 10 microns in aerodynamic diameter. $PM_{2.5}$ refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM_{10}. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM_{10} in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM_{10} and $PM_{2.5}$ can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM_{10} and $PM_{2.5}$. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO_2) and NO_X in the atmosphere to create sulfates and nitrates. Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The Air Resources Board 2008 $PM_{2.5}$ Plan builds upon the aggressive emission reduction strategy adopted in the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS for $PM_{2.5}$. The 2008 $PM_{2.5}$ Plan indicates that all planned reductions (from the 2007 Ozone Plan and state standard.

The following new controls considered in the 2008 $PM_{2.5}$ Plan include:

- Tighter restrictions on residential wood burning and space heating;
- More stringent limits on $PM_{2.5}$, SO_2, and NO_X emissions from industrial sources;
- Measures to reduce emissions from prescribed burning and agricultural burning; and
- More effective work practices to control $PM_{2.5}$ in fugitive dust.

PM_{10} and $PM_{2.5}$ particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory systems natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM_{10} and $PM_{2.5}$ can aggravate respiratory disease and cause lung damage, cancer, and premature death.

Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM_{10}. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM_{10} exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM_{10} can also damage manmade materials and is a major cause of reduced visibility in many parts of the United States.

CARB found PM_{10} levels in the SJVAB in attainment of federal standards and nonattainment for State standards and found $PM_{2.5}$ levels in the SJVAB in nonattainment of federal and State standards.

Carbon Monoxide

CO is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome; and increased daily mortality rate.

Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

CARB found CO levels in the SJVAB in attainment of federal standards and unclassified for State standards.

Nitrogen Dioxide

NO_x is a family of highly reactive gases, including nitrogen dioxide (NO_2), that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NO_x is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NO_x is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

NO_x is an ozone precursor that combines with ROG to form ozone. See the ozone section above for a discussion of the health effects of ozone.

Direct inhalation of NO_x can also cause a wide range of health effects. NO_x can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of NO_2 may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO_2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NO_x are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NO_x can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NO_x can also impair visibility. NO_x is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NO_x in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

NO_2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO_2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO_2 can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NO_x contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

CARB found NO_2 levels in the SJVAB in attainment of federal and State standards.

Sulfur Dioxide

The major source of SO_2 is the combustion of high-sulfur fuels for electricity generation, petroleum refining, and shipping. High concentrations of SO_2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO_2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO_2, in conjunction with high levels of $PM_{2.5}$ and PM_{10}, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lung's defenses. SO_2 also is a major precursor to $PM_{2.5}$, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

CARB found SO_2 levels in the SJVAB as unclassified for federal standards and in attainment for State standards.

Lead

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys, liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

CARB found lead levels in the SJVAB in attainment of federal and State standards.

Toxic Air Contaminants (TACs)

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TACs) are another group of pollutants of concern. TACs are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation, and monitoring of TACs is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TACs are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TACs are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the EPA: diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TACs listed above. A 10-year research program (CARB 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TACs in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TACs, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. **Table 3-7** depicts the CARB Handbook recommendation buffer distances associated with various types of common sources.

Existing air quality concerns within County and the entire SJVAB are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in GHG emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person to react to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another.

It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor.

Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

The intensity of an odor sources operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB. The types of facilities that are known to produce odors are shown in Table 8 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. Information presented in **Table 3-7** will be used as a screening level of analysis for potential odor sources for the Project.

Table 3-7. Screening Levels for Potential Odor Sources

Screening Levels for Potential Odor Sources	
Type of Facility	**Distance**
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g., auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

SJVAPCD, 2015.

Naturally Occurring Asbestos

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. Asbestos typically makes up 1% up to approximately 25% and sometimes more of these rocks. It is released from ultramafic rock when the rock is broken or crushed. This can happen when cars drive over unpaved roads or driveways surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The Project construction phases may cause asbestos to become airborne due to the construction activities that would occur on site. In order to control naturally occurring asbestos dust, the project can use some of the following control actions to reduce the release of airborne asbestos fibers:

- Water wetting of road surfaces;

- Rinse vehicles and equipment;
- Wet loads of excavated material; and
- Cover loads of excavated material.

3.3.2 Methodology

An *Air Quality & Greenhouse Gas Impact Assessment* was completed by VRPA Technologies, Inc. in March 2019. The Assessment Report includes an Air Quality and Greenhouse Gas model completed in September 2017 using CalEEmod 2016.3.1. and is attached as **Appendix C**

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the County region. The SJVAPCD has established thresholds for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that would occur indefinitely as a result of project operations. Impacts would be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated would be those involving construction and operational emissions of criteria pollutants.

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA documents, NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc.

3.3.3 Criteria for Significance

According to CEQA, a project would normally have a significant adverse impact on air quality if it would "violate any ambient air quality standard, conflict with or obstruct implementation of an applicable Air Quality Plan (AQP), result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment, create substantial objectionable odors, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

For regional pollutants such as ozone, PM_{10}, sulfur dioxide, or nitrogen dioxide, the impact of new development cannot be predicted in terms of concentrations but is addressed in terms of changes in the regional burden of emissions.

For localized pollutants, such as carbon monoxide, an increase in concentrations that would result in a predicted violation of the most stringent State or federal standard (20.0 ppm for 1-hour or 9.0 ppm for 8-hours) is considered to represent a significant impact. This assessment provides for two types of localized area pollutant impact analysis; street and highway improvements and traffic volumes and construction impacts.

For purposes of this environmental assessment, an impact is considered significant if one or more of the following conditions occur from implementation of the Project:

- Regional air quality emission exceeds standards;

- Local air quality emission exceeds standards;
- Conflict/obstruct implementation of an applicable AQP;
- Result in a cumulatively considerable net increase of any criteria pollutant in non-attainment area;
- Significant construction related air quality impacts occur; and/or
- The creation of objectionable odors.

The SJVAPCD has established thresholds for certain pollutants shown in Table 9 of **Appendix C**

3.3.4 Regulatory Setting

Federal

United States Environmental Protection Agency (EPA)

The Clean Air Act (CAA), first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the CAA sets a deadline for the attainment of these standards. That deadline has since passed. The other CAA Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The EPA is responsible for enforcing the 1990 amendments.

CAA and the national ambient air quality standards (NAAQS) identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, CO, NO_2, SO_2, $PM_{2.5}$ and PM_{10}, and lead (Pb). Two types of NAAQS have been established: primary standards, which protect public health, and secondary standards, which protect public welfare from non-health-related adverse effects such as visibility restrictions.

The CAA also required each state to prepare an air quality control plan referred to as a State Implementation Plan (SIP). The CAA Amendments of 1990 added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is periodically modified to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins as reported by their jurisdictional agencies. The EPA has responsibility to review all state SIPs to determine conformance with the mandates of the CAA, and the amendments thereof, and determine if implementation would achieve air quality goals. If the EPA determines a SIP to be inadequate, a Federal Implementation Plan may be prepared for the nonattainment area that imposes additional control measures.

CAA Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR 93 Subpart A) require that each new Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the Metropolitan Planning Organization (MPO), in this case the County Association of Governments (TCAG) or accepted by the United States Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the NAAQS. However, because the San Joaquin Valley State Implementation Plan for CO, PM_{10}, $PM_{2.5}$ and ozone address attainment of both the State and federal standards for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the State standards. Compliance with the California Ambient Air Quality Standards (CAAQS) is provided on the pages following this federal conformity discussion.

The EPA approved San Joaquin Valley reclassification of the ozone (8-hour) designation to extreme nonattainment in the Federal Register on May 5, 2010, even though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard. In accordance with the CAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that

reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. In the Federal Register on October 26, 2015, the EPA revised the primary and secondary standard to 0.070 ppm to provide increased public health protection against health effects associated with long- and short-term exposures. The previous ozone standard was set in 2010 at 0.075 ppm.

National Environmental Policy Act

NEPA provides general information on the effects of federally funded projects. The act was implemented by regulations included in the 40 CFR 6. The code requires careful consideration concerning environmental impacts of federal actions or plans, including local projects that receive federal funds. The regulations address impacts on land uses and conflicts with state, regional, or local plans and policies, among others. They also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible. The Project is subject to NEPA compliance because of the potential for federal grant funding for construction of the Project. The air quality assessment required under federal air quality standards and regulations covers the basic outline for project-level assessment under NEPA guidelines. The CAA also requires a parallel "Conformity" in addition to the basic impact assessment.

Toxic Substances Control Act

The Toxic Substances Control Act first authorized the EPA to regulate asbestos in schools and public and commercial buildings under Title II of the law, which is also known as the Asbestos Hazard Emergency Response Act (AHERA). AHERA requires Local Education Agencies to inspect their schools for Asbestos-Containing Building Materials and prepare management plans to reduce the asbestos hazard. The Act also established a program for the training and accreditation of individuals performing certain types of asbestos work.

National Emission Standards for Hazardous Air Pollutants

Pursuant to the CAA, the EPA established the National Emission Standards for Hazardous Air Pollutants. These are technology-based source-specific regulations that limit allowable emissions of Hazardous Air Pollutants (HAPs).

State

California Air Resources Board and the California Clean Air Act

The CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the NAAQS established by the EPA. Whereas CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by the CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management Districts (AQMDs) and approved by CARB. The SJVAPCD is one of 35 AQMDs that have prepared air quality management plans to accomplish a five percent annual reduction in emissions documenting progress toward the CAAQS.

States may establish their own standards, provided the state standards are at least as stringent as the NAAQS. California has established the CAAQS pursuant to Health and Safety Code (HSC) Section 39606(b) and its predecessor statutes.

Health and Safety Code (HSC) Section 39608 requires CARB to "identify" and "classify" each air basin in the state on a pollutant-by-pollutant basis. Subsequently, the CARB designated areas in California as nonattainment based on violations of the CAAQS. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the state were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

Other CARB duties include monitoring air quality. CARB has established and maintains, in conjunction with local APCDs and AQMDs, a network of sampling stations (called the State and Local Air Monitoring Stations [SLAMS] Network), which monitors the present pollutant levels in the ambient air.

All of Tulare County, including the City, is in the SJVAB. A map of the SJVAB is provided in **Appendix C**. **Table 3-8** contains a summary of State and federal air quality standards and the SJVABs attainment status for common pollutants.

CARB Mobile-Source Regulation

CARB is responsible for controlling emissions from the operation of motor vehicles in the state. Rather than mandating the use of specific technology or the reliance on a specific fuel, CARBs motor vehicle standards specify the allowable grams of pollution per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved. Towards this end, CARB has adopted regulations that require auto manufacturers to phase in less-polluting vehicles.

The CCAA was first signed into law in 1988 and is administered by CARB. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the States air quality goals, planning and regulatory strategies, and performance. The CAAQS, established pursuant to Health & Safety Code Section 39606(b), are similar to, but more stringent than, the NAAQS.

Table 3-8. Summary of Ambient Air Quality Standards

Summary of Ambient Air Quality Standards & Attainment Designation					
Pollutant	Averaging Time	California Standards*		National Standards*	
		Concentration*	Attainment Status	Primary	Attainment Status
Ozone (O_3)	1-hour	0.09 ppm	Non- Attainment	–	Non-Attainment (Extreme)**
	8-hour	0.070 ppm		0.075 ppm	
Particulate Matter (PM_{10})	AAM	20 µg/m^3	Non-Attainment	–	Attainment
	24-hour	50 µg/m^3		150 µg/m^3	
Fine Particulate Matter ($PM_{2.5}$)	AAM	12 µg/m^3	Non-Attainment	12 µg/m^3	Non-Attainment
	24-hour	No Standard		35 µg/m^3	
Carbon Monoxide (CO)	1-hour	20 ppm	Attainment/ Unclassified	35 ppm	Attainment/ Maintenance
	8-hour	9 ppm		9 ppm	
	8-hour (Lake Tahoe)	6 ppm		–	
Nitrogen Dioxide (NO_2)	AAM	0.030 ppm	Attainment	0.053 ppm	Attainment/ Unclassified
	1-hour	0.18 ppm		0.100 ppb	
Sulfur Dioxide (SO_2)	AAM	–	Attainment	0.03 ppm	Attainment/ Unclassified
	24-hour	0.04 ppm		0.14 ppm	
	3-hour	–		--	
	1-hour	0.25 ppm		75 ppb	
Lead	30-day Average	1.5 µg/m^3	Attainment	–	No Designation/ Classification
	Calendar Quarter	–		1.5 µg/m^3	
	Rolling 3-Month Average	–		0.15 µg/m^3	
Sulfates	24-hour	25 µg/m^3	Attainment	No Federal Standards	
Hydrogen Sulfide	1-hour	0.03 ppm (42 µg/m^3)	Unclassified		
Vinyl Chloride	24-hour	0.01 ppm (26 µg/m^3)	Attainment		
Visibility-Reducing Particle Matter	8-hour	Extinction coefficient: 0.23/km-visibility of 10 miles or more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70%.	Unclassified		

** For more information on standards visit :http//www.arb.ca.gov.research/aaqs/aaqs2.pdf*
*** No federal 1-hour standard. Reclassified extreme nonattainment for the federal 8-hour standard May 5, 2010.*
****Secondary Standard*
Source: ARB 2015; SJVAPCD 2015

Assembly Bills 1807 & 2588 - Tanner Air Toxics Act

California regulates TACs primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as a TAC. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TACs. To date, CARB has identified more than 21 TACs and has adopted EPAs list of HAPs as TACs. Most recently, diesel PM was added to the CARB list of TACs. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure for sources that emit that particular TAC. CARB list of TACs is provided below:

- Benzene
- Ethylene Dibromide
- Ethylene Dichloride
- Hexavalent chromium
- Asbestos
- Dibenzo-p-dioxins and Dibenzofurans
- Cadmium
- Carbon Tetrachloride
- Ethylene Oxide
- Methylene Chloride
- Trichloroethylene
- Chloroform
- Vinyl chloride
- Inorganic Arsenic
- Nickel
- Perchloroethylene
- Formaldehyde
- 1,3-Butadiene
- Inorganic Lead
- Particulate Emissions from Diesel-Fueled Engines
- Environmental Tobacco Smoke
- EPA Hazardous Air Pollutants (187)

If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology to minimize emissions.

California Assembly Bill 170

Assembly Bill 170, Reyes (AB 170), was adopted by state lawmakers in 2003 creating GC Section 65302.1 which requires cities and counties in the San Joaquin Valley to amend their general plans to include data and analysis, comprehensive goals, policies and feasible implementation strategies designed to improve air quality.

State Tailpipe Emission Standards

To reduce emissions from off-road diesel equipment, on-road diesel trucks, and harbor craft, CARB established a series of increasingly strict emission standards for new engines. New construction equipment used for the Project, including heavy duty trucks, off-road construction equipment, tugboats, and barges, would be required to comply with the standards.

Local

San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within the County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. The CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley AQAP, dated January 30, 1992, in response to the requirements of the CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient air quality and meteorological conditions, and implementation of programs and regulations required by the CAA and the CCAA.

The SJVAPCD has prepared the 2013 Ozone Plan to achieve federal and State standards for improved air quality in the SJVAB regarding ozone. It provides a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the SJVAB, and calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution, a 75-percent reduction in ozone-forming oxides of nitrogen emissions, and addresses the remaining requirement under the 1979 revoked 1-hour ozone NAAQS.

The EPA in 2006 issued a Final Rule determining that the Basin had attained the NAAQS for PM_{10}, it did however note that the Final Rule did not constitute a redesignation to attainment until all of the CAA requirements under Section 107(d)(3) were met. In response, the SJVAPCD prepared the 2007 PM_{10} Maintenance Plan and Request for Redesignation (2007 PM_{10} Plan). The SJVAPCD has prepared the 2012 $PM_{2.5}$ Plan to achieve federal and State standards for improved air quality in the SJVAB. The 2012 $PM_{2.5}$ Plan provides a comprehensive list of regulatory and incentive-based measures to reduce $PM_{2.5}$.

The Guide for Assessing and Mitigation Air Quality Impacts was prepared in 2015, which is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. It describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents and recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

The SJVAPCD documents identified above represent the SJVAPCDs plan to achieve both State and federal air quality standards. The regulations and incentives contained in these documents must be legally enforceable and permanent. These plans separate emissions reductions and compliance into different emissions source categories. The SJVAPCD Rules and Regulations that are applicable to the Project include, but are not limited to, the following:

- Regulation VIII (Fugitive Dust Prohibitions), Regulation VIII (Rules 8011-8081): This regulation is a series of rules designed to reduce particulate emissions generated by human activity, including construction and demolition activities, carryout and trackout, use of paved and unpaved roads and traffic areas, bulk material handling and storage, open space areas, etc. If a non-residential area is five or more acres in size, a Dust Control Plan must be submitted as specified in Section 6.3.1 of Rule 8021. Additional requirements may apply, depending on total area of disturbance.
- Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities: District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The Project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.
- Rule 9510 – Indirect Source Review: Rule 9510, *Indirect Source Review* (ISR), fulfills the SJVAPCD emission reduction commitments in the PM_{10} and Ozone Attainment Plans through emission reductions associated with construction and operational activities for projects subject to the rule. Since the project contains more than 20,000 square feet of recreational space it will be required to comply with Rule 9510. Compliance with Rule 9510 is separate from the CEQA process, although the control measures used to comply with Rule 9510 may be used to mitigate CEQA impacts.

- Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations: If asphalt paving will be used, then paving operations of the Project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt, and emulsified asphalt for paving and maintenance operations.

- Regulatory Attainment Designations: Under the CCAA, CARB is required to designate areas of the state as attainment, nonattainment, or unclassified with respect to applicable standards. An "attainment" designation for an area signifies that pollutant concentrations did not violate the applicable standard in that area. A "nonattainment" designation indicates that a pollutant concentration violated the applicable standard at least once, excluding those occasions when a violation was caused by an exceptional event, as defined in the criteria. Depending on the frequency and severity of pollutants exceeding applicable standards, the nonattainment designation can be further classified as serious nonattainment, severe nonattainment, or extreme nonattainment, with extreme nonattainment being the most severe of the classifications. An "unclassified" designation signifies that the data does not support either an attainment or nonattainment designation. The CCAA divides districts into moderate, serious, and severe air pollution categories, with increasingly stringent control requirements mandated for each category.

  The EPA designates areas for ozone, CO, and NO_2 as "does not meet the primary standards," "cannot be classified," or "better than national standards." For SO_2, areas are designated as "does not meet the primary standards," "does not meet the secondary standards," "cannot be classified," or "better than national standards." However, CARB terminology of attainment, nonattainment, and unclassified is more frequently used. The EPA uses the same sub-categories for nonattainment status: serious, severe, and extreme. In 1991, EPA assigned new nonattainment designations to areas that had previously been classified as Group I, II, or III for PM_{10} based on the likelihood that they would violate national PM_{10} standards. All other areas are designated "unclassified."

  The SJVAB is currently designated as a nonattainment area with respect to the state PM_{10} standard, ozone, and $PM_{2.5}$ standards. The SJVAB is designated nonattainment for the national 8-hour ozone and $PM_{2.5}$ standards. On September 25, 2008, the EPA redesignated the San Joaquin Valley to attainment for the PM_{10} NAAQS and approved the PM_{10} Maintenance Plan.

Table 3-9 shows the SJVAPCD thresholds of significance for both construction- and operation-related emissions from a given project.

Table 3-9. SJVAPCD Thresholds of Significance

SJVAPCD Thresholds of Significance (tons/yr)		
Pollutant	**Construction Emissions**	**Operation Emissions**
ROG	10	10
NO_x	10	10
CO	100	100
SO_x	27	27
PM_{10}	15	15
$PM_{2.5}$	15	15

Source: SJVAPCD, May 2015.

City of Visalia General Plan

- Policy AQ-P-2: Require use of Best Management Practices (BMPs) to reduce particulate emission as a condition of approval for all subdivisions, development plans and grading permits, in conformance with the San Joaquin Valley Air Pollution Control District Fugitive Dust Rule.

- Policy AQ-P-9: Continue to mitigate short-term construction impacts and long-term stationary impacts on air quality on a case-by-case basis and continue to assess air quality impacts through environmental review. Require developers to implement BMPs to reduce air pollutant emissions associated with the construction and operation of development projects.

City of Visalia Climate Action Plan

The City Climate Action Plan (CAP) was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals.

The major long-term objectives of the City's CAP for the City government and the community as a whole include the following:

- Reduce net GHG emissions from both municipal operations and community activities;
- Promote cleaner and healthier air to breathe;
- Help the City and its residents save on energy costs;
- Reduce vulnerability to changes in energy availability and price; and
- Increase public awareness of climate change issues.

The City selected the years 2020 and 2030 to establish mitigation targets for the CAP. A reduction of 15% below the 2005 baseline year level was the target for 2020. A reduction of 30% below the 2005 baseline year level is the target for 2030. The City established two mitigation milestones to correlate with the planning horizon of the 2030 General Plan Update, and to ensure that the City is working towards the States goal of an 80% reduction below baseline by 2050.

The City has instituted various actions in an effort to meet the year 2020 and 2030 mitigation targets. The measures identified to achieve mitigation targets are organized into five categories: Energy Systems, Transportation, Water and Resource Conservation, Transportation / Land Use, and Waste and Resource Conservation. Included in the Transportation category is a measure regarding the expansion of bicycle paths. The Project includes the development of multi-use trails which coincides with the goals of the CAP.

3.3.5 Impact Assessment

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less than Significant Impact. The primary way of determining consistency with an AQP is to determine a projects consistency with the applicable General Plan. This ensures that the projects population density and land use are consistent with the growth assumptions used in the AQPs for the air basin. As this Project requires a General Plan Amendment, the following criteria for determining Project consistency with the current AQPs are as follows:

1. Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQPs?
2. Would the project comply with applicable control measures in the AQPs?

Regional air quality impacts and attainment of standards are the result of cumulative impacts of all emission sources within the air basin. Individual projects are generally not large enough to contribute measurably to an existing violation of air quality standards. Therefore, the cumulative impact of the Project is based on its cumulative contribution. Because of the regions non-attainment status for ozone, $PM_{2.5}$, and $PM_{10,}$ if Project generated emission of either of the ozone precursor pollutants ROG, NO_x, PM_{10}, or $PM_{2.5}$ would exceed the SJVAPCDs significance thresholds, then the Project would be considered to contribute to violations of the applicable standards and conflict with the attainment plans. As demonstrated in **Table 3-8** and **Table 3-9**,

Project emissions of criteria pollutants would not exceed the SJVAPCDs significance thresholds. Therefore, the Project would not contribute to air quality violations in conflict with attainment plans.

The AQP contains a number of control measures, including Regulation VII-Fugitive PM_{10} Prohibitions and Rule 9510 ISR which are applicable to the Project. Regulation VII-Fugitive PM_{10} Prohibitions and Rule 9510 ISR are adopted rules and regulations that constitute enforceable requirements with which the project must comply. The Project would comply with all applicable SJVAPCD rules and regulations; therefore, the Project complies with the criterion and would not conflict with or obstruct implementation of the applicable air quality attainment plans. As a result, the Project would not conflict with or obstruct implementation of any AQP. Therefore, there would be a less than significant impact.

b) Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less than Significant Impact.

Short-Term Impacts

The analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project would be constructed independently of each other and the periods of construction would not overlap. As shown in **Table 3-10,** the annual emissions from the construction phase of Phase 1, 2, and 3 of the Project would be less than the applicable SJVAPCD emission thresholds for criteria pollutants. The construction emissions are therefore considered less than significant with the compliance to the SJVAPCD applicable Regulation VIII control measures, which are provided below. If Phase 1, 2, or 3 of the Project is constructed simultaneously with another phase, the SJVAPCD threshold for NO_x emissions would be exceeded.

1. All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.
2. All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.
3. All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.
4. When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.
5. All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.
6. Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.
7. Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.

Naturally Occurring Asbestos (NOA)

The Project construction phases, particularly activities involving earthmoving, may cause asbestos to become airborne. In order to control naturally occurring asbestos dust, the Project would be required to submit a Dust Control Plan under SJVAPCD Rule 8021. The Dust Control Plan may include the following measures:

1. Water wetting of road surfaces
2. Rinse vehicles and equipment
3. Wet loads of excavated material
4. Cover loads of excavated material

Long-Term Impacts

Emissions from long-term operations generally represent a projects most substantial air quality impact. Long-term emissions from the Project are generated primarily by mobile source (vehicle) emissions related to operational activities (i.e., vehicle trips by those driving to and from the site) and area sources such as lawn and facility maintenance equipment. **Table 3-11** delineates operational emissions by phase. **Appendix C** contains Tables 12, 13, 14, 15, and 16 summarize the operational impacts by pollutant. Results show that Project operational emissions would not exceed applicable emission thresholds. Therefore, Project long-term emissions would be considered less than significant.

Construction-Related Emissions

Table 3-10. Maximum Unmitigated Project Construction Related Emissions

Maximum Unmitigated Project Construction-Related Emissions					
Pollutant	Construction Emissions (tons/yr)				
	Phase 1	Phase 2	Phase 2 Tower Street	Phase 3	SJVAPCD Thresholds of Significance
ROG	0.86	0.64	0.28	1.71	10
NO_x	6.82	6.87	2.89	7.44	10
CO	5.52	3.89	2.31	4.31	100
SO_x	0.01	0.01	0.00	0.01	27
PM_{10}	1.37	1.20	1.42	2.79	15
$PM_{2.5}$	0.77	0.72	0.39	1.47	15

*Source: CalEEMod 2016.3.1., March 2019 (see **Appendix C**)*

Operational Emissions

Table 3-11. Maximum Unmitigated Project Operation-Related Net Emissions

Maximum Unmitigated Project Operational-Related Net Emissions				
Pollutant	Operational Emissions (tons/yr)			
	Phase 1	Phase 2	Phase 3	SJVAPCD Thresholds of Significance
ROG	0.04	0.83	0.99	10
NO_x	0.00	2.79	4.58	10
CO	0.00	0.00	0.00	100
SO_x	0.00	0.01	0.02	27

Maximum Unmitigated Project Operational-Related Net Emissions				
Pollutant	Operational Emissions (tons/yr)			
	Phase 1	Phase 2	Phase 3	SJVAPCD Thresholds of Significance
PM_{10}	0.00	0.00	0.00	15
$PM_{2.5}$	0.00	0.00	0.00	15

*Source: CalEEMod 2016.3.1., March 2019 (see **Appendix C**)*

c) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Less than Significant Impact. County is nonattainment for Ozone (1 hour and 8 hour) and PM_{10} (State standards) and $PM_{2.5}$. The SJVAPCD has prepared the 2013 Ozone Plan, 2007 PM_{10} Maintenance Plan, and 2012 $PM_{2.5}$ Plan to achieve federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in a), the Project does not obstruct implementation of these plans.

As described in b) above, impacts related to construction and operational emissions would be less than significant. In addition, results of the CALINE analysis (Section 3.3.2 of **Appendix C**) show that the intersections of Lovers Lane and Mineral King Avenue, McAuliff Street and Mineral King Avenue, and Road 156 and Noble Avenue are expected to generate CO concentrations that would not exceed the federal or State 1-hour and 8-hour standards. Further, as indicated in Section 3.3.2 of **Appendix C**, the Project would not create objectionable odors affecting a substantial number of people. The Project would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or State ambient air quality standard. Therefore, any impacts would be less than significant.

d) Would the project expose sensitive receptors to substantial pollutant concentrations?

No Impact. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TACs from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4 of **Appendix C**) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TACs are not a concern. An evaluation of nearby land uses completed by VRPA showed that the Project would not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is located outside the recommended buffer distances associated with the sources found in **Appendix C** Table 4, the Project would not expose sensitive receptors to substantial pollutant concentrations. Therefore, there would be no impact.

e) Would the project create objectionable odors affecting a substantial number of people?

Less than Significant Impact. The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and
- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The Project would not generate odorous emissions but would attract people to its site for recreational activities. The Double D Dairy, LLC is located approximately 0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance provided in **Table 3-7**. However, analysis pursuant to CEQA must address whether a project would unduly affect existing receptors, not whether existing conditions would affect a project. As a result, the Project would not be evaluated for its potential to place sensitive receptors near existing odor sources.

The intensity of an odor sources operations and its proximity to sensitive receptors influences the potential significance of odor emissions. As shown in **Table 3-7** the SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJVAB along with a reasonable distance from the source within which the degree of odors could possibly be significant. Regional parks and groundwater recharge basins are not among those listed facilities.

Based on the assessment above, the Project would not generate potential odorous emissions. Therefore, any impacts would be less than significant.

3.3.6 Cumulative Impacts

Less than Significant Impact. Automobiles, trucks, buses, and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Traffic forecasts for Existing Plus Project (Phase 3 - Full Build) and Cumulative Year 2040 With and Without Project (Phase 3 - Full Build) conditions were used in the CALINE analysis by VRPA Technologies, Inc. to determine CO concentrations under worst case conditions (**Appendix C**). The Project would not exceed federal or State standards for Phase 1 or Phase 2 of the Project given the assessment of Phase 3 operations; therefore, cumulative impacts of criteria pollutants generated by the Project would be less than significant.

As noted in Impact Analysis c) above, inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. The Project would not obstruct implementation of AQP's; therefore, the Project is consistent with the assumptions used in the 2013 Ozone Plan, 2007 PM_{10} Maintenance Plan, and 2012 $PM_{2.5}$ Plan.

3.4 Biological Resources

Table 3-12. Biological Resources

Biological Resources				
Would the project:	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

3.4.1 Environmental Setting

A site-specific biological evaluation was prepared by Live Oak Associates, Inc., a qualified biological consulting firm. The biological evaluation consisted of field surveys conducted on December 29 and 30, 2014 and a report dated June 6, 2019. On May 13, 2022, Live Oak Associates, Inc. biologist Jeff Gurule performed a new field survey to document current site conditions. A biological evaluation update letter dated June 27, 2022 has been prepared to reflect the May 2022 field survey. The contents of the biological evaluation report and the update letter, attached as **Appendix D**, are the primary source for the description of the environmental setting and impact assessment.

The area of potential effect (APE) is located in a portion of the central San Joaquin Valley that has, for decades, experienced intensive agricultural and urban disturbances. Current agricultural endeavors in the region include

orchards, row crops, and dairies. The APE lies east and north of the City, and is surrounded by agricultural lands, rangeland, residential and commercial areas.

Like most of California, the central San Joaquin Valley has a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the Project site is about 10.93 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Stormwater readily infiltrates the soils of and surrounding the Project site.

The three water conveyance channels that traverse the site are Mill Creek, Packwood Creek, and Oakes Ditch. These waterways historically contained large areas of riparian, wetland, and aquatic ecosystems that supported large populations of diverse native plants and animals. An historic aerial photo from 1937 is presented as Figure 4 of the Biological Evaluation Report **Appendix D**. However, at present these waterways support only a fraction of the riparian habitats they once did, and aquatic habitats have been greatly degraded as a result of agricultural runoff and controlled flows. In essence, these waterways have been reduced to distributary channels of the Kaweah River supplying water to farmland in the region. Tulare Lake has long been drained and converted to farmland and urban uses.

Native plant and animal species once abundant in the region have become locally extirpated or have experienced large reductions in their populations due to conversion of upland, riparian, and aquatic habitats to agricultural and urban uses. Remaining native habitats are particularly valuable to native wildlife species including special status species that still persevere in the region.

3.4.2 Methodology

The analysis of impacts, as discussed in this report, is based on the Sources of information used in the preparation of this analysis included: (1) the California Department of Fish and Wildlife (CDFW)*California Natural Diversity Database*, (2) the *Online Inventory of Rare and Endangered Vascular Plants of California*, and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. Reconnaissance-level field surveys of the Project site were conducted on December 29 and 30, 2014 by Live Oak Associates ecologists. These surveys consisted of walking or driving through accessible portions of the Project site, scanning non-accessible areas and surrounding lands with binoculars, identifying the principal land uses of each site, identifying constituent plants and animals of each land use type, and mapping habitat suitable for special status species and other sensitive biological resources. (See **Appendix D**)

Comprehensive protocol level surveys for sensitive biological resources were not conducted for this study. Field surveys conducted for this study were sufficient to assess the significance of potential biological impacts associated with the development of the Project site with water storage, regulation facilities, irrigation infrastructure, active and passive park uses and related amenities, a dog park, and maintenance yards and to assess the need for more detailed studies that could be warranted if potentially sensitive biotic resources were identified in this initial biological evaluation.

3.4.3 Regulatory Setting

Federal

Endangered Species Act

The Endangered Species Act (ESA) administered by the United States Fish and Wildlife Service (USFWS) protects fish and wildlife species and their habitats that have been identified by the USFWS as threatened or endangered. Endangered refers to species, subspecies, or distinct population segments that are in danger of

extinction through all or a significant portion of their range. Threatened refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future.

Due to the potential for the City to obtain federal grant funding for the Project, Sections 7 and 9 of the ESA may be relevant. Provisions of Sections 7 and 9 are summarized below.

- Section 7: Section 7 of the ESA provides a means for authorizing incidental take of threatened and endangered species by federal agencies. "Take" as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct". "Harm" is defined as "any act that kills or injures the species, including significant habitat modification." Under Section 7, the federal agency funding, permitting, or conducting an action [the lead federal agency, such as the United States Army Corps of Engineers (USACE)] must consult with USFWS to ensure that the proposed action would not jeopardize endangered or threatened species or destroy or adversely modify designated critical habitat. If a Project "may affect" a listed species or designated critical habitat, the federal lead agency is required to prepare a biological assessment (BA) evaluating the nature and severity of the expected effect. In response, the USFWS issues a biological opinion (BO), with a determination whether the proposed action either:
    - Would jeopardize the continued existence of one or more listed species (jeopardy finding) or result in the destruction or adverse modification of critical habitat (adverse modification finding), or
    - Would not jeopardize the continued existence of any listed species (no jeopardy finding) or result in adverse modification of critical habitat (no adverse modification finding).

  The biological opinion issued by the USFWS may stipulate discretionary "reasonable and prudent" conservation measures. If the project would not therefore jeopardize a listed species, the USFWS issues an incidental take statement to authorize the proposed activity.
- Section 9: Section 9 of the ESA prohibits the take of any fish or wildlife species listed as endangered under the ESA by any person subject to the jurisdiction of the United States. Take of threatened species also is prohibited under Section 9, unless otherwise authorized by federal regulations. In some cases, exceptions may be made for threatened species under ESA Section 4[d]; in such cases, the USFWS issues a "4[d] rule" describing protections for the threatened species and specifying the circumstances under which take is allowed. In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites under federal jurisdiction.

Clean Water Act

The Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharge of pollutants to waters of the United States (WOTUS). The CWA serves as the primary federal law protecting the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the EPA to set national water quality standards and effluent limitations and includes programs addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nations waters are unlawful unless specifically authorized by a permit; with permit review being the CWAs primary regulatory tool. The following sections provide additional details on specific sections of the CWA.

- Section 404: CWA Section 404 regulates the discharge of dredged and fill materials into WOTUS. In 2020, the EPA and USACE published the Navigable Water Protection Rule defining the jurisdiction

of what is considered WOTUS. WOTUS jurisdiction applies to navigable waters and includes four categories of water: territorial seas and traditional navigable water; tributaries of such waters; certain lakes, ponds, and impoundments of jurisdictional waters; and wetlands adjacent to other jurisdictional waters. The new rule also defines what is not considered WOTUS. The rule provide that groundwater is not a jurisdictional water and explicitly excludes ephemeral features that flow only in direct response to precipitation, diffuse stormwater runoff, ditches, prior converted cropland, artificially irrigated water or lakes, water-filled depressions constructed or excavated incidental to mining or construction activities, and water filled pits excavated for the purpose of obtaining fill, sand, or gravel.

As determined by the United States Supreme Court in the 2001 *Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers*, 121 S.CT. 675, 2001, (commonly referred to as the "SWANCC" decision) " Based on SWANCC, the USACE no longer has jurisdiction or regulates isolated wetlands that have no hypothetical or observed hydrologic connection with a WOTUS).

A June 19, 2006, federal ruling on two consolidated cases (*Rapanos v. United States*[9] and *Carabell v. United States Army Corps of Engineers*[10]), often referred to as the Rapanos decision, affects whether adjacent waters or wetlands are considered jurisdictional under the CWA. The directive of the court follows the opinion by Justice Anthony Kennedy, which states that the test for waters of the United States should be determined on a case-by-case basis by USACE on the basis of whether a particular water body has "significant nexus" to navigable waters.

Applicants must obtain a permit from the USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. The USACE may issue either an individual permit evaluated on a case-by-case basis, or a Nationwide general permit (NWP) evaluated at a program level for a series of related activities. NWP are preauthorized activities that have been determined to cause only minimal adverse environmental effects. Each NWP provides specific conditions that must be met for the NWP to apply to a project. Potential WOTUS found within the project area would be under the jurisdiction of the Sacramento District of the USACE.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. The USACE cannot issue an individual permit or verify the use of a NWP until the requirements of the NEPA, ESA, and the National Historic Preservation Act (NHPA) have been met. In addition, the USACE cannot issue or verify any permit until a CWA Section 401 water quality certification or a waiver of certification has been issued. This is discussed further below.

- Section 402: CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by the EPA. In California, the State Water Resources Control Board (SWRCB) has authority to oversee the NPDES program and is implemented through the Regional Water Quality Control Boards (RWQCBs) (see further related discussions under "Porter-Cologne Water Quality Control Act" below). The APE would be under the jurisdiction of the Central Valley RWQCB.

  NPDES permits are required for projects that disturb one (1) acre or more of land. The NPDES permitting process requires the applicant to file a NOI to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the BMPs that would be implemented to prevent soil erosion and discharge of other construction-related pollutants (e.g.,

[9] Rapanos v. United States. 04-1034, Rapanos v. United States (supremecourt.gov)
[10] Carabell v. United States Army Corps of Engineers. CARABELL v. UNITED STATES ARMY CORPS OF ENGINEERS | FindLaw

petroleum products, solvents, paints, and cement) that may contaminate nearby water resources. Permittees are required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of stormwater-related pollutants.

- Section 401: In 2020, California regulations protecting wetland and state waters were approved by the SWRCB and have updated defined procedures for discharges of dredge or fill material to waters of the State. The new procedures consist of four major elements: a wetland definition; framework for determining if a feature meets the wetland definition; delineation procedures; and procedures for the submittal, review and approval of applications for water quality certification and waste discharge requirements (WDRs). Discharges into waters of the State that are also waters of the United States require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a CWA Section 404 permit. Waters of the State also include wetlands Discharges into all waters of the State, even those that are not also Waters of the United States, may require WDRs, or waivers of WDRs, from the RWQCB.

Executive Order 13186 – Federal Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA), 16 USC 703–711, prohibits the take of any migratory bird or any part, nest, or eggs of any such bird.[11] Under the act, "take" is defined as the action of or attempt to "pursue, hunt, shoot, capture, collect, or kill". This act applies to all persons and agencies in the United States, including federal agencies.

Executive Order 13186 requires that any project with federal funding, permitting, or action must address the impacts of the project on migratory birds. The order is designed to assist federal agencies in their efforts to comply with the MBTA and does not constitute any legal authorization to take migratory birds. The order also requires federal funding, permitting, or action-taking agencies to work with the USFWS to develop a memorandum of understanding (MOU). Protocols developed under the MOU must promote the conservation of migratory bird populations through:

- Avoiding and minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- Restoring and enhancing the habitat of migratory birds, as practicable; and
- Preventing or abating the pollution or detrimental alteration of the environment for the benefit of migratory birds, as practicable.

Executive Order 13112: Invasive Species

EO 13112, signed February 3, 1999, directs all federal agencies to prevent and control the introduction of invasive species in a cost-effective and environmentally sound manner. The EO requires consideration of invasive species in NEPA analyses, including their identification and distribution, their potential effects, and measures to prevent or eradicate them.

Executive Order 11990: Protection of Wetlands

Executive Order 11990, signed May 24, 1977, directs all federal agencies to refrain from assisting in or giving financial support to projects that encroach on publicly or privately-owned wetlands. It further requires that federal agencies support a policy to minimize the destruction, loss, or degradation of wetlands.

[11] Executive Order 13186, 2001. Responsibilities of Federal Agencies to Protect Migratory Birds. Federal Register. Vol. 66, No. 11. https://energy.gov/sites/prod/files/nepapub/nepa_documents/RedDont/Req-EO13186migratorybirds.pdf Date Accessed: 11/6/2017.

State

California Environmental Quality Act (CEQA)

CEQA is the regulatory framework by which California public agencies identify and mitigate significant environmental impacts. The CEQA statute is set forth in Public Resources Code Section 21000, et seq. and the Guidelines implementing the Act (State CEQA Guidelines) are set forth in the California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15000, et seq. A project normally is considered to result in a significant environmental impact on biological resources if it substantially affects a rare or endangered species or the habitat of that species, substantially interferes with the movement of resident or migratory fish or wildlife, or substantially diminishes habitat for fish, wildlife, or plants.

California Endangered Species Act (CESA)

California implemented the California Endangered Species Act (CESA) in 1984. The Act prohibits the take of endangered and threatened species; however, habitat destruction is not included in the States definition of take. Under CESA, "take" is defined as an activity that would directly or indirectly hunt, pursue, catch, capture, or kill an individual of a species. Section 2090 of CESA requires State agencies to comply with endangered-species protection and recovery and promote conservation of these species. CDFW administers the act and authorizes take through Section 2081 agreements (except for species designated as fully protected). Regarding rare plant species, CESA defers to the California Native Plant Protection Act of 1977, which preserves, protects, and enhances rare and endangered plant species and prohibits importing/exporting or the sale of rare and endangered plants. All State plants that have been designed as rare, threatened, endangered, or listed as a candidate or species of special concern are protected. In addition to federal and State protection the California Native Plant Society (CNPS) has a ranking system that places native plants into categories or ranks reflecting degrees of concern and which also needs to be addressed during CEQA review.

Porter-Cologne Water Quality Control Act

Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)". Under the Porter-Cologne definition, the term "waters of the State" (as distinguished from Waters of the United States) is defined as "any surface water or groundwater, including saline waters, within the boundaries of the state". The SWANCC ruling and Rapanos decision, described above, have no bearing on the Porter-Cologne definition. Although all waters of the United States that are within the borders of California are also waters of the State, the converse is not true (i.e., in California, waters of the United States represent a subset of waters of the state). Thus, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether the USACE has concurrent jurisdiction under CWA 404.

If the USACE determines a wetland is not subject to regulation under CWA 404, CWA 401 water quality certification is not required. However, the RWQCB may impose WDRs if fill material is placed into waters of the state.

California Fish and Game Code

- Section 1602: Under Fish and Game Code Section 1602, public agencies are required to notify CDFW before undertaking any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review occur generally during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable project changes to protect the resources. These modifications are formalized in a streambed-alteration agreement that becomes part of the plans, specifications, and bid documents for the project.

- Sections 3503 and 3503.5: Fish and Game Code Section 3503 prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and the destruction of raptor nests.
- Section 3511 (Fully Protected Birds): The Fish and Game Code provides protection from take for a variety of species of birds, referred to as fully protected species. Section 3511 lists fully protected birds and prohibits take of these species. The Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill". Except for take related to scientific research, all take of fully protected species of birds is prohibited.

California Oak Woodlands Conservation Act

The California Oak Woodlands Conservation Act was enacted in 2001 to protect oak woodland habitats that were being diminished due to development, firewood harvesting, and agricultural conversions.[12] The Oak Woodlands Conservation Program was established as a result of the act and is intended to provide project funding opportunities for private landowners, conservation organizations, and cities and counties to conserve and restore oak woodlands. The program authorizes the Wildlife Conservation Board to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts. The Planning Area contains a large stand of California Valley Oak Woodland and also contains scattered oak woodland stands that have been preserved throughout the City.

Local

City of Visalia General Plan Update

- Objective OSC-O-10: Protect and enhance natural vegetation throughout the Planning Area, especially types that are considered sensitive natural communities by the Department of Fish and Game [sic].
    - Policy OSC-P-28: Protect significant stands of Valley Oak woodlands from further development by designating them for Conservation, creating habitat management plans, where needed, and undertaking restoration activities as appropriate.
    - Policy OSC-P-30: Require assessments of biological resources prior to approval of any discretionary development projects involving riparian habitat, wetlands, or special status species habitat. Early in the development review process, consult with California Department of Fish and Game, U.S. Fish and Wildlife Service, and other agencies.
    - Policy OSC-P-31: Protect and enhance habitat for special status species, designated under state and federal law. Require protection of sensitive habitat areas and special status species in new development in the following order: (1) avoidance; (2) on-site mitigation, and (3) off-site mitigation.

City of Visalia Oak Tree Preservation Ordinance

The City has a valley oak (*Quercus lobate*) tree ordinance that protects valley oak trees with a diameter at breast height of two (2) inches or greater. Under this ordinance, removal or encroachment within the dripline of or damage to valley oak trees is prohibited. Removal requires a permit from the City Manager and mitigation either by replacement in-kind or payment of an in-lieu fee to be used for future oak tree planting.[13]

[12] California Wildlife Conservation Board. https://wcb.ca.gov/Programs/Oaks Date Accessed: 11/6/2017.
[13] City of Visalia, Valley Oak Ordinance.
http://www.visalia.city/depts/parks_n_recreation/urban_forestry/valley_oak_ordinance_.asp Date Accessed: 11/27/2017

3.4.4 Impact Assessment

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant with Mitigation Incorporated. As described in **Appendix D**, several species of plants and animals within California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the State's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, State and federal laws have provided CDFW and USFWS with a mechanism for conserving and protecting the diversity of plant and animal species native to the State. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under State and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by CDFW. CNPS has developed its own set of lists of native plants considered rare, threatened, or endangered. Collectively, these plants and animals are referred to as "special status species". (See **Appendix D**)

The California Natural Diversity Database (CNDDB) was queried for special status species occurrences in the nine USGS 7.5-minute quadrangles containing and immediately surrounding the Project Site (*Exeter, Visalia, Monson, Ivanhoe, Woodlake, Rocky Hill, Lindsay, Cairns Corner,* and *Tulare*). An official species list was obtained using the USFWS Information for Planning and Conservation (IPaC) system for federally listed species with the potential to be affected by the Project (USFWS 2016). These species, and their potential to occur on the Project site, are listed in **Table 3-13** and **Table 3-14** on the following pages and identified in **Appendix D**. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *Endangered and Threatened Wildlife and Plants* (USFWS 2016, *The Recovery Plan for Upland Species of the San Joaquin Valley, California, Amphibian and Reptile Species of Special Concern in California*, *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* . (See **Appendix D**)

Special status species occurrences within 3.1 miles (5 kilometers) of the Project site are depicted in Figure 6 and San Joaquin kit fox (*Vulpes macrotis mutica*) occurrences within 10 miles of the Project site are depicted in Figure 7 of **Appendix D**.

The Biological Evaluation Update Letter dated June 27, 2022 noted that the following special status animal species occurring on a current query of the CNDDB and IPaC databases were not addressed in LOA's 2019 report.

- Monarch Butterfly (Danaus plexippus) Federal Candidate
- Delta Smelt (Hypomesus transpacificus) Federal Threatened
- Foothill yellow-legged frog (Rana boylii) California Endangered
- Northern California legless lizard (Anniella pulchra)
- Winter's sunflower (Helianthus winteri)
- Alkali-sink goldfields (Lasthenia chrysantha)
- Coulter's goldfields (Lasthenia glabrata ssp. coulteri)
- Sanford's arrowhead (Sagittaria sanfordii)

As determined in the Biological Evaluation Update Letter dated June 27, 2022 (**Appendix D**), all areas of the site have been significantly disturbed from decades of agricultural development and provide unsuitable habitat for all locally occurring special status plant species. Therefore, the Project is expected to have no impact on these special status plant species. Additionally, the Biological Evaluation Update Letter determined that the Project is not expected to have any impacts on the special status animal species that were generated in the current query of the CNDDB and IPaC databases.

Table 3-13. List of Special Status Plant Species that could occur in the Project Vicinity

Species	Status	Habitat	Occurrence in the APE
California Jewel-flower (Caulanthus californicus)	FE, CE, CNPS 1B	Occurs in chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland; blooms February–May; elevation 250-3,300 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
Hoover's Spurge (*Euphorbia hooveri*)	FT CNPS 1B	Occurs in vernal pools of California's Central Valley; blooms July-September; elevation 80-820 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the APE.
Striped Adobe-lily (*Fritillaria striata*)	CT CNPS 1B	Occurs in cismontane woodland and valley and foothill grassland, primarily in clay soils; blooms February-April; elevation 460-4,750 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
Kaweah Brodiaea (Brodiaea insignis)	CE CNPS 1B	Occurs in cismontane woodlands and foothill grasslands in granitic soils. Blooms April-June; elevation 500-4,600 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
San JoaquinValley Orcutt Grass (*Orcuttia inaequalis*)	FT, CE CNPS 1B	Occurs in vernal pools of the Central Valley; requires deep pools with prolonged periods of inundation; blooms April-September; elevation 100-2,480 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the APE.
San Joaquin Adobe Sunburst (*Pseudobahia peirsonii*)	FT, CE CNPS 1B	Occurs in grasslands of the Sierra Nevada foothills in heavy clay soils of the Porterville and Centerville series. Blooms March-April; elevation 300-2,625 ft.	**Absent.** Porterville and Centerville soils are absent from the APE.
Greene's Tuctoria (*Tuctoria greenei*)	FE, CR CNPS 1B	Occurs in vernal pools of the Central Valley; blooms May- September; elevation 100-3,510 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the APE.
Earlimart Orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
Brittlescale (Atriplex depressa)	CNPS 1B	Occurs in chenopod scrub, valley and foothill grassland, and wetland habitats; blooms April-October; elevations below 1,050 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use. The CNDDB lists an 1881 occurrence approx. 3 miles west of the site (see Figure 6).
Lesser Saltscale (Atriplex minuscula)	CNPS 1B	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
Vernal Pool Smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in alkaline vernal pools; blooms July-October; elevations below 400 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist in the APE.
Subtle Orache (*Atriplex subtilis*)	CNPS 1B	Occurs in valley and foothill grasslands of the San Joaquin Valley; blooms August-October; elevation 130-330 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.

Species	Status	Habitat	Occurrence in the APE
Recurved Larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in cismontane woodland and valley and foothill grass-lands; blooms March-June; alkaline soils; elevations below 2,500 ft.	**Absent.** Suitable habitat for this species is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
Spiny-Sepaled Button Celery (*Eryngium spinosepalum)*	CNPS 1B	Occurs in vernal pools and valley and foothill grasslands of the San Joaquin Valley and the Tulare Basin; blooms April-May; elevation 330-840 ft.	**Absent.** Suitable habitat in the form of vernal pool wetlands is absent from the APE. Ruderal areas are too disturbed to provide suitable habitat for this species.
Calico Monkeyflower (*Mimulus pictus*)	CNPS 1B	Occurs in broadleaved upland forest and cismontane woodland in granitic soils; may occur in disturbed areas. Blooms March-May; elevation 330-4,270 ft.	**Absent.** Suitable woodland habitat is absent from the APE. Any suitable habitat that may have once been present has been modified by intensive human use.
California Alkali-Grass (*Puccinellia simplex*)	CNPS 1B	Occurs in saline flats and mineral springs less than 900 m. in elevation in the Central valley, San Francisco Bay area and western Mojave Desert.	**Absent.** Suitable habitat in the form of saline flats and mineral springs does not exist in the APE.

Table 3-14. List of Special Status Animal Species that could occur in the Project Vicinity

Species	Status	Habitat	Occurrence in the APE
California Tiger Salamander (*Ambystoma californiense*)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. Although most CTS aestivate within 0.4 mile of their breeding pond, outliers may aestivate up to 1.3 miles away (Orloff 2011).	**Absent.** Vernal pool or seasonal wetland habitat suitable for breeding by the CTS does not exist on or within a 1.3-mile radius of the APE. The APE is situated in a matrix of residential, commercial, and intensive agricultural uses generally not suitable for CTS. The closest known breeding occurrences of CTS are approximately 7 miles north of the APE at the CDFW's Stone Corral Ecological Reserve.
California Red-Legged Frog (*Rana draytonii*)	FT	Occurs in permanent aquatic habitats such as creeks and ponds with emergent vegetation. Has been extirpated from drainages of the Sierra foothills south of Tuolumne County as a result of habitat loss, pollution, and the proliferation of exotic predators.	**Absent.** The APE lies well outside of the current known distribution of this species. There are no documented observations, historical or otherwise, within 10 miles of the APE.
Blunt-Nosed Leopard Lizard (Gambelia sila)	FE, CE, CFP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to Merced County.	**Absent.** This species is not known to occur in Tulare County east of Hwy. 99; the closest CNDDB occurrence is nearly 15 miles southwest of the APE. Furthermore, the APE is situated in a matrix of residential, commercial, and intensive agricultural uses generally not suitable for this species.
Giant Garter Snake (*Thamnophis gigas*)	FT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. Has been extirpated from the southern San Joaquin valley.	**Absent.** The APE lies well outside of the current known distribution of this species. The nearest extant population of giant garter snake recognized by the USFWS occurs in the Mendota area, more than 60 miles to the northwest.

Species	Status	Habitat	Occurrence in the APE
Swainson's Hawk (*Buteo swainsoni*)	CT	This breeding-season migrant to California nests in stands with few trees in riparian areas and juniper-sage flats, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** Most of the APE is orchard and vineyard incompatible with Swainson's hawk foraging and nesting strategies. Although the mature valley oaks of the site are structurally suitable for nesting by Swainson's hawks, the trees are unlikely to be used because they are all either surrounded by orchard or located adjacent to residences and busy roads. Swainson's hawks could theoretically forage in ruderal areas of the site. An active Swainson's hawk nest was observed approximately 3 miles east of the APE in 2009 (Hansen 2009), and the CNDDB lists 3 other nests within 10 miles of the APE.
White-Tailed Kite (*Elanus leucurus*)	CFP	Occurs in savanna, open woodlands, marshes, desert grassland, and cultivated fields. Prefer lightly grazed or ungrazed fields for foraging.	**Possible.** The APE is not typical of open habitats used by kites; however, kites could occasionally forage in ruderal areas of the APE and could theoretically nest in the APEs mature valley oak trees.
Golden Eagle (*Aquila chrysaetos*)	CFP	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	**Unlikely.** The APE is not typical of habitats used by golden eagles; however, individuals may pass over the APE from time to time. Breeding habitat is absent.
Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Occurs in valley foothill and desert riparian habitats in scattered locations in California Requires extensive gallery riparian forests for nesting.	**Absent.** The scattered valley oak trees of the APE are not extensive enough to fulfill nesting requirements of this species. The only known occurrence in the project vicinity was mapped generally to Visalia in 1919.
Tricolored Blackbird (*Agelaius tricolor*)	CC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Possible.** Tricolored blackbirds could forage in the APEs ruderal areas or agricultural basins from time to time, but breeding habitat is absent. The closest known occurrence of a breeding colony was documented approximately 9 miles east of the APE in 2000.
Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Occurs in chenopod scrub and alkali grasslands in isolated portions of Kings, Tulare, and Kern Counties.	**Unlikely.** Habitats of the APE are unsuitable for Tipton kangaroo rat due to their disturbed nature and ongoing intensive human use. The closest known occurrence of this species was documented approximately 14 miles south of the APE in 1943.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Found in desert alkali scrub and annual grasslands; may forage in adjacent agricultural habitats. Use underground dens for thermoregulation, cover, and reproduction. Dens are either self-dug or modified rodent burrows.	**Unlikely.** Although ground squirrel burrows along the seasonal channel banks and levee roads represent potential denning and foraging habitat for kit fox, these habitats are fragmented and disturbed and would, at best, be considered marginal due to intensive surrounding agricultural and residential uses. Kit foxes are not expected to breed or regularly forage on the site but may pass through during dispersal movements. There have been 15 documented occurrences of kit fox within 10 miles of the APE; the most recent of these was documented approximately 9 miles west of the APE in 2003 (see Figure 7).

Species	Status	Habitat	Occurrence in the APE
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Suitable habitat in the form of vernal pools is absent from the APE.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Primarily found in vernal pools but may use other seasonal wetlands in mesic valley and foothill grasslands.	**Absent.** Suitable habitat in the form of vernal pools is absent from the APE.
Valley Elderberry Longhorn Beetle (VELB) (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	**Absent.** The USFWS recently determined that the range of this species does not include County. Moreover, elderberry shrubs are absent from the APE.
Burrowing Owl (*Athene cunicularia*)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low- growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Possible**. Burrowing owls could potentially roost or nest in burrows found in the banks and levee roads of Mill Creek Ditch and Packwood Creek, and could forage in ruderal areas of the site. There are six CNDDB occurrences of this species within a 10-mile radius of the project site, the closest of which are located approximately 7 miles to the north at CDFWs Stone Corral Ecological Reserve.
Loggerhead Shrike (*Lanius ludovicianus*)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	**Possible**. Shrikes could nest in trees and shrubs of the site and could forage in ruderal areas.
Pallid Bat (*Antrozous pallidus*)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and buildings.	**Possible.** Potential foraging habitat occurs in ruderal areas of the site; potential roosting habitat occurs in mature trees. There is a documented occurrence approx. 1 mi northeast of the site (see Figure 6).
Western Mastiff Bat (*Eumops perotis californicus*)	CSC	Found in open, arid to semi-arid habitats. Roosts most commonly in crevices in cliff faces, but may also use high buildings, trees, and tunnels.	**Possible.** Potential foraging habitat occurs in ruderal areas of the site; potential roosting habitat occurs in mature trees.
American Badger (*Taxidea taxus*)	CSC	Uncommon resident statewide; most abundant in drier open stages of most shrub, forest, and herbaceous habitats.	**Possible.** Although the majority of the APE offers only marginal habitat for this species due to past and ongoing disturbance, badgers could conceivably den or forage on site. A single burrow with evidence of possible badger use (claw marks on the side walls) was observed along Mill Creek Ditch. The CNDDB lists a 1994 occurrence of this species approx. 2.5 mi east of the site (see Figure 6).

OCCURRENCE TERMINOLOGY

Present:	Species observed on the site at time of field surveys or during recent past.
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CFP	California Fully Protected
FPT	Federally Threatened (Proposed)	CSC	California Species of Special Concern
FC	Federal Candidate	CC	California Candidate

CNPS California Native Plant Society Listing.

1A	Plants Presumed Extinct in California.	2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere.
1B	Plants Rare, Threatened, or Endangered in California and elsewhere.		

Project Impacts to Special Status Animal Species Likely or Possible to Occur on the Project Site

Potential Impacts. Of the 26 regionally occurring special status animal species identified on the CNDDB and IPac database queries in the APE, and the following nine species were declared possible to occur on-site and therefore, could potentially be impacted by Project activities The species are Swainson's hawk, white-tailed kite, tricolored blackbird, northern harrier, burrowing owl, loggerhead shrike, palled bat, western mastiff bat, and American badger. The following mitigation measures identified below would reduce the potential impacts to less than significant level and would ensure compliance with State and federal laws protecting these resources.

- **BIO-1 (Worker Environmental Awareness Program Training)**

    - Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction shall attend mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the Project area.
    - The specifics of this program shall include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area.
    - This training will specifically discuss the conservation status of the California condor, in addition to all other special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and a list of required protective measures to avoid "take."
    - A fact sheet conveying this information, along with photographs or illustrations of sensitive species with potential to occur on-site, shall also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the Project.
    - All employees shall sign a form documenting that they have attended WEAP training and understand the information presented to them.

- **BIO-2 (Construction Operational Hours)**

    - Construction shall be conducted during daylight hours to reduce disturbance to wildlife that could be foraging within work areas.

- **BIO-3 (Best Management Practices)**

    - The Project proponent will ensure that all workers employ the following BMPs in order to avoid and minimize potential impacts to special status species:
        - **BIO-3a**
            - Vehicles shall observe a 15-mph speed limit while on unpaved access routes.
        - **BIO-3b:**
            - Workers shall inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area.
            - "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

- **BIO-3c:**
  - The presence of any special status species and/or any wildlife mortalities will be reported to the designated biologist and the appropriate regulatory agencies (CDFW, USFWS, etc.).

- **BIO-4 (Avoidance)**
  - The Project construction activities shall occur, if feasible, between September 1 and January 31 (outside of nesting bird season) in an effort to avoid impacts to listed species.

- **BIO-5 (Pre-construction Survey)**
  - A qualified biologist shall conduct pre-construction surveys specific to the following species: Swainson's hawk, white-tailed kite, tricolored blackbird, northern harrier, burrowing owl, loggerhead shrike, palled bat, western mastiff bat, and American badger.

    - **BIO -5a Nesting Birds:**
      - If activities must occur within nesting bird season (February 1 to August 31), the survey shall include the proposed work area and surrounding lands within 500 feet.
      - If no active nests are observed, no further mitigation is required.
      - Raptor nests are considered "active" upon the nest-building stage.
      - All other nests are considered "active" by the presence of eggs or young.

    - **BIO-5b Animal Species:**
      - A pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities.
      - Environmentally sensitive areas will be flagged for avoidance.
      - If suitable habitat for regionally occurring special status species are detected upon pre-construction surveys, construction monitoring will be required.

- **BIO -6 (Establish Buffers):**
  - On discovery of any active nests or listed species near work areas, the biologist shall determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question.
  - Construction buffers shall be identified with flagging, fencing, or other easily visible means, and shall be maintained until the biologist has determined that the nestlings have fledged, or construction has finished in that area.

- **BIO-7 (Monitor):**
  - A qualified biologist will conduct a pre-activity clearance survey each day and remain on-site to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for special status species that were identified in the pre-construction surveys (BIO 5 a-b).
  - The biological monitor must possess required collecting/handling permits.
  - If a special status species is observed within Project areas, the biologist will stop work order and the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area.
  - "Take" of listed (rare, threatened, or endangered) is prohibited.
  - If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.

Project Impacts to Special Status Animal Species Absent from, or Unlikely to Occur on the Project Site

Potential Impacts. Of the 26 special status animal species that potentially occur in the APE, 17 are considered absent or unlikely to occur on the Project site due to past and ongoing disturbance of the site and surrounding lands, the absence of suitable habitat, and/or the sites being situated outside of the species known distribution. These species include the vernal pool fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, blunt-nosed leopard lizard, giant garter snake, golden eagle, western yellow-billed cuckoo, Tipton kangaroo rat, San Joaquin kit fox, western spadefoot, and western pond turtle, monarch butterfly, delta smelt, foothill yellow-legged frog, and the Northern California legless lizard The project does not have the potential to significantly impact these species through construction mortality or loss of habitat because there is little or no likelihood that they are present.

Project impacts to special status animals considered absent or unlikely to occur on the site are less than significant under CEQA and NEPA. Mitigation is not warranted.

Project Impacts to Special Status Plant Species Absent from, or Unlikely to Occur on the Project Site

Potential Impacts. There were 20 special status plant species that were identified during the CNDDB and IPaC queries of the APE and surrounding lands. All of the plant species were determined to be absent from the APE. Since there is little to no likelihood of these species occurring on-site, implementation of the Project would have no effect on individual plants or populations of these species. Mitigation measures are not warranted.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

Less than Significant Impact. Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, home to special status plant and animal species, of importance in maintaining water quality or sustaining flows, etc. Examples of natural communities of special concern in the eastern San Joaquin Valley in the vicinity of the Project would include vernal pools and various types of riparian forest.[14]

Natural communities of special concern are limited to sporadic riparian habitat associated within Packwood Creek and Mill Creek. The value of this riparian habitat as a natural community of special concern has been diminished due to the fragmented nature of the woodland and close proximity of urban and suburban developments. Orchard, vineyard, ruderal, irrigation ditches, and agricultural basins are regionally abundant and/or a result of human manipulation and would not be considered natural communities of special concern.

Disturbance to Riparian Habitat or other Sensitive Habitats

Agricultural and disturbed lands occupy the majority of the site and are not considered sensitive habitats. These habitats of the site are not of significant importance to regional wildlife populations. Twenty-six valley oaks were identified on the site along Mill Creek Ditch, Oakes Ditch, Packwood Creek and a few along Road 152. Although valley oaks are typically considered a riparian species, the sporadic, fragmented nature of these isolated trees has created habitat conditions unlike typical dense riparian habitat with multiple canopy layers. The value of this habitat for wildlife is low. However, there is a City Oak Tree Ordinance and permits are required prior to any oak tree removal and replacement oak trees (in-kind) or payment in-lieu of replacement trees may be required. Oak tree impacts and mitigation are described under impact assessment e) below. On-site agricultural basins and irrigation ditches would not be considered sensitive habitat. Because riparian habitat on site is

[14] See Appendix D. Biological Evaluation

extremely marginal and fragmented, and other habitats are not considered sensitive, future project construction will have a less than significant impact on these habitats. Mitigation is not warranted.

Project Impacts to Designated Critical Habitat

As discussed, designated critical habitat is absent from the Project site and immediate vicinity. Therefore, the Project does not have the potential to impact critical habitat.

c) Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less than Significant Impact.

Disturbance to Waters of the United States and Waters of the State

Potential Impacts. A Delineation of Aquatic Resources report has been prepared by Live Oak Associates, Inc. (**Appendix D**) for the Project, and would be submitted to USACE for review and verification. A total of approximately 2.17 acres of possible jurisdictional waters including Mill Creek Ditch and Packwood Creek. Hydrologic features on the site also include three ditches and five basins that appear to fall into categories of waters that are considered exempt according to the CWA These features are also expected to be exempt from CDFW jurisdiction.

The Project would result in significant impacts to potential jurisdictional waters. The anticipated level and duration of impact would vary depending on the phasing and ultimate buildout of the Project. Very minor direct, permanent impacts are anticipated with Phase I of the Project, which would entail tying into Mill Creek and Packwood Creek for the installation of the stormwater basins. During this initial phase, it is anticipated that a few hundred square feet would be affected in each channel from installation of control structures to divert water from Mill Creek and Packwood Creek into the basins under gravity flow at specific locations (see Figure 3a of **Appendix B**). Any fill, placement of control structures, placement of riprap or other permanent erosion control measures within jurisdictional waters would be considered direct, permanent impact.

In Phase 2, the Project proposes to realign the entire on-site stretch of Mill Creek to its more natural historic meandering channel (**Figure 2-4**).

Although Mill Creek and Packwood Creek are considered excluded waters, Fleming Ditch would remain in-place untouched, the unnamed ditch would be eliminated, and Oakes Ditch would be reconfigured and would terminate into a new pipeline on the east side of the project near Road 152. This pipeline would deliver irrigation tailwater into the recharge basin located north of Packwood Creek.

Estimated impacts to jurisdictional waters after full project buildout (including Phase 2) are presented in **Table 3-15.**

Table 3-15. Potential Impacts to Waters of U.S.

Potential Impacts					
Type of Water	**Acres (ac)**	**Square Feet (sf)**	**Linear Feet (lf)**	**Approx. Impacts (ac)**	**Approx. Impacts (lf)**
Mill Creek Ditch	1.18	51,398	2,490	1.18	2,490
Packwood Creek	0.99	43,095	2,847	.007	50
TOTAL	**2.17**	**94,493**	**5,337**	**1.2**	**2,540**

Impacts to jurisdictional waters are also subject to the permit requirements of Sections 404 and 401 of the CWA. The placement of fill within any wetlands or other jurisdictional features would require a CWA permit from the USACE, and a Water Quality Certification from the RWQCB. These permits cannot be issued without an accepted preliminary jurisdictional determination or a verified wetland delineation by the USACE. Additionally, impacts to the seasonal channels as proposed would require a Lake or Streambed Alteration Agreement from CDFW. Given the extent of impacts to potential jurisdictional waters these impacts are considered potentially significant under CEQA and NEPA.

Actual permitting requirements for impacts to potentially jurisdictional waters would vary depending on timing of Project phasing and the extent of ultimate Project build-out. Discussion of the nationwide permits (NWP) below is based on current regulatory guidance and is subject to change once the revised permits are released. Based on the current permits, the NWP that Phase 1 (construction of stormwater basins) would likely qualify for would be NWP 43, Stormwater Management. It is not anticipated that impacts from Phase 1 would exceed the threshold for this NWP [300 linear-feet (LF) and/or ½ acre of channel]. However, the USACE typically would not permit a single phase of a project; they typically permit a project based on total buildout (i.e., all phases).

Eventual realignment of Mill Creek in its entirety (as proposed during Phase II) would likely trigger the need for an individual permit rather than a NWP, primarily due to the fact that final build-out of the Project would far exceed the impact threshold for most of the NWPs (including NWP 43). Acquisition of an individual permit requires informal consultation with USFWS through preparation of a Section 7 Biological Assessment, preparation of an alternatives analysis, Section 106 consultation, and a 15-day public noticing period. Conditions of the 404 and 401 permits would likely require some form of on-site and/or off-site replacement of jurisdictional waters, and/or payment into an in-lieu fund for permanent impacts to jurisdictional waters. However, the Project would comply with all regulatory permitting requirements and would obtain a 404, 401 and/or Lake or Streambed Alteration Agreement. These permits would lay out an approved way to work in and around jurisdictional waters and would include appropriate mitigation measures to follow. Therefore, with the required permits, the Project would have a less than significant impact on jurisdictional waters.

Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impacts. Sedimentation and transport of polluted runoff into seasonal drainages has the potential to occur as a result of Project activities. Impacts can be reduced to a less than significant level through implementation of measures to protect water quality during construction, as described below. The Project would prepare a SWPPP consistent with the requirements of a grading permit and a NPDES General Construction Permit issued by the RWQCB. A SWPPP provides erosion control measures that must be implemented throughout the project schedule and would be monitored weekly to ensure that the erosion control measures are successfully preventing on-site erosion and sediment releases. Elements of this plan would also address both the potential for soil erosion and non-point source pollution.

Therefore, with the application and implantation of a SWPPP, the Project would have a less than significant impact under CEQA and NEPA and ensure that the Project is in compliance with State and federal laws protecting waterways and water quality.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less than Significant Impact. Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. Certain features of the study area have the potential to function as movement corridors for resident and migratory fish and wildlife species. The largely engineered channels and

ditches would likely not serve as important travel routes for terrestrial wildlife, but could aid passage by aquatic species when inundated. The top of the banks along each of these waterways may facilitate home range and/or dispersal movements of some locally occurring terrestrial wildlife, but the waterways likely do not represent regionally important movement corridors for these species. The Pacific flyway, one of four major bird migration routes in North America, passes over the study area and much of the rest of California. The relatively small Project area and nature of the Project site has minimal potential as a wildlife movement corridor.

Potential Impacts. The site does not contain important movement corridors for native wildlife. Following completion of the Project, the site would function in much the same manner as it does now in that regard. Birds using the Pacific flyway would continue to do so following Project development. Therefore, the Project would result in a less than significant effect on regional wildlife movements.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less than Significant Impact with Mitigation Incorporated. In compliance with CEQA, the lead agency considers conformance with applicable goals and policies of the City General Plan. The City has adopted an Oak Tree Preservation Ordinance, codified at VMC Chapter 12.24. Pursuant to the ordinance, the City subsequently developed an Oak Tree Mitigation Policy that established appropriate mitigation for loss of valley oak trees along with policies for administration of the Oak Tree Maintenance Fund.

There are no applicable habitat conservation plans.

Potential Impacts. Twenty-nine valley oaks were identified on the site along Mill Creek Ditch, Oakes Ditch, Packwood Creek and a few along Road 152. Twenty-four of the 29 valley oak trees were greater than 24 inches in diameter at breast height. In determining whether to remove these oaks, the City would be required to comply with the provisions of the Oak Tree Preservation Ordinance and the corresponding Oak Tree City Ordinance.

The applicant shall implement the following measures:

- **BIO – 8: (Mitigation Fees or Replacement Planting).**
  Should avoidance of valley oak trees not be possible, the City will comply with the permitting requirements of the Oak Tree Preservation Ordinance and will mitigate the loss consistent with the provisions of the Oak Tree Mitigation Policy.

Implementation of these measures will reduce potentially significant Project impacts to oak trees to a "less than significant" level under CEQA and NEPA.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. There are no habitat conservation plans or Natural Community Conservation Plans that occur in the Project area. Therefore, the Project does not have the potential to conflict with local, regional, or state habitat conservation plans.

3.4.5 Cumulative Impacts

Less than Significant Impact with Mitigation Incorporated. A total of four projects have been proposed or approved within four miles of the Project site. Implementation of the Project, as well as many of the related projects, would add to the incremental loss of species habitat in the project vicinity. Habitat loss would affect resident species, including special status species, such as the burrowing owl, Swainson's hawk, San Joaquin kit fox, and American badger.

The Project and the cumulative projects would be required to implement appropriate mitigation measures to reduce biological impacts to less than significant levels. The mitigation measures identified in **Section 3.4.4**, discuss ways in which the Project can reduce impacts such as avoiding sensitive breeding/nesting periods, performing pre-construction surveys, and if necessary and with approval from CDFW, passive relocation of owls. Currently, there are no Habitat Conservation Plans for sensitive species within the Project area. Therefore, cumulative impacts to biological resources would be less than significant with mitigation incorporated.

3.5 Cultural Resources

Table 3-16. Cultural Resources

Cultural Resources					
Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☒	☐	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

3.5.1 Environmental Setting

The following information regarding historical, archaeological, or paleontological resources can be found in the Cultural Resource Inventory and the Paleontological Technical Memorandum prepared by Applied Earthworks, Inc., (AE). (**Appendix I**):

3.5.2 Methodology

Cultural Resource Inventory

The Cultural Resource Inventory conducted by AE, contained in **Appendix G**, consisted of a records search, Native American outreach, a pedestrian survey, and resource documentation. AE requested a California Historical Resources Information Systems (CHRIS) records search from the Southern San Joaquin Valley Information Center (SSJVIC) at California State University, Bakersfield on December 18, 2014. Staff at the SSVJIC consulted cultural resource location and survey base maps, results of previous investigations, cultural resource records, the listings of the National Register of Historic Places (NRHP), the Historic Property Data File, a listing of California Historical Landmarks, the California Register of Historical Resources (CRHR), the California Inventory of Historic Resources, and the California Points of Historic Interest. The Caltrans Historic Bridge Inventory was also consulted.

AE contacted the Native American Heritage Commission (NAHC) on December 18, 2014 to request a search of the Sacred Lands File. To assist in determining whether any Native American cultural resources have been recorded in the Project area, a list of individuals and groups who may have information regarding resources of sacred or special cultural and spiritual significance was requested and received. On January 19, 2015, AE sent a letter describing the project and its location to each of the eight contacts identified by NAHC.

As described in **Appendix G** Cultural Resource Inventory, "AE archaeologists Katie Asselin, Elizabeth Rapp and Josh Tibbet conducted a pedestrian survey of the 280-acre project area on January 8-9, 2015, and January 13-16, 2015, using parallel and meandering transects spaced no more than 15-20 meters apart. They took photographs of the project area using a digital camera, collected Global Positioning System data using a Trimble GeoXH unit, and documented observations on a survey record form. Copies of photographs and field notes are on file at AEs office in Fresno, California."

Also, on March 1, 2017, AE historian Randy Baloian conducted an Architectural Evaluation of the two historic water conveyances, the Mill Creek Levee/Evans Ditch and the Oakes Ditch to assess their integrity. These resources are catalogued as P-54-002179/CA-TUL-3053H and P-54-005290/CA-TUL-3101H, respectively, by the NRHP and CRHR.

During the pedestrian survey, whenever newly discovered or previously recorded resources were encountered, they were documented; each resource was photographed using a digital camera, and newly identified resources were recorded on the appropriate California Department of Parks and Recreation forms. These forms are provided in **Appendix H**.

Paleontological Technical Memorandum

In addition to the pedestrian survey and records searches conducted for historical and cultural resources, AE completed a desktop investigation to assess the paleontological sensitivity of geologic units exposed at the ground surface and those likely to occur in the subsurface of the Project area. AE reviewed published geologic maps and paleontological literature, and conducted museum records searches. For the records searches, AE retained the Natural History Museum of Los Angeles County (NHMLAC) to conduct a search of fossil localities recorded in their collections (Bell, 2022). To augment these results, AE also conducted searches of the online Paleobiology Database (PBDB) and the University of California Museum of Paleontology (UCMP). The PBDB lists a large collection of museum records and publications of fossil material, while the UCMP is the largest repository of fossils on the West Coast of the United States with an older history of collection than several other regional natural history museums. The full technical memo can be found in **Appendix I**.

3.5.3 Regulatory Setting

Federal

National Historic Preservation Act

The NHPA is the most prominent federal law dealing with historic preservation. The NHPA establishes guidelines to "preserve important historic, cultural, and natural aspects of our national heritage, and to maintain, wherever possible, an environment that supports diversity and a variety of individual choice." The NHPA includes regulations specifically for federal land-holding agencies, but also includes regulations (Section 106) which pertain to all projects that are funded, permitted, or approved by any federal agency and which have the potential to affect cultural resources. All projects that are subject to the NEPA are also subject to compliance with Section 106 of the NHPA. For federally-involved projects, the California Office of Historic Preservation (OHP) carries out reviews under Section 106 of the NHPA.

The Section 106 review process normally involves a four-step procedure described in detail in the Section 106 Regulations (36 CFR Part 800):

- Identify and evaluate historic properties in consultation with the State Historic Preservation Officer (SHPO) and interested parties;
- Assess the effects of the undertaking on properties that are eligible for inclusion in the NRHP;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and
- Proceed with the project according to the conditions of the agreement.

National Register of Historic Places

The NHPA authorizes the Secretary of the Interior to establish a NRHP, an inventory of districts, sites, buildings, structures, and objects significant on a national, state, or local level in American history, architecture,

archeology, engineering, and culture. The National Register is maintained by the National Park Service, the Advisory Council on Historic Preservation, SHPO, and grants-in-aid programs.

National Environmental Policy Act

Specific projects that are subject to NHPA must also comply with NEPA requirements for the consideration of cultural resources. Compliance with NEPA requirements concerning cultural resources may be addressed through compliance with Section 106 of the NHPA. Reports, agreements, and correspondence documenting compliance with Section 106 of the NHPA are provided to the lead NEPA agency for a specific proposed action that is subject to NEPA.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) strives to ensure that all Indian human remains and cultural items are treated with dignity and respect. It encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums. It also states the intent for states to provide mechanisms for aiding Indian tribes, including non-federally recognized tribes, in filing repatriation claims and getting responses to those claims.

State

Office of Historic Preservation

The mission of the OHP and the State Historical Resources Commission is to preserve and enhance California's irreplaceable historic heritage as a matter of public interest so that its vital legacy of cultural, educational, recreational, aesthetic, economic, social, and environmental benefits will be maintained and enriched for present and future generations. PRC Section 5024 requires consultation with the SHPO when a project may impact historical resources located on State-owned land.

California Register of Historic Resources

The SHPO maintains the CRHR. Historic properties listed, or formally designated for eligibility to be listed, on the National Register are automatically listed on the CRHR (PRC Section 5024.1). State Landmarks and Points of Interest are also automatically listed. The California Register can also include properties designated under local preservation ordinances or identified through local historic resource surveys.

For a historic resource to be eligible for listing on the California Register, it must be significant at the local, State, or national level under one or more of the following four criteria:

- It is associated with events that have made a significant contribution to the broad patterns of local and regional history, or the cultural heritage of California or the United States;
- It is associated with the lives of persons important to local, California, or national history;
- It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
- It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation (California Public Resources Code).

California Environmental Quality Act

PRC Section 21083.2 Archaeological Resources: CEQA directs the lead agency to include in its environmental assessment for the project a determination of the project effects on unique archeological resources; defines unique archeological resource; enables a lead agency to require an applicant to make a reasonable effort to

preserve or mitigate impacts to any affected unique archeological resource; sets requirements for the applicant to provide payment to cover costs of mitigation; and restricts excavation as a mitigation measure.

PRC Section 21084.1 Historic Resources: CEQA establishes that adverse effects on a historic resource qualifies as a significant effect on the environment; and defines historical resource.

CEQA Guidelines Section 15064.5: This section defines three ways that a property can qualify as a significant historical resource for the purposes of CEQA review:

- If the resource is listed in or determined eligible for listing in the California Register of Historical Resources;
- If the resource is included in a local register of historical resources, as defined in PRC Section 5020.1(k), or is identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g) unless a preponderance of evidence demonstrates that it is not historically or culturally significant; or
- If the lead agency determines the resource to be significant as supported by substantial evidence (CEQA Guidelines Section 15064.5)

In addition to determining the significance under CEQA and eligibility of any identified historical resource for the California Register, historic properties must be evaluated under the criteria for the National Register should federal funding or permitting become involved in any undertaking subject to this document.

CEQA Guidelines on Mitigation of Cultural Resources Impacts

CEQA Guidelines Section 15126.4 states that "public agencies should, whenever feasible, seek to avoid damaging effects on any historical resources of an archeological nature." The Guidelines further state that preservation-in-place is the preferred approach to mitigate impacts on archaeological resources. However, according to Section 15126.4, if data recovery through excavation is "the only feasible mitigation," then a "data recovery plan, which makes provision for adequately recovering the scientifically consequential information from and about the historical resources, shall be prepared and adopted prior to any excavation being undertaken." Data recovery is not required for a resource of an archaeological nature if "the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the archaeological or historical resource." The section further states that its provisions apply to those archaeological resources that also qualify as historic resources.

CEQA Guidelines on Mitigation of Paleontological Resources Impacts

At the State level, paleontological resources are protected under CEQA, which requires detailed studies that analyze the environmental effects of a proposed project. If a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. If paleontological resources are identified as being within the proposed project area, the lead agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource. (**Appendix G)**

Native American Heritage Act

Also relevant to the evaluation and mitigation of impacts to cultural resources is the Native American Heritage Act of 1976 which established the NAHC and protects Native American religious values on State property (see PRC Section 5097.9).

California Government Code 65352.3-5: Local Government-Tribal Consultation.

California GC Sections 65092, 65351, 65352, 65352.3, and 65352.4, formally known as SB 18, regulate the consultation with California Native American tribes having traditional lands located within the jurisdiction of applicable cities and counties. The intent of the underlying legislation was to provide all California Native American tribes that are on the contact list maintained by the Native American Heritage Commission, an opportunity to consult with specific local governments for the purpose of preserving and protecting their sacred places. Such consultations apply to the preparation, adoption and amendment of general plans.

Assembly Bill 52

PRC Section 21080.3.1, AB 52, the Native American Historic Resource Protection Act, sets forth a proactive approach intended to reduce the potential for delay and conflicts between Native American and development interests. Projects subject to AB 52 are those that file a notice of preparation for an DEIR or notice of intent to adopt a negative or mitigated negative declaration on or after July 1, 2015. AB 52 adds TCRs to the specific cultural resources protected under CEQA. Under AB 52, a TCR is defined as a site, feature, place, cultural landscape (must be geographically defined in terms of size and scope), sacred place, or object with cultural value to a California Native American tribe that is either included or eligible for inclusion in the CRHR, or included in a local register of historical resources. A Native American Tribe or the lead agency, supported by substantial evidence, may choose at its discretion to treat a resource as a TCR. AB 52 also mandates lead agencies to consult with tribes, if requested by the tribe, and sets the principles for conducting and concluding consultation.

Disposition of Human Remains (Health and Safety Code Section 7050.5)

When an initial study identifies the existence, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native American groups or individuals as identified by the NAHC as provided in PRC Section 5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains, and any items associated with Native American burials. Furthermore, HSC Section 7050.5 requires that construction or excavation be stopped in the vicinity of discovered human remains until the county coroner can determine whether the remains are those of a Native American. If the remains are determined to be Native American, the coroner must contact the NAHC.

California Native American Graves Protection and Repatriation Act of 2001

HSC Sections 8010-8011 establish a State repatriation policy intent that is consistent with and facilitates implementation of NAGPRA. The Act strives to ensure that all California Indian human remains and cultural items are treated with dignity and respect. It encourages voluntary disclosure and return of remains and cultural items by publicly funded agencies and museums in California. It also states the intent for the state to provide mechanisms for aiding California Indian tribes, including non-federally recognized tribes, in filing repatriation claims and getting responses to those claims.

Local

City of Visalia General Plan Update

- Policy OSC-P-39: Establish requirements to avoid potential impacts to sites suspected of being archaeologically, paleontologically, or historically significant or of concern, by:
    - Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
    - Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);

- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and
- Implementing appropriate measures to avoid the identified impacts, as conditions of project approval.

3.5.4 Impact Assessment

a) Would the project cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less than Significant after Mitigation Incorporated. The Cultural Resources Inventory conducted by AE identified five potential historical resources within the Project area. Two of these resources are historic bridges which have been designated as ineligible for the NRHP; these bridges have not been evaluated for the CRHR, but the report found in **Appendix E** concluded that neither bridge appears to exhibit any characteristics that would make it significant at a local, State, or federal level.

The inventory also identified an isolated obsidian biface thinning flake, which was found in an area that has been previously impacted by grading and levee construction surrounding the creek and by cultivation of the adjacent orchards. Although AE completed a primary record for this isolate, because it is not associated with an archaeological site it is not considered eligible for the CRHR and does not require further consideration.

The remaining two resources are the Mill Creek Levee and Evans Ditch, and Oakes Ditch. AE conducted an intensive survey of the Mill Creek Levee through the Project area and did not find evidence of a subsurface deposit of historic artifacts. AE evaluated the significance of these resources based on archival research and concluded that the Mill Creek Levees (as a recorded element of the Evans Ditch) and the Oakes Ditch are considered significant under both the NRHP and CRHR Criterion A/1 because of their association with the Kaweah and Mill Creek Water Company (KMCWC). Despite the significance of the resources as part of the KMCWC system, the recorded segments do not possess sufficient integrity to convey such significance. Based on this evaluation, the Project would not have an adverse effect on historical resources eligible for inclusion in the NRHP or CRHR.

Native American outreach on the part of AE resulted in an email received from the Santa Rosa Rancheria, recommending cultural monitoring during all ground disturbances due to the Tribe's assessment of a high-risk potential for encountering cultural resources. Given the potential threat of significant impact if any additional historical resources are uncovered during Project construction, and consideration of the Santa Rosa Rancheria's recommendation, implementation of the following measure would ensure that impacts would be less than significant.

- **CR-1:** If, in the course of project construction or operation, any archaeological or historical resources are uncovered, discovered, or otherwise detected or observed, activities within one hundred (100) feet of the find shall be ceased and the City of Visalia shall be notified immediately. The project proponent shall retain a qualified archaeologist to assess the significance of the find and make mitigation recommendations, if warranted. The archaeologist shall document the resources using DPR 523 forms and file said forms with the CHRIS. The resources shall be photo-documented and collected by the archaeologist for submittal. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or site work within the area of discovery shall not be allowed until the preceding steps have been taken.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant after Mitigation Incorporated. As discussed under Impact a), impacts to the archeological resources would be considered less than significant with mitigation incorporation. Mitigation Measure CR-1 would prevent further impacts to previously undiscovered resources.

c) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than Significant after Mitigation Incorporated. The Paleontological Technical Memorandum (**Appendix I**) used the SVP (2010) sensitivity criteria to determine the paleontological sensitivity of the Project area. Based on AE's desktop efforts and the Natural History Museum of Los Angeles County and online records searches, the Project area has Low to High Potential for paleontological resources, dependent on depth. Holocene-age recent alluvial fan deposits mapped at the surface have Low Potential. Pleistocene-age alluvial deposits in the subsurface have High Potential, although the depth at which this transition occurs is presently unknown and requires additional investigation. Implementation of the following Mitigation Measures CR-2 and CR-3 would ensure that impacts to unknown paleontological resources are less than significant.

- **CR-2:** Prior to the issuance of grading permits, a Paleontological Resource Impact Mitigation Program (PRIMP) shall be prepared by a qualified professional paleontologist. The PRIMP will utilize the results of the paleontological technical memo refined by the results of geotechnical borings to specify the steps to be taken to mitigate impacts to paleontological resources.
- **CR-3** A Paleontological Resources - Worker Environmental Awareness Program (WEAP) training shall be prepared prior to the start of Project-related ground disturbance and presented in person to all on-site construction personnel to inform them of the types of fossils that may be found and the procedures to follow if any are encountered.

d) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant after Mitigation Incorporated. Although there is no indication that the Project would result in the disturbance of any human remains, in the event that human remains are encountered the following mitigation measure shall be implemented. Adherence would ensure that impacts are less than significant.

- **CR-4:** If human remains are uncovered, or in any other case where human remains are discovered, the Tulare County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified – on the basis of archaeological context, age, cultural associations, or biological traits – as those of a Native American, California Health and Safety Code 7050.5 and Public Resources Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the manner in which the remains are treated.

3.5.5 Cumulative Impacts

Less than Significant after Mitigation Incorporated. Neither the Project nor other cumulative development projects are expected to result in significant impacts to cultural, historical, archaeological, or paleontological resources, provided that appropriate evaluations are conducted on a case-by-case basis to determine whether the resources are "historical, archaeological, or paleontological," and appropriate mitigation measures, including but not limited to preservation in place, capping, or data recovery, are implemented prior to development. In addition, because the Project would not impact any known significant resources and potential impacts to unknown buried resources can be reduced to below a level of significance, the Project would not contribute to a cumulatively significant impact to cultural resources. Therefore, implementation of adopted plans and regulations and any

Project-specific mitigation measures would reduce any potential cumulative impacts related to cultural resources to a less-than significant level.

3.6 Geology and Soils

Table 3-17. Geology and Soils

Geology and Soils				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Chapter 18 of the most recently adopted California Building Code creating substantial risks to life or property?	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

3.6.1 Environmental Setting

Geological Setting: The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada, and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the Valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers, which flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.[15]

[15] Department of Water Resources, 2004. California's Groundwater Update Bulletin 118. San Joaquin Valley Groundwater Basin: Kaweah Subbasin. http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-22.11.pdf Date Accessed: 7/5/2016

The Kaweah Subbasin lies between the Kings Groundwater Subbasin on the north, the Tule Groundwater Subbasin on the south, crystalline bedrock of the Sierra Nevada foothills on the east, and the Kings River Conservation District on the west. Major rivers and streams in the subbasin include the Kaweah and St. John's Rivers, with the Kaweah River the primary source of recharge to the Project area. Average annual precipitation is 7 to 13 inches, increasing eastward.[16]

The natural site soil consists of Holocene age fan deposits. The general earth material profile below the Project site consists of silty sand and sandy silt, underlain by laterally discontinuous alternating layers of poorly graded sand, sandy silt, silty sand, and sandy clay to a depth of at least 81.5 feet below ground surface (bgs).[17]

Soils Setting: Surface soils at the Project site have been mapped by the NRCS. The three soils types found on the site are Nord fine sandy loam, Grangeville sandy loam, and Nord fine sandy loam.[18] Both the Grangeville sandy loam and Nord fine sandy loam soil types are characterized as having low shrink-swell potential. Both have also been characterized as having low corrosivity potential for concrete and high corrosivity potential for steel.[19]

The topography of the Project site is characterized by low relief and elevations that gently slope toward the southwest at a slope of approximately 0 to 0.2 percent. Surface elevations at the Project site range from approximately 355 feet above mean sea level (amsl) in the east to 350 feet amsl in the west. See **Figure 2-2**

Geologic Hazards: There are no known active earthquake faults in the Visalia area. The closest active faults are Owens Valley fault group and Sierra Nevada Fault Zone (75 miles to the east of Visalia), the San Andreas Fault Zone (60 miles to the west), and an unnamed fault group north of Bakersfield (60 miles to the south). Major earthquakes such as the 1906 San Francisco, 1952 Kern County, and 1983 Coalinga quakes were felt and caused some minor to moderate property damage in Visalia. The 2019 Ridgecrest earthquake was the most recent major earthquake felt in Visalia, registered at 7.1 magnitude. It is possible, but unlikely, that previously unknown faults could become active in the area.[20]

The purpose of the Alquist-Priolo Geologic Hazards Zones Act, as summarized in CGS Special Publication 42 (SP 42), is to "prohibit the location of most structures for human occupancy across the traces of active faults and to mitigate thereby the hazard of fault-rupture." As indicated by SP 42, the State Geologist is required to delineate "earthquake fault zones" along known active faults in California. Cities and counties affected by the zones must regulate certain development 'projects' within the zones. They must withhold development permits for sites within the zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting. The State Geologist has not delineated any Alquist-Priolo Earthquake Fault Zones within or near the City.[21]

Seismic Ground Shaking: The most significant hazard associated with earthquakes for the Visalia area is ground shaking caused by earthquakes along the San Andreas Fault to the west or Owens Valley fault to the east. Ground shaking is a general term referring to all aspects of motion of the earth's surface resulting from an earthquake and is normally the major cause of damage in seismic events. The extent of ground shaking results from the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. Based on available online Seismic Hazard Zone Maps by the California Geological Survey, the Project is located in an area that has not been mapped for seismic hazards. Based on the California Geological Survey Probabilistic

[16] Department of Water Resources, 2004. California's Groundwater Update Bulletin 118. San Joaquin Valley Groundwater Basin: Kaweah Subbasin. http://www.water.ca.gov/groundwater/bulletin118/basindescriptions/5-22.11.pdf Date Accessed: 7/5/2016
[17] Technicon Engineering Services, Inc. Geotechnical Investigation Report, Proposed East Side Regional Park and Groundwater Recharge Project, Mineral King Ave & Road 152, Visalia, California
[18] NRCS, Custom Soil Resource Report for Tulare County, Western Part, California, Eastside Park Project, January 15, 2015
[19] United States Department of Agriculture, Natural Resources Conservation Science, 2003. Soil Survey of Tulare County, California, Western Part . http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/tulare_westCA2003/tulareCAwpart2003.pdf Date Accessed: 7/5/2016
[20] City of Visalia, 2014. General Plan Update 2030 – Chapter 8: Safety and Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30480 Page 8-2. Date Accessed: 7/5/2016
[21] Ibid.

Seismic Hazards Mapping Ground Motion Page, there is a 10 percent probability of earthquake ground motion exceeding 0.150 g (a fraction of the acceleration due to gravity) at the Project location over a 50-year period.[22]

According to the California Geological Survey and United States Geological Survey Probabilistic Seismic Hazard Analysis, the hazards due to ground shaking are considered to be low. The analysis is based on historic earthquakes, slip rates on major faults and deformation throughout the region, and the potential for amplification of seismic waves by near-surface geologic materials. The resulting earthquake shaking potential is used in developing building code design values, estimating future earthquake losses and prioritizing earthquake retrofit. In the Visalia area, low levels of shaking, with less frequency, are expected to damage only weaker masonry buildings. However, very infrequent earthquakes could still cause strong shaking.[23, 24]

Ground Rupture: Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally can be assumed to be along an active or potentially active major fault trace. Earthquake-induced ground failures, such as ruptures, lateral spreading, ground lurching, seiches, or mudslides, are unlikely to occur in the Visalia area due to the relatively stable geologic formation and lack of active faults.[25] The potential for fault rupture at the Project site is negligible.

Slope Stability: A landslide is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Ground failure is dependent on topography and underlying geologic materials, as well as factors such as rainfall, excavation, or seismic activities that can lead to slope instability. The City is in a relatively flat area with relatively small foothills located approximately 8 to 10 miles to the east. Elevations across the Project site vary by less than approximately five feet. The Project site is not in an area susceptible to slope failure or landslides.

Erosion: Erosion is the process by which the soil and rock components of the earth's crust are worn away and removed from one place to another by natural forces such as weathering, solution, and transportation. Soil erosion can lead to sedimentation of watercourses, eventually having an adverse impact on water quality and aquatic life. Furthermore, once erosion occurs, it may be difficult for natural vegetation to reestablish itself. The loss of topsoil to erosion is detrimental to agriculture and landscaping. The risk of erosion is greatly increased during grading and construction activities, and agricultural practices, when soils are loosened and are bare of vegetation. Soil erodibility can be identified by a specific soil's "K-Factor." Values of K can range from 0.02 to 0.69, with the higher the value, the more susceptible the soil is to erosion. Soils with K factors above 0.40 are considered to be the most susceptible to erosion.[26] Surface soils at the Project site have been mapped as having K factors of 0.15 to 0.24, which are considered low to moderate for soil erosion susceptibility.[27, 28]

Liquefaction: Liquefaction is a soil condition in which seismically induced ground motion causes an increase in soil water pressure in saturated, loose, sandy soils, resulting in loss of soil shear strength. Liquefaction can lead to near-surface ground failure, which may result in loss of foundation support and/or differential ground settlement. Sandy deposits deeper than 30 feet bgs usually are not prone to causing surface damage. In addition, soils above the groundwater table (soils that are not saturated) would not liquefy.

Technicon Engineering Services, Inc. (Technicon) conducted geotechnical investigations at the Project site in 2014 and 2015 (**Appendix J**). During those investigations, groundwater was encountered at depths of approximately 76 and 71.5 feet bgs, respectively. It is possible that groundwater conditions could vary between

[22] California Department of Conservation. http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html Date Accessed: 7/5/2016
[23] City of Visalia, 2014. General Plan Update 2030 – Chapter 8: Safety & Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30480 Page 8-2. Date Accessed: 7/5/2016
[24] California Geological Survey & United States Geological Survey, 2008. Earthquake Shaking Potential for California, Map Sheet 48. http://www.conservation.ca.gov/cgs/information/publications/ms/documents/ms48_revised.pdf Date Accessed: 7/6/2016
[25] City of Visalia, 2014. General Plan Update 2030 – Chapter 8: Safety & Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30480 Page 8-4. Date Accessed: 7/5/2016
[26] City of Visalia, 2014. General Plan Update 2030 – Chapter 6: Open Space and Conservation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30478 Page 6-14. Date Accessed: 7/7/2016.
[27] NRCS, Custom Soil Resource Report for Tulare County, Western Part, California, Eastside Park Project, January 15 2015
[28] City of Visalia, 2014. General Plan Update 2030 – Chapter 6: Open Space and Conservation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30478 Page 6-15. Date Accessed: 7/7/2016

boring locations or change sometime in the future due to variations in rainfall, groundwater withdrawal or recharge, agricultural activities, or other factors not apparent at the time of the 2014 and 2015 investigations. The granular soils encountered in the borings during the investigations had a relative consistency of medium dense to dense.[29]

Areas most prone to liquefaction are those that are water saturated (e.g., where the water table is less than 30 feet below the surface) and consist of relatively uniform sands that are low to medium density.

Subsidence: Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. The Kaweah Subbasin that underlies the Visalia area is designated by the Department of Water Resources (DWR) as being critically overdrafted. According to the California Water Service (CalWater) 2015 Urban Water Management Plan (UWMP) for the Visalia District, groundwater elevations have declined up to 55 feet between 1990 and 2015.[30] While groundwater recharge efforts are in progress, groundwater levels would continue to decline unless recharge is increased.

As part of its 2014 and 2015 investigations, Technicon drilled soil borings to as deep as 81.5 feet bgs. Soil logs from the investigations indicate that soils below the Project site generally consist of silty sands, clayey sands, sandy silts, and poorly graded sands and gravels.[31] Soils with high silt or clay content are particularly subject to subsidence. While the soils below the Project site appear to be relatively low in silts and clays to at least approximately 81.5 feet bgs, soil types below that depth are unknown. Subsidence may occur in the Visalia area, particularly in areas with high clay content soils or due to groundwater withdrawal.[32]

Collapsible Soil Conditions: Alluvial soils in arid and semi-arid environments have the tendency to possess characteristics that make them prone to collapse with an increase in moisture content and without increase in external loads, a condition known as hydro-compaction. The Project is located in a geologic environment where the potential exists for collapsible soils

Expansive Soil: Expansive soil consists of naturally-occurring fine-grained clay. It is generally found in areas that were historically a flood plain or lake area but can occur in hillside areas also. Expansive soil is subject to swelling and shrinkage, varying in proportion to the amount of moisture present in the soil. As water is initially introduced into the soil (by rainfall or watering), expansion takes place. If dried out, the soil would contract, often leaving small fissures or cracks. Excessive drying and wetting of the soil can progressively deteriorate structures over the years by leading to differential settlement within buildings and other improvements.

As discussed, surface soils at the Project site consist primarily of Nord fine sandy loam and Grangeville sandy loam. Both of these soil types are characterized as having low shrink-swell potential.[33]

Based on information presented in the City General 2030 General Plan Update EIR, there are no expansive soils located at the Project site.[34]

[29] Technicon Engineering Services, Inc. Geotechnical Investigation Report, Proposed East Side Regional Park and Groundwater Recharge Project, Mineral King Ave & Road 152, Visalia, California
[30] California Water Service, 2015. 2015 Urban Water Management Plan: Visalia District. https://www.calwater.com/conservation/uwmp/vis/ Date Accessed: 7/7/2016
[31] Technicon Engineering Services, Inc. Geotechnical Investigation Report, Proposed East Side Regional Park and Groundwater Recharge Project, Mineral King Ave & Road 152, Visalia, California
[32] City of Visalia, 2014. General Plan Update 2030 – Chapter 8: Safety & Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30480 Page 8-1. Date Accessed: 7/5/2016
[33] United States Department of Agriculture, Natural Resources Conservation Science, 2003. Soil Survey of Tulare County, California, Western Part . http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/tulare_westCA2003/tulareCAwpart2003.pdf Date Accessed: 7/5/2016
[34] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.7: Geology and Soils. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30497 Date Accessed: 7/7/2016

3.6.2 Regulatory Setting

Federal

There are no federal regulations pertaining to geology and soils that are applicable to the Project.

State

Alquist-Priolo Earthquake Fault Zoning Act (1972)

The Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act) requires the delineation of Fault Rupture Hazard Zones along active faults in California. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture; however, surface fault rupture is not necessarily restricted to the area within these Zones. The Alquist-Priolo Act prohibits the location of most structures for human occupancy across active fault traces. Within these zones, cities and counties must regulate certain development, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by the potential of future surface displacement. There are no designated Alquist-Priolo zones in the Project area.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. Before a development permit is granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted, and appropriate mitigation measures incorporated into the project design. Geotechnical investigations conducted within Seismic Hazard Zones must incorporate standards specified by California Geologic Survey (CGS) Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards.[35] The purpose of the Seismic Hazard Mapping Act is to identify where special provisions, beyond those contained in the California Building Code (CBC), are necessary to ensure public safety. This need has not been recognized for the hazard of ground shaking.

Design provisions contained in the CBC are believed to be representative of current knowledge and capability in earthquake-resistant design.[36] No portion of County has been mapped under the Seismic Hazards Program.

California Building Standards Code

The CBC, codified in Title 24 Part 2 of the California Code of Regulations (CCR), is administered by the California Building Standards Commission which by law is responsible for coordinating all building standards. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety and general welfare through structural strength, means of egress facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The current version took effect January 1, 2020, and contains necessary California amendments based on the American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions

[35] California Geological Society, 1997. Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California. http://gmw.consrv.ca.gov/shmp/webdocs/sp117.pdf Date Accessed: 7/8/2016

[36] California Building Code, 2016. Chapter 16: Structural Design. http://codes.iccsafe.org/app/book/content/2016%20California%20Codes/Building%20Volume%202/Chapter%2016%20Structural%20Design.pdf Date Accessed: 8/29/2016

apply to the construction, alteration, movement, replacement, and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures throughout California.

The earthquake design requirements take into account the occupancy category of the structure, site class, soil classifications, and various seismic coefficients which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

California Department of Transportation

Caltrans jurisdiction includes State and interstate routes within California. Any work within the right-of-way of a federal or State transportation corridor is subject to Caltrans regulations governing allowable actions and modifications to the right-of-way. Caltrans standards incorporate the CBC and contain numerous rules and regulations to protect the public from seismic hazards such as surface fault rupture and ground shaking. In addition, Caltrans standards require that projects be constructed to minimize potential hazards associated with cut and fill operations, grading, slope instability, and expansive or corrosive soils, as described in the Caltrans Highway Design Manual (HDM). The southern portion of the Project site abuts SR 198, and Houston Avenue (SR 216) abuts the northern portion of the site; any work that is done within Caltrans right-of-way would be coordinated with Caltrans.

Local

City of Visalia General Plan

- Objective S-O-1: Minimize risks of property damage and personal injury posed by geologic and seismic hazards.
- Policy OCS-P-25: Require new development to implement measures, as appropriate, to minimize soil erosion related to grading, site preparation, landscaping and construction.

City of Visalia General Plan Seismic Safety Element

The Visalia General Plan incorporates the Seismic Safety Element completed in 1974 by the Five-County Seismic Safety Committee, with participation from the Tulare Council of Governments. The Safety Element determines that ground shaking is the main potential hazard in the southern Central Valley, and the risk of ground shaking in the Visalia area is low. The Element includes a number of policies, calling for the creation of a public relations and education program to build awareness; development of an Earthquake Disaster Plan; consideration of seismic hazards in the environmental impact assessment process; and adoption and enforcement of the Uniform Building Code (since replaced by the CBC), among others.

City of Visalia Building Code

The City has adopted the 2019 CBC as the City's building code and ordinance (Title 15: Buildings and Construction).

Tulare County Multi-Jurisdictional Hazard Mitigation Plan

A hazard mitigation plan is a formal document that outlays the plans to reduce or eliminate the long-term risk to human life and property from natural or manmade hazards. Visalia participates in the preparation of the Multi-Jurisdictional Local Hazard Mitigation Plan (MJ-LHMP) which covers the County, the eight cities within the County, the Tulare County Office of Education, and the Tule River Tribe. The latest adopted MJ-LHMP was prepared in 2018. The plan has been designed to meet four goals; (1) significantly reduce life loss and

injuries, (2) minimize damage to structures and property, as well as disruption of essential services and human activities, (3) protect the environment, and (4) promote hazard mitigation as an integrated public policy.

3.6.3 Impact Assessment

a) Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

a-i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less than Significant Impact. There are no known active earthquake faults in the Visalia area; therefore, the Project Site is not located within or adjacent to a Fault-Rupture Hazard Zone. For this reason, it is unlikely that an earthquake would result in surface rupture at the Project location. Impacts would be less than significant.

a-ii) Strong seismic ground shaking?

Less than Significant Impact. The Project location is located within approximately 26 miles of seismically active parts of California and is likely to undergo seismic ground shaking at some point. Based on the California Geological Survey Probabilistic Seismic Hazards Mapping Ground Motion Page, there is a 10 percent probability of earthquake ground motion exceeding 0.150g at the Project location over a 50-year period.[37]

All proposed structures must be designed to comply with the CBC, which provides minimum standards to safeguard against major failures and loss of life by requiring that structures: 1) resist minor earthquakes without damage; 2) resist moderate earthquakes without structural damage; and 3) resist major earthquakes without collapse. The CBC bases seismic design on minimum lateral seismic forces ("ground shaking"), and operates on the principle that providing appropriate foundations, among other aspects, help to protect buildings from failure during earthquakes. Therefore, any impacts would be less than significant.

a-iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. The Project Site has flat topography and is approximately 26 miles northwest of the nearest delineated Alquist-Priolo Earthquake Fault Zone. Although no specific liquefaction hazard has been identified, the potential for liquefaction is recognized throughout the San Joaquin Valley where unconsolidated sediments and high water tables coincide.[38] Geotechnical investigations conducted at the indicated that groundwater at the Project Site was at a depth greater than 70 feet bgs and that generally subsurface soils had a density greater than what is typical for significant liquefaction potential. The potential for liquefaction at the Project Site is considered to be low due to the absence of near-surface groundwater and the generally dense cohesive nature of the subsurface materials. Therefore, any impacts would be less than significant.

a-iv) Landslides?

No Impact. The Project Site is not in an area susceptible to slope failure or landslides. Therefore, there would be no impact.

[37] California Department of Conservation. http://www.quake.ca.gov/gmaps/PSHA/psha_interpolator.html Date Accessed: 7/5/2016

[38] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.7: Geology and Soils. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30497 Date Accessed: 7/7/2016

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. Surface soils at the Project Site have been mapped as having K factors of 0.15 to 0.24, which are considered low to moderate for soil erosion susceptibility.[39] [40] This combined with the generally flat terrain of the Project setting indicates that potential for substantial soil erosion or loss of topsoil is less than significant.

The risk of erosion is greatly increased during grading and construction activities and agricultural practices, when soils are loosened and are bare of vegetation. In general, soil conservation is addressed by the City's site review and grading plan requirements (e.g., Policy OCS-P-25). Therefore, any impacts would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. As the Project is located on the Valley floor, no geologic landforms exist on or near the site that would result in a landslide event. Excavation, grading, and fill operations associated with construction could alter existing slope profiles making them unstable as a result of over-excavation of slope material, steepening of the slope, or increased loading. However, destabilization of natural or constructed slopes is unlikely to occur as surface topography at the project site is relatively flat. The Project is required to implement erosion prevention measures as part of its SWPPP. Additionally, standard engineering design features and construction procedures would be implemented to maintain stable slopes and excavations during construction, and therefore, impacts associated with destabilized slopes would be less than significant.

d) Would the project be located on expansive soil, as defined in Chapter 18 of the most recently adopted California Building Code creating substantial risks to life or property?

No Impact. Grangeville sandy loam and Nord fine sandy loam soil types are characterized as having low shrink-swell potential.[41] Additionally, based on information presented in the 2030 General Plan Update EIR, there are no expansive soils located at the Project Site.[42]

The absence of on-site expansive soils would be verified during a comprehensive Geotechnical Investigation Report to address the park design concept, arrangement of basins, pavements, and infrastructure. Appropriate design features to address expansive soils would include excavation of potentially problematic soils during construction and replacement with engineered backfill, ground-treatment processes, direction of surface water and drainage away from foundation soils, and the use of deep foundations such as piers or piles. Implementation of any of these standard engineering methods would ensure that there are no impacts associated with expansive soils.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. Soil permeability is a consideration for projects that require septic system installation. The Project would tie into the City's wastewater system. The City has determined that capacity exists to serve the Project.

[39] NRCS, Custom Soil Resource Report for Tulare County, Western Part, California, Eastside Park Project, January 15, 2015
[40] City of Visalia, 2014. General Plan Update 2030 – Chapter 6: Open Space and Conservation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30478 Page 6-15. Date Accessed: 7/5/2016
[41] United States Department of Agriculture, Natural Resources Conservation Science, 2003. Soil Survey of Tulare County, California, Western Part. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/tulare_westCA2003/tulareCAwpart2003.pdf Date Accessed: 7/5/2016
[42] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.7: Geology and Soils. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30497 Date Accessed: 7/7/2016

As planned, the Project would not involve the installation of a septic tank or an alternative wastewater disposal system. There would be no impact.

3.6.4 Cumulative Impacts

Less than Significant Impact. Geotechnical impacts related to future development in the City involve hazards related to site-specific soil conditions, erosion, and ground-shaking during earthquakes. The impacts on each site are specific to that site and its users and would not be in common or contribute to (or shared with, in an additive sense) the impacts on other sites. In addition, development on each site is subject to uniform site development and construction standards that are designed to protect public safety. Therefore, cumulative geotechnical impacts would be less than significant.

3.7 Greenhouse Gas Emissions

Table 3-18. Greenhouse Gas Emissions

Greenhouse Gas Emissions					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b)	Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

3.7.1 Environmental Setting

"Gases that trap heat in the atmosphere are often called greenhouse gases (GHG). Some GHG such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other GHG (e.g., fluorinated gases) are created and emitted solely through human activities. The principal GHG that enter the atmosphere because of human activities are:

- Carbon Dioxide (CO_2): Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- Methane (CH_4): Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- Nitrous Oxide (N_2O): Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- Fluorinated Gases: Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful GHG that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons).

These gases are typically emitted in smaller quantities, but because they are potential GHG, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases")".

3.7.2 Methodology

An Air Quality & Greenhouse Gas Impact Assessment was completed by VRPA Technologies, Inc. in March 2019. The Assessment Report includes an Air Quality and Greenhouse Gas model completed in September 2017 using CalEEmod 2016.3.1. and is attached as **Appendix C**.

3.7.3 Regulatory Setting

Federal

Section 202 GHG Regulation of Cars and Light Duty Trucks

This rule was proposed jointly by EPA and the National Highway Traffic Safety Administration to create a national program of GHG emission standards and Corporate Average Fuel Economy standards. The standards apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. The standards are designed to achieve a national vehicle fleet whose emissions and fuel economy performance improves year after year. The goal is to reduce CO_2 emissions by 960 million metric tons and save 1.8 billion barrels of oil over the lifetime of vehicles sold in model years 2012 through 2016.[43] The final rule was signed on April 1, 2010, and became effective 60 days after its publication in the Federal Register.

Greenhouse Gas Findings (2009)

In the United States Supreme Court case *Massachusetts v. EPA*, 549 U.S. 497 (2007), 12 states, three cities, and 13 environmental groups filed suit that the EPA should be required to regulate carbon dioxide and other GHG as pollutants under the CAA. In April 2007, the United States Supreme Court found that the EPA has a statutory authority to formulate standards and regulations to address GHG, which it historically had not done. On December 7, 2009, the EPA Administrator finalized two findings to be effective January 14, 2010. The findings are related to GHG under section 202(a) of the CAA. These findings do not themselves impose any requirements on industry or other entities.

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6)—in the atmosphere threaten the public health and welfare of current and future generations.
- **Cause or Contribute Finding:** The Administrator finds that the combined emissions of these well-mixed GHG from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution, which threatens public health and welfare.[44]

Executive Order 13154 Federal Leadership in Environmental, Energy, and Economic Performance

On October 5, 2009, President Obama issued Executive Order 13154, which instructs federal agencies to set or achieve various emissions reduction and energy and environmental benchmarks by 2015, 2020, and 2030. The order requires agencies to set GHG emissions reduction targets for 2020 within 90 days and requires Office of Management and Budget to set a federal government target for 2020 within 120 days. The order also sets out required reductions in vehicle fleet petroleum use and requires increases in water and energy efficiency and in recycling and waste diversion rates. The order also mandates adoption of certain contract and procurement practices designed to promote energy and water efficiency and environmentally preferable products.

Energy Policy and Conservation Act, and Corporate Average Fuel Economy (CAFÉ) Standards

The Energy Policy and Conservation Act (EPCA) of 1975 declared it to be United States policy to establish a reserve of up to 1 billion barrels of petroleum and established nationwide fuel economy standards in order to conserve oil. Pursuant to this Act, the National Highway Traffic and Safety Administration, part of the DOT is responsible for revising existing fuel economy standards and establishing new vehicle fuel economy standards.

[43] EPA, 2010.
[44] EPA, 2009.

The Corporate Average Fuel Economy (CAFE) program was established to determine vehicle manufacturer compliance with the government's fuel economy standards. Compliance with CAFE standards is determined based on each manufacturer's average fuel economy for the portion of their vehicles produced for sale in the United States. The EPA calculates a CAFE value for each manufacturer based on city and highway fuel economy test results and vehicle sales. The CAFE values are a weighted harmonic average of the EPA city and highway fuel economy test results. Based on information generated under the CAFE program, the DOT is authorized to assess penalties for noncompliance.

CAFE rules require the average fuel economy of all vehicles of a given class that a manufacturer sells in each model year to be equal or greater than the standard. CAFE standards apply to passenger cars and light trucks (gross vehicle weight of 8,500 pounds or less). Heavy-duty vehicles (i.e. gross vehicle weight over 8,500 pounds) are not currently subject to fuel economy standards. The EPCA was reauthorized in 2000 (49 CFR 533). The Energy Independence and Security Act of 2007 revised CAFE standards for the first time in 30 years, followed quickly by Section 202 GHG Regulation of Cars and Light Duty Trucks, which calls for further revision of the CAFE standards. Both of those regulations are described above.

Energy Policy Acts of 1992, 2005, etc. (EPAct)

The Energy Policy Act of 1992 (EPAct) was passed to reduce the country's dependence on foreign petroleum and improve air quality. EPAct includes several parts intended to build an inventory of alternative fuel vehicles (AFVs) in large, centrally fueled fleets in metropolitan areas. EPAct requires certain federal, state, and local government and private fleets to purchase a percentage of light duty AFVs capable of running on alternative fuels each year. In addition, financial incentives are also included in EPAct. Federal tax deductions would be allowed for businesses and individuals to cover the incremental cost of AFVs. The Act also requires states to consider a variety of incentive programs to help promote AFVs. The Energy Policy Act of 2005 includes updated provisions for renewed and expanded tax credits for electricity generated by qualified energy sources, such as landfill gas; provides bond financing, tax incentives, grants, and loan guarantees for clean renewable energy and rural community electrification; and establishes a federal purchase requirement for renewable energy.

Global Change Research Act (1990)

The purpose of the legislation was: "…to require the establishment of a United States Global Change Research Program aimed at understanding and responding to global change, including the cumulative effects of human activities and natural processes on the environment, to promote discussions towards international protocols in global change research, and for other purposes." To that end, the Global Change Research Information Office was established in 1991 (it began formal operation in 1993) to serve as a clearinghouse of information. The Act requires a report to Congress every four years on the environmental, economic, health and safety consequences of climate change; however, the first and only one of these reports to-date, the National Assessment on Climate Change, was not published until 2000. In February 2004, operational responsibility for Global Change Research Program shifted to the U.S. Climate Change Science Program.

State

There are a variety of statewide rules and regulations which have been implemented or are in development in California and which mandate the quantification or reduction of GHGs. Under CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a Project is required where it has been determined that a project would result in a significant addition of GHGs. Certain APCDs have proposed their own levels of significance. The SJVAPCD, which has regulatory authority over the air emissions from this project, has not established a significance threshold.

California Air Resources Board

Refer to **Section 3.3.4 Regulatory Setting**.

California Attorney General

The Attorney General has a special role in protecting the environment and public health in California. By law, the Attorney General has independent authority, acting directly in the name of the People, "to act to protect the natural resources of the State of California from pollution, impairment, or destruction." The Attorney General plays a leading role in the oversight and enforcement of CEQA and the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). The Attorney General also prosecutes civil and criminal violations of environmental laws in the name of the People of the State of California and on behalf of client agencies.

CEQA Guidelines Appendix F: Energy Conservation

Appendix F of the CEQA Guidelines describes the types of information and analyses related to energy conservation that are to be included in the EIR process. Energy conservation is described in terms of decreasing per capita energy consumption; decreasing reliance on fossil fuels such as coal, natural gas, and oil; and increasing reliance on renewable energy sources. To assure that energy implications are considered in project decisions, EIRs must include a discussion of the potentially significant energy impacts of Projects (to the extent relevant and applicable to the Project), with particular emphasis on avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

Executive Order S-3-05: Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006.

Executive Order S-3-05 establishes statewide emission reduction targets through the year 2050:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This Executive Order does not include any specific requirements that pertain to the Project. However, actions taken by the State to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

Senate Bill 1368: Senate Bill 1368 (SB 1368) was enacted in 2006 and required the California Public Utilities Commission (CPUC) to establish a CO_2 emissions standard for base load generation owned by or under long-term contract with publicly owned utilities. The CPUC established a GHG Emissions Performance Standard (EPS) of 1,100 pounds of CO_2 per megawatt-hour. SB 1368 also requires the posting of notices of public deliberations by publicly owned companies on the CPUC website and establishes a process to determine compliance with the EPS. The Project, as a renewable energy generation facility, is determined by rule to comply with the GHG Emission Performance Standard requirements of SB 1368.

Assembly Bill 32: California passed the California Global Warming Solutions Act of 2006 (AB 32, codified at HSC Sections 38500-38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction would be accomplished by enforcing a statewide cap on GHG emissions that would be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations

cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB was required to adopt regulations by January 1, 2011, to achieve reductions in GHGs to meet the 1990 emission cap by 2020. In 2019, CARB disclosed that emissions in 2017 were 7 million metric tons of CO_2 equivalent (MMT CO_2e) below the State 2020 limit.

Senate Bill 375: SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires MPOs to adopt a sustainable community strategy (SCS) or alternative planning strategy (APS) that would prescribe land use allocation in that MPOs regional transportation plan. CARB, in consultation with MPOs, would provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets would be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPOs SCS or APS for consistency with its assigned targets.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

Office of Planning and Research Technical Advisory: Consistent with SB 97, on June 19, 2008 the Office of Planning and Research (OPR) released its *Technical Advisory on CEQA and Climate Change*, which was developed in cooperation with the Resources Agency, the California Environmental Protection Agency (CalEPA), and CARB. The *Technical Advisory* offers the informal interim guidance regarding the steps lead agencies should take to address climate change in their CEQA documents, until CEQA guidelines are developed pursuant to SB 97 on how state and local agencies should analyze, and when necessary, mitigate GHG.

According to OPR, lead agencies should determine whether GHG may be generated by a Project, and if so, quantify or estimate the GHG emissions by type and source. Second, the lead agency must assess whether those emissions are individually or cumulatively significant. When assessing whether a project's effects on climate change are "cumulatively significant" even though project specific GHG contribution may be individually limited, the lead agency must consider the impact of the project when viewed in connection with the effects of past, current, and probable future projects. Finally, if the lead agency determines that the GHG emissions from the project as proposed are potentially significant, it must investigate and implement ways to avoid, reduce, or otherwise mitigate the impacts of those emissions.

On April 13, 2009 OPR sent proposed amendments of the CEQA Guidelines to the Secretary of the Resources Agency for promulgation. The proposed amendments contain Model Policies for GHGs in General Plan. OPR recommended changes to fourteen sections of the existing guidelines, including: the determination of

significance as well as thresholds; statements of overriding consideration; mitigation; cumulative impacts; and specific streamlining approaches. The proposed Guidelines also include an explicit requirement that EIRs analyze GHG emissions resulting from a project when the incremental contribution of those emissions may be significant. OPR adopted new amendments in 2018; however, these amendments to the CEQA Guidelines apply prospectively only.

California Energy Code: Title 24, Part 6 of the California Code of Regulations, called the California Energy Code, includes standards mandating energy efficiency measures in new construction, as well as retrofitting existing buildings. Since its establishment in 1977, the building efficiency standards (along with standards for energy efficiency in appliances), which regulate energy consumed in buildings for heating, cooling, ventilation, water heating, and lighting, have contributed to a reduction in electricity and natural gas consumption in California. The standards are updated every three years to allow new energy efficiency technologies to be considered. The latest update to Title 24 standards became effective January 1, 2020.

California Green Code: CalGreen, the nation's first Green Building Standards Code, became effective in August 2009 for voluntary compliance and local adoption, and became effective for mandatory compliance on January 1, 2011. This Code establishes minimum standards for new construction that are intended to help the State achieve the AB 32 goal of reducing GHG emissions to 1990 levels by 2020. In addition to energy efficiency standards, CalGreen includes mandatory measures for water conservation, storm water drainage and retention, material conservation, and construction waste reduction. The requirements for nonresidential construction also include parking, landscaping, and other standards. Local jurisdictions have the option of adopting procedures by ordinance to improve the level of construction beyond the CalGreen minimum standard.

Local

Visalia Climate Action Plan (CAP)

Refer to **Section 3.3.4 Regulatory Setting**.

Visalia's Climate Change Initiatives

In January 2007, City's mayor signed the "Cool Cities" pledge, part of the U.S. Mayors Climate Protection Agreement. By entering into this agreement, the City originally adopted the goal of reducing citywide GHG emissions to 7% below 1990 levels by 2012. As detailed in the CAP, this goal was subsequently expanded in response to CARBs recommended reduction target of 15% below the 2005 baseline, and the City added a 2030 mitigation target to correlate with the 2030 GP Update and the goal of achieving an 80% reduction by 2050.

In 2008, the City also became a partner with the San Joaquin Valley Clean Energy Organization (SJVCEO), which is a non-profit serving the eight-county region. This partnership led to the development of the Valley Innovative Energy Watch, which is a partnership with SCE, Southern California Gas Company (SoCalGas), Pacific Gas & Electric, SJVCEO, and other public jurisdictions in Tulare and Kings Counties. One major task in this initiative was assisting each of the local government partners to develop comprehensive clean energy/GHG reduction plans, including the identification of baseline GHG emissions and energy use.

San Joaquin Valley Air Pollution Control District

SJVAPCD adopted a Climate Change Action Plan in August 2008. While the plan does not have regulatory powers, it directs SJVAPCD to develop guidance to assist District staff, Valley businesses, land-use agencies, and other permitting agencies in addressing GHG emissions as part of the CEQA process. The CCAP also directs District staff to investigate and develop a greenhouse gas banking program, enhance the existing emissions inventory process to include greenhouse gas emissions reporting consistent with new State requirements, and administer voluntary greenhouse gas emission reduction agreements. The CCAP Final Draft Staff Report concludes that while existing science is inadequate to support characterization of impacts that

project specific GHG emissions have on global climatic change, the cumulative impact of all the projects is best addressed by requiring all projects subject to CEQA to reduce their GHG emissions through project design elements.

Since the adoption of the CCAP, SJVAPCD has published Best Performance Standards (BPS) for stationary sources and development projects, and guidance for valley land-use agencies in addressing GHG emissions for new projects under CEQA. However, the District has not published guidance related to large-scale, long-range planning projects such as general plans.

3.7.4 Impact Assessment

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. As shown in **Table 3-19**, the Project would generate 2,187.47 $MTCO_2e/yr$. The City has not adopted a greenhouse gas threshold, however CEQA Guidelines Section 15064.7(b) allows lead agencies to consider thresholds of significance previously adopted or recommended by other public agencies or recommended by experts.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 $MTCO_2e/yr$ for GHG emissions. Though the Project is not within the SCAQMD jurisdiction, the SCAQMD GHG threshold was used to analyze the GHG emissions generated by the Project. **Table 3-20** shows the yearly GHG emissions generated by each Phase of the Project, which are approximately 98% (Phase 1), 81% (Phase 2), and 64% (Phase 3) less than the threshold identified by the SCAQMD.

Based on the assessment above, the Project would not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, any impacts would be less than significant.

Table 3-19. Operational Greenhouse Gas Emissions

2005/2020 Operational Greenhouse Gas Emissions	
Summary Report	**CO_2e**
Operational Emissions Per Year (2020)	2,187.47 MT/yr
SCAQMD Level of Significance	7,000 MT/yr
Does the Project Meet the Standard?	No

Source: CalEEmod 2016.3.1.

Table 3-20. Phase 1, 2, and 3 Operational Greenhouse Gas Emissions

Phase 1, 2, and 3 Operational Greenhouse Gas Emissions	
Summary Report	**CO_2e**
Phase 1 Operational Emissions Per Year	172.84 MT/yr
Phase 2 Operational Emissions Per Year	1,296.05 MT/yr
Phase 3 Operational Emissions Per Year	2,552.30 MT/yr

Source: CalEEmod 2016.3.1.

b) Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact.

The City's CAP was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals. The CAP identifies existing and proposed community measures designed to reduce GHG emissions. The Project incorporates the following identified existing and proposed community measures assisting the City achieve its 2020 15% and 2030 30% reduction goals:

Expansion of bicycle paths, lanes, and trails: Based on the assessment above, the Project would further the achievement of the City's greenhouse gas reduction goals and would not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emissions of GHG. Therefore, any impacts would be less than significant.

3.7.5 Cumulative Impacts

Less than Significant Impact. State action on climate change is mandated by AB 32 and SB 375. TCAG, along with other regional planning agencies throughout the state, would be monitoring the progress of State agencies in developing approaches to address GHG emissions. As agreed-upon approaches for project-level CEQA analysis and for transportation planning are established, TCAG expects that climate change would be a key environmental consideration in future regional transportation planning. TCAG, the City, and other agencies would be required to adhere to any future applicable mandatory regulations regarding global warming resulting from the passage of AB 32 and SB 375, but the exact character of such future implementing strategies is not known at this time.

While the cumulative significance of climate change has been established, in absence of established project-level significance thresholds, it is speculative at this time to determine whether the GHG emissions related to the Project represent a considerable contribution to a significant cumulative impact.

3.8 Hazards and Hazardous Materials

Table 3-21. Hazards and Hazardous Materials

Hazards and Hazardous Materials					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒

3.8.1 Environmental Setting

A listing of contaminated sites within the City and the Project vicinity are available through the California Department of Toxic Substances Control (DTSC) Envirostor database. According to this listing, there are no hazardous waste sites listed within the vicinity of the Project.[45]

The Project is located 7.2 miles northwest of the Exeter Airport and 7.6 miles east of the Visalia Municipal Airport. The Project site is not within either airport's designated safety zone or airport influence area.

CAL FIRE designates both local and State Responsibility Areas for fire hazards throughout the State. Development of the Project would take place in an Unzoned Local Responsibility Area, which has a low fire hazard risk.[46]

3.8.2 Regulatory Setting

Federal

Occupational Health and Safety Administration

The Occupational Health and Safety Administration (OSHA) published standard 1910.120, addressing dangers that hazardous materials pose in the workplace. The standard requires that employers evaluate the potential health hazard that hazardous materials pose in the workplace and communicate information concerning hazards and appropriate protective measures to employees.

State

Department of Toxic Substances Control

The EPA has delegated much of its regulatory authority to the individual states. The DTSC of CalEPA enforces hazardous materials and waste regulations in California in conjunction with the EPA. The DTSC is responsible for regulating the management of hazardous substances, including remediation of sites contaminated by hazardous substances. California hazardous materials laws incorporate federal standards but are often more strict than federal laws.

Porter-Cologne Water Quality Control Act

The RWQCB is authorized by the SWRCB to enforce provisions of the Porter-Cologne Water Quality Control Act of 1969. This act gives the RWQCB authority to require groundwater investigations when the quality of groundwater or surface waters of the state are threatened and to remediate the site, if necessary.

[45] California Department of Toxic Substances Control. Envirostor Database: Hazardous Waste and Substances Site List. http://www.envirostor.dtsc.ca.gov/public/search.asp?page=10&cmd=search&business_name=&main_street_name=&city=&zip=&county=&status=ACT%2CBKLG%2CCOM&branch=&site_type=CSITES%2COPEN%2CFUDS%2CCLOSE&npl=&funding=&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST&reporttype=CORTESE&federal_superfund=&state_response=&voluntary_cleanup=&school_cleanup=&operating=&post_closure=&non_operating=&corrective_action=&tiered_permit=&evaluation=&spec_prog=&national_priority_list=&senate=&congress=&assembly=&critical_pol=&business_type=&case_type=&searchtype=&hwmp_site_type=&cleanup_type=&ocieerp=False&hwmp=False&permitted=&pc_permitted=&inspections=&complaints=&orderby=county. Date Accessed: 6/17/2016

[46] CalCAL FIRE, 2007. Tulare County Draft Fire Hazard Severity Zones in LRA. http://frap.fire.ca.gov/webdata/maps/tulare/fhszl06_1_map.54.pdf. Date Accessed: 6/17/2016

State Underground Storage Tank Program

State laws also regulate Underground Storage Tanks (USTs) and Aboveground Storage Tanks (ASTs) containing hazardous substances. These laws are primarily found in the Health and Safety Code, and, combined with CCR Title 23, establish the requirements of the State UST program. The laws contain requirements for UST permitting, construction, installation, leak detection monitoring, repairs and corrective actions and closures. In accordance with State laws, the County Department of Health Services Environmental Health Division implements UST and AST regulations in County.

Hazardous Materials Worker Safety Requirements

OSHA and the California Occupational Safety and Health Administration (Cal/OSHA) are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in 29 CFR as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. In California, Cal/OSHA assumes primary responsibility for developing and enforcing workplace safety regulations; Cal/OSHA standards are generally more stringent than federal regulations.

The State regulations concerning the use of hazardous materials in the workplace are included in Title 8 of the CCR, and contain requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information relating to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees at hazardous waste sites.

Local

Tulare County Environmental Health Division

In Visalia, the Tulare County Environmental Health Services Division (TCEHSD) is the local agency responsible for the implementation of the State-mandated Unified Hazardous Waste and Hazardous Materials Management Regulatory Program or Multi-Jurisdiction Local Hazard Mitigation Plan (MJLHMP). The County has prepared a Hazardous Materials Business Plan and the aforementioned MJLHMP, which serves as the County's emergency response plan for hazardous materials emergency incidents. In addition, the TCEHSD acts as lead agency to ensure proper remediation of leaking underground petroleum storage tank sites and certain other contaminated sites. TCEHSD provides three permanent Household Hazardous Waste drop-off facilities in the County including one in Visalia and operates mobile collection events throughout the year. These services are available free of charge to any County resident.

City of Visalia and Tulare County Fire Departments

The Visalia Fire Department (VFD) provides fire and life safety services for residents located within the city limits while the County Fire Department provides additional services for unincorporated areas of County. VFD maintains a daily staff of five paramedic engine companies, one truck company, and a Battalion Chief across six fire station locations. The engines and truck companies are staffed with three personnel, giving the VFD a daily minimum staffing of 19.[47] All stations are staffed with a paramedic at all times. The City requires all new development and subdivisions to meet or exceed California Fire Code provisions, and the City's Fire Department reviews development applications during the plan check process.

[47] http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30502 Page 3.11-13. Accessed: August 8, 2016.

The VFD also provides oversight of hazardous materials. Itis responsible for conducting inspections for code compliance and fire-safe practices and for scene management and investigation of fire and hazardous materials incidents. According to VMC Chapter 8.32 (Hazardous Materials), an emergency situation created by a hazardous material release which poses an imminent risk to the life, health or safety of persons, property, or to the environment shall be mitigated in the manner prescribed and pursuant to the direction of the VFD. The VFD regulates explosive and hazardous materials under the California Fire Code, and permits the handling, storage and use of any explosive or other hazardous material. The City hosts "Dump-On-Us" events four times a year for city residents to drop off residential hazardous waste. Accepted items include small appliances, cell phones, fencing material, air conditioning/ heating units, tires, scrap metal, mattresses, yard waste, and other types of waste.

Waste Disposal Regulations

The disposal of contaminated soil is regulated by the RWQCB, in this case the Central Valley Region, and is regulated based on the concentrations of chemical constituents that are present. Soils having concentrations of contaminants higher than certain acceptable levels must be handled and disposed as hazardous waste when excavated. CCR Title 22, Section 66261.20-24 contains technical descriptions of characteristics that would cause a soil to be classified as a hazardous waste.

3.8.3 Impact Assessment

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? and;

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. Construction of the Project components would necessitate the transport and use of small amounts of hazardous materials, such as gasoline, diesel, and oil. These materials would be used in excavation equipment, generators, and other typical construction equipment and would be contained in vessels designed for safe storage. Although appropriate handling and disposal practices would result in low potential for accidental release of hazardous materials during the construction phases, there is the potential for small leaks or spills. Standard construction and operational SWPPP BMPs, including the installation of regulated spill containment at each tank, would minimize the potential for the release of construction-related fuels and other hazardous materials. These BMPs would also help control storm water contamination from spills or leaks, control the amount of runoff from the site, and require proper disposal or recycling of hazardous materials. Impacts would be less than significant.

c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The Project site is located approximately 0.5 mile southeast of Golden West High School. There are no schools either existing or proposed within a one-quarter mile radius. There would be no impact.

d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Project site is not located on any designated hazardous materials site; therefore, no significant hazards would be created.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?; and,

No Impact. The Project is located within Tulare County and therefore is subject to the Tulare County Comprehensive Airport Land Use Plan, adopted in 2012 by the Tulare County Airport Land Use Commission. Given that the Project site is not located within the safety zones or airport influence areas of any public or public use airport, no safety hazards are present.

f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

No Impact. The Project is not located within the vicinity of a private airstrip; therefore, no safety hazards would be posed.

g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The Project site does not currently contain any public accessed routes that would be needed for an emergency response or emergency evacuation. Completion of the Project would actually increase emergency accessibility via construction of Tower Street as a new arterial roadway, which would include new local street connections to the existing stub-streets in the residential subdivisions to the west of Project site. The Project would also provide three points of ingress and egress from the Project site. The impact would be less than significant.

h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

No Impact. The Project is located in an area designated as "Unzoned" by CAL FIRE; therefore, the area is not subject to significant risk involving wildland fire. Further, the Project does not involve residences; therefore, it would not result in the exposure of housing to risk of fires.

3.8.4 Cumulative Impacts

Less than Significant Impact. Cumulative impacts related to hazards and hazardous materials could occur where regional development patterns place structures and/or people in proximity to significant sources of safety hazards or hazardous materials emissions, or where regional patterns develop new cumulatively hazardous sources near sensitive receptors.

The Project would not result in cumulative impacts related to interference with an adopted emergency response plan in fact the Project would actually increase emergency accessibility via construction of the Tower Street extension, which would connect to stub-streets that currently have no outlet.

Accordingly, the Project would have less-than-cumulatively-considerable impacts regarding exposure of the public to hazards or hazardous materials.

3.9 Hydrology and Water Quality

Table 3-22. Hydrology and Water Quality

Hydrology and Water Quality					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☒	☐
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j)	Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.9.1 Environmental Setting

The following environmental setting was largely gathered from information found in the Environmental Impact Report prepared for the City's 2030 General Plan Update.[48]

Precipitation

The City has an average annual precipitation rate of 10.93 inches of rain per year. The summers are dry, with less than 0.1 inch of rain falling per month. The rainy season begins in October, with a monthly mean precipitation rate of 0.6 inches. Rains increase in December to a mean precipitation rate of 1.73 inches per month and maintain a similar range through March. In April, precipitation begins to slow again to 1 inch per month. The dry summer season begins in May.

Groundwater

The Project site is located in the heart of the Kaweah River alluvial fan that spreads out over the San Joaquin Valley floor. Groundwater in County is present in deposits of alluvium that are several thousand feet thick and occurs in both confined and unconfined conditions. The creeks and ditches on the Project site, like other surface water bodies in the area, are tied to the regional groundwater system. Seepage from the creek ultimately recharges groundwater.

The depth to groundwater varies significantly throughout the Valley floor area of County. In the area around Visalia, depth to groundwater varies from about 120 feet bgs along the western portion of the City to approximately 100 feet bgs to the east, as measured in spring 2010. Groundwater levels measured in the City have declined since the 1940s, from approximately 30 feet bgs in 1940 to 120 feet bgs in 2010. The Geotechnical Investigation Report prepared by Technicon stated that groundwater was encountered within in test borings B-13 and B-14 at depths of 76 and 71.5 feet bgs, respectively. It is possible that groundwater conditions at the site could vary between boring locations or could change at some time in the future due to variations in the rainfall, groundwater withdrawal or recharge, agricultural activities, or other factors not apparent at the time of our field reconnaissance.[49]

The Project site is up-gradient of much of the City, including the wells throughout the City that supply water to its residents and businesses; therefore, the Project would recharge the City's groundwater supply.

Surface Water

Visalia rests in the heart of the Kaweah River alluvial fan distributary waterway system, which results in many rivers and creeks that flow through the City. Major surface water resources in the area include the St. John's River, Modoc Ditch, Mill Creek, North Mill Creek, TID Canal, Packwood Creek, Cameron Creek, Deep Creek, Oakes Ditch, Evans Ditch, Persian Ditch, Watson Ditch and several other local ditches. Prior to the agricultural development that occurred in the Central Valley in the mid-to-late 1800s, most of the creeks and rivers were intermittent drainages that receive a significant portion of flow from storm water runoff during the rainy season. Currently this intermittent flow is supplemented from water released from Terminus Dam (Lake Kaweah), which was constructed in 1962 and is operated by the USACE. This supplemental water is used for surface water delivery to water rights holders on the Kaweah and St. John's River systems.

The Kaweah and St. John's Rivers Association (KSJRA) was formed in March 1974 by a group of water companies, irrigation districts, conservation districts, corporations, and individuals that had established water rights on the Kaweah and St. John's Rivers prior to the construction of the Terminus Dam.

[48] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.6: Hydrology, Flooding, and Water Quality. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30496 Date Accessed: 7/12/2016
[49] Technicon. Geotechnical Investigation Report. Page 6. Prepared 9/29/15, Revised 3/10/16.

There are a number of irrigation entities, mostly privately held water companies, that own pre-1914 appropriative and riparian rights to the Kaweah River and that divert this water to beneficial use along the Kaweah and St. John's Rivers. Again, some of the water for these entities passes through portions of the lower Kaweah River distributaries which travel through or close to the Project.

The Persian Ditch Company, the Watson Ditch Company, and the Evans Ditch Company, all members of the KSJRA, receive irrigation water through Mill Creek and take delivery of these waters downstream of the Project. Records of flow through Mill Creek through the years of 1981-2012 show that there are significant amounts of time when Mill Creek has not historically flowed,[50] and that the normal condition for Mill Creek is to have more than 200 days per year when there is no irrigation flow.

The Oakes Ditch Company receives irrigation waters through the Oakes Ditch. This ditch terminates near the western boundary corner of the Project site and then travels south through an underground pipeline to a tailwater/recharge basin located in the southwest corner of the site. The recorded irrigation flow volumes delivered and days of flow through Oakes Ditch through the years of 1981- 2012 show that there are significant amounts of time when Oakes Ditch has not historically flowed[51] and that on the average, Oakes Ditch has more than 225 days per year when there is no irrigation flow.

TID receives irrigation water via Packwood Creek and takes delivery of these waters downstream of the Project. In more recent times, agreements between the City and TID have required TID to use Packwood Creek for the delivery of water to its growers for which the City purchases the seepage loss along Packwood Creek as recharge water to benefit the City's groundwater. The recorded irrigation flow volumes delivered and days of flow through Packwood Creek through the years of 1981-2012 show that there are significant amounts of time when Packwood Creek has not historically flowed and that the channel had no irrigation flow an average of 225 days per year over the period of 1981 through 2012.[52]

The canal companies on the Kaweah system generally call for early season water (February to March) in response to calls for flood release and then are forced to wait until their entitlement accrues behind Terminus Dam before its released during the hottest months of the summer (June to August). Little water is typically run in the fall months.

Conveyance in Local Streams and Ditches

The Kaweah Delta Water Conservation District (KDWCD) operates and maintains the local waterways not under specific control of another local water agency or ditch company in the area. Water deliveries from either the Friant-Kern Canal or the Kaweah River system must be coordinated through KDWCD. Deliveries from the Friant-Kern Canal would most likely be released into the Kaweah River channel via the Kaweah River Waterway Turnout on the Friant-Kern Canal. From there it would be diverted into Mill Creek or Oakes Ditch for delivery to the Project site. Similarly, water originating from Kaweah Lake releases would be diverted into the Lower Kaweah River at McKay's Point and subsequently diverted into Mill Creek or Oakes Ditch for delivery to the Project site. Deliveries made to the Project property via Oakes Ditch would also need to be coordinated through the Oakes Ditch Company.

Storm Water Layoff

Visalia experienced major floods in 1950, 1955, 1966, and 1969. The waterways described in the surface water section above have historically been used for flood control, storm water conveyance, riparian, and recreational uses. In addition, the City maintains parks with detention ponds that serve to detain localized storm water runoff from nearby or adjacent developed lands when significant storm events occur.

[50] Kaweah Delta Water Conservation District. 2015
[51] Ibid.
[52] Ibid.

The City currently maintains storm water conveyance and diversion/layoff agreements with various ditch companies whose channels traverse the City. These agreements provide for the transportation of storm water out of the City for safe use or disposal. The agreements also allow for the temporary diversion of water rights entitlement water from the ditches into detention basins while storm water is being managed downstream. The City then returns this water to the channels and water rights holders once high storm flows have subsided.

Similar agreements and in some cases amendments to existing agreements would be needed in order to allow for the diversion and temporary holding of water rights entitlement water as storm water from Oakes Ditch and Mill Creek into the Project basins and then return of that water to the respective channels once it is safe once high storm flows have subsided.

Water Quality

Groundwater Quality

Water quality of the groundwater that underlies the Project Site is excellent for domestic and agricultural uses. This is most likely due to the abundant snowmelt that originates in the Sierra Nevada. The primary constituents of concern are high total dissolved solids, nitrate, arsenic, and organic compounds resulting from both naturally occurring geologic processes and from man-made activities. Water quality typically deteriorates west of SR 99.[53]

Surface Water Quality

The surface water quality of the Kaweah River alluvial fan distributary waterway system is considered to be excellent and typical of Sierra Nevada snowmelt runoff.[54] There are no known water quality impairments in the area according to the CWA Section 303(d) List of Impaired Waters.[55] The City is proactively involved in protecting water quality. In November 2005, the City adopted a Storm Water Management Program that includes a detailed analysis to handle storm water runoff from increased amounts of impervious surfaces. Plans include retention/detention facilities, street sweeping, establishment of a water quality hotline, and an Illicit Discharge Detection and Elimination System which would allow the City to determine if there is a serious water quality problem from illegal discharges.

3.9.2 Regulatory Setting

Federal

Federal Clean Water Act

Refer to **Section 3.4.3 Regulatory Setting**.

Section 401 – Water Quality Certification

CWA Section 401 requires that an applicant pursuing a federal permit to conduct any activity that may result in a discharge of a pollutant obtain a water quality certification (or waiver). Water quality certifications are issued by RWQCBs in California. Under CWA, the State (as implemented by the relevant board) must issue or waive CWA 401 water quality certification for the Project to be permitted under CWA 404. Water quality certification requires the evaluation of water quality considerations associated with dredging or the placement of fill materials into waters of the United States. Construction of individual projects within the City would require CWA 401 certification for the Project if CWA 404 were triggered.

[53] Groundwater Quality Assessment Report. 2015. https://www.waterboards.ca.gov/centralvalley/water_issues/irrigated_lands/water_quality/coalitions_submittals/kaweah/ground_water/2015_0204_kaweah_gar.pdf
[54] City of Visalia General Plan. 2014. Open Space and Conservation Element.
[55] United State Environmental Protection Agency. Clean Water Act Section 303(d). https://www.epa.gov/tmdl

National Pollutant Discharge Elimination System Waste Discharge Regulations

The 1972 amendments to the Federal Water Pollution Control Act established the NPDES permit program to control discharges of pollutants from point sources (CWA 402), as discussed in **Section 3.4**. The 1987 amendments to CWA created a new section of CWA devoted to stormwater permitting (CWA 402[p]). The EPA has granted California primacy in administering and enforcing the provisions of CWA and the NPDES permit program, which is the primary federal program that regulates point-source and nonpoint-source discharges to WOTUS. SWRCB issues both general and individual permits for certain activities. Relevant general and individual NPDES permits are discussed below.

Phase II MS4 Permit

The SWRCB, in response to the EPA, issued Water Quality Order No. 2013-001-DWQ NPDES General Permit No. CAS000004, Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Systems (MS4s) in February 2013 which went into effect July 2013. The MS4 Permit requires urban municipalities with predetermined inclusion reequipments to file an application and comply with prescriptive tasks over the 5-year permit term. The prescriptive tasks include, but are not limited to, public outreach and involvement, illicit discharge detection and elimination (IDDE), construction site runoff control, post-construction storm water management, municipality facility and operation good housekeeping, water quality monitoring, and municipality assessment and reporting.

Construction Stormwater NPDES Permit

A Construction NPDES General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit (CGP), Water Quality Order No. 2009-0009-DWQ) is required for dischargers or projects who disturb one acre or more of soil or whose project disturbs less than one acre, but which is part of a larger common plan of development that in total disturbs one acre or more. This CGP was adopted in September 2009 and went into effect July 2010.

The CGP requires the development of Permit Registration Documents (PRDs) which include the development and implementation of a SWPPP. The SWPPP must contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, stormwater collection and discharge points, general topography both before and after construction, and drainage patterns across the project. The SWPPP must list/describe BMPs the discharger would use to prevent polluted stormwater runoff and show the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program, a chemical monitoring program for "non-visible" pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment. Attachment B of the CGP describes the elements that must be contained in a SWPPP. Additional PRD requirements are described in Attachments C-E in the CGP.

General Dewatering Permit

Small amounts of construction-related dewatering are covered under the CGP. Large amounts of dewatering, particularly over lengthy periods of time would be required to comply with the General Dewatering Permit. Project-related dewatering is likely to be limited in nature and scope and would likely be covered under the CGP. However, some projects may result in larger amounts of dewatering than covered under the CGP and a Low Threat Discharge and Dewatering Permit would need to be obtained from the Central Valley RWQCB.

Section 404

CWA Section 404 regulates the discharge of dredged and fill materials into WOTUS, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Project proponents must obtain a permit from the USACE for all discharges of dredged or fill material into WOTUS, including wetlands, before proceeding with a proposed activity. Before any actions that may impact surface waters are carried out, a delineation of jurisdictional waters must be completed following USACE protocols (Environmental Laboratory 1987) to

determine whether a particular project area encompasses wetlands or other waters that qualify for CWA protection. These include any or all of the following:

- Areas within the ordinary high-water mark of a stream, including nonperennial streams with a defined bed and bank, and any stream channel that conveys natural runoff, even if it has been realigned; or
- Seasonal and perennial wetlands, including coastal wetlands.

Wetlands are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3; 40 CFR 230.3).

Under the CWA 404 permit program, general permits (known as nationwide permits) have been adopted, and coverage under nationwide permits is possible when the amount of fill is relatively small (usually less than 0.5 acre). Individual projects within the City that do not qualify for a nationwide permit must obtain an individual permit.

National Flood Insurance Program

Congress passed the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. The intent of these acts was to reduce the need for large, publicly funded flood control structures and disaster relief by restricting development on floodplains.

FEMA administers the National Flood Insurance Program (NFIP) to provide subsidized flood insurance to communities that comply with FEMA regulations limiting development in floodplains. FEMA issues Flood Insurance Rate Maps (FIRM) for communities participating in the NFIP.

Executive Order 11988

Executive Order 11988 (Floodplain Management) addresses floodplain issues related to public safety, conservation, and economics. It generally requires federal agencies constructing, permitting, or funding to 1) avoid incompatible floodplain development; 2) be consistent with the standards and criteria of the NFIP; and 3) restore and preserve natural and beneficial floodplain values.

State

Porter-Cologne Water Quality Control Act of 1969

Refer to **Section 3.4.3 Regulatory Setting**.

California Regional Water Quality Control Board, Central Valley Region – Basin Plan

Water quality in streams and aquifers of the region is guided and regulated by the Central Valley RWQCB Tulare Lake Basin Plan.[56] State policy for water quality control is directed at achieving the highest water quality consistent with the maximum benefit to the people of the state. To develop water quality standards consistent with the uses of a water body, the Central Valley RWQCB classifies historical, present, and potential future beneficial uses as part of its basin plan. The Central Valley RWQCB Basin Plan identifies the beneficial uses of the Tulare Lake basin.

Although the St. John's River is not specifically listed on the Tulare Lake Basin Plan, the Valley Floor Creeks are listed for agriculture, industrial, process water, recreation, warm water habitat, wild habitat, rare species habitat, and groundwater recharge. A detailed discussion of beneficial uses and water quality objectives can be found in the Basin Plan.

[56] California Water Boards, Central Valley. https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/

The Central Valley RWQCB Basin Plan has also established the water quality objectives for dissolved oxygen in various habitats. The objective for warm water beneficial use habitats is 5mg/L minimum; and for cold water habitats is 7mg/L minimum.[57]

The Central Valley RWQCB Basin Plan also states that turbidity shall not be increased by more than 1 Nephelometric Turbidity Unit (NTU) when ambient turbidity is between 0 and 5 NTU. Turbidity shall not be increased by more than 20 percent when ambient turbidity is between 5 and 50 NTU. Finally, when ambient turbidity is greater than 100 NTU, turbidity shall not be increased by more than 10 percent.[58]

Sustainable Groundwater Management Act

In September 2014, the California Legislature enacted a three-bill law (AB 1739, SB 1168, and SB 1319), known as the Sustainable Groundwater Management Act (SGMA). SGMA was created to provide a framework for the sustainable management of groundwater supplies and intended to empower local agencies to adopt groundwater management plans that are tailored to the resources and needs of their communities, such that sustainable management would provide a buffer against drought and climate change, and ensure reliable water supplies regardless of weather patterns. SGMA is considered part of the statewide, comprehensive California Water Action Plan that includes water conservation, water recycling, expanded water storage, safe drinking water, and wetlands and watershed restoration. It protects existing surface water and groundwater rights and does not affect current drought response measures.[59]

SGMA requires that local agencies form a local groundwater sustainability agency within 2 years (i.e., by 2017). This process is not subject to LAFCo oversight. Agencies located within high- or medium-priority basins must adopt groundwater sustainability plans within 5 to 7 years. The time frame for basins determined by DWR to be in a condition of "critical overdraft" is 5 years (i.e., by 2020). Local agencies would have 20 years to fully implement groundwater sustainability plans after the plans have been adopted. Intervention by the SWRCB would occur if a groundwater sustainability agency is not formed by the local agencies, and/or if a groundwater sustainability plan is not adopted or implemented.[60]

Streambed Alteration Agreement

The CDFW regulates streambed alterations in accordance with Fish and Game Code Sections 1601–1616: Lake or Streambed Alteration Agreements. Whenever a project proposes to alter a streambed, channel, or bank, an agreement with CDFW is required. The agreement is a legally binding document that describes measures agreed to by both parties to reduce risks to fish and wildlife in the stream system during the project. This is a process outside of CEQA but is usually coordinated with CEQA compliance. Agreements typically have fewer procedural and legal requirements than CEQA in order to work with small-scale projects that are important to fish. Timeframes for agreements are 30 days for CDFW to determine the completeness of an application and an additional 60 days to provide a draft agreement to the applicant.

Local

Phase II MS4 Permit

The Municipal Storm Water Permitting Program established under NPDES regulates storm water discharges from MS4s. In the first phase, the SWRCB issued permits to medium and large municipalities, typically grouped as co-permittees in a metropolitan region. In the second phase, the SWRCB adopted a General Permit for the

[57] California Regional Water Quality Control Board, Central Valley Region. Water Quality Control Plan for the Tulare Lake Basin. Second Edition. Revised January 2004.
https://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/tlbp_200401.pdf
[58] Ibid.
[59] California Department of Water Resources. https://water.ca.gov/sgma
[60] Ibid.

Discharge of Storm Water from Small MS4s. In 2013, SWRCB, in response to the EPA, issued Water Quality Order No. 2013-001-DWQ NPDES General Permit No. CAS000004, Waste Discharge Requirements for Storm Water Discharges from Small MS4s in February 2013, which went into effect July 2013. The MS4 Permit requires urban municipalities with predetermined inclusion reequipments to file an application and comply with prescriptive tasks over the 5-year permit term. The prescriptive tasks include, but are not limited to, public outreach and involvement, IDDE, construction site runoff control, post-construction storm water management, municipality facility and operation good housekeeping, water quality monitoring, and municipality assessment and reporting.

The City applied with the SWRCB under the Phase II MS4 Permit in July 2013, covering the City itself, and the Storm Water Management Program for Tulare County, which covers all unincorporated parts of the County, including the Project site. The City, under previous permit issuances, developed and adopted Stormwater Management Plans in 2005 and 2008, respectively.

Visalia Urban Water Management Plan

California Water Service Company[61] Visalia District 2015 UWMP evaluates water demand and potential supply based on projected population and urban area growth. Water Code Section 10644(a) requires urban water suppliers to file UWMPs with the DWR, the California State Library, and any city or county within which the supplier provides water supplies. The UWMP describes the water system, system demands, system supplies, water supply reliability and water shortage contingency planning, and demand management measures.

City of Visalia General Plan

- Objective OSC-O-6: Protect water resources vital to the health of the community residents and important to the Planning Area's ecological and economic stability.

- Objective OSC-O-7: Preserve and enhance Planning Area waterways and adjacent corridors as valuable community resources which serve as plant and wildlife habitats, as groundwater recharge facilities, as flood control and irrigation components, and as connections between open space areas.

- Objective OSC-O-8: Continue to participate in a waterway program involving the Tulare Irrigation District, irrigation companies, private water companies and state agencies.

- Policy OSC-P-18: Establish a liability agreement between the City, Tulare Irrigation District, water conservation districts and ditch companies related to public access and trail use and riparian corridor enhancement programs.

City of Visalia Municipal Code: Chapter 15.60, Flood Plain Management Ordinance

VMC Chapter 15.60, the Flood Plain Management Ordinance, is intended to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding events and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;

[61] California Water Service Company is an investor-owned corporate purveyor of water to the City of Visalia.

- Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in special flood hazard areas;
- Help maintain a stable tax base by providing for the sound use and development of special flood hazard areas so as to minimize future blighted areas caused by flood damage;
- Ensure that potential buyers are notified that property is located in a special flood hazard area; and
- Ensure that those who occupy properties located in special flood hazard areas assume responsibility for their actions.

Methods to reduce flood losses through this chapter involve regulations pertaining to the following:

- Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;
- Control the alteration of natural floodplains, stream channels and natural protective barriers, which help accommodate or channel floodwaters;
- Control filling, grading, dredging, and other development which may increase flood damage; and
- Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

3.9.3 Impact Assessment

a) Would the project violate any water quality standards or waste discharge requirements?

Less than Significant Impact. Implementation of the Project could result in violations of water quality standards or waste discharge requirements as a result of proposed changes in existing drainage patterns, both in the short-term due to erosion and sedimentation during construction activities and in the long term based upon necessary recontouring of the site to establish recharge basins, external and internal roadways and parking areas and other sports fields and activity areas. Construction activities undertaken to implement subsequent development projects associated with build-out of the Project could include excavation, soil stockpiling, boring, and/or grading activities that strip existing vegetation. Soil erosion is probable during construction which may result in water quality impairments if it is not sufficiently retained from reaching receiving waters. Water quality impairments may include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Sediment from Project-induced erosion could also ultimately accumulate in downstream drainage facilities and interfere with stream flow, thereby aggravating downstream flooding conditions.

Since the Project site would exceed the one-acre disturbance area threshold, RWQCB would require a SWPPP. The SWPPP would include the BMPs such as those listed below, as necessary and appropriate:

- Limiting excavation and grading activities to the dry season only (April 15 to October 15), to the extent possible. This would reduce the chance of severe erosion from intense rainfall and surface runoff, as well as the potential for soil saturation in swale areas.
- If excavation does occur during the rainy season, storm-water runoff from the construction area can be regulated through a storm-water management/erosion control plan that may include temporary on-site silt traps and/or basins with multiple discharge points to natural drainages and energy dissipaters. Stockpiles of loose material are generally covered, and runoff diverted away from exposed soil material. Sediment basin/traps would be located and operated to minimize the amount of off-site sediment transport. Any trapped sediment would be removed from the basin or trap and placed at a suitable location on-site, away from concentrated flows, or removed to an approved disposal site.
- Temporary erosion control measures would be provided until perennial re-vegetation or landscaping is established that can minimize discharge of sediment into receiving waterways.

- After completion of grading, erosion protection would be provided on all exposed soils either by re-vegetation or placement of impervious surfaces. Re-vegetation would be facilitated by mulching, hydro-seeding, or other methods and initiated as soon as possible after completion of grading and prior to the onset of the rainy season (by October 15).
- Permanent re-vegetation/landscaping shall emphasize drought-tolerant perennial ground coverings, shrubs, and trees.
- BMPs selected and implemented for the project shall be in place and operational prior to the onset of major earthwork on the site. The construction phase facilities shall be maintained regularly and cleared of accumulated sediment, as necessary.
- Hazardous materials such as fuels and solvents used on the construction sites shall be stored in covered containers and protected from rainfall, runoff, and vandalism. A stockpile of spill cleanup materials shall be readily available at all construction sites. Employees shall be trained in spill prevention and cleanup, and individuals should be designated as responsible for prevention and cleanup activities. Incorporation of these or equivalent practices in accordance with the requirements of the SWRCBs General Construction Permit process would reduce this potentially significant impact on water resources during construction to a less-than-significant level.

  In addition, the project includes facilities and features designed to capture and retain all run-off that would be generated by site development on-site for infiltration or controlled release to the City's storm drain collection system. As such, the impact would be less than significant.

b) Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Less than Significant Impact. The City plans to construct a groundwater recharge/storm water layoff basin complex with associated control structures. The intent of the Project is to recharge water that is available from any of the three surface water conveyances that traverse the Project site (Mill Creek, Oakes Ditch, and Packwood Creek) when water is available. When available, agreements between the City and TID would allow for the Project to take an average of approximately 5,500 acre-feet per year.

Based on the geotechnical investigation prepared by Technicon, infiltration rates based on a double ring infiltration test show a range between 5 and 129 gallons (gal)/square-feet (sf)/day. With the 129 gal/sf/day outlier removed, the average is more in the range of 21 gal/sf/day. This rate would vary depending on location and is expected to slow down with time after the basins have had time to fill. Given that the Project would contribute to improving groundwater supplies and lead to a net increase in aquifer volume, there would be no negative effects and impacts would be less than significant.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

Less than Significant Impact. Mill Creek is planned to be re-aligned to accommodate park amenities while maintaining the creeks current capacity. The channel boundaries, bed surface, irregularities, obstructions, vegetation and channel meandering are to be considered in hydraulic computations to allow the creek to convey the current capacity without restriction. The restoration of Mill Creek to more closely resemble the riparian corridor that existed in the 1937 photo, shown in **Figure 2-4**. This substantial alteration could result in erosion or siltation on- or off-site however, as described in Section 3.4.4, the Project would obtain and comply with any necessary permits and conditions to reduce impacts to less than significant.

The Mill Creek channel restoration design aims at reconstructing the creek channel to a stable geometric configuration that is self-sustaining and in balance with imposed flow and sediment regimes and the character of the catchment landscape. This design would prioritize the minimization of erosion or siltation on or off-site. Any impacts would be less than significant.

d) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less than Significant Impact. As part of the Project, an evaluation of the floodway status of all the channels must be made. If the channels are not designated floodways on the local FIRM, no FEMA applications would be required. If, however, any of them are designated as floodways by FEMA (not as 100-year Special Flood Hazard Areas) then the City would be required to work with FEMA to authorize changes in the floodway. This would take the form of a flood study demonstrating that the proposed changes would not result in an increase in flood surface elevations alongside of, upstream of or downstream of the project. The City would then apply for a Conditional Letter of Map Revision (CLOMR) from FEMA. Once that is approved, the work can be done. At that point, as-built plans would be submitted to FEMA demonstrating that the work conforms to the approved CLOMR and a Letter of Map Revision would be issued.

As part of the Project, Mill Creek would be realigned, returning it to a more natural meandering channel alignment and riparian character that more closely resembles how it existed in 1937 (**Figure 2-4**). This realignment would not change the creeks flow or capacity. The site storm water runoff would be accommodated by strategically located drainage facilities that would direct storm water runoff from the Project site into the basins. The storm water runoff basins are located along the west side adjacent to Tower Street and along the east side adjacent to Road 152.

The Project would utilize the three existing waterways flowing through the property (Mill Creek, Packwood Creek, and Oakes Ditch) for the groundwater recharge and storm water layoff functions. It is anticipated that water would be available for groundwater recharge year-round during a wet year, and from December through July for an average precipitation year. The dual-function design would therefore include new control structures to divert recharge and layoff waters from these waterways into the basins, move water between basins, and return water to Mill or Packwood Creek as needed. During the storm season, the Project would have the ability to take water from Mill Creek, Oakes Ditch, and Packwood Creek. The current design layout allows for flexible on-site water management between eight basins so that water can be moved around the site from any one system or all. With two feet of freeboard on the basin tops, the Project could provide approximately 300 acre-feet of layoff during a storm event and possibly more if the basins infiltrate.

Each basin would include a low-flow channel that allows for small volumes of water to be conveyed through the basins without filling up the entire basin and also allows more flexibility in moving water via gravity from the ditches or creeks. In an effort to minimize depth and maintain bi-directional flow, the channels are only one-to-two feet in depth and approximately 20 feet wide.

Therefore, while the Project would alter the course of a stream, it would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off of the Project site. Any impacts would be less than significant.

e) Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? And

f) Otherwise substantially degrades water quality?

Less than Significant Impacts. Water quality in storm water runoff is regulated locally by the Central Valley RWQCB and the MS4 requirements set by the SWRCB. Adherence to these requirements results in

incorporating treatment measures and other appropriate source control and site design features that reduce pollutants in runoff to the maximum extent practical. Many of these requirements result in the construction of Low Impact Development techniques such as use of on-site infiltration through landscaping or vegetated swales that reduce pollutant loading in off-site discharges. Incorporation of these types of source control design measures can even potentially improve upon existing conditions.

Analysis of future Tower Street has been limited to south of the future Mineral King/Tower Street intersection, approximately 1,300 feet north of the centerline intersection of SR 198 and Tower Street. At Race Avenue, preliminary plans show water from the west half of Tower Street would be routed into the subdivision to the west. In all other cases, Tower Street runoff is captured and routed to depressed basins at McKinley Avenue or to on-site underground and depressed storage facilities. On-site, the park site was divided into three areas to determine capacity needs. The park area south of Mill Creek is one separate drainage area and the area north of Mill Creek is divided into to two drainage areas generally split on a north south line through the softball complex that reaches the center northernmost baseball complex then turns east to the west edge of Basins A, B, and C. Due to the proposed top of bank elevations for the recharge basins and the low flow line elevations of drop inlets it is not practical to gravity flow storm water runoff into the basins. A pump system would be designed to take water generated from the site and from Tower Street that would be deposited into one or more of the proposed recharge basins.

Capacity of the Dog Park Basin and the McKinley Avenue Basins are based on the City's Storm Water Master Plan (SWMP) retention design with gentle side slopes (generally 6:1 (horizontal distance to vertical distance)) and one foot of freeboard. The basin capacities can be increased by deepening the basins. Criteria for preliminary sizing of the basins are based on the City's SWMP using Table 3-6, Rational Method Runoff Coefficients and Design Criteria for Storm-water Basins. A Storage Volume value of 0.191 for Residential – High Density Land Use was selected based on the combination of open space and developed space including roads and parking lots shown on the Park Master Plan layout.

Capacity of the underground basins are calculated from Storm-Tech MC-3500 Chambers and based on a nine-inch stone foundation depth. Each of the proposed parking lots would contain a system of underground chambers to allow for efficient routing of storm lines. If needed, it is possible to locate the chambers under designed play areas if the parking lots do not develop as proposed on the Park Master Plan.

g) Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? And,

h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

Less than Significant Impact. Portions of the Project area fall within FEMA Flood Zones AE and X (Panel 06107C0954; see **Figure 3-16**). For Zone AE, elevations have been established that would need to be respected when designing buildings, support structures, and critical equipment. The Project would apply for a Development Permit from the City in compliance with Municipal Code Sections 15.60.040 and 15.60.050.A.3.b. In general, the site elevations within Zone AE range from a low of 352 feet amsl on the west side to a high of 355 feet amsl on the east side. Additionally, the Park Master Plan areas that are not intended for recreation facilities/uses are primarily located along Tower Street and are scheduled to be raised mounds. No housing is proposed as a part of this Project and no structures, including the proposed sound wall included in Mitigation Measure NOI-2, would impede or redirect flood flows. Any impacts would be less than significant.

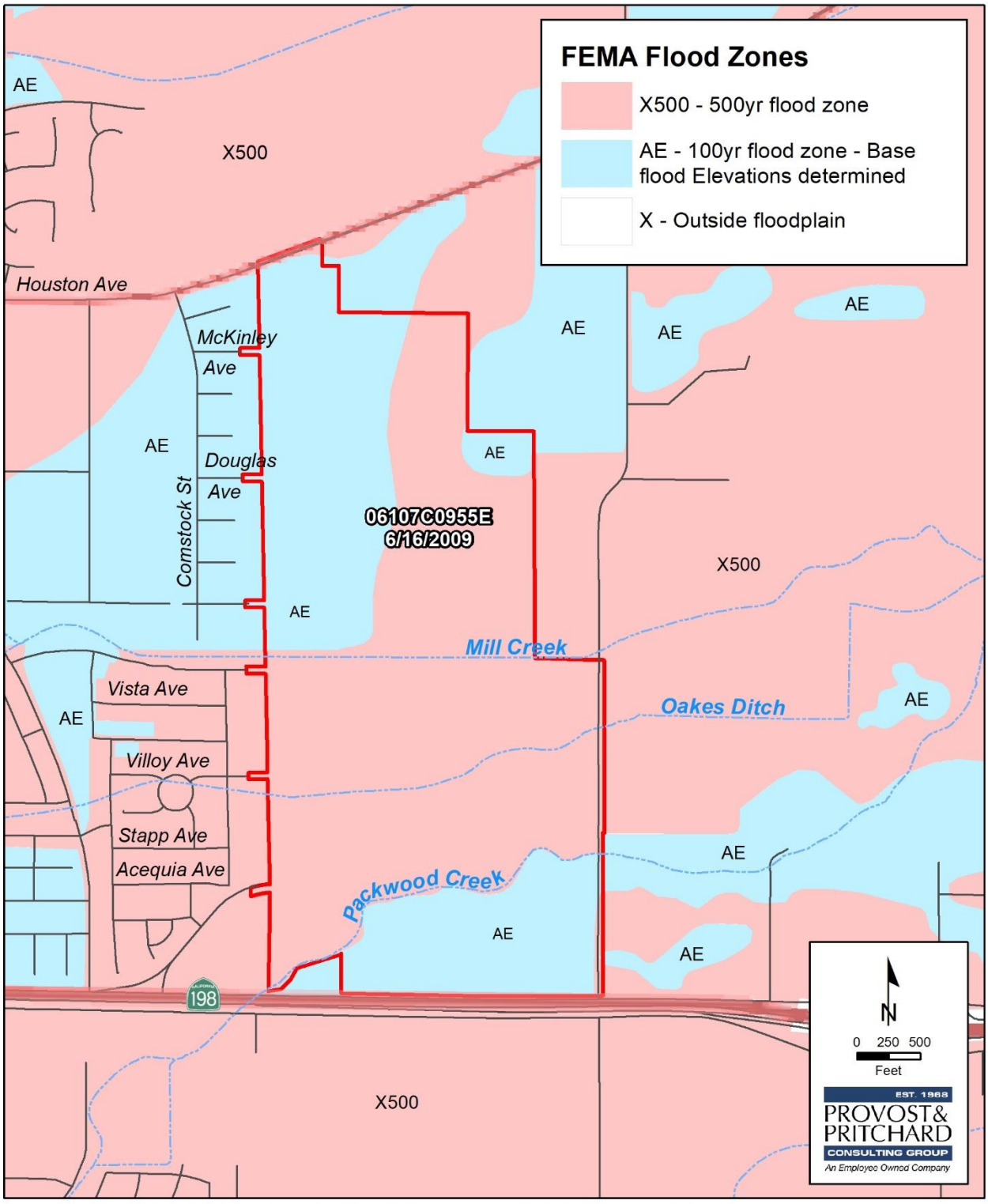


Figure 3-16. FEMA Flood Zones

i) Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less than Significant Impact. Lake Kaweah is located upstream of the Project area and was formed upon the construction of Terminus Dam in 1962. In 2004, the USACE undertook a project to raise the lake 21 feet. The project included the construction of six 21-foot fuse-gates in the Terminus Spillway. The likelihood of failure of Terminus Dam, according to the 2017 MJLHMP, is less than 1% in next 100 years. However, if a significant seismic event were to occur that was at a magnitude the dam could not sustain, the existing urbanized area of Visalia and most of the Project site would be inundated. The dam inundation area covers the entirety of the City. This would expose people and structures to flooding risk damages could be catastrophic, including substantial loss of property and life.

This impact was considered significant and unavoidable by the City's GP Update EIR. A SOC was adopted, stating that because the Terminus Dam is owned and operated by the USACE, there are no feasible mitigation measures that the City could adopt that could reduce potential impacts. Since adoption of the GP Update, the MJLHMP identifies the following specific and potential mitigation actions:

1. Acquire land upstream and develop storm water layoff basins for Packwood Creek, Mill Creek, and Evans Ditch to reduce flooding from the 1% annual chance flood.
2. Designate areas with a potential for significant hazardous conditions for open space, agriculture, and other appropriate low intensity uses.

In the context of the Project, the significant and unavoidable risk identified in the GP Update EIR can be considered a baseline condition. The risks of dam failure as a result of a seismic event are preexisting and would not be increased in any way due to Project implementation. Conversely, the basins proposed by the Project would serve to minimally reduce risk of flooding due to dam failure, as they could capture a portion of the flood flows. Given this slight beneficial impact, and that flood risk due to dam failure is a baseline environmental condition, impacts would be less than significant.

j) Inundation by seiche, tsunami, or mudflow?

No Impact. The Project area is located sufficiently inland to be out of what would be considered a potential hazard area for seiches, tsunamis, and sea level rise. In addition, the location of the park area makes the potential for mudflows remote. Therefore, there would be no impact related to these hazards.

3.9.4 Cumulative Impacts

Less than Significant Impact. Concurrent construction of the Project with other planned projects in the vicinity could result in temporary impacts to hydrology and water quality in the Project area. The concurrent construction activities could result in increased runoff, erosion, and subsequent sedimentation with impacts to water quality in downstream water bodies and/or storm drain capacity. Additionally, surface water quality could be affected by concurrent construction activities that result in the release of fuels or other hazardous materials to stream channels or storm drains, or discharge from excavation dewatering activities.

Adherence to the requirements of the City development regulations and RWQCB CGP requirements would reduce the above-mentioned concurrent project-related construction impacts to hydrology and water quality to a less than significant level. Each of the related projects would be evaluated to determine the degree to which these developments would increase or decrease runoff from the sites and the need for additional storm drain capacity. As such, the contribution of the Project to hydrology and water quality impacts would not be cumulatively considerable, and the Project would not contribute to a cumulative impact to water quality and flooding.

3.10 Land Use and Planning

Table 3-23. Land Use and Planning

Land Use and Planning					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.10.1 Environmental Setting

The Project is located partially within the City and partially within unincorporated County. The City is located in northwestern portion of the County, north of the City of Tulare and west of the City of Farmersville, in California's Central Valley. The City of Hanford, in Kings County, lies 12 miles to the west. Most of the land uses surrounding the City are agricultural in nature. In 2010, the population of Visalia was 124,440, making it the largest city in County. According to the California Department of Finance, the City has an estimated population of 130,231 in 2016.[62] The City covers an area of approximately 36 square miles.[63]

The Project comprises approximately 286 acres. The southern portion of the site, from SR 198 to Mill Creek, is located within the City limits. This portion is zoned QP by the Visalia Zoning Ordinance and designated Parks/Recreation and Conservation by the Visalia GP. The northernmost portion, north of Mill Creek and extending from the Cecil Court alignment to Houston Avenue, is located within unincorporated Tulare County. The City's GP designates this area for Parks and Recreation and Low, Medium, and High Density Residential uses, while the County's GP indicates it as Agriculture. The current County zoning of the northernmost area is AE-20 (Agricultural zone).

The majority of the site is currently occupied by pecan orchards for the southern portion within the City and by walnut orchards for the northern portion within the County.

3.10.2 Regulatory Setting

Federal

There are no federal land use regulations that apply to the Project.

[62] State of California Department of Finance, 2016. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2016 with 2010 Census Benchmark. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/documents/E-5_2016_InternetVersion.xls Date Accessed: 7/28/2016.

[63] City of Visalia, 2014. General Plan DEIR – Chapter 3.1: Land Use and Planning. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30491 Date Accessed: 7/6/2016

State

There are no State land use regulations that apply to the Project.

Local

City of Visalia General Plan

- Objective LU-O-7: Preserve and enhance qualities that make Visalia an ideal place to do business and promote a positive image of Visalia as a desirable place to live, visit, and do business.
- Policy LU-P-20: Allow annexation and development of residential, commercial, and industrial land to occur within the "Tier I" Urban Development Boundary at any time, consistent with the City's Land Use Diagram.
- Policy LU-P-29: Use regional and community parks and open space to enhance gateways to the City and as a buffer between adjacent communities.
- Policy LU-P-37: Adopt specific development standards for scenic entryways (gateways) and roadway corridors into the City, including special setback and landscape standards, open space and park development, and/or land use designations.
- Objective OSC-O-7: Preserve and enhance Planning Area waterways and adjacent corridors as valuable community resources which serve as plant and wildlife habitats, as groundwater recharge facilities, as flood control and irrigation components, and as connections between open spaces.
- Policy OSC-P-8: Protect, restore, and enhance a continuous corridor of native riparian vegetation along Planning Area waterways, including the St. John's River; Mill, Packwood, and Cameron Creeks; and segments of other creeks and ditches where feasible, in conformance with the Parks and Open Space diagram of this General Plan.

  Waterway corridors provide irrigation water for agriculture, recreational opportunities, habitat, and storm drainage. They will provide new links between neighborhoods, parks, and Downtown, and provide a new way of experiencing the City and understanding its natural setting.
- Policy OSC-P-10: Ensure that building and vehicle service areas, loading docks, trash enclosures and storage areas are setback from waterways and/or screened from view from the creek corridor to minimize environmental and visual impacts.
- Policy OSC-P-14: Establish design and development standards for new development in waterway corridors to preserve and enhance irrigation capabilities, if provided, and the natural riparian environment along these corridors. In certain locations or where conditions require it, alternative designs such as terraced seating or a planted wall system may be appropriate.

  As part of Plan implementation, examples of waterway bank treatments should be developed to facilitate adoption of these standards.
- Policy OSC-P-17: Require that new development along waterways maintain a visual orientation and active interface with waterways. Develop design guidelines to be used for review and approval of subdivision and development proposals to illustrate how this can be accomplished for different land uses in various geographic settings.
- Policy OSC-P-23: Where no urban development exists, maintain a minimum riparian habitat development setback from the discernible top of the bank – 50 feet for both sides of the Mill, Packwood and Cameron Creek corridors and 25 feet for both sides of Modoc, Persian and Mill Creek Ditches – provided that where riparian trees are located within 100 feet of the discernible top of the

banks of the Creek corridors and 50 from the banks of the ditches, the setback shall be wide enough to include five feet outside the drip line of such trees. Restore and enhance the area within the setback with native vegetation.

- Where existing development or land committed to development prohibits the 50 foot setback on Mill, Packwood and Cameron Creek corridors, provide the maximum amount of land available for a development setback
- Where existing development or land committed to development prohibits the 25 foot setback along Modoc, Persian, and Mill Creek Ditches, provide the maximum amount of land available for a development setback.

  An exception to these setback requirements also may be allowed to permit piping of the ditch where necessary to meet City standards, and where no riparian trees will be lost.

City of Visalia Municipal Code

The City proposes to pre-zone the portion of the site that is within unincorporated Tulare County to the QP zone; that zoning would take effect upon completion of the annexation. The purpose and intent of this zone is to allow for the location of institutional, academic, community service, governmental, and nonprofit uses. According to VMC section 17.52.020, "Permitted uses in this zone include public uses of an administrative, recreational, public service or cultural type including city, county, state or federal administrative centers and courts, libraries, museums, art galleries, police and fire stations and other public building, structures and facilities; public playgrounds, parks and community centers."[64]

Waterways and Trails Master Plan

The Waterways and Trails Master Plan, outlines goals, policies, design standards, and implementation strategies for the development of a multi-purpose trail system along Visalia's primary community waterways. The trail systems would link neighborhoods, parks, schools, Downtown, and other activity centers. The plan focuses on developing trails along three waterways: Packwood Creek, Mill Creek, and Cameron Creek. The Master Plan also identifies that the Class I trail that would run along Mill Creek and connect to the proposed Class I trail running north/south along the power line easement, west of the Project site.[65] These trails are designed to link with the City's existing trail system along the St. Johns River and the bike network. Mill Creek is proposed to be fully daylighted through Downtown. Ultimately, the completed system would form a "ring recreational trail" around the City's periphery, several cross-town routes along waterways and other primary corridors, and a major north/south route along Santa Fe Avenue. Along each waterway, a preferred trail alignment is identified, and recommendations and policies are made for landscaping improvements and habitat restoration within the waterway setback.[66]

3.10.3 **Impact Assessment**

a) Impact Assessment Would the project physically divide an established community?

No Impact. The Project is located on the far eastern edge of the City, at the outer boundary of existing development and therefore would not divide the community. There would be no impact.

[64] City of Visalia Zoning Ordinance, 15.52.020. http://library.amlegal.com/nxt/gateway.dll/California/visalia_ca/cityofvisaliacaliforniamunicipalcode?f=templates$fn=default.htm$3.0$vid=amlegal:visalia_ca Date Accessed: 7/14/2016

[65] City of Visalia, February 2010. Waterways and Trails Master Plan. https://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=31825 Date Accessed: 7/30/2018

[66] City of Visalia, 2014. General Plan DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30499 Date Accessed: 7/6/2016

b) Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact. Prior to pursuing the development of the Project, several steps would need to be taken. Since a portion of the Project site is located within Tulare County, the City must request annexation. As part of the annexation, the City would need to perfect a General Plan Amendment for approximately 42 acres of the annexation area currently designated for Low, Medium, and High Density Residential located in the northern third of the Project site. The change in land use would affect approximately 0.4 percent of land within the City's Sphere of Influence planned for Residential uses. These lands would be designated for Parks/Recreation consistent with the land use designation for the portion of the Project site already within the City limits and lying south of Mill Creek.

At this time, the City would need to obtain approval from LAFCo for annexation of the approximately 129 acres lying north of Mill Creek to Houston Avenue. Approval and recordation of the annexation would bring the property into the City limits. The new QP zone would take effect upon LAFCo's filing of a Certificate of Completion.

The majority of the southern two-thirds of the Project Site is located within Tier I of the City's Urban Development Boundary, while the remainder (which is currently planned for residential use) is within Tier III, the Urban Growth Boundary. The GP contains criteria to determine whether land within Tier III can be developed, however it applies only to residential, commercial, and industrial development. Therefore, once these lands are annexed into the City and designated as QP zone, the tier distinctions would no longer apply for the development of the Project. Therefore, the impact would be less than significant.

c) Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact. There are no habitat conservation plans or natural community plans in the vicinity of the Project site. There would be no impact.

3.10.4 Cumulative Impacts

Less than Significant Impact. The City's GP designates future land uses for the build out of vacant land within the city limits and sphere of influence. The City proposes to amend its GP, rezone the site, and annex the land into the City. The Project would be consistent with the GP and zoning of the site as amended. Additionally, the City has sufficient capacity to meet the Regional Housing Need Allocation (RHNA) for extremely low-, very low-, low- and moderate income units. The total capacity identified in the sites inventory of the 2014 Housing Element Background Report is 9,571 units for extremely low-, very low-, and low-income units and 768 moderate-income units. At the time of the background report being written the City capacity exceeded the overall RHNA needs by 7,907 units.[67] Although the Project would re-zone 42 acres from a residential land uses to the parks/recreation land use, as shown in b), above, the change in land use would affect 0.4 percent of land within the City's Sphere of Influence planned for Residential. Thus, cumulative impacts to land use and planning resulting from the development of the Project would be less than significant.

[67] General Plan Housing Element, Amendment 2016-06, Background Report, Page 76. https://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=34534

3.11 Mineral Resources

Table 3-24. Mineral Resources

Mineral Resources					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b)	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐

3.11.1 Environmental Setting

"The most economically significant mineral resources in County are sand, gravel, and crushed stone, used as sources for aggregate used in road materials, concrete and other construction. The two major sources of aggregate are alluvial deposits (riverbeds, and floodplains), and hard rock quarries. Consequently, most County mines are located along rivers at the base of the Sierra foothills."[68]

The nearest oil or gas well to the Project is the W.J. "Carter-Chedester" 1 oil well. It is located 1.25 miles northwest of the Project Site and was abandoned in 1948. According to the California Department of Conservation Division of Oil, Gas and Geothermal Resources Well Finder interactive map, no active wells occur within the Project area.[69]

According to the County of Tulare's Mineral Resource Zone designation, the Project sites easternmost portion intersects with Mineral Resource Zone MRZ-3a (see **Figure 3-17**). MRZ-3a areas are characterized by the State Department of Conservation (DOC) (see additional discussion below) as areas with moderate potential for mineral deposits of economic value. However, the County TMR Zone designations explain that further exploration within the MRZ-3a area would be needed to determine if a higher classification could be justified.

3.11.2 Regulatory Setting

Federal

There are no federal regulations pertaining to mineral resources relevant to the Project.

[68] City of Visalia, 2014. General Plan Update 2030, Background Report. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 7/6/2016
[69] California Department of Conservation Division of Oil, Gas and Geothermal Resources Well Finder. 2016. http://maps.conservation.ca.gov/doggr Date Accessed: 7/6/2016

State

California Surface Mining and Reclamation Act of 1975

Enacted by the State Legislature in 1975, the Surface Mining and Reclamation Act (SMARA), Public Resources Code Section 2710, et seq., ensures a continuing supply of mineral resources for California. The Act creates surface mining and reclamation policy to ensure that:

- Production and conservation of minerals is encouraged;
- Environmental effects are prevented or minimized;
- Consideration is given to recreational activities, watersheds, wildlife, range and forage, and aesthetic enjoyment;
- Mined lands are reclaimed to a useable condition once mining is completed; and
- Hazards to public safety both now and in the future are eliminated.

Areas in the State (i.e., a city or county) that do not have their own regulations for mining and reclamation activities rely on the Department of Conservation Division of Mine Reclamation to enforce this law. SMARA contains provisions for the inventory of mineral lands in the State of California. The State Geologist, in accordance with the SWRCB Guidelines for Classification and Designation of Mineral Lands, must classify Mineral Resource Zones as designated below:

- MRZ-1. Areas where available geologic information indicates that there is minimal likelihood of significant resources.
- MRZ-2. Areas underlain by mineral deposits where geologic data indicate that significant mineral deposits are located or likely to be located.
    - MRZ-2a. Areas containing mineral deposits that have geologic data to confirm that significant measured or indicated resources are present.
    - MRZ-2b. Areas containing mineral deposits where geologic information indicates that inferred resources are present.
- MRZ-3. Areas where mineral deposits are found but the significance of the deposits cannot be evaluated without further exploration.
    - MRZ-3a. Areas considered having a moderate potential for mineral deposits of economic value.
    - MRZ-3b. Areas that include inferred mineral deposits that could possibly qualify as mineral resources.
- MRZ-4. Areas where there is not enough information to assess the zone. These are areas that have unknown mineral resource significance.

SMARA only covers mining activities that impact or disturb the surface of the land. Deep mining (tunnel) or petroleum and gas production is not covered by SMARA.

Local

There are no local regulations pertaining to mineral resources relevant to the Project.

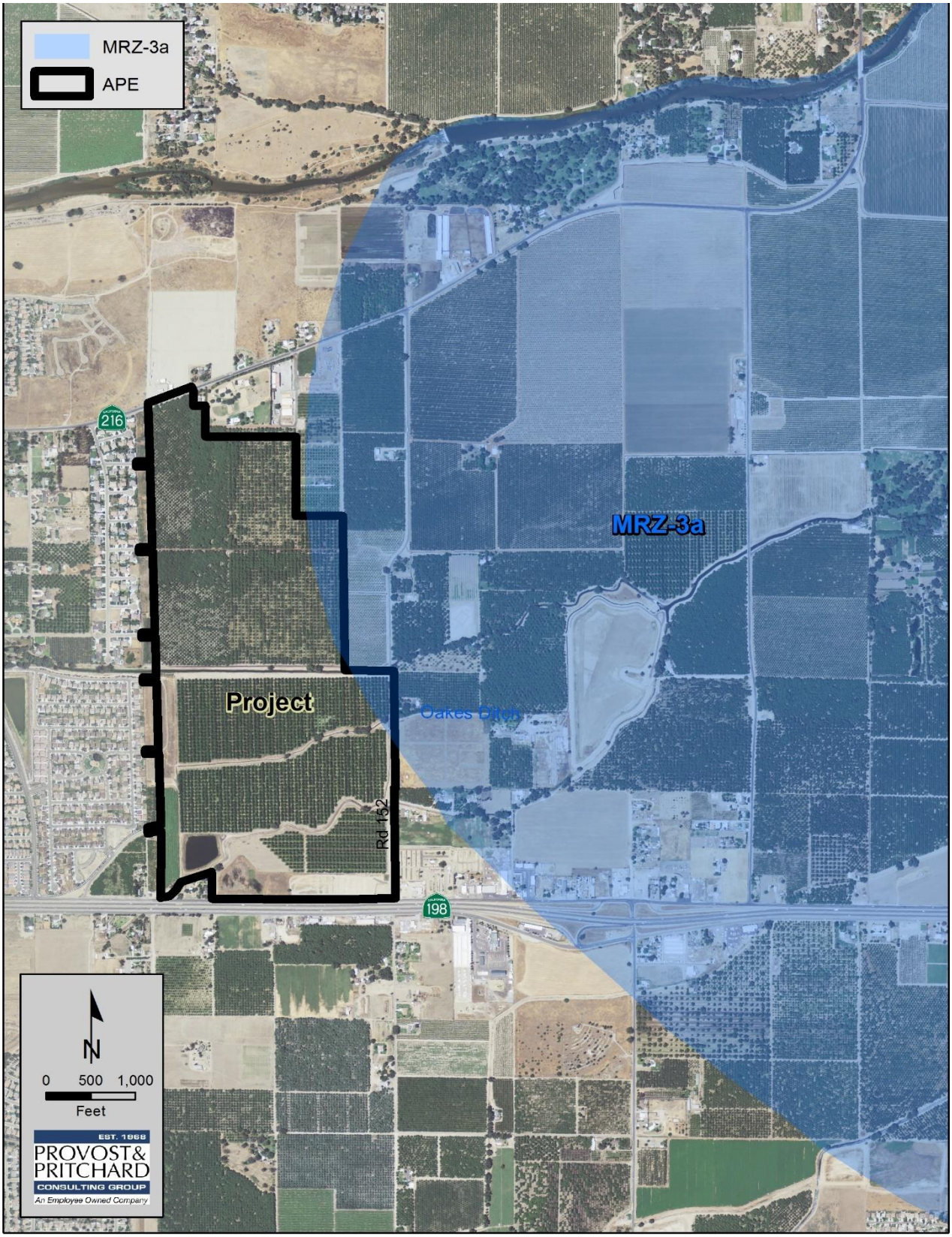


Figure 3-17. Mineral Resource Zone Designation

3.11.3 Impact Assessment

a) Impact Assessment Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

Less than Significant Impact. Mineral resources located within Tulare County, including within the City, are predominantly sand and gravel resources resulting from alluvial deposits. As demonstrated in **Figure 3-17**, the easternmost portion of the Project site, lies within an MRZ-3a zone, an area of moderate potential for mineral deposits of economic value.

Although the MRZ-3a zone extends within the Project boundaries, the Project would not exploit the untapped potential of the known mineral resource present. The mineral resource would not be removed from the site and development of the site with recharge basins and predominantly open recreational areas would not result in the loss of availability of a known mineral resource through compliance with local, State, and federal legislation and permitting.

The Project would not devalue the mineral resource integrity of the site or result in the removal or alteration of the known mineral resources present. Therefore, the impact to the mineral resource potential of the Project area and adjacent areas would be less than significant.

b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

Less than Significant Impact. See discussion under Impact a) above. Considering that the Project would not remove or significantly alter the MRZ-3a geologic reserve, the Project would result in a less than significant impact to the availability of the known mineral resource for future recovery.

3.11.4 Cumulative Impacts

Less than Significant Impact. No cumulative impacts are anticipated because the Project area would be used as a regional park and recharge facility and no mining activities are present. Accordingly, the Project would have less-than-cumulatively-considerable impacts regarding impacts to mineral resources.

3.12 Noise

Table 3-25. Noise

Noise					
Would the project:		Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b)	Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	☐	☒	☐	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

3.12.1 Environmental Setting

The Project is located within orchard, natural stream, and low-density residential lands. SR 198 abuts the Project site to the south, contributing traffic noise to the existing conditions. Single-family residential development is west of the Project site, with a 150-foot wide high-voltage powerline easement located between the Project and the neighborhood.

Table 3-26 characterizes the results of the existing noise conditions at the seven (7) receiver locations evaluated in the study area. The results shown in Table 3 of **Appendix L** were used to develop the traffic noise exposure levels at various setbacks to achieve 60, 65, 70, 75, and 80 sound pressure level ($L_{eq}(h)$) A-weighted decibels (dBA) for the major roadways within the study area. Table 4 of **Appendix L** shows the anticipated noise levels for each roadway evaluated within the study area. Figures 6, 7, and 8 of **Appendix L** graphically display the results included in Table 4.

Table 3-26. Noise Receiver Locations

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Existing Noise Level Leq(h) dBA
1	Residential area located along Arroyo Street, south of Murray Avenue	--	46.0
2	Residential area located Race Avenue, east of Comstock Street	--	49.0
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	58.0
4	Residence located north of Houston Avenue (SR 216), west of Road 152	25	61.0
5	Residence located along Road 152, south of Houston Avenue (SR 216)	25	47.0
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	25	59.0
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	20	78.0

Source: VRPA Technologies, 2017 (Appendix L)

Table 3-27. Existing Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	5	9	15	24	40
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	--	5	8	14	23
Mineral King Avenue						
West of Road 152	2 lanes Undivided	16	26	42	70	115

Source: VRPA Technologies, 2017 (Appendix L)

Traffic noise exposure is mainly a function of the number of vehicles on a given roadway per day, the speed of those vehicles, the percentage of medium and heavy trucks in the traffic volume, and the receiver's proximity to the roadway. Every vehicle passage on every roadway in the City radiates noise.

Existing high noise levels along major streets and highways are generally caused by traffic and congestion. Potential impacts along these facilities are generally classified as follows:

- Low – day-night average sound level (L_{dn}) 59 decibel units (dB) or below
- Moderate–- L_{dn} 60 dB to 65 dB
- High–- L_{dn} 66 dB or greater

The potential for adverse noise impacts is generally moderate to high along most segments of State highways and is generally low to moderate along most segments of City streets and highways.

3.12.2 Methodology

VRPA Technologies, Inc. prepared a Noise Study Report in March 2019 for the purpose of identifying potential noise impacts that may result from the Project. The Report is included as **Appendix L.**

Site Selection

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receptors were then identified. Land uses in the Project vicinity include agricultural, single-family residences, and industrial uses. The generalized land use data and location of particular sensitive receptors were the basis for the selection of the noise monitoring and analysis sites.

Noise Level Measurement Program

Existing noise levels in the Project vicinity were sampled during the PM peak hour because traffic counts conducted in the study area show a greater volume of traffic in the PM peak hour than the AM peak hour. All measurements were made using an Extech Type 2 sound level meter datalogger.

The following measurement procedure was utilized:

1. Calibrate sound level meter.
2. Set up sound level meter at a height of 1.5 m (5 ft).
3. Commence noise monitoring.
4. Collect site-specific data such as date, time, direction of traffic, and distance from sound level meter to the center of the roadway.
5. Stop measurement after 15 minutes.
6. Proceed to next monitoring site and repeat.

3.12.3 Noise Fundamentals

Sound and Noise

Sound is a process that consists of three components: the sound source, the sound path, and the sound receiver. All three components must be present for sound to exist. Without a source to produce sound or a medium to transmit sound-pressure waves, there is no sound. Sound also must be received; a hearing organ, sensor, or object must be present to perceive, register, or be affected by sound or noise. In most situations, there are many

different sound sources, paths and receivers, not only one of each. Noise is defined as loud, unpleasant, unexpected, or undesired sound.[70]

Sound Pressure Levels and Decibels

The amplitude of a sound determines its loudness. Loudness of sound increases and decreases with increasing and decreasing amplitude. Sound pressure level (SPL) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called bels, named after Alexander Graham Bell. To provide finer resolution, a bel is divided into 10 dB.[71]

Addition of Decibels

Because decibels are logarithmic units, SPL cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces an SPL of 70 dB when it passes an observer, two cars passing simultaneously would not produce 140 dB; rather, they would combine to produce 73 dB. When two sounds of equal SPL are combined, they produce a combined SPL 3 dB greater than the original individual SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sound levels differ by 10 dB or more, the combined SPL is equal to the higher SPL; the lower sound level would not increase the higher sound level.[72]

A-Weighted Decibels

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans would respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear. Human hearing is limited not only in the range of audible frequencies but also in the way it perceives the SPL in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hertz (Hz) and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of SPL adjustments is usually applied to the sound measured by a sound level meter. The adjustments (referred to as a weighting network) are frequency dependent. The A-scale weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-scale, C-scale, D-scale), but these scales are rarely, if ever, used in conjunction with highway traffic noise. Noise levels for traffic reports are typically reported in terms of A-weighted decibels (dBA). In environmental noise studies, A-weighted SPLs are commonly referred to as "noise levels" (**Appendix L**).

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual experiences with noise. Thus, an important way to determine a person subjective reactions to a new noise is the comparison of it to the existing environment, referred to as the "ambient" environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise would be judged by the hearers (**Appendix L**). Regarding increases in A-weighted noise level, knowledge of the following relationships would be helpful in understanding this report:

1. Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.

[70] City of Visalia General Plan DEIR, 2014. Chapter 3.10: Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30500 Page 3.10-1. Date Accessed: 7/6/2016.
[71] City of Visalia General Plan DEIR, 2014. Chapter 3.10: Noise. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30500 Page 3.10-1. Date Accessed: 7/6/2016.
[72] Ibid.

2. Outside of the laboratory, a 3-dB change is considered a just-perceivable difference.
3. A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
4. A 10 dB change is subjectively heard as approximately a doubling in loudness.

Human Response to Changes in Noise Levels

It is widely accepted that the average healthy ear can barely perceive 3 dB noise level changes. A 5-dB change is readily perceptible, and a 10 dB change is perceived as being twice (or half) as loud. As discussed above, doubling sound energy results in a 3 dB increase in sound; therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.[73]

Noise Descriptors

Noise in our daily environment fluctuates over time. Various noise descriptors have been developed to describe time-varying noise levels. The following are the noise descriptors most commonly used in traffic noise analysis.[74]

- Equivalent sound level (L_{eq}): L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level that in a stated period would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level ($L_{eq}[h]$) is the energy average of the A-weighted sound levels occurring during a 1-hour period.
- Percentile-exceeded sound level (L_x): L_x represents the sound level exceeded for a given percentage of a specified period (e.g., L_{10} is the sound level exceeded 10 percent of the time, L_{90} is the sound level exceeded 90 percent of the time).
- Maximum sound level (L_{max}): L_{max} is the highest instantaneous sound level measured during a specified period.
- Day-night level (L_{dn}): L_{dn} is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10 p.m. and 7 a.m.
- Community noise equivalent level: Community noise equivalent level is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels occurring between 10 p.m. and 7 a.m. and 5 dB added to the A-weighted sound levels occurring between 7 p.m. and 10 p.m.

Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations.

Noise generated by mobile sources typically attenuates (is reduced or drops off) at a rate between 3.0 and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance (**Appendix L**).

Noise generated by stationary sources typically attenuates at a rate between 6.0 to 7.5 dBA per doubling of distance. Sound levels can be reduced by placing barriers between the noise source and the receiver (commonly called the "receptor"). In general, barriers contribute to decreasing noise levels only when the structure breaks

[73] Ibid. Page 3.10-3.
[74] Ibid.

the "line of sight" between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise but are less effective than solid barriers (**Appendix L**).

When sound propagates over a distance, it changes in level and frequency content. The manner in which noise reduces with distance depends on the following factors.[75]

Geometric Spreading: Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dBA for each doubling of distance. Highway noise is unique in that the movement of vehicles makes the source of the sound appear to emanate from a line (i.e., a line source) rather than a point. The drop off rate for line sources is 3 dB per doubling of distance.

Ground Absorption: The noise path between the highway and the observer is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. For acoustically hard sites (i.e., those sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receiver), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, between the source and the receiver), an excess ground-attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

Atmospheric Effects: Atmospheric conditions can have a significant effect on noise propagation. Wind has been shown to be the most important meteorological factor within about 500 feet of the source, whereas vertical air-temperature gradients are more important for greater distances. Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lower noise levels. Increased sound levels can also occur as a result of temperature inversion conditions (i.e., increasing temperature with elevation).

Shielding by Natural or Human-Made Features: A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by this shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver would typically result in at least 5 dB of noise reduction. A taller barrier may provide as much as 20 dB of noise reduction.

Ground-borne Vibration

Annoyance to humans and damage to buildings are the two ground-borne vibration impacts of general concern. The two measurements corresponding to human annoyance and building damage for evaluating ground-borne vibration are peak particle velocity (PPV) and root-mean square (RMS) velocity. PPV is the maximum instantaneous positive or negative peak of the vibration signal, measured as a distance per time (such as millimeters or inches per second). This measurement has been used historically to evaluate shock-wave type vibrations from actions like blasting, pile driving, and mining activities, and their relationship to building damage. RMS is an average, or smoothed, vibration amplitude, commonly measured over 1-second intervals. It is expressed on a log scale in decibels (VdB) referenced to 0.000001 x 10-6 inch per second and is not to be confused with noise decibels. It is more suitable for addressing human annoyance and characterizing background vibration conditions because it better represents the response time of humans to ground vibration signals.

[75] City of Visalia General Plan DEIR, 2014. Chapter 3.10: Noise
. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30500 Date Accessed: 7/6/2016

3.12.4 Regulatory Setting

Federal

EPA's Noise Control Program (40 CFR 204).

The EPA regulates noise sources, such as rail and motor carriers, low noise emission products, construction equipment, transport equipment, trucks, motorcycles, and the labeling of hearing protection devices.

State

State of California General Plan Guidelines

The State of California General Plan Guidelines (OPR 2003) identify guidelines for the noise elements of local GPs, including a sound level/land use compatibility chart that categorizes, by land use, outdoor Ldn ranges in up to four categories (normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable). For many land uses, the chart shows overlapping Ldn ranges for two or more compatibility categories. The noise element guideline chart identifies the normally acceptable range of Ldn values for low-density residential uses as less than 60 dB and the conditionally acceptable range as 55–70 dB. The normally acceptable range for high-density residential uses is identified as Ldn values below 65 dB, and the conditionally acceptable range is identified as 60–70 dB. For educational and medical facilities, Ldn values below 70 dB are considered normally acceptable, and Ldn values of 60–70 dB is considered conditionally acceptable. For office and commercial land uses, Ldn values below 70 dB are considered normally acceptable, and Ldn values of 67.5–77.5 are categorized as conditionally acceptable. When noise levels are in the conditionally acceptable range new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation requirements are included in the design. These overlapping Ldn ranges are intended to indicate that local conditions (existing sound levels and community attitudes toward dominant sound sources) should be considered in evaluating land use compatibility at specific locations.

Local

City of Visalia General Plan

The Noise Element of the City's GP establishes goals and policies intended to limit community exposure to excessive noise levels. The GP identifies noise sources such as roadways, rails, and airports within the city and includes land use compatibility guidelines. In addition, Implementation Policy 2.2 states that an acoustical analysis may be required if existing or projected future noise exposure at the exterior of buildings which would contain noise sensitive uses or within proposed outdoor activity areas exceeds 65 dB, Ldn, or I interior noise levels resulting from off-site noise are estimated to exceed 45 dBA.

Noise Ordinance

VMC Section 8.36 contains the City's Noise Ordinance, which establishes exterior and interior noise level standards. Exterior and interior noise levels may not exceed any of the categorical noise level standards shown in **Table 3-28**:

Table 3-28. City of Visalia - Noise Level Standards

City of Visalia's Noise Level Standards			
Categories	Cumulative number of minutes in any one-hour time period	Evening and daytime (6:00 a.m. to 7:00 p.m.)	Nighttime (7:00 p.m. to 6:00 a.m.)
Exterior Levels			
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65
Interior Levels			
1	5	45	35
2	1	50	40
3	0	55	45

3.12.5 Impact Assessment

a) Would the project cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant Impact with Mitigation Incorporated.

Short-Term Impacts

Implementation of the Project has the potential to result in short-term construction noise impacts to surrounding land uses, representing a short-term impact to ambient noise levels. Although most types of exterior construction activities associated with the Project would not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible. **Table 3-29** depicts typical construction equipment noise. Construction equipment noise is controlled by the EPA's Noise Control Program (40 CFR 204).

During the construction phase of the Project, noise from construction activities would add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in **Table 3-29**, ranging from 77 to 85dB at a distance of 50 feet. Construction activities would be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity would not result in significant adverse impacts to nearby sensitive receptors, depicted as the blue, yellow, and green areas in **Figure 3-18**.

Table 3-29. Typical Construction Equipment Noise

Construction Equipment Noise	
Type of Equipment	**Sound Levels Measured (dBA at 50 feet)**
Rock Drills	85
Jack Hammers	85
Pneumatic Tools	85
Pumps	77
Dozers	85
Tractor	84
Front-End Loaders	80
Hydraulic Backhoe	80
Hydraulic Excavators	85
Graders	85
Air Compressors	80
Trucks	84

Source: Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek and Newman, 1987)[76].

Long-Term Impacts

Traffic Noise

Future development analyzed within the 2030 GP Planning Area of the would result in increased traffic volumes, thus increasing noise levels in some areas. Tables 13, 14, 15, and 16 and Figures 22 through 51 of **Appendix L** show the predicted noise levels at the modeled receivers evaluated in the study area for the Cumulative Year 2040 With and Without Project conditions. Results of the analysis show that noise at sensitive receptors would not exceed the City's Transportation Noise Source criteria for the Cumulative Year 2040 Plus Project scenarios. There would be minimal changes in the traffic noise exposure levels with the Project at various setbacks of 60, 65, 70, 75, and 80 $L_{eq}(h)$ dBA for the major streets and roads within the study area. Implementation of the Project would not result in significant adverse impacts from traffic noise levels generated as a result of the Project. Therefore, no mitigation measures are needed.

Stationary Noise

The VRPA Noise Study Report demonstrated that Phase 2 on-site operations would impact sensitive receptors directly to the west of the Project and would exceed the City's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project Site would be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time. **Table 3-30** demonstrates that Area 1, Area 2, and Area 3 as shown on **Figure 3-18** below would experience hourly noise levels of 58 dBA, 61 dBA, and 58 dBA respectively, which exceeds the City's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 11 dBA would be needed to meet City's noise criteria.

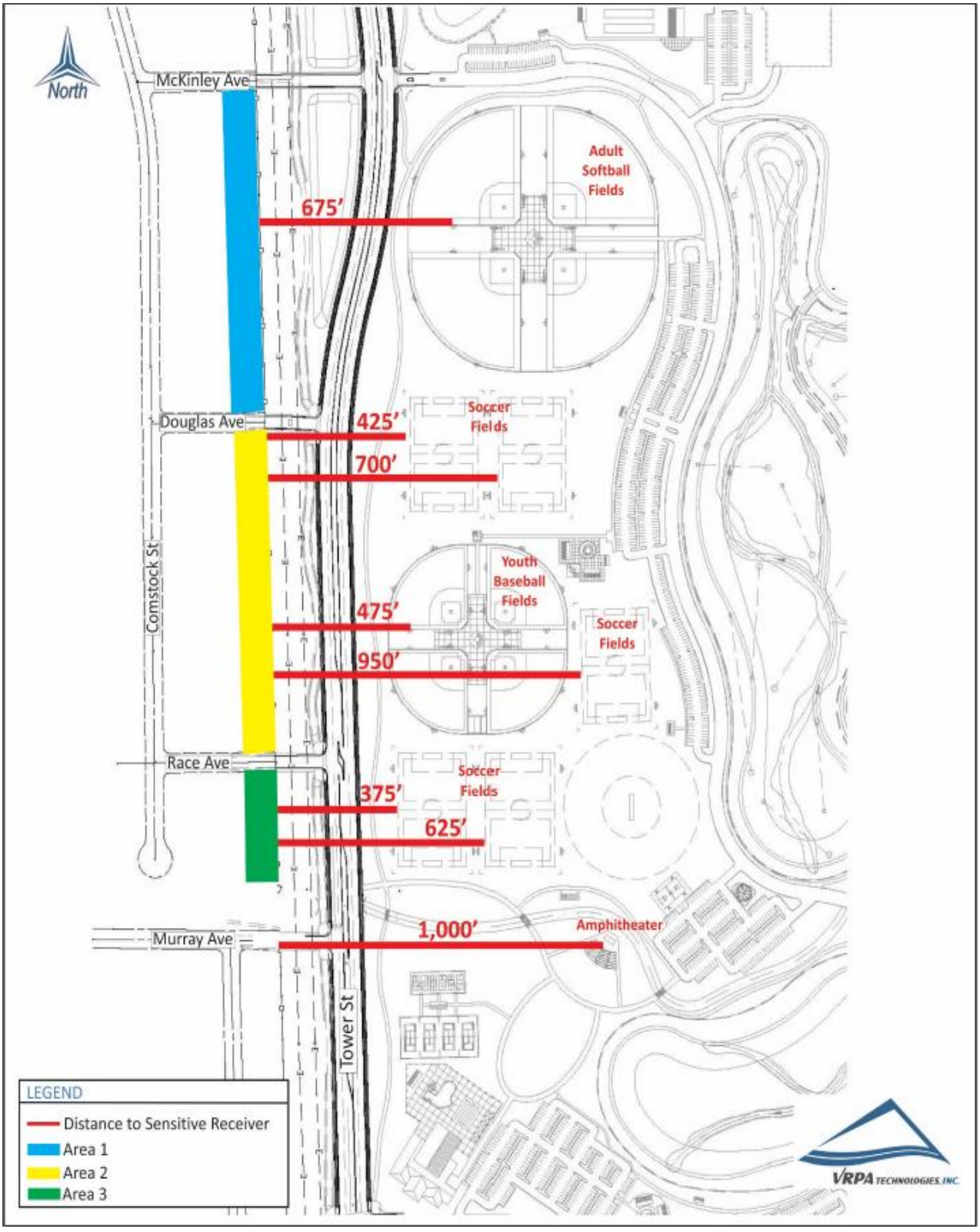
[76] Bolt, Beranek and Newman, Noise Control for Buildings and Manufacturing Plants, 1987.

Table 3-30 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 71 dBA, and 68 dBA respectively. The estimated maximum noise levels estimated for Areas 1 and 3 do not exceed the City's Stationary Noise Source Criteria of 70 dBA, while Area 2 does.

Table 3-30. On-Site Noise Source Impacts

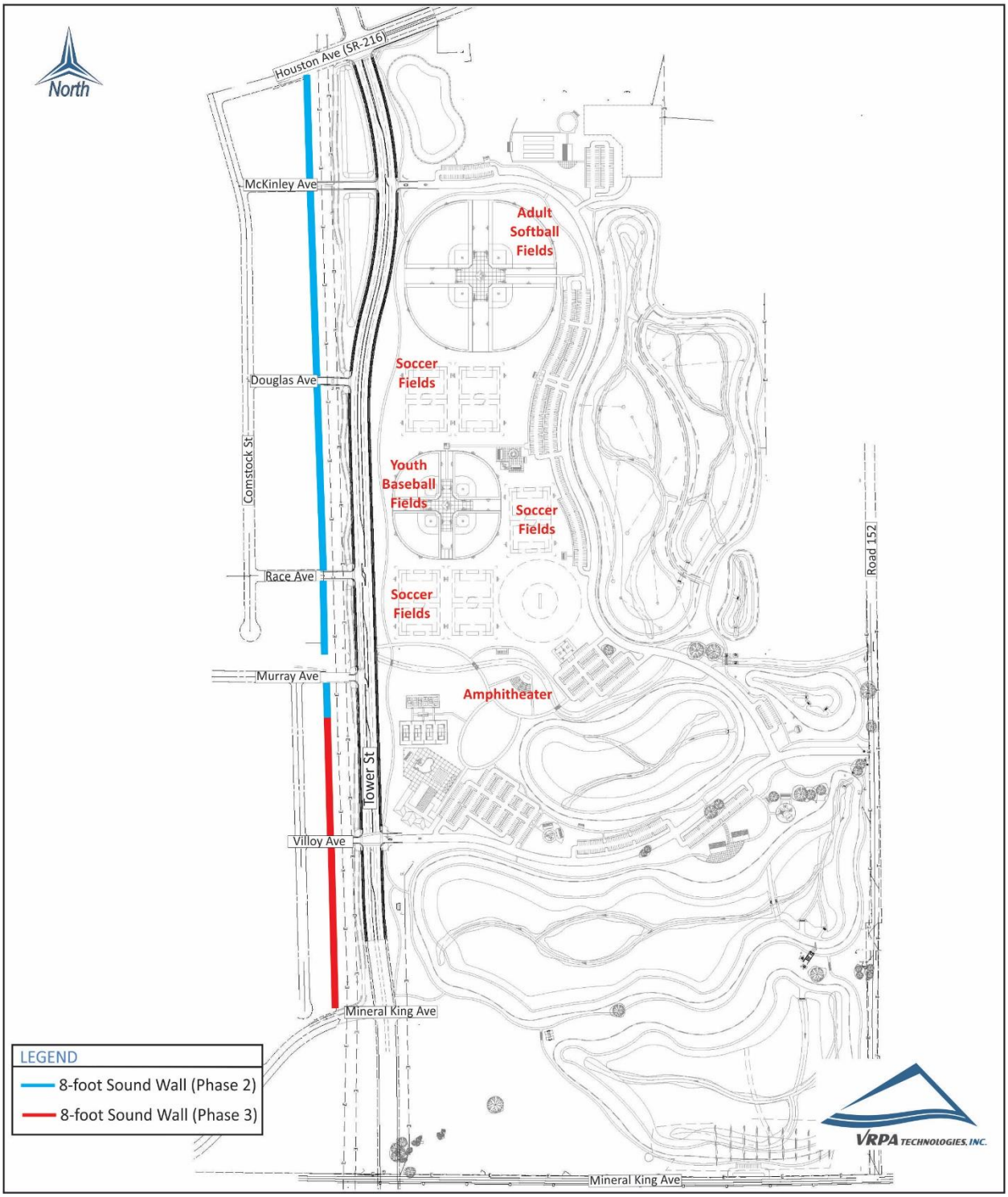
On-Site Noise Source Impacts				
Area	**Hourly Equivalent Sound Level L_{eq} dBA**	**Maximum Sound Level, dBA**	**City of Visalia's Transportation Noise Source Criterion**	**Impact**
1	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
2	61.0	71.0	50 L_{eq} (h) / 70 L_{max}	Yes / Yes
3	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No

Source: VRPA Technologies, 2017 (Appendix L)



Source: VRPA Technologies, 2017 (Appendix L)

Figure 3-18. Sensitive Receiver Boundary vs. On-Site Noise Sources



Source: VRPA Technologies, 2017 (Appendix L)

Figure 3-19. Sound Wall Location

In order to reduce potential on-site noise impacts to sensitive receivers to a less than significant level, the Project shall comply with the following recommended mitigation measures:

- **NOI-1 –** Use of softball, baseball, and soccer fields shall be limited to the hours of 7:00 am – 7:00 pm.

- **NOI-2 –** Construction of an 8-foot sound wall along residential boundary of homes directly to the west of Project site (see **Figure 3-19** for approximate location). The sound wall material should consist of concrete block (8" x 8" x 16"), dense concrete (4" thick), or light concrete (4-6" thick). The wall shall provide breaks to allow for flood waters to pass through.

Mitigation Measures NOI-1 and NOI-2 would reduce the Project impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA considering data provided in Caltrans Technical Noise Supplement and FHWA Noise Barrier Design.

Phase 3 of the Project would impact sensitive receivers directly to the west of the Project and exceed the City's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate noise levels between 65-70 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project shall comply with the Mitigation Measure NOI-2 and the following recommended mitigation measures:

- **NOI-3 –** Reorient the amphitheater to the northeast. Grade the amphitheater stage to be at same grade or level than the sensitive receptors to the west.

Mitigation Measures NOI-2 would reduce Phase 2 of the Project impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA considering data provided in Caltrans Technical Noise Supplement and FHWA Noise Barrier Design. Therefore, any impacts would be less than significant with mitigation incorporated. Mitigation Measure NOI-3 would eliminate Phase 3 of the Project impacts to sensitive receivers to the west of the Project site to a less than significant level.

b) Would the project cause exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant Impact with Mitigation Incorporated. Ambient vibration levels in residential areas are typically 50 VdB, which is well below human perception. The operation of heating/air conditioning systems and slamming of doors produce typical indoor vibrations that are noticeable to humans but not considered adverse or significant.

Construction activity can result in ground vibration, depending upon the types of equipment used and proximity to receptors. Operation of construction equipment causes ground vibrations, which spread through the ground and diminish in strength with distance from the source generating the vibration. Building structures that are founded on the soil in the vicinity of the construction site respond to these vibrations, with varied results. Ground vibrations as a result of typical construction activities very rarely reach vibration levels that would damage structures, but can cause low rumbling sounds and detectable vibrations for buildings very close to the site. Construction activities that generally create the most severe vibrations are blasting and impact pile driving. Neither of these activities would be needed to construct the Project.

Vibration levels from various types of construction equipment are shown in **Table 3-31**. The primary concern with construction vibration is building damage. Therefore, construction vibration is generally assessed in terms of peak particle velocity (PPV). Using the highest vibration level shown in **Table 3-31** (L_v 87), the anticipated vibration levels at 100 feet, 150 feet, and 200 feet are 75, 71, and 69 VdB, respectively.

Table 3-31. Vibration Source Levels for Construction Equipment

Vibration Source Levels for Construction Equipment		
Type of Equipment	**PPV at 25 ft (in/sec)**	**Approximate L_v* at 25 ft**
Large Bulldozer	0.089	87
Caisson Drilling	0.089	87
Loaded Trucks	0.076	86
Jackhammer	0.035	79
Small Bulldozer	0.003	58

Source: VRPA Technologies, Inc. (Appendix L)
* RMS velocity in decibels (VdB) is 1 inch/second. *Lv(distance) = Lv(25 ft) – 20 log (distance/25)*

Construction activities associated with Phases 1, 2, and 3 of the Project would likely require the use of various types of equipment including vibratory rollers, bulldozers, and dump trucks. Based on the vibration levels provided in **Table 3-31**, ground vibration generated by common construction equipment would be 75 VdB and 82 VdB or less at a distance of 100 feet or more. The single-family residences located adjacent to Receiver 6 and Receiver 9 may be subject to vibration levels greater than 75 VdB depending on the location of the construction equipment on the Project site.

In order to reduce potential construction vibration impacts to sensitive receivers to less than significant, all construction phases of the Project shall comply with the following recommended mitigation measures:

- **NOI-4 –** Vibration Monitoring would be conducted during construction of Phases 1, 2, and 3 of the Project when directly adjacent to a sensitive receptor (at Project boundary). Vibration would be monitored along the perimeter of the construction area and at varying distances.

  A vibration criterion of 0.5 inches per second (in/sec) PPV is proposed as the applicable action threshold criteria for ground-borne vibration measurement during proposed remedial construction activities. The 0.5 in/sec PPV criterion has been established by the United States Bureau of Mines as the threshold above which damage to interior plaster walls may occur. This criterion has become recognized by industry as the threshold for the onset of vibration damage to typical residential structures. Collected vibration monitoring results would be compared to the vibration criterion. The results would also be tabulated and reviewed on a weekly basis to assess trends and formulate the basis for mitigation measures, if required.

c) Would the project cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact with Mitigation Incorporated.

Traffic Noise

The VRPA Noise Study evaluated the impact of the Project to the modeled sensitive receivers evaluated in the study area. The results indicate that the changes in noise levels, as a result of the Project, are less than significant (**Appendix L**). The Project would result in a maximum increase of eight (8) decibels when comparing Existing

and Existing Plus Project Conditions (Receivers 1 and 2). This increase is primarily due to the construction of Tower Street and the adjustments to existing travel patterns in the study area as a result of Tower Street.

There would be minimal changes in the traffic noise exposure levels at various setbacks of 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area as shown in **Appendix L**. Implementation of the Project would not result in significant adverse impacts from traffic noise levels within the Project study area. Therefore, no mitigation measures are needed.

Stationary Noise

Stationary Noise impacts were evaluated for Phase 2 in Impact a) above. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site would be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant for Phase 2, the Project shall comply with mitigation measures NOI-1 and NOI-2.

Mitigation Measures NOI-1 and NOI-2 would reduce Phase 2 of the Project impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA considering data provided in Caltrans Technical Noise Supplement and FHWA Noise Barrier Design.

Stationary Noise impacts were also evaluated for Phase 3 in Impact XII-a. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential of Phase 3 on-site noise impacts to sensitive receivers to less than significant, the Project shall comply with mitigation measures NOI-2 or NOI-3.

Mitigation Measures NOI-2 and NOI-3 would reduce the Project impacts to sensitive receivers to the west of the Project. Utilizing standards from the Caltrans Technical Noise Supplement and FHWA Noise Barrier Design and assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA. Therefore, any impacts would be reduced to less than significant with mitigation incorporated.

d) Would the project cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Less than Significant Impact. Construction activities resulting from Project implementation have the potential to result in short-term impacts to ambient noise levels experienced by surrounding land uses. Although most of the types of exterior construction activities associated with the Project would not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible. **Table 3-29** depicts typical construction equipment noise. Construction equipment noise is controlled by the EPA's Noise Control Program (40 CFR 204).

During construction of each phase, noise from construction activities would add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in **Table 3-29**, ranging from 77 to 85dB at a distance of 50 feet. Construction activities would be temporary in nature and are expected to occur during normal daytime working hours in compliance with the Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity would not result in significant adverse impacts to nearby sensitive receptors.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? and,

No Impact. The Project is not located within five miles of a public airport or public use airport. There would be no impact.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The Project is not located within the vicinity of a private airstrip. There would be no impact.

3.12.6 Cumulative Impacts

Less than Significant Impact with Mitigation Incorporated. VRPA Technologies Inc. analyzed the cumulative impacts of the Project to the year 2040 (**Appendix L**). Implementation of Mitigation Measures NOI-1 through NOI-4 would reduce the cumulative impacts to a less than significant level. In addition, this Project and other projects in the vicinity would be subject to compliance with the City's Noise Ordinance; therefore, reducing the cumulative impact to a less than significant level.

3.13 Population and Housing

Table 3-32. Population and Housing

Population and Housing					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.13.1 Environmental Setting

According to the California Department of Finance, the City has an estimated population of 136,246 in 2018.[77] In 2010, there were 43,900 housing units, of which 18 percent were multifamily units and 80 percent were single-family units, with the remaining percent as a residential vacancy rate.[78] The demographic projections developed by TCAG in 2009 indicated that Visalia would grow by about 2.5 percent annually between 2010 and 2030 to reach a population of 211,111 in 2030.[79] During the same span of time, TCAG projected that the number of households would grow at about the same pace as population. The number of jobs was projected to increase by about 1.7 percent annually between 2010 and 2030, reaching approximately 91,424 in 2030.[80]

The Project site has scattered rural residences to the north, south, and east with two different urban residential neighborhoods to the west.

3.13.2 Regulatory Setting

There are no federal, State, or local regulations, plans, programs, and guidelines associated with population or housing that are applicable to the Project.

[77] State of California Department of Finance, 2016. E-5 Population and Housing Estimates for Cities, Counties, and the State, 2011-2018 with 2010 Census Benchmark. http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/documents/E-5_2018InternetVersion.xls Date Accessed: 7/26/2018.
[78] City of Visalia DEIR, 2014. Chapter 1: Introduction. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30489 Page 3.1-4. Date Accessed: 7/6/2016.
[79] City of Visalia General Plan Housing Element, 2016. Page 15.
[80] City of Visalia DEIR, 2014. Chapter 1: Introduction. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30489 Page 3.1-5. Date Accessed: 7/6/2016.

3.13.3 Impact Assessment

a) Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

No Impact. Project components are intended to address and accommodate expected growth rather than induce it. The recreational facilities and road improvements of the Project are addressed within the City's GP and are intended to accommodate the anticipated future growth of the City. The extension of roads and development of Tower Street are intended to provide access to the East Side Regional Park and to improve traffic flow. This Project would not result in an indirect induction of population growth. There would be no impact.

b) Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

No Impact. There is no housing located on the Project site; therefore, implementation of the Project would not result in the displacement of any amount of existing housing. There would be no impact.

c) Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

No Impact. As stated in Impact b), there is no housing located on the site; therefore, the Project would in no way displace substantial or insubstantial numbers of people. There would be no impact.

3.13.4 Cumulative Impacts

No Impacts, No cumulative impacts.

3.14 Public Services

Table 3-33. Public Services

Public Services				
Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i. Fire protection?	☐	☐	☐	☒
ii. Police protection?	☐	☐	☐	☒
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

3.14.1 Environmental Setting

Visalia Police Department

The Visalia Police Department (VPD) provides police protection in the City and collaborates with other law enforcement agencies and the District Attorney's office for crime prevention. VPD works with City and County agencies and educational and social service providers on a variety of outreach and youth programs. VPD is engaged in gang prevention efforts ranging from school presentations to intensive management of high-risk probation cases to injunctions against two gangs.[81]

As of 2016, the VPD had 141 sworn officers working out of two districts, as well as 68 professional staff, 18 hourly staff, and 87 volunteers (including reserves, VIPS, Chaplains, and Explorers).[82] Dispatch, records, crime analysis, and other essential law enforcement units are included in the professional and hourly staff.

VPD headquarters is at 303 South Johnson Street in Downtown Visalia, adjacent to City Hall West. In 2007, two substations were opened and shifted to district-based operations. The District 1 substation, serving northern Visalia, is located at 204 Northwest 3rd Avenue, near Lincoln Oval. District 2, at 4100 South County Center Drive, serves the southern part of the City. The Project will be served by the District 1 substation.[83]

[81] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-1. Date Accessed: 6/22/2016
[82] City of Visalia, 2015. Visalia Police Department 2016 Annual Report. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=35742 Date Accessed: 11/26/2017
[83] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-1. Date Accessed: 6/22/2016

VPD does not establish service standards either in terms of officers per thousand residents or in incident response time. In 2008, VPD reported that its response times were under 15 minutes for 85 percent of all calls and that the average response time for Priority 1 calls was 4.2 minutes.[84]

The City opened the Visalia Emergency Communication Center (VECC) in 2017. The two-story, 18,872 square-foot building was designed as an essential services facility. Located near School Avenue and Burke Street, the VECC is the home for the Emergency Communication Center (911 Dispatch), VPD Administration including the Emergency Operation Center, Traffic Management Center and the City's secure Data Center for Information Services.

Visalia Fire Department

The VFD handles emergency and fire calls within the City. In 2015, the VFD responded to over 14,000 calls for service. There was a 20% increase in calls for service, including vegetation and structural fires, from 2010 to 2015 and a 26% increase in EMS calls in the same time period.[85] In total in 2015, 65% of incidents were EMS/rescue related, 21% were fires, 5% were service calls, and 2% were due to hazardous conditions. The remaining 7% were either false calls or miscellaneous, other calls. It is anticipated that the VFD would respond to approximately 18,000 annual calls for service by the end of 2019.[86]

VFD has 76 uniformed and 7 non-uniformed personnel, with at least 26 on duty at any time. Personnel are trained in fire suppression and certified as Emergency Medical Responders. Organized into six response areas, VFD operates six stations to serve all parts of the City, and has six fire engines and a 105-foot aerial truck as well as five reserve fire engines and two reserve ladder trucks.[87] Stations are located in each quadrant of the City plus a fifth station near Mooney Blvd serving south central, as well as the Downtown station adjacent to the police headquarters. The Project area is served by Station 56, located at 1968 S. Lovers Lane, 1.2 miles southwest of the Project site. This station accounted for 11% of service calls in 2015, the second fewest of the six stations.[88]

The VFD also contains a Type I Hazardous Materials team, including 23 certified Hazardous Materials Specialists managed by one Battalion Chief. This team serves Tulare and Kings County locally and is available for use State-wide in the case of a large-scale incident.[89]

Fire prevention is an important part of VFD's work. VFD conducts weed and abandoned vehicle abatement to remove common sources of fire and presents public education programs in schools and other venues.[90]

VFD follows the National Fire Protection Association (NFPA) service ratio standard of one responder per 1,000 residents. VFD does not currently meet that standard; current staffing of 76 uniformed personnel[91] translates to 0.56 responders per 1,000 residents. VFD also follows the NFPA response time standard, aiming to respond to 95 percent of calls within 5 minutes, including one minute of "turnout" and four minutes of driving.[92] VFD currently has an average fire response time of 5 minutes and 30 seconds, and an average EMS response time of 5 minutes and 11 seconds.[93]

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[84] Ibid. Page 3.9-3
[85] City of Visalia, 2015. City of Visalia Fire Department 2015 Annual Report. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=32932 Date Accessed: 7/28/2016
[86] Ibid.
[87] City of Visalia Fire Department, 2016. Visalia Fire Department Information . http://www.ci.visalia.ca.us/depts/fire/info/default.asp Date Accessed: 8/2/2016
[88] Ibid.
[89] Ibid.
[90] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-3.Date Accessed: 6/22/2016
[91] Visalia Fire Department Website. http://www.visalia.city/depts/fire/info/default.asp Accessed 7/27/2018.
[92] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-3.Date Accessed: 6/22/2016
[93] Visalia Fire Department Annual Report 2017. Page 7. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=38459 Accessed 7/27/2018.

VFD has mapped the areas within four-minute driving-time range of each station.. Areas of southwest Visalia and smaller areas in the northwest and northeast cannot reasonably be served within the VFDs target response time. [94]

Evacuation Routes and Potential Shelter Sites

The City has designated several evacuation routes through Visalia to be used in case of catastrophic emergencies. The extent and severity of a disaster would determine which routes and which direction people must take in order to escape or avoid the afflicted areas. Kaweah Health Care District provides emergency health care services to residents of the City, including any within or near the Project site.[95]

In the event of a natural or man-made disaster, the City would coordinate with the Red Cross, Salvation Army, and State and federal agencies responsible for providing emergency shelter for displaced residents. The sites most commonly used are schools, senior centers, community centers, public buildings, and churches.[96]

Schools

The Project site is within Visalia Unified School District (VUSD), which provides public education from Kindergarten through 12th Grade. The District includes 26 elementary schools, five middle schools, four traditional high schools, and alternative education programs. A comprehensive campus including Golden Oak Elementary School, Valley Oak Middle School, Golden West High School, and Visalia Adult School is located approximately one-half mile to the northwest. Mineral King Elementary School is located 0.76 miles to the southwest of the Project Site.

Parks, Open Space, and Recreation

Currently, Visalia has 37 parks located throughout the City. Four community parks (Fairview Village Park, Recreation Park, Seven Oaks Park, and Whitendale Park) provide a wider variety of community amenities or are co-located with community centers and range from approximately 9 to 14 acres in area. Three large parks, Mooney Grove, Plaza Park, and Riverway Sports Park, are located at the periphery. The St. John's Trail (St. John's Riverway) forms much of the northern edge of the City. Altogether, there are 678 acres of parkland within the City. Tulare County's Cutler Park provides an additional 50 acres northeast of the Project site.[97] The nearest neighborhood park to the Project Site is Mill Creek Garden Park, less than one mile west of the site. The Project would increase the City's park acreage, helping the City to meet its goal of 5 acres of park for every 1,000 people.[98] The City currently has approximately 4.74 acres of park per 1,000 people.

3.14.2 **Regulatory Setting**

Federal

There are no federal regulations, plans, programs, or guidelines that are applicable to the Project.

[94] Ibid, Page 3.9-4.
[95] Ibid.
[96] Ibid.
[97] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. City of Visalia DEIR, 2014. Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-14. Date Accessed: 6/22/2016
[98] Visalia General Plan. 2014. Page 5-2.

State

State Open Space Standards

GC Section 65560, et seq. provides a structure for the preservation of open space by requiring every city and county in the state to prepare, adopt, and submit to the Secretary of the Resources Agency a "local open-space plan for the comprehensive and long-range preservation and conservation of open-space land within its jurisdiction." Local agencies typically meet this requirement via policies and programs contained in the Open Space Elements of their general plans. The State identifies the following open space categories for preservation:

- Open space for public health and safety, including, but not limited to, areas that require special management or regulation due to hazardous or special conditions.
- Open space for the preservation of natural resources, including, but not limited to, natural vegetation, fish and wildlife, and water resources.
- Open space for resource management and production, including, but not limited to, agricultural and mineral resources, forests, rangeland, and areas required for the recharge of groundwater basins.
- Open space for outdoor recreation, including, but not limited to, parks and recreational facilities, areas that serve as links between major recreation and open space reservations (such as trails, easements, and scenic roadways), and areas of outstanding scenic and cultural value.
- Open space for the protection of Native American sites, including, but not limited to, places, features, and objects of historical, cultural, or sacred significance such as Native American sanctified cemeteries, places of worship, religious or ceremonial sites, or sacred shrines located on public property (further defined in PRC Sections 5097.9 and 5097.993).

Local

City of Visalia General Plan: Parks, Schools, Community Facilities, and Utilities

The Parks, Schools, Community Facilities, and Utilities Element (which contains the mandatory criteria of an open space element) of the City's GP was last comprehensively updated in 2014. Regarding parks and recreation, the Element presents City's policies and programs for the development and maintenance of parks, schools, and other fundamental building blocks for new neighborhoods to be built over the next two decades. The Element objectives and goals pertaining to public services are as follows:

Fire:

- Policy S-O-4: Protect Visalia's residents and businesses from potential fire hazards.
- Policy S-P-22: Manage vegetation in areas within and adjacent to public rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.
- Policy S-P-27: Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the Fire Department for review and approval prior to beginning construction.
- Policy S-P-29: Ensure availability of adequate water supplies to meet public health and safety needs, and for resource protection, by maintaining the following order of priority for water use:
  - Potable water supply, fire protection, and domestic use
  - Resource protection and preservation

- Industrial, irrigation and commercial uses
- Water-oriented or water-enhanced recreation
- Air conditioning.

Police:

- Policy S-O-5: Provide a comprehensive program of safety services including police, fire and medical response in all parts of the Visalia Planning Area.
- Policy S-P-30: Integrate the Tulare County Hazard Mitigation Plan, in particular the hazard analysis and mitigation strategy sections, into the development review process, the emergency operations plan, and capital improvement program, as appropriate.
- Policy PSCU-P-27: Investigate opportunities to locate emergency services substations (police, fire, etc.) adjacent to park sites.

Schools:

- Policy PSCU-O-8 Place elementary schools at the core of neighborhoods and co-locate schools with parks and neighborhood commercial areas.

Parks:

- Policy PSCU-O-1: Design parks and recreation facilities that will enhance community identity and serve the recreation and social needs of Visalians of all ages, economic situations and physical abilities.
- Policy PSCU-O-2: Continue to develop and expand special recreation amenities and programs for teens, senior citizens, and ethnic populations.
- Policy PSCU-O-3: Ensure that a wide variety of quality sports and aquatics opportunities, including Sports Tourism, are available to the community.
- Policy PSCU-O-4: Emphasize health and wellness programs in light of childhood obesity and Type II diabetes challenges in the City and County.
- Policy PSCU-O-5: Continue Visalia's strong volunteer program by expanding meaningful opportunities for community service in Parks and Recreation Department programs.
- Policy PSCU-O-6: Maximize opportunities for joint use of public land and facilities involving schools, stormwater ponding basins and other areas under public jurisdiction suitable for recreation.
- Policy PSCU-P-25: Encourage cooperative agreements with the City and the Kaweah Water Conservation District, levee districts, irrigation companies, school district, College of the Sequoias, Southern California Edison Company and other public agencies and utilities to explore innovative recreation open space facilities throughout the Visalia planning area.
- Policy PSCU-P-1: Prepare a Parks and Recreation Master Plan to implement Park policies in this General Plan. The Plan should include:
  - An assessment of existing and future recreational needs, including the needs of specific user groups and the needs of older areas of the community as well as those in new neighborhoods;
  - An assessment of opportunities for joint-use of City-owned stormwater detention basins on a year-round or seasonal basis, including priorities, access, improvement needs, security and cost-sharing arrangements;
  - Involvement of teens in design of teen programs and seniors in programs serving them;
  - A comprehensive program for providing facilities and recreational activities for identified needs, developed in consultation with VUSD and others involved in recreation programs, including joint-use opportunities with VUSD and other school districts and College of the Sequoias (COS), and joint-use opportunities with City facilities, such as retention basins;

  - Proposals for coordinating affordable child care with the City's recreation programs;
  - Detailed design, construction and maintenance standards for parks and community centers and aquatic facilities emphasizing universal accessibility and barrier-free design, durability, low maintenance, and low water use;
  - A program for retrofitting existing facilities to remove barriers to handicapped users over time;
  - An action plan to define priorities, responsibilities and scheduling; and
  - A comprehensive financing strategy for park and recreation facilities, including but not limited to the Park Acquisition and Development Fee, Recreation Program Fee policies, including provisions for fee reductions, scholarships and sponsorships, and marketing, including recreation as part of the City's overall economic development plan.

- Policy PSCU-P-2: Strive to achieve and maintain a citywide standard of at least five acres of neighborhood and community parks per 1,000 residents.
- Policy PSCU-P-3: Reserve land and develop parks and public open spaces and recreation facilities consistent with designated Parks and Open Space land on the Land Use Diagram.
- Policy PSCU-P-4: Create one large new park at the City's eastern edge to enhance the City's eastern gateway along Highway 198, ensure separation between communities, and provide ample recreation space for the larger area.
- Policy SCU-P-5: Create new community parks in the Northwest, Southwest, and Southeast quadrants, consistent with the Parks and Open Space diagram and the following planning guidelines:
  - Size: 5-12 acres or more; and
  - Facilities to be provided: large children's play area, reserved picnic facilities, open play fields, community building, bicycle parking, and off-street parking. They also may include tennis courts, outdoor concert areas or other special facilities based on neighborhood needs and community input.
- Policy PSCU-P-11: Develop a system of natural corridors and greenways, consistent with the Parks and Open Space diagram (Figure 5-1). These corridors will have biking and walking trails offering recreational opportunities and links between neighborhoods, parks, and Downtown. The system of corridors will include waterway corridors as well as linear landscaped corridors to create natural gateways, parkways or buffer areas. More specifically, this system is envisioned to include:
  - Greenway corridor along the St. Johns River, including broader areas to the northwest to accommodate open space areas, large group picnic facilities, a nature center, or other uses;
  - Greenway corridors along Mill, Packwood and Cameron Creeks, and segments of other waterways, with sufficient width to protect riparian habitat and accommodate a multi-use trail;
  - A landscaped corridor on both sides of Highway 198 providing a scenic gateway into Visalia from the west; and
  - A landscaped buffer zone or parkway along Shirk Road separating industrial from residential areas, and a greenway along Road 148 marking the eastern edge of the City, both accommodating a multi-use trail.
- Policy PSCU-P-13: Design parks to enhance neighborhood character and minimize negative impacts.
  - Locate neighborhood parks with local or collector street frontages on at least three sides, and sidewalks and crossings designed for safe and easy pedestrian access.
  - Where a neighborhood park is part of a neighborhood node, it should be designed to promote visual connections and pedestrian movement between the park and adjacent uses such as schools and commercial uses.

- Policy PSCU-P-14: Provide lighted facilities for tennis, basketball or other recreational facilities and along pathways in order to extend usable hours. Lighting should be energy-efficient and designed to minimize light pollution.
- Policy PSCU-P-15: Provide at least one community center in each of the City's four neighborhood quadrants. Use existing and new com-munity center facilities to provide multicultural programs and teen recreation activities and provide space for meetings and classes. Community centers should be designed with community input, including guidance from a cross-section of user groups.
- Policy PSCU-P-19: Promote private-sector and joint public-private development of commercial recreation facilities for league softball, indoor swimming, and golf, and other recreation uses that are available to the public for a fee or on a limited basis. Commercial recreation facilities will not be counted toward the City's parkland acreage standard because they are not publicly accessible for all residents.
- Policy PSCU-P-23: Promote innovative park design that responds to neighborhood needs and user groups.
- Policy PSCU-P-24: Provide shade in parks by using arbors and other landscaping techniques.
- Policy PSCU-P-25: Encourage cooperative agreements with the City and the Kaweah Water Conservation District, levee districts, irrigation companies, school district, College of the Sequoias, Southern California Edison Company and other public agencies and utilities to explore innovative recreation open space facilities throughout the Visalia planning area.
- Policy PSCU-P-26: Develop standards for recreation use on dual purpose park/pond sites to ensure that slopes and pumping equipment do not preclude recreation use and maintenance.
- Policy PSCU-P-28: Offer nature study programs to increase community awareness of open space opportunities and habitat enhancement in City parks and along community waterways.
- Policy PSCU-P-29: Incorporate barrier-free design in all new recreation and sports facilities, and renovate existing facilities to remove barriers to handicapped users.
- Policy PSCU-P-46: Adopt and implement a Water Efficient Landscaping Ordinance for new and/or refurbished development that exceeds mandated sizes, and ensure that all new City parks, streetscapes, and landscaped areas conform to the Ordinance requirements. The Ordinance should include provisions to optimize outdoor water use by:
  - Promoting appropriate use of plants and landscaping;
  - Establishing limitations on use of turf including size of turf areas and use of cool-season turf such as Fescue grasses, with exceptions for specified uses (e.g., recreation playing fields, golf courses, and parks);
  - Establishing water budgets and penalties for exceeding them;
  - Requiring automatic irrigation systems and schedules, including controllers that incorporate weather-based or other self-adjusting technology;
  - Promoting the use of recycled water; and
  - Minimizing overspray and runoff.
- Policy PSCU-P-47: Implement a program of irrigation water use analyses, irrigation surveys, irrigation audits or similar techniques using available technology to evaluate water use in existing City parks and landscape areas, and undertake improvements to reduce water use to a level that does not exceed the Maximum Applied Water Allowance as calculated under the Water Efficient Landscaping Ordinance under Policy CO-P-3.
- Policy PSCU-P-48: Establish a program to reduce water use in municipal buildings and allow use of recycled water (treated wastewater) in buildings and irrigation, as feasible and appropriate.

Other Public Facilities:

- Policy PSCU-P-59: Require new developments to incorporate flood water detention basins into project designs where consistent with the Stormwater Master Plan and the Groundwater Recharge Plan.
- Policy PSCU-P-60: Control urban and stormwater runoff, and point and non-point discharge of pollutants. As part of the City's Stormwater Management Program, adopt and implement a Stormwater Management Ordinance to minimize stormwater runoff rates and volumes, control water pollution, and maximize groundwater recharge. New development will be required to include Low Impact Development features that reduce impermeable surface areas and increase infiltration. Such features may include, but are not limited to:
  - Canopy trees or shrubs to absorb rainwater;
  - Grading that lengthens flow paths over permeable surfaces and increases runoff travel time to reduce the peak hour flow rate;
  - Partially removing curbs and gutters from parking areas where appropriate to allow stormwater sheet flow into vegetated areas;
  - Use of permeable paving in parking lots and other areas characterized by significant impervious surfaces;
  - On-site stormwater detention, use of bioswales and bioretention basins to facilitate infiltration; and
  - Integrated or subsurface water retention facilities to capture rainwater for use in landscape irrigation and other non-potable uses.

Waterways and Trails Master Plan

The Waterways and Trails Master Plan outlines goals, policies, design standards, and implementation strategies for the development of a multi-purpose trail system, often times along Visalia's primary community waterways. The trail system would link neighborhoods, parks, schools, the downtown, and other activity centers. The Plan focuses on developing trails along three waterways: Packwood Creek, Mill Creek, and Cameron Creek. The Master Plan also identifies that the Class I trail that runs along Mill Creek would connect to the proposed Class I trail running north/south along the power line easement, west of the Project site.[99] These trails are designed to link with the City's existing bicycle network and the trail system along the St. John's River along the north edge of the City. Ultimately, the completed system would form a "ring recreational trail" around the City's periphery, several cross-town routes along waterways and other primary corridors, and a major north/south route along Santa Fe Avenue. Currently in the design phase the Greenway Trail would run alongside the Project, within the Tower Road easement.

Along each waterway, a preferred trail alignment is identified, and recommendations and policies are made for landscaping improvements and habitat restoration within the waterway setback.

Tulare County Fire Department

Tulare County Fire Department provides fire and emergency medical services within the unincorporated areas of County. The City and the County have a mutual aid agreement that encompasses 59 square miles surrounding the City[100].

[99] City of Visalia, February 2010. Waterways and Trails Master Plan. https://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=31825 Date Accessed: 7/30/2018
[100] City of Visalia General Plan, Safety and Noise Element.

City of Visalia Fire Department Plan Check and Hydrant Ordinance

Visalia's requirements for new construction include provisions for the fire department to review building and site plans prior to the issuance of any permit. The fire department ensures that the Project would be adequately served by water and accessible to emergency vehicles. The VFD also enforces the City's Hydrant Ordinance, which states that subdividers are responsible for the installation of water mains and hydrants, and determines the minimum spacing for fire hydrants. Street dimensions are scrutinized to ensure that space would be preserved for ladder trucks to be stabilized and for emergency vehicles to turn around.

Master Mutual Aid Plan

The City actively participates in the California Master Mutual Aid Plan. Formal mutual aid agreements have been written between the City and surrounding jurisdictions. A broad automatic aid agreement encompassing 59 square miles surrounding Visalia exists between Tulare County and the City.

Multi-Jurisdictional Local Hazards Mitigation Plan

The MJ-LHMP is a formal document designed to significantly reduce loss of life and injuries resulting from a disaster; minimize damage to structures and property, as well as destruction of essential services and activities; protect the environment; and promote hazard mitigation as an integrated public policy. The most recent version of the MJ-LHMP was adopted in 2011 and updated in March 2018.

3.14.3 **Impact Assessment**

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire Protection?

No Impact. The Project is within the service area of VFD Station 56 (Station 56), which is located 1.2 miles southwest of the Project. VFD provides services within the city limits. Thus, after the annexation of the northern portion of the Project site into the city limits, the entire extent of the Project area would be served by VFD. The Project site is within the VFDs target response time area. The Project would not have a significant impact concerning demand for fire protection.

Police Protection?

No Impact. The northern portion of the Project site is currently served by the Tulare County Sheriff. Following annexation, the VPD would provide service to the entire Project area. The VPDs main headquarters is located in Downtown Visalia and leads two substations that engage in district-based operations. Both the main headquarters and the District 1 substation would sufficiently serve the Project area.[101] There would be no impact to police services.

Schools?

No Impact. The Project would not include any residential development, nor would it directly or indirectly induce population growth. Project implementation would not result in an increase in students at any school.

[101] City of Visalia 2014. Draft Environmental Impact Report – Chapter 3.9: Settings, Impacts, and Mitigation, Public Services, Facilities and Utilities. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-1 to 3.9-3. Date Accessed: 8/8/2016

Parks?

No Impact. The Project would include the conversion of agricultural and residential planned land uses to a regional park and recharge facility. Therefore, the development of this Project would not have an adverse impact on parks and recreation; rather, it would improve the City's recreational facilities and decrease dependence on existing parks.

Other Public Facilities?

No Impact. The Project would not generate, directly or indirectly, any new residences or businesses that could lead to the need for the expansion of existing public facilities or the creation of new facilities. There would be no impact.

3.14.4 **Cumulative Impacts**

No Impacts. There are a total of four projects that have been proposed or approved within four miles of the Project site. Implementation of this Project in combination with the four projects would result in a more developed urban area, which would utilize more public services. While many of the proposed projects, including this Project would utilize public services, each project is required to pay fees to assist in providing adequate public services to the area as it grows. Public services would increase as development increases. This is addressed in the City and County GPs. As a result of this Project, no cumulative impacts would occur.

3.15 Recreation

Table 3-34. Recreation

Recreation					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b)	Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☒	☐	☐

3.15.1 Environmental Setting

The City classifies parks and public open space into five general categories. Facilities at each park type vary according to size. Most neighborhood parks have picnic tables, play equipment, and drinking fountains. Community and regional parks have these amenities as well as a combination of sports fields/courts, barbecue areas, parking, restrooms and facilities for other types of recreation. Parks are classified as follows:[102]

- Pocket Park: A park typically between one-half acre and two acres in size intended to serve the needs of a specific neighborhood within a half-mile radius.
- Neighborhood Park: A park typically two to five acres in size that provides basic recreation activities for one or more neighborhoods. The service area ranges from a half-mile to a one-mile radius. These parks may include facilities such as children's playgrounds, picnic tables, benches, and walkways. Many neighborhood parks are planned adjacent to new schools, and actual neighborhood park sizes may be as large as 10 acres depending on neighborhood size and need.
- Community Park: A park typically ranging from 5 to 12 acres in size or larger, depending on the needs of the quadrant. Community parks are intended to serve the recreational needs of a larger area of the city, and particularly those residents living or working within a two-mile radius. These parks may include facilities such as sport fields, exercise courses, recreation buildings, and restrooms. Other facilities may include community centers, swimming pools, tennis courts, and concession stands.
- Large City Park: A park generally larger than 40 acres in size intended to serve the recreational needs of all city residents and to create opportunities for contact with the natural environment. These parks may include a concentration of sports fields, golf courses, and areas for picnicking and passive enjoyment of open space. The Project would fall into this category.
- Natural Corridors and Greenways: A network of greenways of varying size intended to serve the recreational needs of city residents. These parks may include facilities such as bikeways, walkways, and riding trails, and are primarily developed along the City's waterways. Mill Creek and Packwood passing through the Project site fall into this category.

[102] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-13. Date Accessed: 6/22/2016.

Existing Parks and Recreation Facilities

Currently, Visalia has 37 parks dispersed throughout the City. Four community parks (Fairview Village Park, Recreation Park, Seven Oaks Park, and Whitendale Park) provide a fuller range of community amenities or are co-located with community centers and range from approximately 9 to 14 acres. Three larger facilities, Mooney Grove Park (County), Plaza Park, and Riverway Sports Park are located at the periphery. The St. John's Trail (St. John's Riverway) forms much of the northern edge of the City. Altogether, there are 678 acres of parkland within the City. County's Cutler Park provides another 50 acres northeast of the Project; this acreage is not counted as park acreage for the City.[103] The nearest neighborhood park to the Project site is Mill Creek Garden Park, located less than one mile west of the site. The Project would increase the City's park acreage, thereby helping the City to meet its goal of 5 acres of park for every 1,000 people.[104]

3.15.2 Regulatory Setting

Federal

There are no federal regulations pertaining to recreation that apply to the Project.

State

State Open Space Standards

Refer to **Section 3.14.2 Regulatory Setting**.

Quimby Act

The 1975 Quimby Act (GC Section 66477) authorizes cities and counties to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. The Act states that the dedication requirement of parkland can be a minimum of three acres per thousand residents or more and up to five acres per thousand residents if the existing ratio is greater than the minimum standard. Revenues generated through in-lieu fees collected and the Quimby Act cannot be used for the operation and maintenance of park facilities. In 1982, the Act was substantially amended. The amendments further defined acceptable uses of, or restrictions on Quimby funds, provided acreage/ population standards and formulas for determining the exaction, and indicated that the exactions must be closely tied (i.e., via nexus) to project impacts as identified through studies required by CEQA.

Local

City of Visalia General Plan

Refer to **Section 3.14.2 Regulatory Setting** for relevant information regarding the City of Visalia General Plan.

Waterways and Trails Master Plan

As previously discussed in **Section 3.10.2**, the Waterways and Trails Master Plan, outlines goals, policies, design standards, and implementation strategies for the development of a multi-purpose trail system along Visalia's primary community waterways.

[103] City of Visalia, 2014. General Plan Update DEIR – Chapter 9: Public Services, Facilities, and Utilities. City of Visalia DEIR, 2014. Chapter 9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30499 Page 3.9-14. Date Accessed: 6/22/2016

[104] Visalia General Plan. 2014. Page 5-2.

3.15.3 Impact Assessment

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact. The Project itself is a recreational facility. The Project includes the construction of park facilities and does not include residential development. Conversely, the Project would increase the number and available acreage of recreational facilities within the City; the City's GP outlines the need for a regional park in the eastern portion of the City, which the Project would satisfy.[105] The GP has a standard of 7.6 acres of park per every 1,000 residents.

The Project would add to the needed recreational facilities, to continue to meet the GP standards for population-park acreage ratio and would increase recreational use in the area. Project activities do not include residential development activities and helps meets the expectations of the City's GP. Therefore, impacts would be less than significant.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than Significant Impact with Mitigation Incorporated. The Project includes the construction of a regional park; thus, recreational facilities would be developed. The Project plan includes the development of recreational facilities as described in Chapter 2, Project Description.

The physical and environmental impacts of this Project are outlined throughout this EIR. The primary source of environmental impacts would occur during the construction phase of the Project. The potential environmental impacts would involve ground-disturbance, air pollution from ground disturbance and construction equipment, cultural resource discoveries, noise, traffic, and biological resources. Impacts are discussed in greater detail within their respective Impact Analysis sections and include mitigation measures to reduce impacts to less significant levels.

The Project is a recreational use. The construction and operation of the new facilities would expand the recreational amenities within the City. The Project would not result in any new impacts beyond those evaluated with this DEIR. The overall implementation of the Project would be mitigated to a less than significant level in accordance with the requirements of CEQA. Mitigation measures can be found with the in **Chapter 6.**

3.15.4 Cumulative Impacts

Less than Significant. General growth and specific development proposals in the area would contribute to a cumulative increase in the demand for recreational facilities. The related project list identifies some residential and commercial projects. An increase in the population within the Project area would result in a proportional increase in the demand for recreational facilities. This would marginally affect the existing public recreational facilities in the area. However, this Project would satisfy an additional need for park space generated by the cumulative project list. In addition, any new City development is subject to the City's Quimby Act and environmental review procedures. Each new development is required to provide recreational land or facilities, pay in-lieu park fees, or otherwise mitigate their potential impacts. Therefore, cumulative impacts are less than significant.

[105] City of Visalia, 2014. General Plan Update – Chapter 5: Parks, Schools, Community Facilities, and Utilities. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30477 Page 5-10. Date Accessed: 6/22/2016

3.16 Transportation/Traffic

Table 3-35. Transportation/Traffic

Transportation/Traffic					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☒	☐	☐	☐
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☒	☐	☐	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?	☐	☐	☐	☒
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
e)	Result in inadequate emergency access?	☐	☐	☒	☐
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☒	☐	☐	☐

3.16.1 Environmental Setting

Visalia is served by four major regional highways: SR 63, SR 99, SR 198, and SR 216. SR 99 provides access to Fresno and Sacramento in the north and Bakersfield in the south. SR 198 is an east-west corridor, connecting the City to the Sequoia National Park entrance.[106] Due to its proximity to the Project site, SR 198 and SR 216 are the most relevant of the State Routes to the Project.

Three Arterials would aid in the circulation of traffic to the Project area: Lovers Lane/SR 216, Houston Avenue/SR 216 and Ivanhoe Drive/SR 216 (**Appendix M**). Lovers Lane exists as a four-lane, divided, 45 mph

[106] City of Visalia, 2014. General Plan Update 2030 – Chapter 4: Circulation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30476 Pages 4-3 – 4-4. Date Accessed: 6/23/2016

roadway and does not have a bike lane. Although Lovers Lane is not directly within the Project area, its flow patterns impact the connected arterials of Houston Avenue and Ivanhoe Drive.

The GP designates the buildout of the City's circulation network in two planned time frames: Year 1-10 and Year 11-25. The GP also has a category for a deferred time frame for both arterials and collectors. The study area segment of Houston Avenue is a Year 11-25 Arterial between Lovers Lane and Road 152, as designated by the City GP (**Appendix M**). Houston Avenue segment from Lover Lane and McAuliff Street contains a bike lane and is a four-lane, 40 mph, divided roadway. The speed limit within this part of the roadway changes to 25 mph within the boundaries of the existing school zone and adjusts back to 40 mph after the school zone has been passed. The portion of the Arterial, extending from McAuliff Street to Road 152, is a two-lane, 55 mph roadway without a bike lane.

Ivanhoe Drive is also designated as a Year 11 to 25 Arterial; however, it is also designated as a minor Arterial by the County GP. Ivanhoe Drive is a two-lane, undivided, 40 mph and 50 mph roadway without bike lanes (**Appendix M**).

Five different collectors provide for internal traffic movement within communities and connect local roads to arterials: McAuliff Street, Mill Creek Parkway, Mineral King Avenue, Noble Avenue, and Road 152 (**Appendix M**). McAuliff Street extends from Mineral King and Houston Avenue as a four-lane, 45 mph, undivided roadway and a four-lane, 45 mph, divided roadway north of Houston Avenue. McAuliff Street also served as an arterial roadway. Bike lanes are present along both sides of McAuliff Street with the exception of the west side of the roadway between Willow Avenue and Mineral King Avenue (**Appendix M**).

Mill Creek Parkway is a 45 mph, two-lane divided roadway without bike lanes within the study area. Mineral King Avenue, Noble Avenue and Road 152 are two-lane, 45 mph, undivided roadways that do not have bike lanes and exist within the study area (**Appendix M**).

The City evaluates roadway traffic conditions and deficiencies by calculating a respective Level of Service (LOS).[107] California Department of Transportation (Caltrans) defines LOS as "a qualitative measure of operating conditions within a Traffic stream, and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety."[108] The City's Target LOS as identified by the GP for the intersections and road segments associated with the Project are shown in **Table 3-36**.

3.16.2 Methodology

A Traffic Impact Study (TIS) has been prepared by VRPA Technologies, Inc. for the purpose of analyzing traffic conditions related to the Project and is attached as **Appendix M**. When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the LOS methodologies are applied. See **Table 3-36** for the GP target LOS by intersection. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system performance. In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized intersections or other improvements.

Although analysis of vehicles miles traveled (VMT) is not required, because the NOP predates the requirements of SB743, a VMT analysis has been prepared by VRPA Technologies, Inc. for the Project and is attached as **Appendix N**.

[107] City of Visalia, 2014. General Plan Update – Chapter 4: Circulation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30476 Page 4-8. Date Accessed: 6/23/2016
[108] California Department of Transportation (Caltrans), 2016. http://www.dot.ca.gov/dist11/news/brawley/appendix/APPENDIXK.pdf Date Accessed: 6/23/2016

Study Area

The study intersections and street and highway segments included in this TIS are listed below and shown in **Figure 3-20**. The intersections listed below are listed with the number that corresponds to the intersection number in the TIS. The study area outlined below was developed in consultation with City and Caltrans staff. The Assumptions and Trip Generation document contained in **Appendix A** describes in more detail the proposed methodology for the traffic analysis.

Intersections

Existing Intersections

1. Lovers Lane / Houston Avenue (SR 216)
2. Lovers Lane / Mineral King Avenue
3. Lovers Lane / SR 198 EB Ramps
4. Lovers Lane / Noble Avenue
5. SR 198 WB Ramps / Mineral King Avenue
6. McAuliff Street / Houston Avenue (SR 216)
7. McAuliff Street / Mill Creek Parkway
8. McAuliff Street / Murray Avenue
9. McAuliff Street / Mineral King Avenue
10. Mineral King Avenue (North) / Mineral King Avenue
11. Road 152 / Houston Avenue (SR 216)
12. Road 152/ Mineral King Avenue
13. Noble Avenue / SR 198 EB Ramps
14. SR 198 WB On-Ramp / Mineral King Avenue
15. Road 156 / Mineral King Avenue
16. Road 156/ Noble Avenue
17. SR 198 WB Off-Ramp / Mineral King Avenue

Future Intersections

18. Tower Street / Houston Avenue (SR 216)
19. Tower Street / McKinley Avenue-Project Driveway #2 (also shown as A on Figure 3-21)
20. Tower Street / Douglas Avenue
21. Tower Street / Race Avenue
22. Tower Street / Murray Avenue
23. Tower Street / Villoy Avenue-Project Driveway #1 (also shown as A on Figure 3-21)
24. Tower Street / Mineral King Avenue
25. Road 152 / Project Driveway #3 (also shown as A on Figure 3-21)
26. Tower Street / SR 198 WB Ramps
27. Tower Street / SR 198 EB Ramps

Roadway Segments

Existing Roadway Segments

- Houston Avenue (SR 216)
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  East of Road 152
- Lovers Lane

North of Houston Avenue (SR 216)
Houston Avenue (SR 216) to Mill Creek Parkway
Mill Creek Parkway to Mineral King Avenue
South of Noble Avenue

- McAuliff Street
  North of Houston Avenue (SR 216)
  Houston Avenue (SR 216) to Murray Avenue
  Murray Avenue to Mineral King Avenue
- Road 152
  South of Houston Avenue (SR 216)
  North of Mineral King Avenue
- Mineral King Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  Road 152 to Road 156
  East of Road 156
- Road 156
  North of Mineral King Avenue
  South of Noble Avenue
- Mill Creek Parkway
  Lovers Lane to McAuliff Street
- Mineral King Avenue (North)
  North of Mineral King Avenue
- Murray Avenue
  East of McAuliff Street
- Noble Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  West of Road 156
  East of Road 156
- SR 198
  Lovers Lane to Road 156

Future Roadway Segments

- Tower Street
  Houston Avenue (SR 216) to Douglas Avenue
  Douglas Avenue to Murray Avenue
  Murray Avenue to Mineral King Avenue

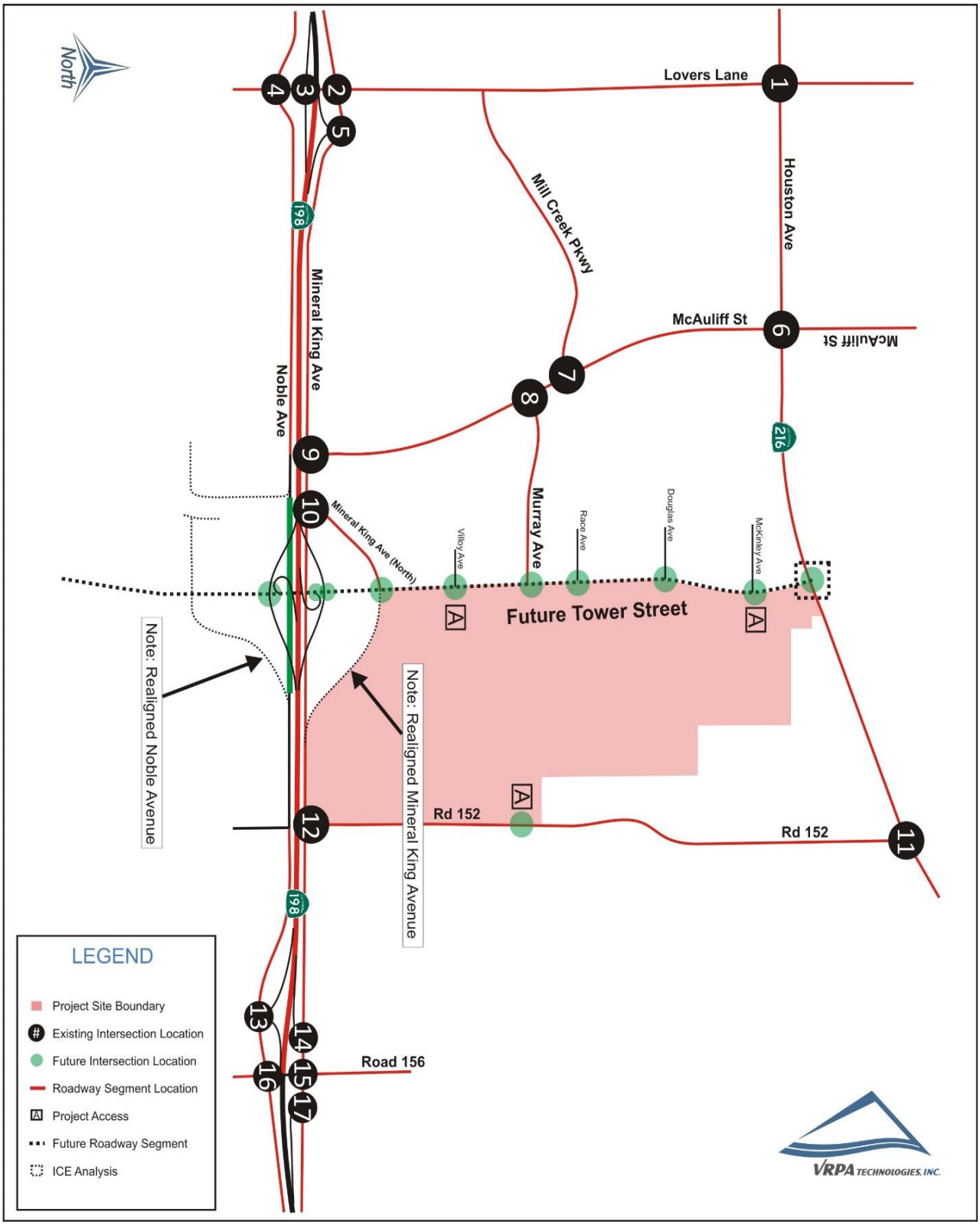


Figure 3-20. Intersections and Road Segments Studied

Table 3-36. General Plan Target LOS by Intersection

INTERSECTION	JURISDICTION	TARGET LOS[1]
1. Lovers Lane / Houston Avenue (SR 216) [2]	City of Visalia / Caltrans	D / C *
2. Lovers Lane / Mineral King Avenue [2]	City of Visalia / Caltrans	D / C *
3. Lovers Lane / SR 198 EB Ramps [2]	Caltrans	C *
4. Lovers Lane / Noble Avenue [2]	City of Visalia	D
5. SR 198 WB Ramps / Mineral King Avenue [3]	Caltrans	C *
6. McAuliff Street / Houston Avenue (SR 216) [2]	City of Visalia / Caltrans	D / C *
7. McAuliff Street / Mill Creek Parkway [3]	City of Visalia	D
8. McAuliff Street / Murray Avenue [3]	City of Visalia	D
9. McAuliff Street / Mineral King Avenue [4]	City of Visalia	D
10. Mineral King Avenue (North) / Mineral King Avenue [3]	City of Visalia	D
11. Road 152 / Houston Avenue (SR 216) [3]	Tulare County / Caltrans	D / C *
12. Road 152 / Mineral King Avenue [3]	Tulare County	D
13. Noble Avenue / SR 198 EB Ramps [3]	Caltrans	C *
14. SR 198 WB On-Ramp / Mineral King Avenue [5]	Caltrans	C *
15. Road 156 / Mineral King Avenue [2]	Tulare County	D
16. Road 156 / Noble Avenue [2]	Tulare County	D
17. SR 198 WB Off-Ramp / Mineral King Avenue [3]	Caltrans	C *

(1) Based on respective jurisdiction General Plan Standards
(2) Signalized Intersection.
(3) One-Way Stop Intersection.
(4) All-Way Stop Intersection.
(5) Uncontrolled Intersection.
* Caltrans identifies' a minimum LOS is C, except where the existing LOS is D or below

Study Scenarios

The TIS includes LOS analysis for the following traffic scenarios:

1. Existing Conditions (Baseline Condition Without Project / Without Future Interchange / With existing Mineral King Avenue
2. Existing Plus Recharge Basins Only - Trip Generation Analysis Only (Without Future Interchange / With existing Mineral King Avenue)
3. Existing Plus Project (Full Build Out) (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) - Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)

4. Near-term Opening Year Projection Without Project (Without Future Interchange / With existing Mineral King Avenue)
5. Near-term Opening Year Projection Plus Phase 1 only of the Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower at Villoy), (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
6. 2040 Without Project (with the future year land use for the Project Site coded as already identified in the approved 2040 TCAG Traffic Model) (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
7. 2040 Without Project (with the future year land use for the Project Site coded in the TCAG Traffic Model as agricultural use) - Analysis would consist of a Qualitative Assessment Only and, if necessary. If the Project Site is already coded in the 2040 Traffic Model as agricultural use, then this scenario would not be qualitatively assessed (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
8. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) - Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
9. 2040 Without Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152)
10. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (both legs of realigned Mineral King remain) at Tower Street (solid median)
11. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (west leg of realigned Mineral King remains, east leg eliminated to Road 152) at Tower Street (solid median)
12. 2040 Plus Full Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152 / With Tower Street as a full access intersection at the Park entrance but with a cul-de-sac at east end of Villoy Avenue)

Phasing

It is anticipated that the Project would be developed in three phases. Phase 1 includes development of the groundwater recharge basins and storm-water layoff facilities.. Phase 2 would include the adult softball fields, youth baseball fields, soccer fields, and ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area). Tower Street would be developed in concert with Phase 2 of the Project. Phase 3 would include the remaining development of the site which includes the community center, amphitheater, disc golf course, and recreational trails.

Trip Generation

To assess the impacts that the Project may have on the surrounding street and highway segments and intersections, an assessment of trip generation resulting from the Project was completed. Project trips are generally determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition). The 9th Edition of the ITE Trip Generation Manual includes trip generation rates for a "Regional Park"; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. As such, trip generation analysis was provided for the project with the following individual land uses:

- Recharge Basin
- Adult Softball Fields, Youth Baseball Fields, and Soccer Fields
- Community Center

- Regional Park
- Special Event Traffic

Each land use analyzed under the TIS was considered based on the size of area that the use contributed to the overall Project. Special Event Traffic was separated out from the rest of the land uses and added to a separate analysis of trip generation for the site.

Trip generation is analyzed using the triAppendix Mps generated by a particular use and site by utilizing Peak Hour traffic volumes generated by the subject site. Peak Hour traffic is the busiest two hour time period that experiences the most trips to a site. Peak Hour is considered for both morning (AM) trips and afternoon (PM) trips. For this Project, the TIS defined the AM Peak Hour time as 7-9 in the morning and PM Peak Hour as 4-6 at night. In addition, the Peak Hour trip generation analysis was studied both on a weekday and on Saturday, which is considered Weekday Peak Hour and Saturday Peak Hour. The trip generation analyzed for the Project during peak hour periods allows for the evaluation of LOS on affected intersections. The evaluation of LOS at each affected intersection would indicate any potential environmental impacts result from traffic as a result of the Project. For a full discussion of the trip generation levels produced by the Project, see Appendix A of **Appendix M.**

Trip Distribution

Project trip distribution is shown in **Figure 3-21** and **Figure 3-22** and is based upon a select zone model run prepared by TCAG staff. The regional travel model was used to determine how Project trips are distributed to the surrounding roadway network. The Project trips distribution along Tower Street was manually adjusted considering the proposed lane geometry and roadway configuration.

Currently, access to the Project site is via its frontages on Mineral King Avenue, Road 152 and Houston Avenue (SR216). Primary access to the Project would be provided through the construction of Tower Street along the western border of the Project Site, together with two entrance/exits aligning with the proposed extension of Villoy Avenue and the extension of McKinley Avenue. A secondary (3rd) entrance/exit would be provided to Road 152 approximately one-half mile north of its intersection with Mineral King Avenue.

Separate from this Project, Caltrans is considering an interchange at Tower Street and SR 198, although the project is only in the planning stage and has not been officially authorized nor funding allocated for it. The interchange at Tower Street and SR 198 is not anticipated to be a constrained project in TCAG 2018 RTP. Nevertheless, this traffic analysis includes assessment of traffic impacts both with and without the interchange. **Figure 3-21** reflects the Project trip distribution without the development of an interchange at Tower Street, while **Figure 3-22** reflects the Project trip distribution with an interchange at Tower Street and SR 198.

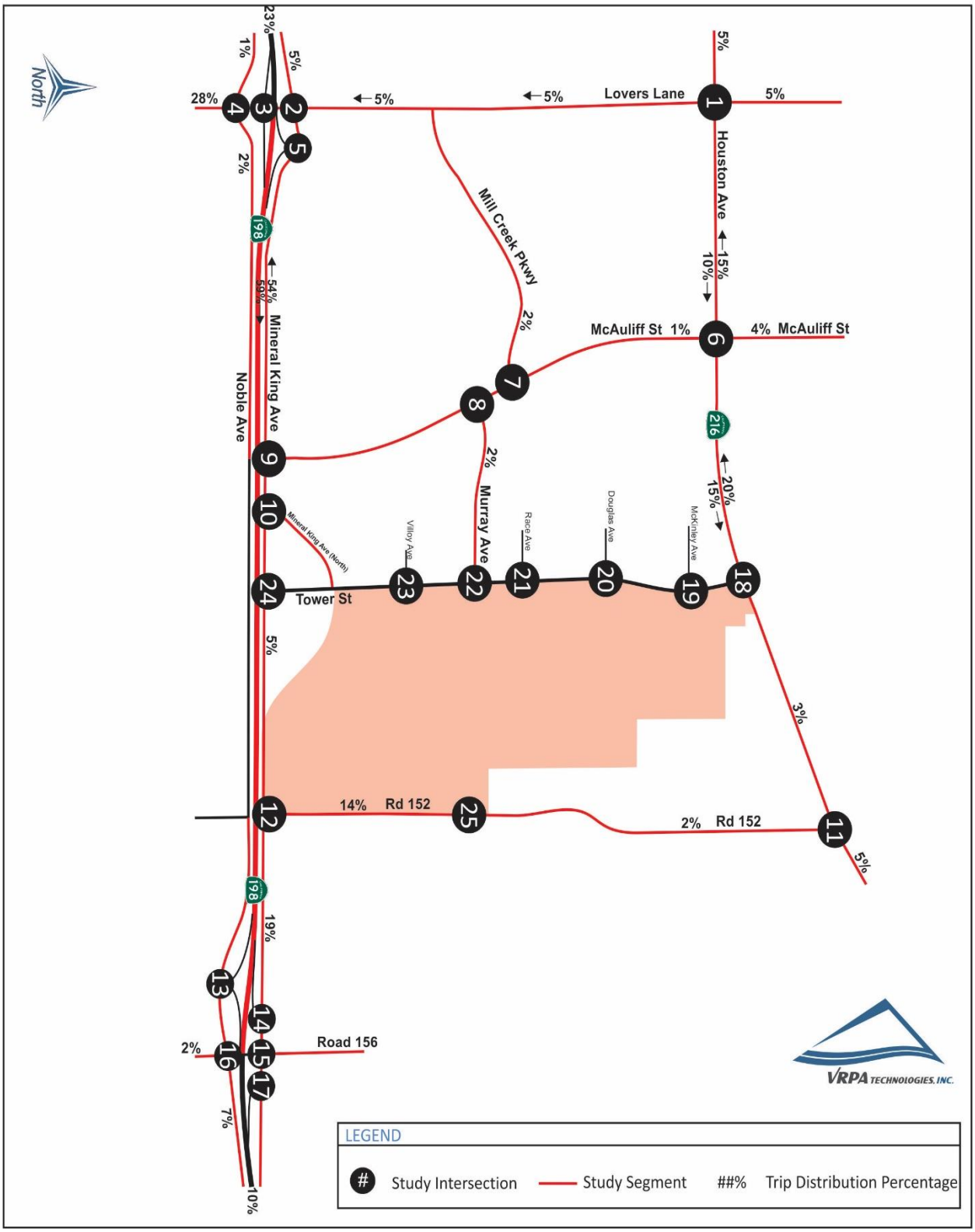


Figure 3-21. Project Peak Hour Trip Distribution without Tower Street Interchange

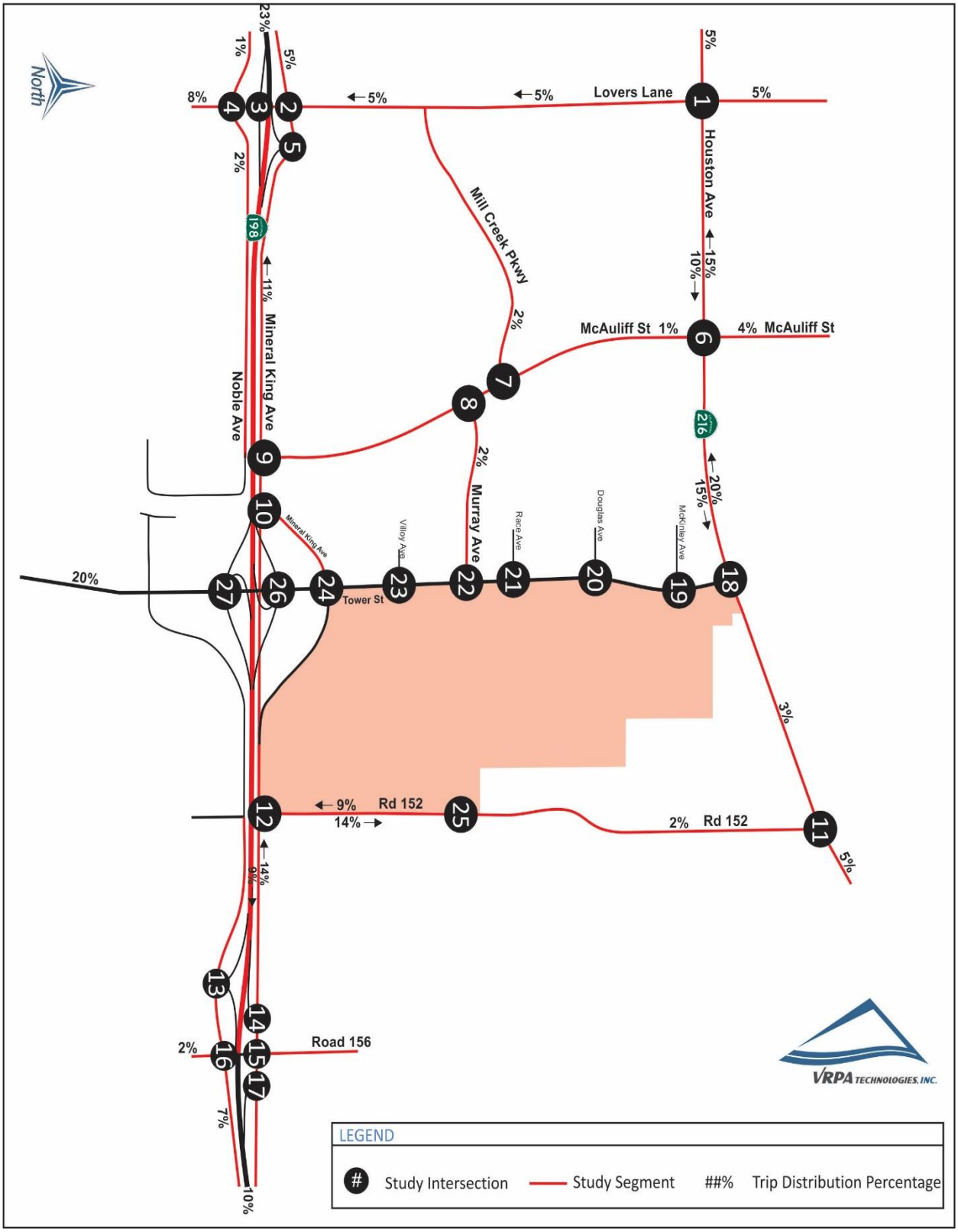


Figure 3-22. Project Peak Trip Distribution with Tower Street Interchange

3.16.3 Regulatory Setting

An important goal is to maintain acceptable levels of service along the highway, street, and road network. To accomplish this, affected agencies adopt minimum levels of service in an attempt to control congestion that may result as new development occurs. The affected LOS standards applicable to the traffic analysis are described below.

Federal

National Environmental Policy Act (NEPA)

NEPA requires federal agencies to assess the possible environmental consequences of projects that they propose to undertake, fund, or approve. It is unknown if federal funding would be used during the Project; any federally funded transportation portion of the Project requiring federal approval would be subject to a NEPA evaluation.

State

California Department of Transportation (Caltrans)

Caltrans is responsible for planning, design, construction, and maintenance of all State highways. Caltrans jurisdictional interest extends to improvements to these roadways at the interchange ramps serving area freeways. Any federally funded transportation improvements are subject to review by Caltrans staff and the California Transportation Commission.

Rather than establish regulations regarding traffic LOS on State Highway facilities, Caltrans instead uses a series of guidelines. Caltrans recommends a target LOS at the threshold between LOS C and LOS D. If the location under existing conditions operates worse than the appropriate target LOS, then the existing LOS should be maintained. On the portion of SR 198 within the Planning Area, the Caltrans concept LOS for the 20-year planning horizon (as identified in the 2012 District 6 SR 198 Corridor System Management Plan) is LOS "D". The concept facility identified to meet the year 2035 horizon concept LOS "D" for SR 198 within the Planning Area is four-lane freeway, with the ultimate design (beyond 2035) being a six-lane freeway.

For the portion of SR 99 within the Planning Area, the Caltrans concept LOS for the 20-year planning horizon (as identified in the 2003 District 6 SR 99 Transportation Concept Report) is LOS "D" ("C" north of Goshen). The concept facility identified to meet the year 2025 horizon concept LOS "D" and "C" for SR 99 within the Planning Area is six-lane freeway, with the ultimate design (beyond 2025) being an eight-lane freeway.

Local

Tulare County Association of Governments Regional Transportation Plan (RTP) 2011

The 2011 RTP for Tulare County was adopted in 2010. The plan sets priorities for funding and implementation of transportation-related projects throughout the County. This 2011 RTP update was prepared by TCAG with the assistance of its member jurisdictions. The RTP identifies performance measures and indicators for transportation projects and improvements, including transit trips, peak hour travel speed, cost of deferred street maintenance, and VMT.

The 2011 RTP identifies financially constrained projects, which are short- and long-range projects fully fundable from anticipated revenue sources. They would likely be programmed during the time horizon of the RTP (25 years). Financially unconstrained projects do not have identified funding sources but are included as desired long-term projects for the region for informational purposes. Both tiers of projects include roadway, pedestrian, bicycle, transit, and aviation modes. Locally funded roadway projects in Visalia for which funding has been identified amount to $275,975,000 in improvements and include widening of existing roadways, creation of

new roadways in growth areas, and installation of new traffic signals. Major RTP/Measure R funded projects to be undertaken by Caltrans in the Planning Area include widening of SR 99 from four to six lanes, interchange improvements along SR 99 and SR 198, and building/improving bridges over SR 198 at McAuliff and Ben Maddox.

City of Visalia General Plan

The Circulation Element of the existing GP outlines the City's standards for roadway design, improvements, and levels of service. The Circulation Element also calls for consistency and coordination of local transportation actions with State and County agencies and plans. It also considers other modes of travel and includes policies pertaining to aviation, rail, transit, and non-motorized transportation (bicycles and pedestrian).

The City GP states the City would plan for LOS "D" for street segments and intersections.

- Policy T-P-33: Work with transit operators to establish transit stops adjacent to community and regional parks, senior housing facilities, areas with a high concentration of medical facilities, major employment centers, and major retail and commercial centers.

- Policy T-P-9: Maintain acceptable levels of service for all modes and facilities, as established in General Plan Tables 4-1, Intersection Level of Service Definitions and 4-2, Level of Service Criteria for Roadway Segments.

Tulare County General Plan

The County GP states the minimum LOS is "D" for street segments and intersections.

3.16.4 Impact Assessment

a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Potentially Significant Impact. The potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections and road segments both in the near term and long term, as identified in **Appendix M**. The Project would be inconsistent with what the City's GP identifies in T-P-9, considering the exceedance of levels of service. Described below are recommended improvements at study area intersections and segments for various scenarios that would in most cases mitigate the potential significant impacts to acceptable levels of service and thereby reducing the impact to less than significant. It should be noted that statements of significance for the improvements identified below are related to Project impacts. In certain scenarios, recommended mitigation would not fully mitigate significant impacts to less than significant but would reduce impacts to the extent feasible; these impacts are thus described as Significant and Unavoidable. In accordance with CEQA Guidelines Section 15091 and 15093, if the City wishes to approve the Project despite significant and unavoidable impacts, it would need to make findings and adopt a SOC.

Mitigation measures can be implemented to ease many of the impacts of the Project and projected future traffic through the year 2040. The Project would be required to contribute a fair-share towards the costs of improvements that are identified for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project with Tower Street Interchange, Cumulative Year 2040 Plus Project with Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios. The intent of determining the equitable responsibility for the improvements identified below for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus

Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios, is to provide a starting point for early discussions between the City and Caltrans to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts, in particular, for those that come about if/when Caltrans constructs the Tower Street Interchange.

Project Traffic

The TIS determined that the Project would cause or contribute to the rise of LOS to an unacceptable level at 2 of the 25 intersections analyzed within the study under the proposed Project. Tower Street would be constructed as a part of Phase 2 of the Project. Implementation of the Project without the Tower Street Interchange would result in unacceptable levels of LOS at intersections 2 and 5 during both AM and PM Peak Hours (see **Appendix M**). Inbound and outbound special event traffic from the site is not expected to have a significant impact on traffic. In addition, Saturday Peak Hour traffic is not expected to have a significant impact. The TIS also determined that the Project would cause or contribute to unacceptable LOS levels at 10 of the 25 intersections analyzed under the study through the cumulative year 2040, with construction of the Tower Street Interchange. The 10 intersections that would experience unacceptable LOS at the cumulative year 2040, with construction of the Tower Street Interchange are intersections 2, 3, 5, 9, 12, 13, 15, 16, 17, and 24. Without the Tower Street Interchange, the Project would contribute to or cause unacceptable LOS levels at 8 of 27 intersections considered under this scenario. The 8 intersections that would experience unacceptable LOS at the cumulative year 2040, without construction of the Tower Street Interchange would be intersections 2, 3, 5, 12, 13, 15, 16, and 18. AM and Peak hour traffic impacts and the data behind the LOS findings are discussed in further detail within the TIS, found within **Appendix M**.

Near-Term Traffic Conditions

Traffic conditions without the Project on Project Opening Day were estimated by applying a growth rate of 2% per year to the existing traffic volumes. The 2% growth rate was derived from model plots provided by TCAG staff and the Transportation Concept Reports (TCR) for SR 198 and SR 216. The 2% growth rate is consistent with the TCAG model plots in the study area and TCRs. The resulting traffic is shown in Figures 3-15a, 3-15b, 3-16a, 3-16b, and 3-17 of **Appendix M**. Of the 17 intersections considered under this scenario, intersection 5 was the only intersection which experienced unacceptable LOS levels.

Phase 2 Project trips were added to the forecasted Near-Term Opening Year Without Project traffic volumes to obtain Near-Term Opening Year Plus Phase 2 Project conditions. The resulting traffic is shown in Figures 3-18a, 3-18b, 3-19a, 3-19b, 3-20, and 3-21 of **Appendix M**. In this scenario, 25 intersections were analyzed and intersection 5 was the only one which experienced unacceptable LOS levels.

Near-Term Intersection Capacity Analysis

Table 3-16 of **Appendix M** shows intersections that are expected to fall short of desirable operating conditions for the Existing Plus Project scenario. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the Project would cause or contribute to an unacceptable LOS at 2 of the 25 study intersections (Lovers Lane and Mineral King Avenue and SR 198 WB Ramps and Mineral King Avenue) for this scenario when comparing the Near-Term Opening Year Without Project and Near-Term Opening Year Plus Project scenarios.

Table 3-17 of **Appendix M** shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street would meet acceptable levels of service.

Table 3-18 of **Appendix M** shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways would meet acceptable levels of service.

Near-Term Roadway Segment Capacity Analysis

Table 3-19 of **Appendix M** shows roadway segment volumes and levels of service pertaining to the Near-Term scenarios. Results of the analysis show that all of the study roadway segments would meet acceptable levels of service. Table 3-20 of **Appendix M** provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street would meet acceptable levels of service.

Near-Term Queuing Analysis

Tables 3-21 and 3-22 of **Appendix M** provides a queue length summary for left and right turn lanes at the study intersections for the Near-Term Opening Year Without Project and Near-Term Opening Year Plus Project scenarios. The queues shown for signalized intersections in Tables 3-21 and 3-22 of **Appendix M** represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans HDM.

Near-Term Merge/Diverge Analysis

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual. Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Near-Term Opening Year Without Project and Near-Term Opening Year Plus Project scenarios are reflected in Tables 3-23 and 3-24 of **Appendix M** and indicate the interchanges would operate at acceptable levels of service.

3.16.5 Mitigation Measures

Existing Plus Project Mitigation Measures

Intersections

- **TR-1 – Lovers Lane at Mineral King Avenue**
    - Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
    - Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)

The improvements identified above for the Existing Plus Project (Full Build Out) scenario is sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-1.

- **TR-2 –SR 198 WB Ramps at Mineral King Avenue**
    - Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
    - Widen the eastbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)
    - Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The intersection is forecasted to operate at unacceptable levels of service under the Existing Plus Project scenario despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. Project impacts would be considered significant and unavoidable despite the improvements identified for Mitigation Measure TR-2.

Near-Term Mitigation Measures

Intersections

- **Lovers Lane at Mineral King Avenue**
    - Mitigation Measure TR-1

The improvements identified above for the Near-Term Opening Year Without Project, and Near-Term Opening Year Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-1.

- **SR 198 WB Ramps at Mineral King Avenue**
    - Mitigation Measure TR-2

The intersection is forecasted to operate at unacceptable levels of service under the Near-Term Opening Year Without Project and Near-Term Opening Year Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. Project impacts would be considered significant and unavoidable despite the improvements identified for Mitigation Measure TR-2.

Cumulative Year 2040 Mitigation Measures

Intersections

- **TR-3 – Lovers Lane at Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
        - Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)
        - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
        - Widen the westbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-3.

- **TR-4 – Lovers Lane at SR 198 EB Ramps**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the northbound approach to 2 through lanes and 1 right turn lane (adding 1 right turn lane)
        - Widen the eastbound approach to 2 left turn lanes and 1 right turn lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable LOS 'D' in the PM peak hour, which exceeds Caltrans acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass.

Project impacts would be considered significant and unavoidable despite the improvements identified for Mitigation Measure TR-4.

- **TR-5 – SR 198 WB Ramps at Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Install Traffic Signal
        - Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
        - Widen the eastbound approach to 1 through lane and 1 right turn lane with overlap phasing (adding 1 right turn lane)
        - Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. The Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-5.

- **TR-6 – McAuliff Street and Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the westbound approach to 1 through and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. The Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-6.

- **TR-7 – Road 152 and Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the southbound approach to 1 left turn and 1 right turn lane (adding 1 right turn lane)
        - Widen the eastbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
        - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The intersection is forecasted to operate at unacceptable LOS 'E' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. The Project impacts would be considered significant and unavoidable despite the improvements identified for Mitigation Measure TR-7.

- **TR-8 – Noble Avenue and SR 198 EB Ramps**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Install Traffic Signal
        - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. The Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-8.

- **TR-9 – Road 156 and Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
        - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. The Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-9.

- **TR-10 – Road 156 and Noble Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
        - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. The Project impacts would be considered less than significant with incorporation of Mitigation Measure TR-10.

- **TR-11 – SR 198 WB Off Ramp and Mineral King Avenue**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the westbound approach to 2 through lanes (adding 1 through lane)

The intersection is forecasted to operate at unacceptable LOS 'D' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. The projected volumes at the intersection satisfy peak hour signal warrants and a traffic signal would alleviate LOS deficiencies. However, this intersection is less than 200 feet from the Road 156 and Mineral King Avenue intersection and is not recommended for signalization. Project impacts would be considered significant and unavoidable despite the improvements identified for Mitigation Measure TR-11.

Roadway Segments

- **TR-12 – Road 156**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: South of Noble Avenue
        - Widen the segment from 2 to 4 travel lanes (adding 1 travel lane in each direction)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. The Project impacts would be considered less than significant with incorporation of MM TR-12.

SR 198 Ramp Junctions

- **TR-13 - SR 198 EB Off Ramp to Lovers Lane**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:

    - Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-13.

- **TR-14 - SR 198 WB On Ramp from Lovers Lane**
    - Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
        - Widen the SR 198 mainline from 2 to 3 travel lanes in the westbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-14.

Queuing

- **TR-15 - Lovers Lane and Houston Avenue (SR 216)**
    - In the southbound left-turn lane, lengthen the storage pocket from 225 feet to 300 feet.

Project impacts would be considered less than significant with incorporation of MM TR-15.

- **TR-16 - Lovers Lane and Mineral King Avenue**
    - In the northbound left-turn lane, lengthen the storage pocket from 100 feet to 325 feet.
    - In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
    - In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

Project impacts would be considered less than significant with incorporation of MM TR-16.

- **TR-17 - Lovers Lane and SR 198 EB Ramps**
    - In the eastbound left-turn lane, lengthen the storage pocket from 225 feet to 375 feet.

Project impacts are considered less than significant with incorporation of MM TR-17.

- **TR-18 - Lovers Lane and Noble Avenue**
    - In the eastbound left-turn lane, lengthen the storage pocket from 125 feet to 275 feet.

Project impacts would be considered less than significant with incorporation of MM TR-18.

- **TR-19 - McAuliff Street and Houston Avenue (SR 216)**
    - In the northbound left-turn lane, lengthen the storage pocket from 150 feet to 300 feet.

Project impacts would be considered less than significant with incorporation of MM TR-19.

- **TR-20 - McAuliff Street and Mineral King Avenue**
    - In the southbound right-turn lane, lengthen the storage pocket from 250 feet to 300 feet.
    - In the eastbound left-turn lane, lengthen the storage pocket from 200 feet to 275 feet.
    - In the westbound right-turn lane, provide 300-foot storage pocket.

Project impacts would be is considered less than significant with incorporation of MM TR-20.

- **TR-21 - Road 152 and Mineral King Avenue**

- In the southbound right-turn lane, provide 125-foot storage pocket.
- In the eastbound left-turn lane, provide 100-foot storage pocket.
- In the westbound right-turn lane, provide 125-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-21.

- **TR-22 - SR 198 EB Ramps and Noble Avenue**
  - In the westbound right-turn lane, provide 125-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-22.

- **TR-23 - Road 156 and Noble Avenue**
  - In the northbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
  - In the eastbound right-turn lane, provide 150-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-23.

- **TR-24 - Tower Street and Houston Avenue (SR 216)**
  - In the northbound left-turn lane, provide 200-foot storage pocket.
  - In the northbound right-turn lane, provide 100-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-24.

- **TR-25 - Tower Street and McKinley Avenue-Project Driveway #2**
  - In the southbound left-turn lane, provide 100-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-25.

- **TR-26 - Tower Street and Race Avenue**
  - In the northbound left-turn lane, provide 100-foot storage pocket.
  - In the southbound left-turn lane, provide 100-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-26.

- **TR-27 - Tower Street and Murray Avenue**
  - In the northbound left-turn lane, provide 250-foot storage pocket.
  - In the southbound right-turn lane, provide 100-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-27.

- **TR-28 - Tower Street and Villoy Avenue-Project Driveway #1**
  - In the northbound left-turn lane, provide 150-foot storage pocket.
  - In the southbound left-turn lane, provide 100-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-28.

- **TR-29 - Tower Street and Villoy Avenue-Project Driveway #1**
  - In the southbound left-turn lane, provide 250-foot storage pocket.
  - In the eastbound left-turn lane, provide 175-foot storage pocket.

Project impacts would be considered less than significant with incorporation of MM TR-29.

Cumulative Year 2040 With Tower Street Interchange Mitigation Measures

INTERSECTIONS

- **Lovers Lane at Mineral King Avenue**
    - Mitigation Measure TR-5

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-5.

- **Lovers Lane at SR 198 EB Ramps**
    - Mitigation Measure TR-6

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable LOS 'D' in the PM peak hour, which exceeds Caltrans acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. Project impacts would be considered significant and unavoidable despite the improvements identified for MM TR-6.

- **SR 198 WB Ramps at Mineral King Avenue**
    - Mitigation Measure TR-7

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. Should Caltrans determine that this intersection cannot be signalized due to inadequate spacing, the intersection would continue to operate at LOS 'F' conditions. Project impacts would be considered less than significant with incorporation of MM TR-7.

- **Road 152 and Mineral King Avenue**
    - Mitigation Measure TR-9

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-9.

- **Noble Avenue and SR 198 EB Ramps**
    - Mitigation Measure TR-10

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-10.

- **Road 156 and Mineral King Avenue**
    - Mitigation Measure TR-11

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-11.

- **Road 156 and Noble Avenue**
    - Mitigation Measure TR-12

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-12.

- **TR-30 - Tower Street at Houston Avenue (SR 216)**
    - Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
        - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-30.

Special Event Traffic Impacts

The Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities that could occur as a special event (e.g. concerts, tournaments, weddings). Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation, and representative of a "worst case" example. The following scenario was agreed upon to represent special event traffic for worst-case analysis purposes:

1. Amphitheater weekday evening event at full capacity (all 1,500 seats filled)
2. Typical weekday evening activity for all other park uses

The Project Driveway #1 at Tower Street would exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project with Tower Street Interchange scenario. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

- **TR-31 - Tower Street at Villoy Avenue-Project Driveway #1**
    - Cumulative Year 2040 Plus Project With Tower Street Interchange scenario:
        - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange scenario are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-31.

Roadway Segments

- **Road 156 – South of Noble Avenue**
    - Mitigation Measure TR-14

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-14.

SR 198 Ramp Junctions

- **SR 198 EB Off Ramp to Lovers Lane**
    - Mitigation Measure TR-15

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-15.

- **SR 198 WB On Ramp from Lovers Lane**
    - Mitigation Measure TR-16

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-16.

Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Mitigation Measures

INTERSECTIONS

- **Lovers Lane at Mineral King Avenue**
    - Mitigation Measure TR-5

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts is considered less than significant with incorporation of MM TR-5.

- **Lovers Lane at SR 198 EB Ramps**
    - Mitigation Measure TR-6

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable LOS 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. Project impacts would be considered significant and unavoidable despite the improvements identified for MM TR-6.

- **SR 198 WB Ramps at Mineral King Avenue**
    - Mitigation Measure TR-7

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios

are sufficient to meet Caltrans acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. Project impacts would be considered less than significant with incorporation of MM TR-7.

McAuliff Street and Murray Avenue
No improvements are recommended to achieve acceptable levels of service.

This intersection is forecasted to operate at unacceptable LOS 'E' in the PM peak hour under Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 conditions; however, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. Therefore, no improvements are recommended for the Project traffic contributions at the intersection.

The Project's impact is considered significant and unavoidable.

- **Road 152 and Mineral King Avenue**
    - Mitigation Measure TR-9

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-9.

- **Noble Avenue and SR 198 EB Ramps**
    - Mitigation Measure TR-10

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-10.

- **Road 156 and Mineral King Avenue**
    - Mitigation Measure TR-11

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-49.

- **Road 156 and Noble Avenue**
    - Mitigation Measure TR-12

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-12.

- **Tower Street at Houston Avenue (SR 216)**
    - Mitigation Measure TR-31

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-31.

Special Event Traffic Impacts

As noted in Section 3.1, the Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities. Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation. The Project Driveway #1 at Tower Street would exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario considering the traffic volumes shown in Figure 3-38b. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

- **Tower Street at Villoy Avenue-Project Driveway #1**
    - Mitigation Measure TR-31

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-31.

Roadway Segments

- **Road 156 – South of Noble Avenue**
    - Mitigation Measure TR-14

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City's acceptable LOS standard of 'D'. Project impacts would be considered less than significant with incorporation of MM TR-14.

SR 198 Ramp Junctions

- **SR 198 EB Off Ramp to Lovers Lane**
    - Mitigation Measure TR-15

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-15.

- **SR 198 WB On Ramp from Lovers Lane**
    - Mitigation Measure TR-16

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-55.

- **TR-32 - SR 198 EB On Ramp from Tower Street**
    - Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario:

- Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario are sufficient to meet Caltrans acceptable LOS standard of 'C'. Project impacts would be considered less than significant with incorporation of MM TR-32.

Equitable Fair-Share Responsibility

The Project would be required to build MM TR-1, TR-2, TR-3 and TR-4 improvements that are identified for the 'Existing Plus Project' and 'Near-Term Opening Year Plus Project' conditions to improve identified LOS deficiencies.

In addition to MM TR-1, TR-2, TR-3 and TR-4 discussed above, the Project would also be required to contribute its calculated "fair-share" towards the costs of improvements that are identified for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios. The intent of determining the equitable responsibility for the improvements identified above for the Cumulative Year 2040 scenarios, is to provide a starting point for early discussions between the City and Caltrans to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts, in particular, for those that come about if/when the Tower Street Interchange is built by Caltrans. The equitable share responsibility for improvements to the City and Caltrans facilities are identified in **Appendix M**.

b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Potentially Significant Impact. Impacts are identified in Impact a. Mitigation measures MM TR-1 through MM TR-32 would be implemented to minimize all feasibly mitigated impacts due to exceedances of LOS standards, travel demand measures and other standards developed by the County's Congestion Process Steering Committee Congestion Management Program. Any impacts that cannot be avoided would be included in the statement of overriding consideration.

c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

No Impact. The nearest airport of any kind is the Exeter Airport, located 7.2 miles southeast of the Project. The next nearest airport is the Visalia Municipal Airport, located approximately 7.6 miles west of the Project. The Project does not entail commercial, residential or generate significant out-of-town tourism; therefore, there would be no impact.

d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Potentially Significant Impact. Mitigation measures MM TR-1 through MM TR-11 would be implemented to minimize impacts to intersections, including safety impacts considering anticipated exceedances of service standard. Any impacts that cannot be avoided would be included in the statement of overriding consideration.

e) Result in inadequate emergency access?

Less than Significant. The Project proposes multiple vehicular access points to the Project location. The Project would not conflict with Public Works Standards regarding street widths and turning movements.

The Project does not create new publicly-accessible rights-of-way that restrict emergency service operator access. The Project proposes to remove existing barriers, located at stub streets found at the subdivisions to the west of the Project. The Project does not propose to add a substantial number of vehicular trips located within close proximity of an emergency service operator facility which could preclude emergency service operators from entering the right-of-way. Therefore, there would be a less than significant impact.

f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

Potentially Significant Impact. The Project would be providing additional trails for pedestrian and bicycle traffic and is isolated from a public transportation route. The City GP Circulation Element identifies in policy T-P-33 to work with transit operators to establish transit stops adjacent to regional parks. To be consistent with the City GP and the City GP Environmental Impact Report,[109] the City would be required to work with transit operators on establishing a public transportation stop within a reasonable vicinity of the regional park. Due to the lack of public transportation to the site, the City would complete a SOC.

3.16.6 Cumulative Impacts

The TIS completed by VRPA Technologies, Inc. analyzed cumulative year 2040 impacts and determined that the Project would cause or contribute to unacceptable LOS at 10 of the 25 study intersections when considering long-term impacts and would contribute to an unacceptable LOS at 8 of the 27 study intersections when analyzing long-term impacts with the Tower Street Interchange. MM TR-3 through MM TR-32 would be implemented to minimize cumulative impacts; however, as noted in impact a) above, any impacts that would not be fully mitigated to a less than significant level would require a SOC.

[109] City of Visalia Draft Environmental Impact Report. Transportation. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30492 Accessed 12/5/2017

3.17 Utilities and Service Systems

Table 3-37. Utilities and Service Systems

Utilities and Service Systems					
	Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

3.17.1 Environmental Setting

Potable Water

The City relies solely on groundwater for its potable water supply, which is replenished by Sierra Nevada snowmelt. This potable water supply is distributed by Cal Water through 75 operational groundwater wells, 519 miles of main pipeline, and associated appurtenances to extract, distribute, and store potable water within Cal Water's Visalia district.[110] It is anticipated that Cal Water would have sufficient pumping capacity to meet the expected increase in demand; however, the Kaweah Subbasin is considered to be in an overdraft condition on an average long-term basis and it is likely that groundwater management practices and surface water transfers or exchanges would be necessary on a long-term basis for the foreseeable future.[111]

[110] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016
[111] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016

The 2010 Cal Water UWMP also indicates that the sole source of water supply for the foreseeable future would be groundwater unless a reliable surface supply can be identified. The 2010 UWMP analyzed the full buildout of the City's GP and determined that there are sufficient groundwater quantities to support the buildout.[112]

Wastewater

The City owns and operates a Water Conservation Plant (WCP) that treats wastewater from the City's existing wastewater collection (i.e., sewer) system. The plant was recently upgraded to provide a treatment capacity of 22 million gallons per day (mgd), with provisions to expand to 26 mgd. The upgraded plant included conversion from secondary level treatment to advanced tertiary treatment, enabling the City to produce recycled water in conformance with Title 22 disinfected tertiary treatment standards.[113]

In 2013, this upgrade of the WCP enabled the City to enter into an agreement with TID for a long-term exchange of water supplies. The City would deliver to TID tertiary-treated recycled water from its upgraded WCP and in exchange TID would provide a portion of its CVP water supplies in certain higher-flow year types marked by what is called "Uncontrolled Season."

The City's sewer collection system facilities consist of gravity sewer pipelines ranging in size from 6" to 42", as well as 13 sewage lift stations and associated force mains. All of the pipelines within the City limits convey wastewater to the WCP.[114]

Stormwater Drainage

Historically, the City has experienced flooding from two sources. The first is major flooding resulting from runoff from within the 500-square-mile watershed of the Kaweah River. This flooding is currently controlled by Terminus Dam, which can accommodate flood events of a magnitude expected to occur on average once in fifty years. The second source of flooding, which is far less severe, occurs when local rainfall exceeds the level of protection that existing drainage facilities provide. Street and lot stormwater drainage flows, generally by gravity, through a storm drain pipeline system to the main drain system, which consists primarily of St. John's River, Modoc Ditch, Goshen Drain, Mill Creek, Evans Ditch, Packwood Creek, Cameron Creek, and Persian/Watson ditches. These creeks and ditches are used for irrigation flow conveyance as well as stormwater conveyance. In addition to the creeks and ditches, the City's stormwater is handled by a pipeline conveyance system that leads to retention and detention basins. These basins have been strategically placed and planned throughout the City to have the ability to generally handle the runoff that would be generated by the 10-year/2-day storm event, respectively.[115] It is anticipated that the City would continue to have an increased need for stormwater infrastructure for the foreseeable future.[116]

Solid Waste

Solid waste disposal is provided by the Tulare County Resource Management Agency, which operates the Visalia Landfill approximately 8 miles northwest of the Project. The facility is located at 8614 Avenue 328 and serves the cities of Visalia, Farmersville, Dinuba, Exeter, Tulare, Woodlake, Fresno, and unincorporated areas of northern Tulare County and southern Fresno County. As of 2014, the landfill had a maximum capacity of 18,630,666 cubic yards and a remaining capacity of 16,145,591 cubic yards. The landfill is not expected to reach capacity until 2024.[117] This landfill has a maximum permitted throughput of 2,000 tons per day, a maximum

[112] Ibid.
[113] City of Visalia Water Conservation Plant, Antidegradation Analysis. Provost & Pritchard Consulting Group. June 21, 2012
[114] City of Visalia. Sewer System Management Plan (SSMP). August 2012. https://www.visalia.city/sirepub/cache/3/intunpvbpi4554dbgl2fcgip/106290421201411592896 8.PDF Date Accessed: 7/30/2018
[115] City of Visalia. Storm Water Master Plan. Final Report. September 1994. https://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=32394 Date Accessed: 7/30/18
[116] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016
[117] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016

permitted capacity of 18,630,666 cubic yards, and a remaining capacity of 16,145,591 cubic yards. The Visalia Landfill is not expected to reach capacity until 2024.[118] Solid waste collection is provided by the City and recyclable material processing is provided by Sunset Waste Systems.

Electricity

Power is provided by SCE. SCE is a subsidiary of Edison International and provides electricity to over 15 million Californians. Edison International is one of the largest electric utilities in the nation, and the nation's single largest purchaser of renewable power. The electrical facilities network includes both overhead and underground lines, with new development required to install underground service lines.[119]

Natural Gas

Natural gas service in the City is provided by the SoCalGas.

Communications

There are three major companies that provide communications services in Visalia: AT&T, Sprint, and Verizon. Comcast is the primary cable television and internet provider.[120]

3.17.2 Regulatory Setting

Federal

Clean Water Act

Refer to **Section 3.4.3 Regulatory Setting**.

Municipal Urban (Area-wide) Storm-Water Discharges

A MS4 system as defined by the EPA must obtain an NPDES permit by a certain date according to the population served by the system. Operators the stormwater system must submit an NPDES permit application and supporting information to the respective RWQCB. The CWA provides for delegating certain responsibilities for water-quality control and planning to the states. California has been authorized by the EPA to administer and enforce portions of the CWA, including the NPDES program. Section 208 of the CWA is designated to provide a comprehensive planning framework for both point- and non-point-source water pollution. Specific planning requirements include, but are not limited, to the following:

- Identification of needed treatment works to meet anticipated requirements over a 20-year period;
- Identification of construction priorities for the region; and

Procedures and methods to control non-point-source pollution emanating from agriculture, mining, and other sources. Most owners or operators of facilities that discharge waste into a municipal sanitary sewer system need to obtain an NPDES permit. The EPA, the SWRCB, and the respective RWQCB or the local wastewater management agency might require some industries to treat industrial hazardous wastes before such wastes are discharged to a municipal sanitary sewer system. The local wastewater management agency advises industries of those requirements.

[118] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016
[119] Ibid.
[120] City of Visalia General Plan. Page. 5-34. https://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30477. Site Accessed 7/31/2018.

State

State Water Resources Control Board – Waste Discharge Requirements Program

State regulations pertaining to the treatment, storage, processing, or disposal of solid waste are found in Title 27, CCR, Section 20005 et seq. (hereafter Title 27). In general, the WDR Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g. sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDR Program also includes the discharge of wastes classified as inert, pursuant to Section 20230 of Title 27.[121] Several programs are administered under the WDR Program, including the Sanitary Sewer Order and recycled water programs.

Department of Resources Recycling and Recovery (CalRecycle)

The Department of Resources Recycling and Recovery (CalRecycle) is the State agency designated to oversee, manage, and track wastes generated in California. In 2015, statewide disposal was 33.2 million tons of solid waste. CalRecycle develops laws and regulations to control and manage waste, for which enforcement authority is typically delegated to the local government. The board works jointly with local government to implement regulations and fund programs.

The Integrated Waste Management Act of 1989 (PRC 40000, et seq.) or AB 939, administered by CalRecycle, requires all local and county governments to adopt a Source Reduction and Recycling Element to identify means of reducing the amount of solid waste sent to landfills. This law set reduction targets at 25 percent by the year 1995 and 50 percent by the year 2000. To assist local jurisdictions in achieving these targets, the California Solid Waste Reuse and Recycling Access Act of 1991 requires all new developments to include adequate, accessible, and convenient areas for collecting and loading recyclable and green waste materials.

National Pollutant Discharge Elimination System Permit

As authorized by the CWA, the NPDES Permit Program controls water pollution by regulating point sources that discharge pollutants into water of the United States. In California, it is the responsibility of SWRCB and RWQCBs to preserve and enhance the quality of the States waters through the development of water quality control plans and the issuance of WDR. WDRs for discharges to surface waters also serve as NPDES permits.[122] NPDES permits also regulate the requirements of the MS4 discharges to surface waters.

California Department of Water Resources

DWR is responsible for the management and regulation of water usage in California.

Water Conservation Act of 2009 (SB X7-7)

This State legislative package mandates a 20 percent statewide reduction of urban per capita water use by the year 2020. Its provisions require urban water suppliers to adopt reduction targets according to baseline water use determinations, and agricultural water suppliers to prepare agricultural water management plans. Following SB X7-7, urban water management plans must include baseline water use and reduction targets, and report on target compliance. In addition to adopting agricultural water management plans, agricultural water suppliers must measure the volume of water delivered according to methodology adopted by DWR and adopt specified

[121] California State Water Resources Control Board. Land Disposal Program, General Information, Waste Discharge Requirements Program. http://www.swrcb.ca.gov/water_issues/programs/land_disposal/waste_discharge_requirements.shtml Date Accessed: 7/6/2016
[122] California State Water Resources Control Board. NPDES. http://www.waterboards.ca.gov/water_issues/programs/npdes/ Date Accessed: 7/6/2016

efficient water management practices. Non-compliance would be penalized by disqualification for State water grants and loans. Failure to meet targets after the 2020 deadline would be considered a violation of the law.

State Water Quality Certification Program

The RWQCBs also facilitates the State Water Quality Certification Program or Section 401 Certification of the CWA. Under Section 401, states have the authority to review any permit or license that would result in a discharge or disruption to wetlands and other waters under state jurisdiction, to ensure that the actions would be consistent with the state water quality requirements. This program is most often associated with the CWA Section 404, which obligates the USACE to issue permits for the movement of dredge and fill material into and from the "waters of the United States." Additionally, Section 404 requires permits for activities affecting wetlands. Prospective alterations of hydrologic features such as wetlands, rivers, and ephemeral creek beds resulting from construction require Section 404 NWP.

Construction Stormwater NPDES Permit

Refer to **Section 3.9.2 Regulatory Setting**.

Phase II MS4 Permit

Refer to **Section 3.9.2 Regulatory Setting**.

Central Valley Regional Water Quality Control Board

The primary responsibility for the protection of water quality in California rests with the SWRCB and nine RWQCB. The SWRCB sets statewide policy for the implementation of state and federal laws and regulations. The RWQCBs adopt and implement Water Quality Control Plans (Basin Plans) which recognize regional differences in natural water quality, actual and potential beneficial uses, and water quality problems associated with human activities.

The City is located within the jurisdiction of the Central Valley RWQCB in an area identified as the Tulare Lake Basin, which comprises the drainage area of the San Joaquin Valley south of the San Joaquin River. This basin consists of approximately 10.5 million acres, and includes the metropolitan areas of Bakersfield, Fresno, Porterville, Hanford, Tulare, and Visalia.[123] The Regional Board has set water quality objectives for both surface and ground water, which it achieves through an implementation plan. The RWQCB efforts emphasize the importance of controlling toxic discharges and address ground water salinity, which is identified as the greatest long-term problem facing the basin.[124]

The Regional Board identifies the elimination of groundwater overdraft as an important tool to use to combat the increasing salinity of the basin, as continued overdraft would deplete good quality water supplies and introduce salts from poorer quality aquifers. Groundwater recharge is recommended as a major mechanism to prevent further groundwater overdraft.[125]

Local

City of Visalia General Plan

- Objective PSCU-O-14: Provide for long-range community water needs by adopting best management practices for water use, conservation, groundwater recharge and wastewater and stormwater management.

[123] Central Valley Regional Water Quality Control Board. 2015. Water Quality Control Plan for the Tulare Lake Basin: Second Edition. http://www.waterboards.ca.gov/centralvalley/water_issues/basin_plans/tlbp.pdf Date Accessed: 6/22/2016
[124] Ibid.
[125] Ibid.

- Objective PSCU-O-15: Preserve groundwater resources.
- Policy PSCU-P-47: Adopt and implement a Water Efficient Landscaping Ordinance for new and/or refurbished development that exceeds mandated sizes, and ensure that all new City parks streetscapes, and landscaped areas conform to the Ordinance's requirements. The Ordinance should include provisions to optimize outdoor water use by:
    - Promoting appropriate use of plants and landscaping;
    - Establishing limitations on use of turf including size of turf areas and use of cool-season turf such as Fescue grasses, with exceptions for specified uses (e.g., recreation playing fields, golf courses, and parks);
    - Establishing water budgets and penalties for exceeding them;
    - Requiring automatic irrigation systems and schedules, including controllers that incorporate weather-based or other self-adjusting technology;
    - Promoting the use of recycled water; and
    - Minimizing overspray and runoff.

City of Visalia Municipal Code

- City of Visalia Water Conservation Ordinance
  The City's Water Conservation Ordinance was adopted in 1989 and can be found in Chapter 13.20 of the Municipal Code. The Ordinance sets regulations to minimize outdoor water use and reduce unnecessary consumption of potable water. It defines and places restriction on wasteful uses of water and establishes water conservation alert stages to be enacted during periods of water shortage.
- The Visalia Municipal Code contains regulations related to solid waste and recycling in Chapter 8.28. The City, in order to promote and protect the public and refuse worker health and safety and to reduce the danger and hazards of fires and conflagrations, reserves unto itself the exclusive right and power to collect, transport, and dispose of, or to authorize, regulate, permit and control said collections, transportation and disposition of all refuse and rubble produced or found within the corporate limits of said city.
- The Visalia Municipal Code contains regulations related to solid waste and recycling in Chapter 8.29. The purpose of this chapter is to increase the recycling and reuse of construction and demolition debris, consistent with the goals of the California Integrated Waste Management Act of 1989.

3.17.3 Impact Assessment

a) Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less than Significant Impact. The WCP, located about one mile southwest of the intersection of SR99 and SR 198, recently underwent extensive upgrades. Prior to the upgrades, the WCP was discharging approximately 13 million gallons per day (mgd) of effluent under WDRs from the RWQCB to City-owned holding basins and Mill Creek. The reason for the extensive upgrades to the WCP was for conversion from secondary level treatment to advanced tertiary treatment to comply with RWQCB waste discharge requirements. This resulted in the issuance of an updated WDR Order for the WCP. The tertiary-treated recycled water is planned for use by nearly 10,000 acres of farmland within the City and TID and for the City's Valley Oak Golf Course and Plaza Park. The design capacity and permit capacity of the recent upgrade is 22 mgd with provisions to expand

to 26 mgd.[126] These upgrades to the WCP can accommodate the anticipated wastewater discharge from the full buildout of the City's recently adopted GP land uses and the Project changes to those land uses, and therefore, the Project would not exceed the parameters of the existing WDR. The impact would be less than significant.

b) Would the project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. The Project site is not currently served by a municipal water or wastewater infrastructure. The Project would require the extension of water and wastewater service lines from adjacent streets and is not anticipated to place any significant demand on the City's wastewater treatment facilities or Cal Water's domestic water system; therefore, the impact would be less than significant.

c) Would the project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Less than Significant Impact. The Project would involve the realignment of existing storm water drainage facilities in street adjacent to the Project and other minor improvements to Mill Creek and Packwood Creek, which are identified as main drains within the City's stormwater drainage system. Currently the site drains via runoff into Mill Creek, Packwood Creek, and Oakes Ditch. The Project would maintain the runoff to these waterways and the proposed groundwater recharge basins. The basins would serve a dual function as stormwater layoff basins, which would control and limit potential impacts from seasonal floods; therefore the impact would be less than significant.

d) Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Less than Significant Impact. The recreational facilities, including splash pads and areas that require irrigation, would require the use of water throughout construction and operation. This potable water would be provided by Cal Water or through the drilling of a new well. Water consumption would vary between 588 and 622 acre-feet per year, depending on the amount of rainfall received in a given year. The City is located in an area that is currently in conditions of groundwater overdraft, therefore water conservation is extremely important. The groundwater recharge basins, however, would ensure that the Project would have a net positive impact on water supplies given that they would also be used to receive surface waters that normally would not be recharged. The Project is designed to recharge surface water that is available from Mill Creek, Oakes Ditch and Packwood Creek. An agreement has been made with the TID for long-term exchange of water supplies. The City would deliver treated effluent to TID from its WCP on the west side of town and in exchange TID would provide a portion of its Central Valley Project water supplies in certain higher flow year types marked by what is called "Uncontrolled Season" that would be available for delivery into the Project. Therefore, no net loss of water supplies would result from the Project and the impacts would be less than significant.

e) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. As stated under Impact b, the Project is not expected to result in a significant increase in wastewater. The recent upgrade of the City's WCP would ensure that capacity for wastewater

[126] City of Visalia, Water Conservation Plant Upgrades Project, Recirculated Draft Environmental Impact Report. October 2012. Page vii – Executive Summary of the Antidegradation Analysis prepared by Provost & Pritchard Consulting Group, June 21, 2012. http://www.visalia.city/civicax/filebank/blobdload.aspx?blobid=15729 Date Accessed: 12/4/2017

treatment continues to exceed the growth in supply that would occur in conjunction with the City's anticipated growth.

f) Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less than Significant Impact. The Project is anticipated to generate approximately 125 tons [or 832 cubic yards] of solid waste per year as a result of participants in recreational activities and events. As of 2014, the landfill that would serve the Project, the Visalia Landfill, had a maximum capacity of 18,630,666 cubic yards and a remaining capacity of 16,145,591 cubic yards. The landfill is not expected to reach capacity until 2024.[127]

g) Would the project comply with federal, state, and local statutes and regulations related to solid waste?

Less than Significant Impact. Solid waste would be collected from the proposed facilities and transported to the Visalia Disposal Site, in compliance with all federal, State, and local statutes and regulations.

3.17.4 Cumulative Impacts

Less than Significant Impact. The Project site is adjacent to the City's eastern boundary. Utility and service providers include the City for wastewater collection and treatment, stormwater drainage, and solid waste collection; Tulare County for solid waste disposal; Cal Water for domestic water service; SCE for electricity, SoCalGas for natural gas, and a variety of communications companies. The expansion of these utilities would occur in a methodical manner to serve each phase of the Project. Future projects would be required to assess their individual project impacts to ensure that each service provider has the sufficient supply to meet the demand. Therefore, there would be no cumulative impacts.

[127] City of Visalia, 2014. General Plan Update DEIR – Chapter 3.9: Public Services, Facilities, and Utilities. http://www.ci.visalia.ca.us/depts/community_development/planning/gp.asp Date Accessed: 6/22/2016

4 Analysis of the Alternatives

4.1 Introduction

CEQA mandates that this EIR identifies and analyzes a range of alternatives to the proposed East Side Regional Park & Groundwater Recharge Project. The purpose of the alternatives analysis is to foster informed decision-making and public participation; therefore, each alternative is included on the basis of its ability to help decision-makers make a reasoned choice. To this end, the range of alternatives considered in this document needs only include "those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects" (CEQA Guidelines Section 15126.6(d)(2)) of the Project, and which are held to a "rule of reason." CEQA defines "feasible" as "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors" (CEQA Guidelines Section 15364). The discussion must also include an evaluation of the No Project Alternative to allow decision-makers to compare the impacts of approving the proposed East Side Regional Park & Groundwater Recharge Project against the effects of not approving it.

CEQA Guidelines do not specify what constitutes an adequate level of detail, but they do require that the EIR provides sufficient information to allow meaningful evaluation, analysis, and comparison of each alternative. The EIR must therefore describe the major characteristics and significant environmental effects of the Project as proposed. Quantified information on the alternatives is presented where available; however, in some cases only partial quantification can be provided because of data or analytical limitations.

Finally, the CEQA Guidelines require each EIR to identify the environmentally superior alternative among the alternatives analyzed. If the No Project Alternative is the environmentally superior alternative, the EIR must select another alternative from among the alternatives analyzed.

4.2 Alternatives to be Analyzed

The alternatives considered here were developed through and rejected as a result of public scoping meetings and neighborhood comments. Alternatives 1 was proposed as a cost-saving measure, whereas Alternative 2 was proposed due to the potential nighttime illumination caused by the proposed sports lighting. This chapter describes and evaluates three alternatives to the proposed East Side Regional Park & Groundwater Recharge Project. The alternatives are referred to as:

- Alternative 1 – This Alternative was rejected but warrants consideration regardless.
- Alternative 2 – This Alternative was rejected but warrants consideration regardless.
- No Project Alternative, which represents the impacts that would result from the continuation of existing conditions.

4.2.1 Alternative 1

Alternative 1 is largely similar to the Project. It would include the extension of Tower Street, improvements to Houston Avenue and Road 152, a GP amendment to change the planned land use to Park/Recreation, rezoning to QP, and annexation of the northern portion to the City. Additionally, the main components would still be a regional park and groundwater recharge basins covering the same footprint as the Project. Notable differences consist mainly of the location of park facilities within the Project site . While the recharge basins would remain in the same location, the main street and parking within the park would be located adjacent to Tower Street, rather than running within the park's center. An additional access point from Tower Street and additional

parking would be constructed. There would also be changes in the location of fields, the amphitheater, the community center, and other facilities.

Figure 4-1. Alternative 1 Conceptual Site Plan

4.2.2 Alternative 2

Alternative 2 is identical to the Project except for the removal of the sports lighting. Accordingly, the following recreational activity fields described in the Project Description under **Section 2.3.2**, Regional Park Amenities, would not be lighted:

- Four (4) fenced adult softball fields
- Four (4) fences youth baseball fields
- Five (5) full-size soccer fields
- Tennis courts
- Pickleball courts
- Full basketball court
- Amphitheater
- Outdoor swimming pools

Park hours would be limited to 7 am to 6 pm. Consequently, the amenities listed above would not be available for rent for activities after 6 pm.

4.2.3 No Project Alternative

The No Project Alternative represents the continuation of current conditions. The City would not construct a new regional park in the northeast quadrant, nor would it develop the proposed groundwater recharge and stormwater layoff basins. The extension of Tower Street would not take place, no improvements would be made to Road 152, no GP amendment would be passed, the land would not be annexed from the County, and it would not be subject to rezoning.

4.2.4 Project

The Project emerged from a series of Community Workshops, as well as from input from City staff. A full description of the Project can be found in Chapter Two.

4.3 Comparative Impact Analysis of Alternatives

The comparative impact analysis evaluates the impacts that each alternative would have on the environmental issue areas discussed in Chapter Three. Alternatives are compared to one another and to the proposed East Side Regional Park & Groundwater Recharge Project, and impacts are assessed relative to baseline conditions. The assessment uses the same significance criteria applied to the Project in Chapter Three.

4.3.1 Aesthetics

Alternative 1 – Considered but Rejected

Aesthetics under Alternative 1 would be largely similar to the Project, given that the regional park would retain the same visual character and would still require the removal of the mature pecan and walnut orchards. Scenic vistas would not be adversely affected, and scenic resources would not be damaged.

A notable difference would be an increased proximity of the main road and parking lots to the residences to the west of the proposed park. This would result in increased visibility of parking facilities that are less visually attractive than the vegetation that would be visible under the Project. While this would not necessarily result in a significant impact to the visual character of the site, it would be slightly greater than the impacts posed by the Project.

This alternative would also lead to a slight increase in nighttime lighting from the west, which would be necessary for the parking lot and road. Again, while this would not constitute a significant impact it would still exceed the impacts associated with the Project.

Alternative 2 – Considered but Rejected

Impacts to aesthetics under Alternative 2 would be less than the Project, due to the lack of sports lighting, resulting in less glare and nighttime lighting. The remaining lighting proposed would be along Tower road and would pose a less than significant impact.

The regional park would retain the same visual character as the Project and would still require the removal of the mature pecan and walnut orchards. Scenic vistas would not be adversely affected and scenic resources would not be damaged.

No Project Alternative

Under the No Project Alternative, the Project site would continue to be used primarily for agriculture. The existing scenic vistas and resources, which are predominantly agricultural, would persist. The visual character of the site would not be altered. No new lighting or glare would result, as the No Project Alternative would not involve the installation of any facilities that require lighting. There would be no impacts to aesthetic resources.

4.3.2 Agriculture and Forestry Resources

Alternative 1 – Considered but Rejected

Impacts to agriculture and forestry resources under Alternative 1 would be equivalent to the Project. The same amount of farmland would be converted. Additionally, Alternative 1 would involve an equivalent level of groundwater recharge, similarly leading to an increased sustainability of agricultural efforts.

Alternative 1 would be located within the QP zone; therefore, it would not conflict with existing zoning for an agricultural or forest uses. There are no Williamson Act contracted parcels or forest lands within the site. Although farmland would be converted, Alternative 1 would not result in any further conversion of agricultural lands in comparison to the proposed Project.

Alternative 2 – Considered but Rejected

Impacts to agriculture and forestry resources under Alternative 2 would be equivalent to the Project. The same amount of farmland would be converted. Additionally, Alternative 2 would involve an equivalent level of groundwater recharge, similarly leading to an increased sustainability of agricultural efforts.

Alternative 2 would be located within the QP zone; therefore, it would not conflict with existing zoning for an agricultural or forest uses. There are no Williamson Act contracted parcels or forest lands within the proposed site. Although farmland would be converted, Alternative 2 would not result in any further conversion of agricultural lands in comparison to the proposed Project.

No Project Alternative

The No Project Alternative would not have a significant impact on agriculture and forestry resources as it would not involve the conversion and rezoning of farmland to recreational uses. No forests are present within the boundaries of the Project area to result in forest conversion impacts.

4.3.3 Air Quality

Alternative 1 – Considered but Rejected

Air Quality Impacts under Alternative 1 would be largely similar to the Project, given that the regional park would retain the same features and uses. The uses and features would just be placed in different locations on the site. This place of features and uses would not result in a significant impact and would be phased similarly to not exceed air quality thresholds.

Alternative 2 – Considered but Rejected

Air Quality Impacts under Alternative 2 would be slightly less than the Project, given the smaller amount of equipment to install, fewer hours of daily activity at the Project site, and the electricity needed to power the sports lighting. Alternative 2 would not result in a significant impact and would be phased similarly as to not exceed air quality thresholds.

No Project Alternative

The No Project Alternative would result in no impact. The Project site would not undergo construction, which is the primary source of air quality concern for the Project. Therefore, the No Project Alternative would not conflict with or obstruct implementation of any applicable AQPs, violate any air quality standards, expose sensitive receptors to air pollution, create objectionable odors or result in a cumulative net increase of any criteria pollutant.

4.3.4 Biological Resources

Alternative 1 – Considered but Rejected

Impacts to biological resources under Alternative 1 would be equivalent to the Project. The same amount of land would be utilized for the construction of Alternative 1, converting marginal habitat for resident species, including special status species, such as the burrowing owl, Swainson's hawk, San Joaquin kit fox, and American badger.

Although habitat would be converted, Alternative 1 would not result in any further loss of potential habitat.

Alternative 2 – Considered but Rejected

Impacts to biological resources under Alternative 2 would be equivalent to the Project. The same amount of land would be utilized for the construction of Alternative 2, converting marginal habitat for resident species, including special status species, such as the burrowing owl, Swainson's hawk, San Joaquin kit fox, and American badger.

Although habitat would be converted, Alternative 2 would not result in any further loss of potential habitat.

No Project Alternative

No biological resources would be impacted by the implementation of the No Project Alternative. With a lack of land conversion and construction at the Project site, no biological resources currently available would be compromised. As a result of no land conversion taking place, no habitats, jurisdictional waters, native or migratory wildlife would be impacted. Therefore, there would be no conflicts with any local, regional, State, or federal policies.

4.3.5 Cultural Resources

Alternative 1 – Considered but Rejected

Impacts to cultural resources under Alternative 1 would be equivalent to the Project. The same amount of land would be utilized to construct Alternative 1. Like the Project, Alternative 1 would have to comply with all federal, State, and local regulations pertaining to cultural resources. Construction and operation of the rejected alternative would result in equivalent impacts to cultural resources.

Alternative 2 – Considered but Rejected

Impacts to cultural resources would be equivalent to the Project under Alternative 2. The same amount of land would be utilized to construct Alternative 2. Like the Project, Alternative 2 would have to comply with all federal, State, and local regulations. Construction and operation of the rejected alternative would result in equivalent impacts to cultural resources.

No Project Alternative

Under the No Project Alternative, cultural resources currently available within the Project site would not be removed, altered, or compromised. The lack of construction would also prevent the opportunity to disturb human remains.

4.3.6 Geology and Soils

Alternative 1 – Considered but Rejected

Impacts to geology and soils under Alternative 1 would be equivalent to those posed by the Project given that construction of Alternative 1 would occur in the same footprint and include the same components as the Project, it is subject to the same minimal risks of seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides.

Construction and operation of the rejected alternative would result in equivalent risk of erosion; the generally flat terrain of the location indicates that this risk is less than significant. Implementation of the City's required site review and grading plan requirements, as can be seen in Policy OSC-P-25,[128] would ensure that impacts remain less than significant.

Like the Project, there are no geologic landforms that could create a risk of landslide, and destabilization of natural or constructed slopes is unlikely to occur. As there are no expansive soils located under the proposed site, no risks to life or property are posed. Alternative 1 does not involve a septic tank or alternative sewer system; therefore, no impacts would be posed by any soil incapability of supporting such components.

Alternative 2 – Considered but Rejected

Impacts to geology and soils under Alternative 2 would be the same as those posed by the Project given that construction of Alternative 2 would occur in the same footprint, but with fewer above-ground appurtenances as the Project, it is subject to the same minimal risks of seismic ground shaking, seismic-related ground failure, including liquefaction, and landslides.

Construction and operation of the rejected alternative would result in equivalent risk of erosion; the generally flat terrain of the location indicates that this risk is less than significant. Implementation of the City's required

[128] City of Visalia, 2014. General Plan Update 2030 – Chapter 6: Open Space and Conservation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30478 Date Accessed: 7/15/2016

site review and grading plan requirements, as can be seen in Policy OSC-P-25[129], would ensure that impacts remain less than significant.

Like the Project, there are no geologic landforms that could create a risk of landslide, and destabilization of natural or constructed slopes is unlikely to occur. As there are no expansive soils located under the proposed site, no risks to life or property are posed. Alternative 2 does not involve a septic tank or alternative sewer system; therefore, no impacts would be posed by any soil incapability of supporting such components.

No Project Alternative

The No Project Alternative would result in no construction; therefore, no ground disturbance would take place that could provide opportunities for structural damage or soil erosion. The No Project Alternative would not result in impacts related to geology and soils.

4.3.7 Greenhouse Gas Emissions

Alternative 1 – Considered but Rejected

Since it contains the same project components as the Project, Alternative 1 would generate an equivalent amount of GHG emissions from short-term construction and long-term operations, but those emissions fall short of resulting in a significant effect on the environment.

Alternative 2 – Considered but Rejected

Alternative 2 would result in no sports lighting and thus less construction activity and less electricity usage. Fewer GHG emissions from short-term construction and long-term operations would be generated than the Project. Accordingly, this alternative would not generate a significant amount of greenhouse gas emissions either directly or indirectly that may have a significant effect on the environment.

No Project Alternative

Under the No Project Alternative, there would be no construction or operations that would result in any GHG emissions. There would be no impact.

4.3.8 Hazards and Hazardous Materials

Alternative 1 – Considered but Rejected

Similarly to the Project, construction of Alternative 1 would involve the transport and use of small amounts of hazardous materials, such as fuel. Implementation of required BMPs would reduce any impacts to a less than a significant level. The site is not located on a hazardous materials site, is not located within any airport safety zones or influence areas and is not located within the vicinity of a private airstrip. Construction and operation would not obstruct any adopted emergency response or evacuation plans, nor would it result in exposure to risk related to wildland fires.

Alternative 2 – Considered but Rejected

Similarly to the Project, construction of Alternative 2 would involve the transport and use of small amounts of hazardous materials, such as fuel. Implementation of required BMPs would reduce any impacts to a less than a significant level. The site is not located on a hazardous materials site, is not located within any airport safety zones or influence areas and is not located within the vicinity of a private airstrip. Construction and operation

[129] City of Visalia, 2014. General Plan Update 2030 – Chapter 6: Open Space and Conservation. http://www.ci.visalia.ca.us/civicax/filebank/blobdload.aspx?BlobID=30478 Date Accessed: 7/15/2016

would not obstruct any adopted emergency response or evacuation plans, nor would it result in exposure to risk related to wildland fires. The absence of sports lighting would not lessen nor exacerbate impacts.

No Project Alternative

The Project No Project Alternative would result in no significant contribution of hazards or hazardous materials. The land is currently being used for agriculture and residential use; therefore, the wastes produced by both are endemic to their respective activities. Diesel fuel would be present within the agricultural boundaries, considering the farm equipment present. The current conditions of the Project site do not create significant hazards to the public or environment or expose individuals to a significant risk of wildland fires. The area is not located within a hazardous materials site or located within a significantly close distance to an airstrip or airport land. The current layout of the Project area does not impair or interfere with an adopted emergency response plan or emergency evacuation plan. Therefore, the No Project Alternative would not result in hazardous materials or hazard impacts.

4.3.9 Hydrology and Water Quality

Alternative 1 – Considered but Rejected

Implementation of Alternative 1 would result in similar changes in existing drainage patterns, both in the short-term due to erosion and sedimentation during construction activities and in the long term based upon necessary recontouring of the site to establish recharge basins, external and internal roadways and parking areas and other sports fields and activity areas. Construction activities undertaken to implement the ultimate build-out of the Alternative could include excavation, soil stockpiling, boring, and/or grading activities that strip existing vegetation. Water quality impairments could also include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. Alternative 1 could also give a slight beneficial impact to the flood risk in the area.

As with the Project the impact to hydrology and water quality would be less than significant.

Alternative 2 – Considered but Rejected

Implementation of Alternative 2 would result in the same drainage patterns, both in the short-term due to erosion and sedimentation during construction activities and in the long term based upon necessary recontouring of the site to establish recharge basins, external and internal roadways and parking areas and other sports fields and activity areas. Construction activities undertaken to implement the ultimate build-out of the Alternative could include excavation, soil stockpiling, boring, and/or grading activities that strip existing vegetation. Water quality impairments could also include turbidity, increased algal growth, oxygen depletion, or sediment buildup, thereby degrading aquatic habitats. As with the Project, the impact to hydrology and water quality would be less than significant.

No Project Alternative

Under the No Project Alternative, the hydrology of the Project area would not be altered. However, the lack of development of recharge facilities under the No Project Alternative would result in no additional groundwater recharge. Considering the No Project Alternative would not require any construction or additional development, no water quality standards or waste discharge requirements would be violated. Although a current segment of the Project area is being utilized for agriculture, thus depleting groundwater, the impacts are not on a large enough scale to be significant. No rechanneling or alteration of the existing drainage would occur under the No Project Alternative. The lack of modification to the land under the No Project Alternative provides that no significant runoff would occur as a result of its implementation. No structures would be developed; thus, there would be no significant risk for the No Project Alternative to create houses and structures that could lead to flood damage. Overall, the lack of action under the No Project Alternative would not expose people or

structures to risk, result in potential inundation, or negatively impact the water quality or hydrology of the Project area and surrounding environment.

4.3.10 Land Use and Planning

Alternative 1 – Considered but Rejected

Implementation of Alternative 1 would involve the same components relevant to land use and planning as the Project. The location would be identical, therefore avoiding the division of an existing community. The GP Amendment included in both the Project and the rejected alternative would ensure that the planned land use for the site is Parks/Recreation, under which the Project is allowed. The proposed QP zoning of the site is consistent with the proposed use, avoiding conflict with the City's zoning ordinance. There are no applicable habitat conservation plans or natural community plans within the vicinity of the site, therefore there would not be an impact.

Alternative 2 – Considered but Rejected

Implementation of Alternative 2 would involve the same components relevant to land use and planning as the Project. The location would be identical, therefore avoiding the division of an existing community. The GP Amendment included in both the Project and the rejected alternative would ensure that the planned land use for the site is Parks/Recreation, under which the Project is allowed. The proposed QP zoning of the site is consistent with the proposed use, avoiding conflict with the City's zoning ordinance. There are no applicable habitat conservation plans or natural community plans within the vicinity of the site, therefore there would not be an impact.

No Project Alternative

The No Project Alternative would not result in changes in land use and planning. No physical divide would occur within the established community and there would not be a conflict with any applicable land use plan, policy, or regulation intending to uphold environmental stewardship or with any applicable habitat conservation plan or natural community conservation plan. The No Project Alternative would not result in any impacts related to land use and planning.

4.3.11 Mineral Resources

Alternative 1 – Considered but Rejected

As with the Project, construction of Alternative 1 would involve the placement of park facilities within an MRZ-3a zone. However, no component of construction or operation of the alternative would result in the removal of the resource from the site, and resource mining would remain feasible in the future through compliance with local, State, and federal legislation and permitting. Therefore, resource availability would not be reduced as a result of Alternative 1.

Alternative 2 – Considered but Rejected

As with the Project, construction of Alternative 2 would involve the placement of park facilities within an MRZ-3a zone. However, no component of construction or operation of the alternative would result in the removal of the resource from the site, and resource mining would remain feasible in the future through compliance with local, State, and federal legislation and permitting. Therefore, resource availability would not be reduced as a result of Alternative 2.

No Project Alternative

Considering the lack of excavation currently within the Project site, the No Project Alternative would not result in the loss of a known mineral, despite the presence of an MRZ-3a zone within the Project area. Any important mineral resources would not be removed; thus, they would not be made unavailable. The No Project Alternative would not result in any significant impacts regarding mineral resources.

4.3.12 **Noise**

Alternative 1 – Considered but Rejected

Alternative 1 would place the internal access road on the west side of the park. This could potentially increase the traffic noise to the residential properties located on the west side of the proposed Tower Street alignment. Implementation of this alternative would require similar construction activities as the Project. Activities involved in construction would generate maximum noise levels ranging from 77 to 85 dB at a distance of 50 feet. Construction activities would be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance.

As with the Project, without mitigation, the expected noise levels of the park would exceed the City's noise standards. Implementation of mitigation measures MM Noise 2, MM Noise 3, and MM Noise 4 would reduce potential noise impacts to a less than significant level.

Alternative 2 – Considered but Rejected

Alternative 2 would be developed in a similar manner to the Project, with the only difference being the removal of field and court lighting. Construction and transportation noise impacts would be minimally lower. Traffic noise would be similar to the Project, although it would be limited to daylight hours. Stationary noise impacts would be less than significant with similar mitigation that matches the Alternative 2 operating schedule.

No Project Alternative

The current sources of noise within the Project area are related to agricultural equipment and any noises particular to residential settings. The No Action Alternative would not involve construction of operation of recreational facilities, resulting in a static level of noise pollution. The No Project Alternative would not result in any noise impacts.

4.3.13 **Population and Housing**

Alternative 1 – Considered but Rejected

Given that Alternative 1 contains the same components as the Project, it would have the same level of impact on population and housing concerns. The facilities constructed under Alternative 1 are intended to address expected growth rather than induce it. No housing or people would be displaced.

Alternative 2 – Considered but Rejected

Given that Alternative 2 contains the same components as the Project, it would have the same level of impact on population and housing concerns. The facilities constructed under Alternative 2 are intended to address expected growth rather than induce it. No housing or people would be displaced.

No Project Alternative

The No Project Alternative would not result in the further development or population growth directly or indirectly within the Project area. No new businesses, homes, or extended infrastructure would be constructed

and no displacement of existing housing or individuals would occur. There would be no impacts associated with population and housing.

4.3.14 Public Services

Alternative 1 – Considered but Rejected

Alternative 1, like the Project, would not affect service ratios for public services. It would provide different access points for police and fire; however, the impacts would be similar compared to the Project.

Alternative 1 would not pose an impact to either schools, parks, or other public facilities. As is the case in the Project, Alternative 1 would reduce dependence on existing parks, thereby improving the City's recreational facilities.

Alternative 2 – Considered but Rejected

Alternative 2, like the Project, would not affect service ratios for fire and police protection, nor to schools or other public facilities. Alternative 2 would not fulfill GP Policy PSCU-P-15 because it does not include lighted facilities. While this does not itself constitute an impact, as the City's population grows, additional opportunity for evening recreation would be needed, thus requiring additional parks which may have a significant impact on the environment.

No Project Alternative

Under the No Action Alternative, there would not be a need for new or physically altered government facilities in order to maintain adequate service ratios, response times, or other performance objectives for public services. No road or structural construction would occur under; therefore, there would be no effects to of fire and police protection routes. There would be no additional need for schools, parks or other public facilities. Therefore, there are no impacts to public services.

4.3.15 Recreation

Alternative 1 – Considered but Rejected

Implementation of Alternative 1 would decrease the use of existing parks and recreational facilities throughout the City. By nature of the project it would include the construction of recreational facilities that might have an adverse physical effect on the environment. As described in this Section 4.3, the impacts are similar to those of the Project. Impacts to recreational facilities would remain less than significant.

Alternative 2 – Considered but Rejected

Implementation of Alternative 2 would decrease the use of existing parks and recreational facilities throughout the City, although to a lesser degree due to the lack of opportunity to use the sports fields in the evening. While this does not itself constitute an impact, as the City's population grows, additional opportunity for evening recreation would be needed, thus requiring additional parks which may have a significant impact on the environment.

No Project Alternative

Under the No Project Alternative, no regional park would be developed. Therefore, with the increased population growth that the City GP expects, the need for recreational space would increase. The existing regional parks would experience increased usage without the East Side Park developments, consequently promoting physical deterioration of the facilities. The No Project Alternative would require the expansion or

construction of recreational facilities elsewhere to fulfill the needs of the growing population. The No Project Alternative would result in potentially significant impacts regarding recreation.

4.3.16 Transportation

Alternative 1 – Considered but Rejected

Given that Alternative 1 contains the same components and would facilitate the same activities as the Project, it would result in the same increase in traffic. Although this alternative would still be required to mitigate traffic impacts to the extent feasible, impacts at some intersections and road segments would remain significant and unavoidable.

Alternative 2 – Considered but Rejected

Given that Alternative 2 contains the same components as the Project but activities would be limited to daylight hours only, impacts to transportation are expected to be somewhat less traffic. Although this alternative would still be required to mitigate traffic impacts to the extent feasible, impacts at some intersections and road segments would remain significant and unavoidable.

No Project Alternative

The No Project Alternative would result in no construction of transportation routes or facilities that would alter current traffic circulation. Accordingly, the No Project Alternative would not conflict with an applicable plan, ordinance, or policy intended to protect the effectiveness of traffic circulation; no changes in transportation routes would occur; emergency access points and routes would not be affected; and there would be no conflict with any pedestrian, public transport, or bicycle policies, plans, or programs.

4.3.17 Utilities and Service Systems

Alternative 1 – Considered but Rejected

Implementation of Alternative 1 would have identical impacts to utilities and service systems as the Project. Regardless of the layout of the park, identical sewer facilities would be constructed, and the same amount of waste would be generated. Given that the City has recently upgraded its WCP, any waste that would be created by Alternative 1 would be accommodated by the upgraded WCP consistent with the current WDR. Therefore, wastewater treatment requirements would not be exceeded and it would not be necessary to construct any new water or wastewater treatment facilities or storm water drainage facilities aside from the inclusion of stormwater runoff basins as a project component, which would manage storm water runoff from the Project site.

Alternative 2 – Considered but Rejected

Implementation of Alternative 2 would have similar impacts to utilities and service systems as the Project. Regardless of the installation of sports lighting, identical sewer facilities would be constructed, but less amount of waste would be generated. Given that the City has recently upgraded its WCP, any waste that would be created by Alternative 2 would be accommodated by the upgraded WCP consistent with the current WDR. Therefore, wastewater treatment requirements would not be exceeded and it would not be necessary to construct any new water or wastewater treatment facilities or storm water drainage facilities aside from the inclusion of stormwater runoff basins as a project component, which would manage storm water runoff from the Project site.

No Project Alternative

The No Project Alternative would not result in construction of infrastructure or facilities. Therefore, no additional wastewater would be generated and no water, wastewater treatment, or storm water drainage facilities

would need to be developed or expanded. No additional waste that would impact landfill capacity would be generated. The No Project Alternative would ultimately result in no impacts to utilities and service systems.

4.4 Alternative Determination

CEQA Guidelines require the identification of an environmentally superior alternative among the alternatives analyzed in an EIR. The Guidelines also require that if the No Project alternative is identified as the environmentally superior alternative, then another environmentally superior alternative must be identified. **Table 4-1** provides, in summary format, a comparison of the level of impacts for each alternative to the Project. The Project has the least impact to the environment because it would result in fewer impacts to public services and recreation standards.

Table 4-1. Comparison of the Environmental Impacts of the Project and the Project Alternatives

Comparison of the Environmental Impacts of the Project and the Project Alternatives				
Environmental Topic	**Project Level of Impact After Mitigation**	**Alternative 1: Edge-Located Access Road**	**Alternative 2: No Sports Lighting**	**No Project Alternative**
Aesthetics	Less than Significant	Similar +	Similar -	Fewer
Agriculture and Forestry Resources	Significant and Unavoidable	Similar	Similar	Fewer
Air Quality	Less than Significant	Similar	Similar -	Fewer
Biological Resources	Less than Significant	Similar	Similar	Fewer
Cultural Resources	Less than Significant	Similar	Similar	Fewer
Geology and Soils	Less than Significant	Similar	Similar	Fewer
Greenhouse Gas Emissions	Less than Significant	Similar	Fewer	Fewer
Hazards and Hazardous Materials	Less than Significant	Similar	Similar	Fewer
Hydrology and Water Quality	Less than Significant	Similar	Similar	Fewer
Land Use and Planning	Less than Significant	Similar	Similar	Fewer
Mineral Resources	Less than Significant	Similar	Similar	Fewer
Noise	Less than Significant	Similar +	Similar -	Fewer
Population and Housing	No Impact	Similar	Similar	Similar
Public Services	No Impact	Greater	Greater	Similar
Recreation	Less than Significant	Similar	Greater	Fewer
Transportation	Significant and Unavoidable	Similar	Similar -	Fewer
Utilities and Service Systems	Less than Significant	Similar	Similar	Fewer
Attainment of Project Objectives	Meets all of the Project Objectives	Meets all Project Objectives, but to a lesser level	Meets all Project Objectives, but to a lesser level	Does Not Meet Project Objectives

Greater = Greater Impacts than the Project
Fewer = Fewer Impacts than the Project
Similar = Similar Impacts than the Project
Similar - = Similar, although incrementally fewer impacts as compared to the Project
Similar + = Similar, although incrementally greater impacts as compared to the Project

5 Other Mandatory CEQA Sections

This section discusses additional topics required by CEQA to be discussed in an EIR. The topics discussed include significant and unavoidable environmental impacts and growth-inducing impacts.

5.1 Organizations and Persons Consulted

5.1.1 Agencies

See **Appendix A**.

5.1.2 Other Persons

The City noticed all residents within 300 feet of the Project. See Appendix A.

5.1.3 List of Preparers

Rick Darnley, Project Manager

Dawn E. Marple, Principal Planner

Amy Wilson, Associate Planner

Kaitlin Palys, Assistant Environmental Specialist

Mary E. Beatie, Senior Planner Emeritus

Randy Hopkins, PE, Recharge Basin Engineer

Richard Moss, PE, Water Rights Specialist

Matt Klinchuch, PE, Project Engineer

Jason Thomas, GIS Specialist

Jackie Lancaster, Project Administrator

Jarred Olsen, AICP, Associate Planner

Jeffrey O'Neal, AICP, Senior Planner

Ryan McKelvey, Assistant Planner

Dena Giacomini, Senior Planner/Biologist

5.1.4 Subconsultants

VRPA Technologies, Inc., Air Quality, Greenhouse Gas, Noise, and Transportation

Live Oak Associates, Inc., Biological Resources

Applied Earthworks, Inc., Cultural Resources

Technicon Engineering Services, Inc., Geotechnical Investigation Report

5.2 Significant and Unavoidable Environmental Effects

CEQA Guidelines Section 15126.2(b) requires that an EIR discusses unavoidable significant environmental effects, including those that can be mitigated but not to a level of less than significance.

CEQA Guidelines Section 15093(a) allows the decision-making agency to determine if the benefits of a Project outweigh the unavoidable adverse environmental impacts of implementing the project. The City can approve a project with unavoidable adverse impacts if it prepares a "SOC" setting forth the specific reasons for making such a judgment. A list of unavoidable adverse impacts identified in this EIR is provided below.

Table 5-1. List of Significant and Unavoidable Impacts

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Agricultural and Forestry Resources			
Impact II-a. The City of Visalia foresaw the necessary conversion of farmland when adopting the 2030 General Plan Update. The EIR prepared in conjunction with the General Plan Update concluded that there would be significant and unavoidable impacts concerning the conversion of farmland. In certifying the EIR, the City Council adopted Resolution No. 2014-37, which contained a Statement of Overriding Considerations declaring that the significant loss of agriculture was outweighed by the benefits that would result from its conversion, and that there were no feasible mitigation measures that could reduce the impact to a less than significant level. The General Plan designates narrow strips (i.e. buffers) that parallel and abut Mill Creek and Packwood Creek as Conservation; however, the overall Project site is designated as Parks/Recreation. Development of the site for recreational and other uses was addressed by the General Plan and the associated EIR and determined to be significant and unavoidable and a Statement of Overriding Considerations was adopted, no further analysis is required (Guidelines Section 15152(d)(1)).	Potentially Significant Impact	None feasible.	Significant and Unavoidable

Environmental Impact	Level of Significance Before Mitigation	Mitigation Measures	Level of Significance After Mitigation
Transportation/Traffic			
Impact XVI-a. The potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections and road segments both in the near term and long term. The Project will be inconsistent with City of Visalia General Plan identifies in T-P-9, considering the exceedance of levels of service. Described below are recommended improvements at study area intersections and segments for various scenarios that would in most cases mitigate the potential significant impacts to acceptable levels of service and thereby reducing the impact to less than significant. It should be noted that statements of significance for the improvements identified below are related to Project impacts.	Potentially Significant Impact	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable
Impact XVI-b. Impacts are identified in Impact XVI-a. Mitigation measures MM TR-1 through MM TR-56 will be implemented to minimize all feasibly mitigated impacts due to exceedances of level of service standards, travel demand measures and other standards developed by the County Congestion Process Steering Committee's Congestion Management Program	Potentially Significant Impact	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable
Impact XVI-f. The Project will be providing additional trails for pedestrian and bicycle traffic and is isolated from a public transportation route. The City of Visalia General Plans Circulation Element identifies in policy T-P-33 to work with transit operators to establish transit stops adjacent to regional parks. To be consistent with the City of Visalia General Plan and the City of Visalia General Plan Environmental Impact Report, the City will be required to work with transit operators on establishing a public transportation stop within a reasonable vicinity of the regional park.	Potentially Significant Impact	TR-1, TR-2, TR-3, TR-4, TR-5, TR-6, TR-7, TR-8, TR-9, TR-10, TR-11, TR-12, TR-13, TR-14, TR-15, TR-16, TR-17, TR-18, TR-19, TR-20, TR-21, TR-22, TR-23, TR-24, TR-25, TR-26, TR-27, TR-28, TR-29, TR-30, TR-31, TR-32	Significant and Unavoidable

5.3 Growth Inducement

CEQA Guidelines Section 15126(d) states the following regarding evaluation in the EIR of growth-inducing impact of the Project.

> Growth-Inducing Impact of the Project. *Discuss the ways in which the Project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a waste water treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.*

5.3.1 Growth Inducement Potential

The City proposes to design and construct the East Side Regional Park and Groundwater Recharge Project (Project). The intent of the Project is to co-locate city-wide/regional park amenities (for both passive and active recreational uses) amongst functional groundwater recharge and storm water layoff basins. It is anticipated that the Project will allocate acreage fairly equally for park and recharge/storm water facility purposes. As discussed in impact XV-a, the construction of park facilities will not result in residential development or induce growth. The Project would increase the number and available acreage of recreational facilities, thus lessening the need for additional recreational facilities elsewhere that could lead to potential environmental impacts. The City of Visalia General Plan outlines the need for a regional park in the eastern portion of the City, which the Project will satisfy.[130]

The Project will reduce the need for additional recreational facilities, will not result in residential development, and meets the expectations of the City's General Plan. The Project is intended to accommodate the anticipated increase in need for recreational facilities that is appurtenant to population growth, but it will not itself include growth . Impacts would be less than significant.

[130] City of Visalia, 2014. General Plan Update – Chapter 5: Parks, Schools, Community Facilities, and Utilities. http://www.visalia.city/civicax/filebank/blobdload.aspx?BlobID=30477 Page 5-10. Date Accessed: 6/22/2016

6 Mitigation Monitoring and Reporting Program

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings in Chapter 3 – Impact Analysis of this EIR. The MMRP lists mitigation measures recommended for the Project and identifies monitoring and reporting requirements and responsible parties.

Table 6-1 presents the mitigation measures identified for the Project. Each mitigation measure is numbered with a symbol indicating the topical section to which it pertains, a hyphen, and the impact number. For example, BIO-1 would be the first mitigation measure identified in the Biological Resources analysis of the EIR.

The first column of **Table 6-1** identifies the mitigation measure. The second column, entitled "When Monitoring is to Occur," identifies the time the mitigation measure should be initiated. The third column, "Frequency of Monitoring," identifies the frequency of which the monitoring of the mitigation measure should occur. The fourth column, "Agency Responsible for Monitoring," names the party responsible for ensuring that the mitigation measure is properly implemented. The last columns will be used by the City of Visalia (City) as a check-off tool to ensure that and when individual mitigation measures have been complied with and monitored.

Table 6-1. Mitigation and Monitoring Reporting Program

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
Biological Resources					
BIO – 1a: (WEAP Training)					
• Prior to initiating construction activities (including staging and mobilization), all personnel associated with Project construction shall attend mandatory Worker Environmental Awareness Program (WEAP) training, conducted by a qualified biologist, to aid workers in identifying special status resources that may occur in the Project area. • The specifics of this program shall include identification of the sensitive species and suitable habitats, a description of the regulatory status and general ecological characteristics of sensitive resources, and review of the limits of construction and mitigation measures required to reduce impacts to biological resources within the work area. • This training will specifically discuss the conservation status of the California condor, in addition to all other special status species, describe the laws and regulations in place to provide protection of these species, identify the penalties for violation of applicable environmental laws and regulations, and a list of required protective measures to avoid "take." • A fact sheet conveying this information, along with photographs or illustrations of sensitive species with potential to occur on-site, shall also be prepared for distribution to all contractors, their employees, and all other personnel involved with construction of the Project.	Prior to initiating construction activities	Once	City of Visalia	Submittal of WEAP training attendance form	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• All employees shall sign a form documenting that they have attended WEAP training and understand the information presented to them.					
BIO – 2: (Construction Operational Hours)					
• Construction shall be conducted during daylight hours to reduce disturbance to wildlife that could be foraging within work areas.	During construction activities	Continuously	City of Visalia	Permit condition	
BIO – 3: Best Management Practices (BMPs)					
• The Project proponent will ensure that all workers employ the following best management practices (BMPs) in order to avoid and minimize potential impacts to special status species:			City of Visalia		
BIO – 3a: Best Management Practices (BMPs)					
• Vehicles shall observe a 15-mph speed limit while on unpaved access routes.	During construction activities	Continuously	City of Visalia	Signs posted	
BIO – 3b: Best Management Practices (BMPs)					
• Workers shall inspect areas beneath parked vehicles prior to mobilization. If special status species are detected beneath vehicles, the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist (must possess appropriate collecting/handling permits) and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area. • "Take" of listed (rare, threatened, or endangered) is prohibited. If a listed species	During construction activities	Continuously	City of Visalia	Permit condition	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.					
BIO – 3c: Best Management Practices (BMPs)					
• The presence of any special status species and/or any wildlife mortalities will be reported to the Project's designated biologist and the appropriate regulatory agencies (CDFW, USFWS, etc.).	When special status species and/or any wildlife mortalities are present	Continuously	City of Visalia	Submittal of report to City of Visalia	
BIO – 4: Avoidance					
• The Project construction activities shall occur, if feasible, between September 1 and January 31 (outside of nesting bird season) in an effort to avoid impacts to listed species.	During construction planning	Once	City of Visalia	Issuance of Building Permit	
BIO – 5: Pre-Construction Survey					
• A qualified biologist shall conduct pre-construction surveys specific to the following species: Swainson's hawk, white-tailed kite, tricolored blackbird, northern harrier, burrowing owl, loggerhead shrike, palled bat, western mastiff bat, and American badger.			City of Visalia		

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
BIO – 5a: Nesting Birds					
• If activities must occur within nesting bird season (February 1 to August 31), the survey shall include the proposed work area and surrounding lands within 500 feet. • If no active nests are observed, no further mitigation is required. • Raptor nests are considered "active" upon the nest-building stage. • All other nests are considered "active" by the presence of eggs or young.	If construction activities occur between February 1 and August 31	Once	City of Visalia	Submittal of preconstruction survey report	
BIO – 5b: Animal Species					
• A pre-construction survey of Project areas within 30 days prior to vegetation clearing or ground disturbing activities. • Environmentally sensitive areas will be flagged for avoidance. • If suitable habitat for regionally occurring special status species are detected upon pre-construction surveys, construction monitoring will be required.	Within 30 days prior to vegetation clearing or ground disturbing activities	Once, when construction commences and recommences	City of Visalia	Submittal of preconstruction survey report	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
BIO – 6: Establish Buffers					
• On discovery of any active nests or listed species near work areas, the biologist shall determine appropriate construction setback distances based on applicable CDFW and/or USFWS guidelines and/or the biology of the species in question. • Construction buffers shall be identified with flagging, fencing, or other easily visible means, and shall be maintained until the biologist has determined that the nestlings have fledged, or construction has finished in that area.	On discovery of any active nests or listed species near work areas	Continuously, until construction is complete	City of Visalia	Submittal of preconstruction survey report	
BIO – 7: Monitor					
• A qualified biologist will conduct a pre-activity clearance survey each day and remain on-site to oversee all vegetation clearing and ground disturbing activities conducted within suitable habitat for special status species that were identified in the pre-construction surveys (BIO 5 a-b). • The biological monitor must possess required collecting/handling permits. • If a special status species is observed within Project areas, the biologist will stop work order and the individual will either be allowed to leave of its own volition or will be captured by the qualified biologist and relocated out of harm's way to the nearest suitable habitat beyond the influence of the Project work area.	During construction activities	Continuously, until construction is complete	City of Visalia	Submittal of preconstruction survey report	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• "Take" of listed (rare, threatened, or endangered) is prohibited. • If a listed species is observed within the Project area, the biologist will stop work and contact the appropriate regulatory agency (CDFW and/or USFWS) for guidance on how to proceed.					
BIO – 8: (Mitigation Fees or Replacement Planting)					
• Should avoidance of valley oak trees not be possible, the City will comply with the permitting requirements of the Oak Tree Preservation Ordinance and will mitigate the loss consistent with the provisions of the Oak Tree Mitigation Policy.	If avoidance of valley oak trees is not possible	Continuously, until construction is complete	City of Visalia	Permit conditions of Oak Tree Preservation Ordinance	
CULTURAL RESOURCES					
CR-1					
• If, in the course of project construction or operation, any archaeological or historical resources are uncovered, discovered, or otherwise detected or observed, activities within one hundred (100) feet of the find shall be ceased and the City of Visalia shall be notified immediately. The project proponent shall retain a qualified archaeologist to assess the significance of the find and make mitigation recommendations, if warranted. The archaeologist shall document the resources using DPR 523 forms and file said forms with the California Historical Resources Information System (CHRIS). The resources	During project construction or operation	Continuously	City of Visalia	Submittal of DPR 523 form	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
shall be photo-documented and collected by the archaeologist for submittal. The archaeologist shall be required to submit to the County for review and approval a report of the findings and method of curation or protection of the resources. Further grading or site work within the area of discovery shall not be allowed until the preceding steps have been taken.					
CR-2					
• Prior to the issuance of grading permits, a Paleontological Resource Impact Mitigation Program (PRIMP) will be prepared by a qualified professional paleontologist who meets the SVP (2010) standards for Project Paleontologist because of the likelihood of vertebrate fossils. The PRIMP will utilize the results of the paleontological technical memo refined by the results of geotechnical borings to specify the steps to be taken to mitigate impacts to paleontological resources.	If human remains are uncovered or discovered	Continuously	City of Visalia		

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
CR-3					
• A Paleontological Resources - Worker Environmental Awareness Program (WEAP) training will be prepared prior to the start of Project-related ground disturbance and presented in person to all on-site construction personnel to inform them of the types of fossils that may be found and the procedures to follow if any are encountered.	Prior to any ground disturbance/construction activity	Continuously	City of Visalia		
CR-4					
• If human remains are uncovered, or in any other case where human remains are discovered, the Tulare County Coroner is to be notified to arrange their proper treatment and disposition. If the remains are identified – on the basis of archaeological context, age, cultural associations, or biological traits – as those of a Native American, California Health and Safety Code 7050.5 and Public Resources Code 5097.98 require that the coroner notify the NAHC within 24 hours of discovery. The NAHC will then identify the Most Likely Descendent who will be afforded an opportunity to make recommendations regarding the manner in which the remains are treated.	If human remains are uncovered or discovered	Continuously	City of Visalia	Notification of County Coroner and NAHC	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
NOISE					
NOI-1					
• Use of softball, baseball, and soccer fields shall be limited to the hours of 7:00 am – 7:00 pm.	Once Phase 2 is operational	Continuously	City of Visalia	Permit condition	
NOI-2					
• Construction of an 8-foot sound wall along residential boundary of homes directly to the west of Project site (see Figure 3-19 for approximate location). • The sound wall material should consist of concrete block (8 in. x 8 in. x 16 in.), dense concrete (4 in. thick), or light concrete (4 in. to 6 in. thick). • The wall shall provide breaks to allow for flood waters to pass through.	Prior to construction of Phase 2 Prior to construction of Phase 3 if NOI-3 is not selected.	Once	City of Visalia	Issuance of final inspection	
NOI-3					
• Reorient the amphitheater to the northeast. Grade the amphitheater stage to be at same grade or level than the sensitive receptors to the west.	Prior to construction of Phase 3 and NOI-2 is not selected	Once	City of Visalia	Approval of site plan modification	
NOI-4					
• Vibration Monitoring will be conducted during construction of Phases 1, 2, and 3 of the Project when directly adjacent to a sensitive receptor (at Project boundary). • Vibration will be monitored along the perimeter of the construction area and at varying distances.	During project construction when adjacent to sensitive receptor	Continuously	City of Visalia	Submittal of tabulated analysis	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• A vibration criterion of 0.5 inches per second (in/sec) peak particle velocity (PPV) is proposed as the applicable action threshold criteria for ground-borne vibration measurement during proposed remedial construction activities. • The 0.5 in/sec PPV criterion has been established by the United States Bureau of Mines as the threshold above which damage to interior plaster walls may occur. • This criterion has become recognized by industry as the threshold for the onset of vibration damage to typical residential structures. Collected vibration monitoring results will be compared to the vibration criterion. • The results will also be tabulated and reviewed on a weekly basis to assess trends and formulate the basis for mitigation measures, if required.					
Traffic					
TR-1 – Lovers Lane at Mineral King Avenue					
• Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane) • Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)	Prior to operation of Phase 2	Once	City of Visalia	Completion of mitigation measure	
TR-2 –SR 198 WB Ramps at Mineral King Avenue					

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane) • Widen the eastbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane) • Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)	Prior to operation of Phase 2	Once	City of Visalia	Completion of mitigation measure	
Cumulative Year 2040 Mitigation Measures					
TR – 3 – Lovers Lane at Mineral King Avenue					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
  • Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)
  • Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
  • Widen the westbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR – 4 – Lovers Lane at SR 198 EB Ramps					

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Widen the northbound approach to 2 through lanes and 1 right turn lane (adding 1 right turn lane)
  • Widen the eastbound approach to 2 left turn lanes and 1 right turn lane (adding 1 left turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR-5 – SR 198 WB Ramps at Mineral King Avenue					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Install Traffic Signal
  • Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
  • Widen the eastbound approach to 1 through lane and 1 right turn lane with overlap phasing (adding 1 right turn lane)
  • Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR -6 – McAuliff Street and Mineral King Avenue					
• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: • Widen the westbound approach to 1 through and 1 right turn lane (adding 1 right turn lane)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
TR-7 – Road 152 and Mineral King Avenue					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Widen the southbound approach to 1 left turn and 1 right turn lane (adding 1 right turn lane)
  • Widen the eastbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
  • Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR -8 – Noble Avenue and SR 198 EB Ramps					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Install Traffic Signal
  • Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR-9 – Road 156 and Mineral King Avenue					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  • Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
turn lane with overlap phasing (adding 1 right turn lane)					
TR-10 – Road 156 and Noble Avenue					

• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  • Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  • Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)
	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

TR-11 – SR 198 WB Off Ramp and Mineral King Avenue					
• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: • Widen the westbound approach to 2 through lanes (adding 1 through lane)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-12 – Road 156					
• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: South of Noble Avenue • Widen the segment from 2 to 4 travel lanes (adding 1 travel lane in each direction)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
SR 198 Ramp Junctions					
TR-13 - SR 198 EB Off Ramp to Lovers Lane					
• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: ○ Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-14 - SR 198 WB On Ramp from Lovers Lane					
• Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: ○ Widen the SR 198 mainline from 2 to 3 travel lanes in the westbound movement (adding 1 travel lane)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
Queuing					
TR-15 - Lovers Lane and Houston Avenue (SR 216)					
• In the southbound left-turn lane, lengthen the storage pocket from 225 feet to 300 feet.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-16 - Lovers Lane and Mineral King Avenue					
• In the northbound left-turn lane, lengthen the storage pocket from 100 feet to 325 feet. • In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet. • In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-17 - Lovers Lane and SR 198 EB Ramps					

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• In the eastbound left-turn lane, lengthen the storage pocket from 225 feet to 375 feet.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-18 - Lovers Lane and Noble Avenue					
• In the eastbound left-turn lane, lengthen the storage pocket from 125 feet to 275 feet.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-19 - McAuliff Street and Houston Avenue (SR 216)					
• In the northbound left-turn lane, lengthen the storage pocket from 150 feet to 300 feet.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-20 - McAuliff Street and Mineral King Avenue					
• In the southbound right-turn lane, lengthen the storage pocket from 250 feet to 300 feet. • In the eastbound left-turn lane, lengthen the storage pocket from 200 feet to 275 feet. • In the westbound right-turn lane, provide 300-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-21 - Road 152 and Mineral King Avenue					
• In the southbound right-turn lane, provide 125-foot storage pocket. • In the eastbound left-turn lane, provide 100-foot storage pocket. • In the westbound right-turn lane, provide 125-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-22 - SR 198 EB Ramps and Noble Avenue					

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
• In the westbound right-turn lane, provide 125-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-23 - Road 156 and Noble Avenue					
• In the northbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet. • In the eastbound right-turn lane, provide 150-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-24 - Tower Street and Houston Avenue (SR 216)					
• In the northbound left-turn lane, provide 200-foot storage pocket. • In the northbound right-turn lane, provide 100-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-25 - Tower Street and McKinley Avenue-Project Driveway #2					
• In the southbound left-turn lane, provide 100-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-26 - Tower Street and Race Avenue					
• In the northbound left-turn lane, provide 100-foot storage pocket. • In the southbound left-turn lane, provide 100-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-27 - Tower Street and Murray Avenue					
• In the northbound left-turn lane, provided 250-foot storage pocket • In the southbound right-turn lane, provide 100-foot storage pocket	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
TR-28 - Tower Street and Villoy Avenue-Project Driveway #1					
• In the northbound left-turn lane, provide 150-foot storage pocket. • In the southbound left-turn lane, provide 100-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-29 - Tower Street and Villoy Avenue-Project Driveway #1					
• In the southbound left-turn lane, provide 250-foot storage pocket. • In the eastbound left-turn lane, provide 175-foot storage pocket.	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
Cumulative Year 2040 With Tower Street Interchange Mitigation Measures					
INTERSECTIONS					
TR-30 - Tower Street at Houston Avenue (SR 216)					
• Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios: ○ Install Traffic Signal	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
TR-31 - Tower Street at Villoy Avenue-Project Driveway #1					
• Cumulative Year 2040 Plus Project With Tower Street Interchange scenario: ○ Install Traffic Signal	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Mitigation Measures					
SR 198 Ramp Junctions					

Mitigation Monitoring and Reporting Program					
Mitigation Measure/Condition of Approval	**When Monitoring is to Occur**	**Frequency of Monitoring**	**Agency Responsible for Monitoring**	**Method to Verify Compliance**	**Verification of Compliance**
TR-32 - SR 198 EB On Ramp from Tower Street					
• Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario: ○ Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)	Prior to operation of Phase 3	Once	City of Visalia	Completion of mitigation measure	

Appendix A. NOP

Notice of Preparation

To: State Clearing House
1400 10 Street #12
Sacramento, CA 95814

From: City of Visalia
c/o Doug Damko, Project Manager
315 E Acequia Street, Visalia, CA 93291

(Address)

Subject: Notice of Preparation of a Draft Environmental Impact Report

The City of Visalia will be the Lead Agency and will prepare an environmental impact report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. A copy of the Initial Study (☐ is ☒ is not) attached.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

Please send your response to the address shown above. We will need the name for a contact person in your agency.

Project Title: East Side Regional Park and Groundwater Recharge Project

Project Applicant, if any: City of Visalia

Date: December 22, 2014

Signature

Title Project Manager

Telephone (559) 713-4268

Attachments: Notice of Preparation and Public Scope Meeting

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

Reviewing Agencies Checklist

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X".
If you have already sent your document to the agency please denote that with an "S".

S Air Resources Board
___ Boating & Waterways, Department of
X California Emergency Management Agency
S California Highway Patrol
S Caltrans District #6
X Caltrans Division of Aeronautics
X Caltrans Planning
X Central Valley Flood Protection Board
___ Coachella Valley Mtns. Conservancy
___ Coastal Commission
___ Colorado River Board
X Conservation, Department of
___ Corrections, Department of
___ Delta Protection Commission
___ Education, Department of
S Energy Commission
S Fish & Game Region #4
S Food & Agriculture, Department of
S Forestry and Fire Protection, Department of
___ General Services, Department of
X Health Services, Department of
S Housing & Community Development
S Native American Heritage Commission

X Office of Historic Preservation
___ Office of Public School Construction
S Parks & Recreation, Department of
___ Pesticide Regulation, Department of
X Public Utilities Commission
S Regional WQCB #5f
X Resources Agency
X Resources Recycling and Recovery, Department of
___ S.F. Bay Conservation & Development Comm.
___ San Gabriel & Lower L.A. Rivers & Mtns. Conservancy
X San Joaquin River Conservancy
___ Santa Monica Mtns. Conservancy
X State Lands Commission
___ SWRCB: Clean Water Grants
X SWRCB: Water Quality
___ SWRCB: Water Rights
___ Tahoe Regional Planning Agency
X Toxic Substances Control, Department of
X Water Resources, Department of

X Other: Office of Emergency Preparedness
___ Other:

Local Public Review Period (to be filled in by lead agency)

Starting Date December 23, 2014 Ending Date January 22, 2015

Lead Agency (Complete if applicable):

Consulting Firm: Provost & Pritchard Consulting Group
Address: 130 North Garden Street
City/State/Zip: Visalia, CA 93291
Contact: Mary Beatie
Phone: (559) 636-1166

Applicant: City of Visalia c/o Doug Damko
Address: 315 East Acequia Avenue
City/State/Zip: Visalia, CA 93291
Phone: (559) 713-4268

Signature of Lead Agency Representative: Doug Damko **Date:** 12/22/14

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

NOTICE OF PREPARATION OF EIR & NOTICE OF PUBLIC SCOPING MEETING

1. Project Title:

East Side Regional Park and Groundwater Recharge Project

2. Lead Agency Name and Address:

City of Visalia
Community Development Department
315 East Acequia Avenue
Visalia, CA 93291

3. Contact Person and Phone Number:

Lead Agency Contact
Doug Damko, Project Manager
Community Development Department
(559) 713-4268

CEQA Consultant
Provost & Pritchard Consulting Group
Rick Darnley, Project Manager
Mary E. Beatie, Environmental Phase Manager
130 North Garden Street
Visalia, CA 93291
(559) 636-1166

4. Project Location:

The Project site is located on the north side of State Route 198, between the Road 148 extension and Road 152 as shown on the attached Project Area Exhibit.

5. Description of Project:

The City of Visalia proposes to design and construct the East Side Regional Park and Groundwater Recharge Project. The Project design area includes approximately 269 acres. The total Project area to be potentially effected includes approximately 290 acres. The intent of the Project is to co-locate regional park amenities amongst functional recharge basins. Build-out of Tower Street as a new arterial roadway just east of the SCE power lines is also proposed. The Project site is located on the north side of State Route 198, between the Road 148 alignment and Road 152, and extending north to State Route 216.

6. Introduction and Purpose:

The City of Visalia is announcing its intention to prepare an Environmental Impact Report (EIR) to address the potential environmental effects of the implementation of a proposed regional park and groundwater recharge basin project. Specific or precise project components or their design and locations will be determined through future public workshops to be held by the Lead Agency as part of the project process.

The purpose of this Notice of Preparation (NOP) and Notice of Scoping (NOS) is to provide public agencies, interested organizations, and members of the public the opportunity to comment on the scope and content of the EIR.

7. Potential Environmental Impacts:

The EIR will analyze potential environmental impacts associated with construction, operation and maintenance of the proposed project. Specific areas of analysis will include all resource categories included in Appendix G to the State California Environmental Quality Act (CEQA) Guidelines, as follows: aesthetics, agricultural resources, air quality, greenhouse gases and global climate change, biological resources, cultural resources, geology and soils, hazards, hydrology and water quality, land use, energy and mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems.

If you feel there are specific significant impacts that could result from the project we invite you to describe the nature of those impacts, as well as offer feasible and reasonable mitigation for that impact that should be considered in the EIR. As the terms are defined in CEQA, the EIR is required to assess impacts for which there is substantial evidence or fair argument of its potential to be significant and will also identify reasonable and feasible mitigation measures that may help avoid or reduce the impact to a less than significant level.

8. Public Involvement

The public is invited and is encouraged to participate in the public process to determine the scope of the environmental document. You may do so by submitting written comments which must be received by the Environmental Consultant noted above by no later than January 22, 2015, 5:30 PM

Any comments and/or recommendations regarding the possible environmental impacts, mitigation measures or project alternatives which you believe should be addressed in the environmental analysis are welcomed and encouraged. In order that the environmental analysis can most effectively address your concerns, written comments, at a minimum, shall identify:

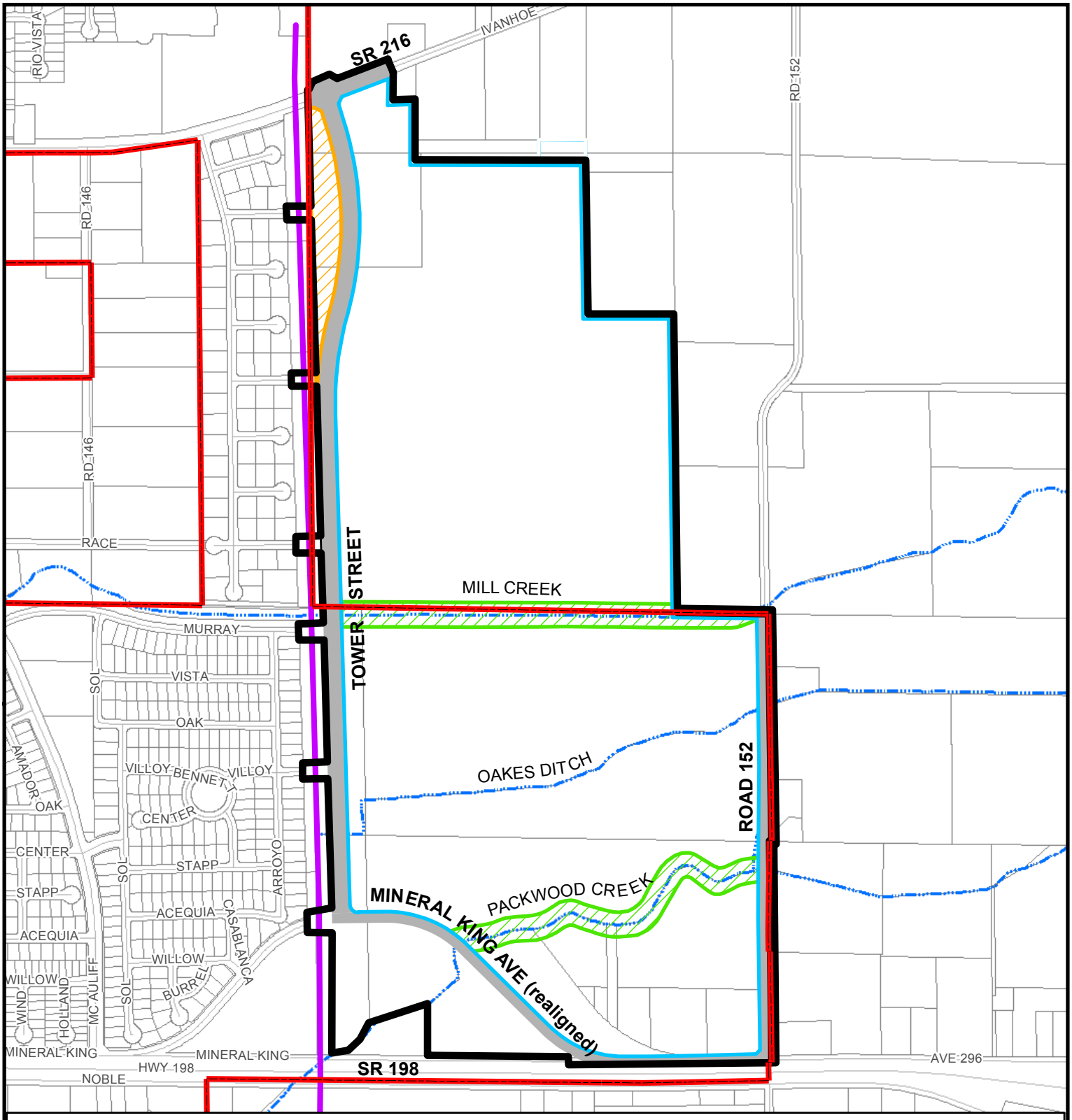
a. The substantial evidentiary basis for potentially significant environmental issues, suggested reasonable and feasible mitigation measures and/or feasible alternatives to be explored in the draft environmental analysis that would reduce impacts to less than significant; and

b. If you are a public agency, including, as defined by the CEQA Guidelines, a Responsible Agency or a Trustee Agency that may have resources affected by the project, please provide a description of any project reviews, permit approvals, or other processing that may be required by your agency to implement the project.

In addition to the opportunity to submit written comments, a Public Scoping Meeting is being conducted to provide an opportunity to learn more about the proposed project and to express oral comments about the content of the environmental analysis. The scoping meeting will be held at the following time and location:

January 22, 2015
Meeting begins at 5:30 PM
Visalia City Council Chambers
707 West Acequia Avenue
Visalia, CA 93291

Attachment: Project Area Exhibit


SR 216
IVANHOE
RIO VISTA
RD 146
RD 152
RACE
STREET
TOWER
MILL CREEK
MURRAY
VISTA
OAK
SOL
AMADOR
OAK
VILLOY
BENNETT
VILLOY
CENTER
CENTER
STAPP
STAPP
ARROYO
ACEQUIA
ACEQUIA
CASABLANCA
WILLOW
WILLOW
WIND
HOLLAND
MC AULIFF
BURREL
OAKES DITCH
ROAD 152
PACKWOOD CREEK
MINERAL KING AVE (realigned)
MINERAL KING
MINERAL KING
HWY 198
NOBLE
SR 198
AVE 296
Planned Park & Recharge Basins Area
Planned Perimeter Streets Area
Creeks with Designated Waterway Setback Area
Potential Greenway Trail Expansion Area
Area Potentially Effected by Project (290 Acres)
SCE Rector Power Lines & Planned Greenway Trail
City Limits
N
SCALE: 1" = 800'
VISALIA
Founded 1852
EAST SIDE REGIONAL
PARK & RECHARGE BASINS
Project Area Exhibit

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Edmund G. Brown Jr.
Governor

Ken Alex
Director

Notice of Preparation

December 23, 2014

To: Reviewing Agencies

Re: East Side Regional Park and Groundwater Recharge Project
SCH# 2014121076

Attached for your review and comment is the Notice of Preparation (NOP) for the East Side Regional Park and Groundwater Recharge Project draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

Doug Damko
City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Director, State Clearinghouse

Attachments
cc: Lead Agency

Document Details Report
State Clearinghouse Data Base

SCH# 2014121076
Project Title East Side Regional Park and Groundwater Recharge Project
Lead Agency Visalia, City of

Type NOP Notice of Preparation

Description The City of Visalia proposes to design and construct the East Side Regional Park and Groundwater Recharge Project. The Project design area includes approximately 269 acres. The total Project area to be potentially effected includes approximately 290 acres. The intent of the Project is to co-locate regional park amenities amongst functional recharge basins. Build-out of Tower Street as a new arterial roadway just east of the SCE power lines is also proposed. The Project site is located on the north side of SR 198, between the Road 148 alignment and Road 152, and extending north to SR 216.

Lead Agency Contact

Name Doug Damko
Agency City of Visalia
Phone 559 713 4268 **Fax**
email
Address 315 East Acequia Avenue
City Visalia **State** CA **Zip** 93291

Project Location

County Tulare
City Visalia
Region
Cross Streets
Lat / Long
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use

Project Issues

Reviewing Agencies Resources Agency; Central Valley Flood Protection Board; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 4; Native American Heritage Commission; Public Utilities Commission; State Lands Commission; California Highway Patrol; Caltrans, District 6; Air Resources Board; State Water Resources Control Board, Divison of Financial Assistance; State Water Resources Control Board, Division of Drinking Water; Department of Toxic Substances Control; Regional Water Quality Control Bd., Region 5 (Fresno)

Date Received 12/23/2014 **Start of Review** 12/23/2014 **End of Review** 01/21/2015

NOP Distribution List

County: Tulare

SCH# 2014121076

Resources Agency

- [x] **Resources Agency**
  Nadell Gayou
- [ ] **Dept. of Boating & Waterways**
  Nicole Wong
- [ ] **California Coastal Commission**
  Elizabeth A. Fuchs
- [ ] **Colorado River Board**
  Lisa Johansen
- [ ] **Dept. of Conservation**
  Elizabeth Carpenter
- [ ] **California Energy Commission**
  Eric Knight
- [ ] **Cal Fire**
  Dan Foster
- [ ] **Central Valley Flood Protection Board**
  James Herota
- [ ] **Office of Historic Preservation**
  Ron Parsons
- [x] **Dept of Parks & Recreation**
  Environmental Stewardship Section
- [ ] **California Department of Resources, Recycling & Recovery**
  Sue O'Leary
- [ ] **S.F. Bay Conservation & Dev't. Comm.**
  Steve McAdam
- [ ] **Dept. of Water Resources**
  Resources Agency
  Nadell Gayou

Fish and Game

- [ ] **Depart. of Fish & Wildlife**
  Scott Flint
  Environmental Services Division
- [ ] **Fish & Wildlife Region 1**
  Curt Babcock
- [ ] **Fish & Wildlife Region 1E**
  Laurie Harnsberger
- [ ] **Fish & Wildlife Region 2**
  Jeff Drongesen
- [ ] **Fish & Wildlife Region 3**
  Charles Armor
- [ ] **Fish & Wildlife Region 4**
  Julie Vance
- [ ] **Fish & Wildlife Region 5**
  Leslie Newton-Reed
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6**
  Tiffany Ellis
  Habitat Conservation Program
- [ ] **Fish & Wildlife Region 6 I/M**
  Heidi Calvert
  Inyo/Mono, Habitat Conservation Program
- [ ] **Dept. of Fish & Wildlife M**
  George Isaac
  Marine Region

Other Departments

- [ ] **Food & Agriculture**
  Sandra Schubert
  Dept. of Food and Agriculture
- [ ] **Depart. of General Services**
  Public School Construction
- [ ] **Dept. of General Services**
  Anna Garbeff
  Environmental Services Section
- [ ] **Delta Stewardship Council**
  Kevan Samsam
- [ ] **Housing & Comm. Dev.**
  CEQA Coordinator
  Housing Policy Division

Independent Commissions,Boards

- [ ] **Delta Protection Commission**
  Michael Machado

- [ ] **OES (Office of Emergency Services)**
  Marcia Scully
- [x] **Native American Heritage Comm.**
  Debbie Treadway
- [ ] **Public Utilities Commission**
  Leo Wong
- [ ] **Santa Monica Bay Restoration**
  Guangyu Wang
- [ ] **State Lands Commission**
  Jennifer Deleong
- [ ] **Tahoe Regional Planning Agency (TRPA)**
  Cherry Jacques

Cal State Transportation Agency CalSTA

- [ ] **Caltrans - Division of Aeronautics**
  Philip Crimmins
- [ ] **Caltrans – Planning HQ LD-IGR**
  Terri Pencovic
- [ ] **California Highway Patrol**
  Suzann Ikeuchi
  Office of Special Projects

Dept. of Transportation

- [ ] **Caltrans, District 1**
  Rex Jackman
- [ ] **Caltrans, District 2**
  Marcelino Gonzalez
- [ ] **Caltrans, District 3**
  Eric Federicks – South
  Susan Zanchi - North
- [ ] **Caltrans, District 4**
  Erik Alm
- [ ] **Caltrans, District 5**
  Larry Newland
- [ ] **Caltrans, District 6**
  Michael Navarro
- [ ] **Caltrans, District 7**
  Dianna Watson
- [ ] **Caltrans, District 8**
  Mark Roberts
- [ ] **Caltrans, District 9**
  Gayle Rosander
- [ ] **Caltrans, District 10**
  Tom Dumas
- [ ] **Caltrans, District 11**
  Jacob Armstrong
- [ ] **Caltrans, District 12**
  Maureen El Harake

Cal EPA

Air Resources Board

- [x] All Other Projects
  Cathi Slaminski
- [ ] Transportation Projects
  Nesamani Kalandiyur
- [ ] Industrial/Energy Projects
  Mike Tollstrup
- [ ] **State Water Resources Control Board**
  Regional Programs Unit
  Division of Financial Assistance
- [ ] **State Water Resources Control Board**
  Jeffery Werth
  Division of Drinking Water
- [ ] **State Water Resources Control Board**
  Student Intern, 401 Water Quality Certification Unit
  Division of Water Quality
- [ ] **State Water Resouces Control Board**
  Phil Crader
  Division of Water Rights
- [ ] **Dept. of Toxic Substances Control**
  CEQA Tracking Center
- [ ] **Department of Pesticide Regulation**
  CEQA Coordinator

Regional Water Quality Control Board (RWQCB)

- [ ] **RWQCB 1**
  Cathleen Hudson
  North Coast Region (1)
- [ ] **RWQCB 2**
  Environmental Document Coordinator
  San Francisco Bay Region (2)
- [ ] **RWQCB 3**
  Central Coast Region (3)
- [ ] **RWQCB 4**
  Teresa Rodgers
  Los Angeles Region (4)
- [ ] **RWQCB 5S**
  Central Valley Region (5)
- [ ] **RWQCB 5F**
  Central Valley Region (5)
  Fresno Branch Office
- [ ] **RWQCB 5R**
  Central Valley Region (5)
  Redding Branch Office
- [ ] **RWQCB 6**
  Lahontan Region (6)
- [ ] **RWQCB 6V**
  Lahontan Region (6)
  Victorville Branch Office
- [ ] **RWQCB 7**
  Colorado River Basin Region (7)
- [ ] **RWQCB 8**
  Santa Ana Region (8)
- [ ] **RWQCB 9**
  San Diego Region (9)

- [ ] **Other** _____
- [ ] _____
  Conservancy

Last Updated 12/19/2014

NOTICE OF PREPARATION of ENVIRONMENTAL IMPACT REPORT and NOTICE OF PUBLIC SCOPING MEETING REGARDING PROPOSED CITY OF VISALIA EASTSIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT CITY OF VISALIA

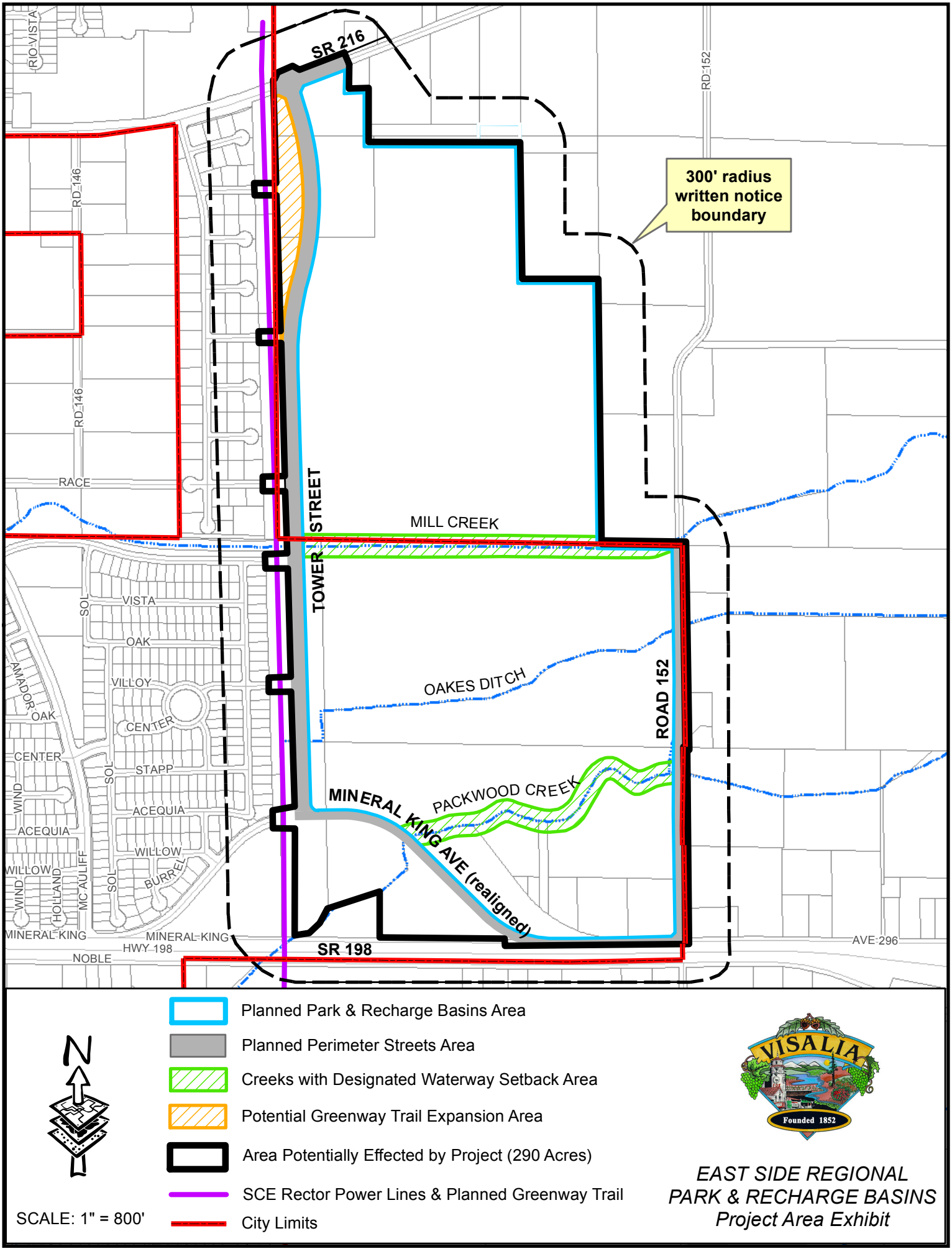
NOTICE IS HEREBY GIVEN THAT the City of Visalia, will be the applicant and Lead Agency and will prepare an environmental impact report for the project identified below, as required by the California Environmental Quality Act (CEQA) and State Guidelines implementing the Act. The views of Responsible, Trustee and other interested agencies and individual citizens as to the scope and content of the environmental information germane to your areas of concerns or your agency's statutory responsibilities in connection with the environmental effects of the proposed project are encouraged and welcomed. Under circumstances expressly allowed under Government Code Section 15096 of the State CEQA Guidelines, Responsible Agencies will be able to use the EIR prepared by City of Visalia when considering their respective permits or other approvals for the project. The summary project description and project location are described below. Further information about the Project may be available upon request from the Lead Agency by contacting Doug Damko, Project Manager, City of Visalia, City Hall East, 315 East Acequia Avenue, Visalia, CA 93291, 559-713-4268, or through the City's Project Consultant, Provost & Pritchard Consulting Group, 130 North Garden Street, Visalia CA 93291, Rick Darnley, Project Manager, 559-636-1166.

The City of Visalia will also hold a Public Scoping Meeting at the Visalia City Council Chambers, 707 W. Acequia, Visalia, CA, to conduct the following business: Introduce the proposed Project, encourage public participation, and gather public agency, interested party and community stakeholder comments, questions, and concerns regarding environmental impacts that could potentially result from the Project. The Scoping Meeting will be held on January 22, 2015 starting at 5:30PM.

Pursuant to CEQA Guidelines Government Code Sections 15082 and 15083, early consultation, also called scoping, provides the Lead agency opportunity to consult with other persons, organizations, trustee agencies, adjoining cities and counties that may be concerned with the environmental effects of the proposed Project. All interested individuals are invited to appear at the time and place specified above to give oral or written testimony regarding the proposed Project and potential significant environmental impacts, mitigation measures, and project alternatives. Due to the time limits mandated by State law, your mailed response must be received no later than 30 days after receipt of this notice or by close of business, 5:00 p.m. on January 22, 2015, or oral or written comments may be submitted in person at the scoping meeting.,

The City of Visalia proposes to design and construct the East Side Regional Park and Groundwater Recharge Project. The Project area includes a total of approximately 269 acres. The intent of the Project is to co-locate regional park amenities amongst functional recharge basins. Build-out of Tower Street as a new arterial roadway just east of the SCE power lines is also proposed. The Project site is located on the north side of State Route 198, between the Road 148 alignment and Road 152, and extending north to State Route 216.

Written comments may be forwarded to Provost & Pritchard Consulting Group, Attention: Mary Beatie, Senior Planner, 130 N. Garden Street, Visalia, California, 93291, email: mbeatie@ppeng.com, or via phone at 559-636-1166.


SR 216
RIO VISTA
RD 146
RD 152
300' radius written notice boundary
RACE
MILL CREEK
TOWER
STREET
VISTA
OAK
VILLOY
CENTER
STAPP
ACEQUIA
WILLOW
BURREL
SOL
AMADOR
WIND
HOLLAND
MC AULIFF
OAKES DITCH
ROAD 152
PACKWOOD CREEK
MINERAL KING AVE (realigned)
MINERAL KING
HWY 198
NOBLE
SR 198
AVE 296
N
Planned Park & Recharge Basins Area
Planned Perimeter Streets Area
Creeks with Designated Waterway Setback Area
Potential Greenway Trail Expansion Area
Area Potentially Effected by Project (290 Acres)
SCE Rector Power Lines & Planned Greenway Trail
City Limits
SCALE: 1" = 800'
VISALIA
Founded 1852
EAST SIDE REGIONAL
PARK & RECHARGE BASINS
Project Area Exhibit

103470048
PROPERTY OWNER
296 W HAROLD GRISWOLD WAY
HANFORD CA 93230

103100053
PROPERTY OWNER
PO BOX 1069
VISALIA CA 93279

103100038
PROPERTY OWNER
250 NORTH M STREET
TULARE CA 93274

103470071
PROPERTY OWNER
7588 DELTA POINTE WAY
SACRAMENTO CA 95823

103110022
PROPERTY OWNER
P O BOX 507
VISALIA CA 93279

103040035
PROPERTY OWNER
3008 S BURKE ST
VISALIA CA 93292

103040032
PROPERTY OWNER
PO BOX 507
VISALIA CA 93279

103100010
PROPERTY OWNER
P O BOX 1502
PHILOMATH OR 97370

103480056
PROPERTY OWNER
PO BOX 306
EXETER CA 93221

103040034
PROPERTY OWNER
14919 IVANHOE DR
VISALIA CA 93292

103490070
PROPERTY OWNER
1356 E TULARE AVENUE
TULARE CA 93274

103090055
PROPERTY OWNER
PO BOX 395
THREE RIVERS CA 93271

103040039
PROPERTY OWNER
3334 N MOONEY BLVD
TULARE CA 93274

103320033
PROPERTY OWNER
2329 N CLARK ST
VISALIA CA 93292

101080002
PROPERTY OWNER
15041 AVE 296
VISALIA CA 93292

103320029
PROPERTY OWNER
4310 E LAUREL
VISALIA CA 93291

103470075
PROPERTY OWNER
2732 W TYLER
VISALIA CA 93291

103110016
PROPERTY OWNER
PO BOX 81087
BAKERSFIELD CA 93380

103100051
PROPERTY OWNER
22401 ROAD 20
TULARE CA 93274

101070010
PROPERTY OWNER
PO BOX 2310
AVILA BEACH CA 93424

103390013
PROPERTY OWNER
1805 W MAIN
VISALIA CA 93291

103320040
PROPERTY OWNER
207 MERRY HILL DRIVE
CARY NC 27518

101080003
PROPERTY OWNER
15051 AVE 296
VISALIA CA 93292

101080006
PROPERTY OWNER
35107 RD 180
VISALIA CA 93292

103320035
PROPERTY OWNER
17225 GARLEN CT
SALINAS CA 93907

103090056
PROPERTY OWNER
12691 MARLIN AVE
VISALIA CA 93291

103400013
PROPERTY OWNER
3401 W CAMBRIDGE
VISALIA CA 93277

103390011
PROPERTY OWNER
12750 AVE 336
VISALIA CA 93291

103320019
PROPERTY OWNER
2505 E GOSHEN AVE
VISALIA CA 93292

101080007
PROPERTY OWNER
5686 E MUSTANG
CLOVIS CA 93611

101090005
PROPERTY OWNER
P O BOX 206
WHIPPANY NJ 7981

103320037
PROPERTY OWNER
6416 AVE 400
DINUBA CA 93618

103320024
PROPERTY OWNER
2001 WOODSVILLE
VISALIA CA 93292

101080004
PROPERTY OWNER
24251 RD 148
TULARE CA 93274

103110005
PROPERTY OWNER
30375 RD 152
VISALIA CA 93292

103320016
RESIDENT
4410 E DOUGLAS AVE
VISALIA CA 93292

103320021
RESIDENT
4411 E DOUGLAS AVE
VISALIA CA 93292

103320022
RESIDENT
4412 E GROVE CT
VISALIA CA 93292

103320027
RESIDENT
4413 E GROVE CT
VISALIA CA 93292

103320028
RESIDENT
4414 E SYCAMORE CT
VISALIA CA 93292

103320034
RESIDENT
4416 E RACE AVE
VISALIA CA 93292

103320039
RESIDENT
4417 E RACE AVE
VISALIA CA 93292

103390002
RESIDENT
4414 E CECIL CT
VISALIA CA 93292

103390007
RESIDENT
4411 E CECIL CT
VISALIA CA 93292

103390008
RESIDENT
4401 E CECIL CT
VISALIA CA 93292

103390009
RESIDENT
4406 E MC KINLEY AVE
VISALIA CA 93292

103390014
RESIDENT
4405 E MC KINLEY AVE
VISALIA CA 93292

103400005
RESIDENT
4402 E ROOSEVELT CT
VISALIA CA 93292

103400010
RESIDENT
4403 E ROOSEVELT CT
VISALIA CA 93292

103400011
RESIDENT
4404 E WILDWOOD CT
VISALIA CA 93292

103400016
RESIDENT
4405 E WILDWOOD CT
VISALIA CA 93292

103470018
RESIDENT
4416 E VISTA AVE
VISALIA CA 93292

103470047
RESIDENT
4417 E VISTA AVE
VISALIA CA 93292

103470050
RESIDENT
4418 E OAK AVE
VISALIA CA 93292

103470074
RESIDENT
4419 E MURRAY AVE
VISALIA CA 93292

103480013
RESIDENT
4421 E OAK AVE
VISALIA CA 93292

103480016
RESIDENT
4422 E VILLOY AVE
VISALIA CA 93292

103480048
RESIDENT
326 N BENNETT CIR
VISALIA CA 93292

103480049
RESIDENT
314 N BENNETT CIR
VISALIA CA 93292

103480050
RESIDENT
302 N BENNETT CIR
VISALIA CA 93292

103480051
RESIDENT
224 N CASABLANCA ST
VISALIA CA 93292

103480052
RESIDENT
212 N CASABLANCA ST
VISALIA CA 93292

103480053
RESIDENT
208 N CASABLANCA ST
VISALIA CA 93292

103490012
RESIDENT
124 N CASABLANCA ST
VISALIA CA 93292

103490013
RESIDENT
112 N CASABLANCA ST
VISALIA CA 93292

103490024
RESIDENT
4427 E STAPP AVE
VISALIA CA 93292

103490049
RESIDENT
4428 E ACEQUIA AVE
VISALIA CA 93292

SANTA ROSA RANCHERIA
P O BOX 8
LEMOORE CA 93245

TULE RIVER INDIAN TRIBE
PO BOX 589
PORTERVILLE CA 93258

ESOHM VALLEY BAND OF INDIANS
1179 ROCK HAVEN CT
SALINAS CA 93906

KERN VALLEY INDIAN COUNCIL
P O BOX 401
WELDON CA 93283

TUBATULABALS OF KERN VALLEY
P O BOX 226
LAKE ISABELLA CA 93240

SIERRA NEVADA NATIVE AMERICAN COALITION
P O BOX 125
DUNLAP CA 93621

WUKCHUMNI TRIBAL COUNCIL
1918 N TIPTON
VISALIA CA 93292

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO CA 95814-2922

REPLY TO
ATTENTION OF

January 22, 2015

Regulatory Division SPK-2015-00071

Doug Damko
City of Visalia, Community Development Department
315 East Acequia Avenue
Visalia, California 93291-6341

Dear Mr. Damko:

We are responding to your request for comments on the East Side Regional Park & Groundwater Recharge Project - NOP of EIR project. The project is located in Section 26, Township 18 S, Range 25 E, Mount Diablo Meridian, Latitude 36.3337341927938°, Longitude -119.238950164602°, City of Visalia, Tulare County, California.

The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps, such as Mill Creek, Packwood Creek and Oakes Ditch which are located in the proposed project area. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

To ascertain the extent of waters on the project site, City of Visalia should prepare a wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetlands Delineations" and "Final Map and Drawing Standards for the South Pacific Division Regulatory Program" under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.

Please refer to identification number SPK-2015-00071 in any correspondence concerning this project. If you have any questions, please contact Lee Ann Bowers by email at *Lee.A.Bowers@usace.army.mil*, or telephone at (916)557-5254. For more information regarding our program, please visit our website at *www.spk.usace.army.mil/Missions/Regulatory.aspx.*

Sincerely,

for Kathleen A. Dadey, PhD
Chief, California South Branch
Regulatory Division

cc:
Rick Darnley, Project Manager, Provost & Pritchard Consulting Group, 130 North Garden Street, Visalia, CA 93291
Mary E. Beatie, Environmental Phase Manager, Provost & Pritchard Consulting Group, 130 North Garden Street, Visalia, CA 93291

Jackie Lancaster

From: Teresa Garcia <packwoodking@aol.com>
Sent: Saturday, December 27, 2014 11:26 AM
To: Mary Beatie
Subject: eastside regional park

What happened to the "proposed" over pass that was planned here? Will that be discussed at this coming meeting?

Jackie Lancaster

From: Doug Damko <DDamko@ci.visalia.ca.us>
Sent: Wednesday, February 4, 2015 4:19 PM
To: Mary Beatie; Dawn Marple
Cc: Rick Darnley
Subject: FW: CA Dept of Conservation - NOP delivery via e-mail

Mary & Dawn,

I am forwarding this e-mail response to the NOP that I received.

Doug Damko
City of Visalia www.ci.visalia.ca.us
Community Development Dept – Engineering Division
315 E. Acequia Avenue, Visalia, CA 93291
559.713.4268 desk
559.713.4833 fax

From: Borack, Alexandra@DOC [mailto:Alexandra.Borack@conservation.ca.gov]
Sent: Tuesday, January 20, 2015 9:51 AM
To: Doug Damko
Subject: CA Dept of Conservation - NOP delivery via e-mail

Thank you for the document, Doug. The Department of Conservation has no comments at this time, but please add me to your distribution list for the Draft EIR for the East Side Regional Park and Groundwater Recharge Project when it is circulated for review.

Thank you,

Alexandra Borack
Office of Governmental & Environmental Relations
Department of Conservation
Phone: 916-445-8735

CONFIDENTIALITY NOTICE: This communication is intended only for the use of the individual or entity to which it is addressed. This message contains information which may be privileged, confidential and exempt from disclosure under applicable law, including the Electronic Communications Privacy Act. If the reader of this communication is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication may be prohibited.

From: Doug Damko [mailto:DDamko@ci.visalia.ca.us]
Sent: Monday, January 5, 2015 12:02 PM
To: Borack, Alexandra@DOC
Subject: CA Dept of Conservation - NOP delivery via e-mail

Hi Alexandra,

I received your phone message from this morning and I'm responding via e-mail with the NOP attached. The Clearinghouse has assigned SCH# 2014121076 to this project.

Respectfully,

Doug Damko
City of Visalia www.ci.visalia.ca.us
Community Development Dept – Engineering Division
315 E. Acequia Avenue, Visalia, CA 93291
559.713.4268 desk
559.713.4833 fax

DEPARTMENT OF TRANSPORTATION
DISTRICT 6
1352 WEST OLIVE AVENUE
P.O. BOX 12616
FRESNO, CA 93778-2616
PHONE (559) 488-7396
FAX (559) 488-4088
TTY 711
www.dot.ca.gov

Serious drought.
Help save water!

February 4, 2015

6-TUL-198-12.75+/-
2135-IGR/CEQA
NOP FOR DEIR
EASTSIDE REGIONAL PARK
SCH # 2014121076

Mr. Doug Damko
Project Manager
City of Visalia - Community Development - Planning Division
315 E. Acequia Avenue
Visalia, CA 93291

Dear Mr. Damko:

Thank you for the opportunity to review the Notice of Preparation (NOP) for the Draft Environmental Impact Report (DEIR) for the Eastside Regional Park and Groundwater Recharge project. The City of Visalia proposes to design and construct a 269 acre park amongst functional recharge basins. In addition, the project will construct Tower Street (west boundary of the park) as an arterial roadway. The project is located on the north side of State Route (SR) 198 and extends north to SR 216 (Houston Avenue) and is between Road 148 alignment and Road 152, approximately ½ mile west of the SR 198/Lovers Lane interchange. Caltrans has the following comments:

1. On January 13, 2015, Caltrans provided comments to the City and the City's traffic consultant (VRPA) on the Scope for the Traffic Impact Study for this project.

2. Please forward the traffic study when completed to Caltrans for review.

3. As a point of information, the Tulare County 2040 Regional Transportation Plan (RTP) has included the proposed interchange at the Road 148 alignment as a RTIP/Measure R constrained (funded) project.

4. The future interchange at the Road 148 alignment should be identified and analyzed in the DEIR.

5. The site plan shows the future alignment of the Mineral King frontage road on the southern boundary of the proposed park which is east of the Road 148 alignment and immediately north of SR 198. It appears that the Mineral King alignment has been planned to accommodate the right-of-way needed for the future interchange. However, design plans for this interchange are conceptual at this time. Therefore, it is strongly recommended in the immediate future that the City has further discussions with Caltrans and the County in order to preserve the correct area of right-of-way for the future design of the interchange.

6. Failure to provide adequate right-of-way may limit the design options of the interchange and make it operationally non-viable in future years. Redesign or expansion of the interchange to accommodate future growth and traffic volumes will be limited by the park boundary. If the park is to be rezoned to open space, federal regulations prohibit acquisition of park land/open space for future interchange right-of-way. Section 4(f) of the Department of Transportation Act of 1966 prohibits the Federal Highway Administration (FHWA) and other U.S. Department of Transportation (DOT) agencies or State projects that receive funding from or require approval by an agency of the U.S. DOT, from approving the use of land from a publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site.

Please be advised that any future development adjacent to a State Route, whether the entitlement is deemed by the lead agency to be discretionary or ministerial should be sent to Caltrans for review. Please send a response to our comments prior to staff's recommendations to the Planning Commission and the City Council.

If you have any other questions, please call me at (559) 488-7396.

Sincerely,

DAVID DEEL
Associate Transportation Planner
North Planning Branch

Appendix B. Site Plan Review Comments

MEETING DATE July 22, 2015

SITE PLAN NO. 15-115

PARCEL MAP NO.

SUBDIVISION

LOT LINE ADJUSTMENT NO.

Enclosed for your review are the comments and decisions of the Site Plan Review committee. Please review all comments since they may impact your project.

☐ **RESUBMIT** Major changes to your plans are required. Prior to accepting construction drawings for building permit, your project must return to the Site Plan Review Committee for review of the revised plans.

☐ During site plan design/policy concerns were identified, schedule a meeting with

☐ Planning ☐ Engineering prior to resubmittal plans for Site Plan Review.

☐ Solid Waste ☐ Parks and Recreation ☐ Fire Dept.

☒ **REVISE AND PROCEED** (see below)

☐ A revised plan addressing the Committee comments and revisions must be submitted for Off-Agenda Review and approval prior to submitting for building permits or discretionary actions.

☐ Submit plans for a building permit between the hours of 8:30 a.m. and 4:30 p.m., Monday through Friday.

☐ Your plans must be reviewed by:

☒ CITY COUNCIL ☐ REDEVELOPMENT

☐ PLANNING COMMISSION ☐ PARK/RECREATION

☐ HISTORIC PRESERVATION ☐ OTHER ____

☐ **ADDITIONAL COMMENTS** ____

If you have any questions or comments, please call Jason Huckleberry at (559) 713-4259.

Site Plan Review Committee

RECYCLED PAPER

BUILDING/DEVELOPMENT PLAN REQUIREMENTS
ENGINEERING DIVISION

☐ **Jason Huckleberry 713-4259**
☒ **Adrian Rubalcaba 713-4271**

ITEM NO: 1 DATE: JULY 22, 2015

SITE PLAN NO.:	**15-115**
PROJECT TITLE:	**EAST SIDE REGIONAL PARK & GROUNDWATER RECHARGE PROJECT**
DESCRIPTION:	**248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITIES (X/AE)**
APPLICANT:	**CITY OF VISALIA**
PROP OWNER:	**CITY OF VISALIA**
LOCATION:	
APN:	**103-040-043, 103-110-023, 103-110-030, 103-500-001, 103-500-003, 103-510-002**

SITE PLAN REVIEW COMMENTS

☒ REQUIREMENTS (indicated by checked boxes)

☒ Install curb return with ramp, with ***VARIES*** radius; ***REFER TO CITY STDS FOR ONSITE & OFFSITE***

☒ Install curb; ☒ gutter ***SEE ADDL COMMENTS***

☒ Drive approach size: ☒ Use radius return;

☒ Sidewalk: ***5' MIN*** width; ☒ ***10'*** parkway width at ***HOUSTON, TOWER, & MINERAL KING***

☐ Repair and/or replace any sidewalk across the public street frontage(s) of the subject site that has become uneven, cracked or damaged and may constitute a tripping hazard.

☐ Replace any curb and gutter across the public street frontage(s) of the subject site that has become uneven and has created areas where water can stand.

☒ Right-of-way dedication required. A title report is required for verification of ownership. ***STREETS***

☐ Deed required prior to issuing building permit;

☒ City Encroachment Permit Required.
Insurance certificate with general & auto liability ($1 million each) and workers compensation ($1 million), valid business license, and appropriate contractor's license must be on file with the City, and valid Underground Service Alert # provided prior to issuing the permit. Contact Encroachment Tech. at 713-4414.

☐ CalTrans Encroachment Permit required. ☐ CalTrans comments required prior to issuing building permit. Contacts: David Deel (Planning) 488-4088;

☐ Landscape & Lighting District/Home Owners Association required prior to approval of Final Map. Landscape & Lighting District will maintain common area landscaping, street lights, street trees and local streets as applicable. Submit completed Landscape and Lighting District application and filing fee a min. of 75 days before approval of Final Map.

☒ Landscape & irrigation improvement plans to be submitted for each phase. Landscape plans will need to comply with the City's street tree ordinance. The locations of street trees near intersections will need to comply with Plate SD-1 of the City improvement standards. A street tree and landscape master plan for all phases of the subdivision will need to be submitted with the initial phase to assist City staff in the formation of the landscape and lighting assessment district.

☒ Grading & Drainage plan required. If the project is phased, then a master plan is required for the entire project area that shall include pipe network sizing and grades and street grades. ☒ Prepared by registered civil engineer or project architect. ☒ All elevations shall be based on the City's benchmark network. Storm run-off from the project shall be handled as follows: a) ☐ directed to the City's existing storm drainage system; b) ☒ directed to a permanent on-site basin; or c) ☐ directed to a temporary on-site basin is required until a connection with adequate capacity is available to the City's storm drainage system. On-site basin: : maximum side slopes, perimeter fencing required, provide access ramp to bottom for maintenance.

☒ Grading permit is required for clearing and earthwork performed prior to issuance of the building permit.

☒ Show finish elevations. (Minimum slopes: A.C. pavement = 1%, Concrete pavement = 0.25%. Curb & Gutter =.020%, V-gutter = 0.25%)

☒ Show adjacent property grade elevations. A retaining wall will be required for grade differences greater than 0.5 feet at the property line.

☒ All public streets within the project limits and across the project frontage shall be improved to their full width, subject to available right of way, in accordance with City policies, standards and specifications.

☒Traffic indexes per city standards: ***ARTERIAL = 11.0, COLLECTOR = 8.0***
☒Install street striping as required by the City Engineer.
☒Install landscape curbing (typical at parking lot planters).
☒Minimum paving section for parking: 2" asphalt concrete paving over 4" Class 2 Agg. Base, or 4" concrete pavement over 2" sand.
☒Design Paving section to traffic index of 5.0 min. for solid waste truck travel path.
☒Provide "R" value tests: ***1*** each at ***300' INTERVALS***
☐Written comments required from ditch company Contacts: James Silva 747-1177 for Modoc, Persian, Watson, Oakes, Flemming, Evans Ditch and Peoples Ditch; Jerry Hill 686-3425 for Tulare Irrigation Canal, Packwood and Cameron Creeks; Bruce George 747-5601 for Mill Creek and St. John's River.
☒Access required on ditch bank, 15' minimum ☒ Provide wide riparian dedication from top of bank.
☒Show Oak trees with drip lines and adjacent grade elevations. ☒ Protect Oak trees during construction in accordance with City requirements.
☒A permit is required to remove oak trees. Contact Joel Hooyer at 713-4295 for an Oak tree evaluation or permit to remove. ☒ A pre-construction conference is required.
☒Relocate existing utility poles and/or facilities.
☒Underground all existing overhead utilities within the project limits. Existing overhead electrical lines over 50kV shall be exempt from undergrounding.
☐Subject to existing Reimbursement Agreement to reimburse prior developer:
☒ Fugitive dust will be controlled in accordance with the applicable rules of San Joaquin Valley Air District's Regulation VIII. Copies of any required permits will be provided to the City.
☒ If the project requires discretionary approval from the City, it may be subject to the San Joaquin Valley Air District's Rule 9510 Indirect Source Review per the rule's applicability criteria. A copy of the approved AIA application will be provided to the City.
☒If the project meets the one acre of disturbance criteria of the State's Storm Water Program, then coverage under General Permit Order 2009-0009-DWQ is required and a Storm Water Pollution Prevention Plan (SWPPP) is needed. A copy of the approved permit and the SWPPP will be provided to the City.

☐Comply with prior comments. ☐Resubmit with additional information. ☒Redesign required.

Additional Comments:

1. Refer to City standards for arterial and collector street right-of-way requirements.

2. Street frontage improvements shall be installed based on the Traffic Impact Study and are dependant on phased development and circulation. Site Plan Review process is required for each phase of development.

3. Impact fees apply to land development and building construction, to be determined at time of development per the current fee schedule at the time.

4. The landscaping and irrigation design shall adhere to the State MWELO standards.

5. Street lighting shall be submitted by separate electrical plan in accordance with the City's street lighting standards and specifications.

6. Proposed development shall comply with the current accessibility standards.

7. Building permit plan check and inspection fees apply.

8. City storm and sewer utilities shall be extended to serve proposed & future development in the area. The park recharge project can be designed to retain its street frontage storm water run-off however further consideration shall be taken to serve those developable areas to the east.

9. Tower St. is slated to be a 110' arterial therefore connections from existing stubbed streets from the subdivisions to the west shall be minimized. Further coordination with City Engineer is required.

SUMMARY OF APPLICABLE DEVELOPMENT IMPACT FEES

Site Plan No: **15-115**
Date: **7/22/2015**

Summary of applicable Development Impact Fees to be collected at the time of building permit:

(Preliminary estimate only! Final fees will be based on the development fee schedule in effect at the time of building permit issuance.)

(Fee Schedule Date:**7/7/2015**)
(Project type for fee rates:**PARK & MISC. BUILDINGS**)

☐ Existing uses may qualify for credits on Development Impact Fees.

FEE ITEM	FEE RATE
☒ Groundwater Overdraft Mitigation Fee	
☒ Transportation Impact Fee	
☒ Trunk Line Capacity Fee	
☒ Sewer Front Foot Fee	
☒ Storm Drain Acq/Dev Fee	
☒ Park Acq/Dev Fee	
☐ Northeast Specific Plan Fees	
☒ Waterways Acquisition Fee	
☒ Public Safety Impact Fee: Police	
☒ Public Safety Impact Fee: Fire	
☒ Public Facility Impact Fee	
☐ Parking In-Lieu	

Reimbursement:

1.) No reimbursement shall be made except as provided in a written reimbursement agreement between the City and the developer entered into prior to commencement of construction of the subject facilities.
2.) Reimbursement is available for the development of arterial/collector streets as shown in the City's Circulation Element and funded in the City's transportation impact fee program. The developer will be reimbursed for construction costs and right of way dedications as outlined in Municipal Code Section 16.44. Reimbursement unit costs will be subject to those unit costs utilized as the basis for the transportation impact fee.
3.) Reimbursement is available for the construction of storm drain trunk lines and sanitary sewer trunk lines shown in the City's Storm Water Master Plan and Sanitary Sewer System Master Plan. The developer will be reimbursed for construction costs associated with the installation of these trunk lines.

Adrian Rubalcaba

CITY OF VISALIA

SOLID WASTE DIVISION
336 N. BEN MADDOX
VISALIA CA. 93291
713 - 4500

COMMERCIAL BIN SERVICE

SITE PLAN NO: SPR15115
PROJECT TITLE: EAST SIDE REGIONAL PARK & GROUNDWATER
DESCRIPTION: 248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (WAE)
APPLICANT: CITY OF VISALIA
PROP OWNER: CITY OF VISALIA
LOCATION:
APN(S): 103-040-043 103-110-023 103-110-030 103-500-011 103-500-003 103-510-002

[X] No comments.

[ ] Same comments as as

[ ] Revisions required prior to submitting final plans. See comments below.

[ ] Resubmittal required. See comments below.

[ ] Customer responsible for all cardboard and other bulky recyclables to be broken down be fore disposing of in recycle containers.

[ ] ALL refuse enclosures must be R-3 or R-4

[ ] Customer must provide combination or keys for access to locked gates/bins

[ ] Type of refuse service not indicated.

[ ] Location of bin enclosure not acceptable. See comments below.

[ ] Bin enclosure not to city standards double.

[ ] Inadequate number of bins to provide sufficient service. See comments below.

[ ] Drive approach too narrow for refuse trucks access. See comments below.

[ ] Area not adequate for allowing refuse truck turning radius of :
Commercial (X) 50 ft. outside 36 ft. inside; Residential ( ) 35 ft. outside, 20 ft. inside.

[ ] Paved areas should be engineered to withstand a 55,000 lb. refuse truck.

[ ] Bin enclosure gates are required

[ ] Hammerhead turnaround must be built per city standards.

[ ] Cul - de - sac must be built per city standards.

[ ] Bin enclosures are for city refuse containers only. Grease drums or any other items are not allowed to be stored inside bin enclosures.

[ ] Area in front of refuse enclosure must be marked off indicating no parking

[ ] Enclosure will have to be designed and located for a STAB service (DIRECT ACCESS)

[ ] Customer will be required to roll container out to curb for service.

[ ] Must be a concrete slab in front of enclosure as per city standards

The width of the enclosure by ten(10) feet, minimum of six(6) inches in depth.

Roll off compactor's must have a clearance of 3 feet from any wall on both sides and there must be a minimum of 53 feet clearance in front of the compactor to allow the truck enough room to provide service.

Bin enclosure gates must open 180 degrees and also hinges must be mounted in front of post

see page 2 for instructions

Javier Hernandez, Solid Waste Front Load Supervisor 713-4338

SITE PLAN REVIEW COMMENTS

Paul Bernal, Planning Division (559) 713-4025
Date: July 22, 2015

SITE PLAN NO:	2015-115
PROJECT TITLE:	EASTSIDE REGIONAL PARK & GROUNDWATER RECHARGE
DESCRIPTION:	248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (X/AE)
APPLICANT:	CITY OF VISALIA
PROP. OWNER:	CITY OF VISALIA
LOCATION TITLE:	EAST SIDE REGIONAL PARK
APN TITLE:	Various
GENERAL PLAN:	Conservation, Park, Residential Low, Medium & High
EXISTING ZONING:	Agriculture & County

Planning Division Recommendation:

☒ Revise and Proceed
☐ Resubmit

Project Requirements

- Annexation
- Change of Zone
- Initial Study / Project Specific Environmental Impact Report (EIR)
- Additional Information as Needed

PROJECT SPECIFIC INFORMATION: 07/15/2015

1. The scope and size of the Eastside Regional Sports park requires additional land use entitlements amending the existing land use designations for portions of the 248 master planned project site.
2. A General Plan Amendment and Change of Zone are required requesting re-designation the land use designations from Low, Medium and High Density Residential to Park. The Change of Zone will designate the entire 248-acre site to Park.
3. Portions of the land designated for the regional park are located in the County. Annexation to incorporate those lands into the City is required.
4. Given the scope and size of the project, an initial study is required when entitlement applications are filed. The initial study will identify the level of environmental review required.
5. Provide an analysis of how the City will offset the re-designation of approximately ±32-acres of Medium and High Density Residential Land use designated property. Are there other low-density residential designated lands available in close proximity that could be designated to a higher residential land use? The impacts associated with removing these residential designations should be considered.
6. Staff recommends the amphitheater be located in an area that provides the greatest separation to sensitive land uses. A Noise Study is required for this use.
7. Any changes to the master plan will require additional site plan review.
8. Is fielding lighting being proposed with this park? A light study should be included in field lighting is proposed.

Staff initial finding is that the proposed site plan IS CONSISTENT with the City General Plan. Because this project requires discretionary approval by the City Council and/or Planning Commission the final determination of consistency will be made by the Planning Commission and/or City Council.

Parking:

1. Provide handicapped space(s) (see Zoning Ordinance Section 17.34.030.H).
2. An 80 sq. ft. minimum landscape well is required every 10 contiguous parking stalls (Zoning Ordinance Section 17.34.040.D & 17.30.130.C).
3. It is highly recommended that bicycle rack(s) be provided on site plan.
4. Design/locate parking lot lighting to deflect any glare away from abutting residential areas, calculations to be shown on construction documents (Zoning Ordinance Section 17.34.030.J).
5. Parking lot to be screened from view by a 3-foot tall solid wall or shrubs when located adjacent to a public street.

Fencing and Screening:

1. Provide screening for roof mounted equipment (Zoning Ordinance Section 17.30.130.F).
2. Provide screened trash enclosure with solid screening gates (Zoning Ordinance Section 17.30.130.F).
3. Provide solid screening of all outdoor storage areas. Outdoor storage to be screened from public view with solid material (Zoning Ordinance Section 17.30.130.F).

Landscaping:

1. The City has adopted the State Water Efficient Landscape Ordinance. The ordinance applies to projects installing 2,500 square feet or more of landscaping. It requires that landscaping and irrigation plans be certified by a qualified entity (i.e., Landscape Architect) as meeting the State water conservation requirements. The City's implementation of this new State law will be accomplished by self-certification of the final landscape and irrigation plans by a California licensed landscape architect or other qualified entity with sections signed by appropriately licensed or certified persons as required by the ordinance. **NOTE: Prior to a final for the project, a signed Certificate of Compliance for the MWELO standards is required indicating that the landscaping has been installed to MWELO standards.**
2. Provide street trees at an average of 20-feet on center along street frontages. All trees to be 15-gallon minimum size (Zoning Ordinance Section 17.30.130.C).
3. All landscape areas to be protected with 6-inch concrete curbs (Zoning Ordinance Section 17.30.130.F).
4. All parking lots to be designed to provide a tree canopy to provide shade in the hot seasons and sunlight in the winter months.
5. Provide a detailed landscape and irrigation plan as a part of the building permit package (Zoning Ordinance Section 17.34.040).
6. An 80 sq. ft. minimum landscape well is required every 10 contiguous parking stalls (Zoning Ordinance Section 17.30.130.C).
7. Locate existing oak trees on site and provide protection for all oak trees greater than 2" diameter (see Oak Tree Preservation Ordinance).
8. Maintenance of landscaped areas. - A landscaped area provided in compliance with the regulations prescribed in this title or as a condition of a use permit or variance shall be planted with materials suitable for screening or ornamenting the site, whichever is appropriate, and plant materials shall be maintained and replaced as needed, to screen or ornament the site. (Prior code § 7484)

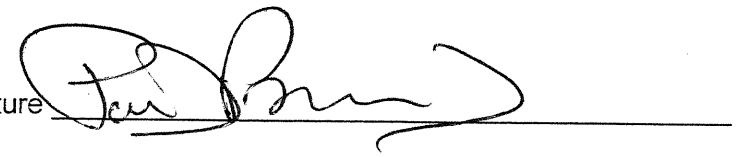
Lighting:

1. All lighting is to be designed and installed so as to prevent any significant direct or indirect light or glare from falling upon any adjacent residential property. This will need to be demonstrated in the building plans and prior to final on the site.
2. Parking lot and drive aisle lighting adjacent to residential units or designated property should consider the use of 15-foot high light poles, with the light element to be completely recessed

into the can. A reduction in the height of the light pole will assist in the reduction/elimination of direct and indirect light and glare which may adversely impact adjacent residential areas.

3. Building and security lights need to be shielded so that the light element is not visible from the adjacent residential properties, if any new lights are added or existing lights relocated.
4. NOTE: Failure to meet these lighting standards in the field will result in no occupancy for the building until the standards are met.
5. In no case shall more than 0.5 lumens be exceeded at any property line, and in cases where the adjacent residential unit is very close to the property line, 0.5 lumens may not be acceptable.

NOTE: Staff recommendations contained in this document are not to be considered support for a particular action or project unless otherwise stated in the comments. The comments found on this document pertain to the site plan submitted for review on the above referenced date. Any changes made to the plan submitted must be submitted for additional review.

Signature 

QUALITY ASSURANCE DIVISION

SITE PLAN REVIEW COMMENTS

ITEM NO: 1	DATE: July 22, 2015
SITE PLAN NO:	SPR15115
PROJECT TITLE:	EAST SIDE REGIONAL PARK & GROUNDWATER
DESCRIPTION:	248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (X/AE)
APPLICANT:	CITY OF VISALIA
PROP OWNER:	CITY OF VISALIA
LOCATION:	
APN(S):	103-040-043 103-110-023 103-110-030 103-500-001 103-500-003 103-510-002

YOU ARE REQUIRED TO COMPLY WITH THE CITY OF VISALIA WASTEWATER ORDINANCE 13.08 RELATIVE TO CONNECTION TO THE SEWER, PAYMENT OF CONNECTION FEES AND MONTHLY SEWER USER CHARGES. THE ORDINANCE ALSO RESTRICTS THE DISCHARGE OF CERTAIN NON-DOMESTIC WASTES INTO THE SANITARY SEWER SYSTEM.

YOUR PROJECT IS ALSO SUBJECT TO THE FOLLOWING REQUIREMENTS:

- ☐ WASTEWATER DISCHARGE PERMIT APPLICATION
- ☐ SAND AND GREASE INTERCEPTOR – 3 COMPARTMENT_____
- ☐ GREASE INTERCEPTOR____min. 1000 GAL____
- ☐ GARBAGE GRINDER – ¾ HP. MAXIMUM_____
- ☐ SUBMISSION OF A DRY PROCESS DECLARATION_____
- ☒ NO SINGLE PASS COOLING WATER IS PERMITTED_____
- ☐ OTHER_____
- ☐ SITE PLAN REVIEWED – NO COMMENTS

CALL THE QUALITY ASSURANCE DIVISION AT (559) 713-4529 IF YOU HAVE ANY QUESTIONS.

CITY OF VISALIA
PUBLIC WORKS DEPARTMENT
QUALITY ASSURANCE DIVISION
7579 AVENUE 288
VISALIA, CA 93277

[signature]
AUTHORIZED SIGNATURE

7-17-15
DATE

ITEM NO: 1 DATE: July 22, 2015

SITE PLAN NO: SPR16118
PROJECT TITLE: EAST SIDE REGIONAL PARK & GROUND WATER
DESCRIPTION: 248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (X'AE)
APPLICANT: CITY OF VISALIA
PROP OWNER: CITY OF VISALIA
LOCATION:
APN(S): 103-047-043 103-110-003 103-110-[illegible] 103-501-003 103-510-012

City of Visalia
Police Department
303 S. Johnson St.
Visalia, Ca. 93292
(559) 713-4370

Site Plan Review Comments

☑ No Comment at this time.

☐ Request opportunity to comment or make recommendations as to safety issues as plans are developed.

☐ Public Safety Impact fee:
Ordinance No. 2001-11 Chapter 16.48 of Title 16 of the Visalia Municipal Code
Effective date - August 17, 2001

Impact fees shall be imposed by the City pursuant to this Ordinance as a condition of or in conjunction with the approval of a development project. "New Development or Development Project" means any new building, structure or improvement of any parcels of land, upon which no like building, structure of improvement previously existed. *Refer to Engineering Site Plan comments for fee estimation.

☐ Not enough information provided. Please provide additional information pertaining to:

☐ Territorial Reinforcement: Define property lines (private/public space).

☐ Access Controlled / Restricted etc:

☑ Lighting Concerns: SUFFICIENT TO PROVIDE DECENT VISIBILITY IN MOST AREAS, INCLUDING WITH EMERGENCY VEHICLE LIGHTING

☐ Landscaping Concerns:

☐ Traffic Concerns:

☑ Surveillance Issues: VISIBILITY & ACCESSABILITY ARE ISSUES OF MOST CONCERN FOR PD, FOR PUBLIC SAFETY ISSUES/CONCERNS. PLAN #B1 PROVIDES THE MOST IN BOTH AREAS (ON FACE VALUE BASED ON THE CONCEPT DESIGN PROVIDED)

☑ Line of Sight Issues:

☐ Other Concerns:

Visalia Police Department

Site Plan Review Comments For:
City of Visalia
Fire Department
707 W Acequia
Visalia, CA 93291
559-713-4261 *office*
559-713-4808 *fax*

ITEM NO: 1 DATE: July 22, 2015

SITE PLAN NO: SPR15115
PROJECT TITLE: EAST SIDE REGIONAL PARK & GROUNDWATER
DESCRIPTION: 248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (KJAE)
APPLICANT: CITY OF VISALIA
PROP OWNER: CITY OF VISALIA
LOCATION:
APN NO: 103-040-043 103-110-023 103-110-030 103-500-001 103-500-003 103-510-002

The following comments are applicable when checked:

☒ The Site Plan Review comments are issued as general overview of your project. With further details, additional requirements will be enforced at the Plan Review stage. Please refer to the 2013 California Fire Code (CFC), 2013 California Building Codes (CBC) and City of Visalia Municipal Codes.

☐ All fire detection, alarm, and extinguishing systems in existing buildings shall be maintained in an operative condition at all times and shall be replaced or repaired where defective. If building has been vacant for a significant amount of time, the fire detection, alarm, and or extinguishing systems may need to be evaluated by a licensed professional. *2013 CFC 901.6*

☐ No fire protection items required for parcel map or lot line adjustment; however, any future projects will be subject to fire & life safety requirements including fire protection.

☐ More information is needed before a Site Plan Review can be conducted. Please submit plans with more detail. Please include information on

General:

☒ Address numbers must be placed on the exterior of the building in such a position as to be clearly and plainly visible from the street. Numbers will be at least four inches (4") high and shall be of a color to contrast with their background. If multiple addresses are served by a common driveway, the range of numbers shall be posted at the roadway/driveway. *2013 CFC 505.1*

☒ A Knox Box key lock system is required. Where access to or within a structure or an area is restricted because of secured openings (doors and/or gates) or for fire-fighting purposes, a key box is to be installed in an approved location. (Note: Knox boxes shall be ordered using an approved application that can be found at Fire Administration Office located at 707 W. Acequia Ave. Please allow adequate time for shipping and installation.) *2013 CFC 506.1*

☒ All hardware on exit doors shall comply with Chapter 10 of the 2013 California Fire Code. This includes all locks, latches, bolt locks, and panic and fire exit hardware.

☒ Provide illuminated exit signs and emergency lighting through-out building. *2013 CFC 1011*

☒ When portion of the building are built upon a property line or in close proximity to another structure the exterior wall shall be constructed as to comply *2013 California Building Code Table 508.4 and Table 602.*

☐ Commercial dumpsters with 1.5 cubic yards or more shall not be stored or placed within 5 feet of combustible walls, openings, or a combustible roof eave line except when protected by a fire sprinkler system. *2013 CFC 304.3.3*

☐ If your business handles hazardous material in amounts that exceed the Maximum Allowable Quantities listed on *Table 5003.1.1(1), 5003.1.1(2), 5003.1.1(3) and 5003.1.1(4) of the 2013 California Fire Code*, you are required to submit an emergency response plan to the Tulare County Health Department. Also you shall indicate the quantities on your building plans and prior to the building final inspection a copy of your emergency response plan and Safety Data Sheets shall be submitted to the Visalia Fire Department.

Water Supply:

☐ Construction and demolition sites shall have an approved water supply for fire protection, either temporary or permanent, and shall be made available as soon as combustible material arrives on the site. *2013 CFC 3312*

☐ No additional fire hydrants are required for this project; however, additional fire hydrants may be required for any future development.

☐ There is/are fire hydrants required for this project. (See marked plans for fire hydrant locations.)

☐ Fire hydrant spacing shall comply with the following requirements:
The exact location of fire hydrants and final decision as to the number of fire hydrants shall be at the discretion of the fire marshal, fire chief and/or their designee. *Visalia Municipal Code 16.36.120 & 16.36.120(8)*

☐ Single-family residential developments shall be provided with fire hydrants every six hundred (600) lineal feet of residential frontage. In isolated developments, no less than two (2) fire hydrants shall be provided.

☐ Multi-family, zero lot line clearance, mobile home park or condominium developments shall be provided with fire hydrants every four hundred (400) lineal feet of frontage. In isolated developments, no less than two (2) fire hydrants shall be provided.

☐ Multi-family or condominium developments with one hundred (100) percent coverage fire sprinkler systems shall be provided with fire hydrants every six (600) lineal feet of frontage. In isolated developments, no less than two (2) fire hydrants shall be provided.

☐ Commercial or industrial developments shall be provided with fire hydrants every three hundred (300) lineal feet of frontage. In isolated developments, no less than two (2) fire hydrants shall be provided.

☐ Commercial or industrial developments with one hundred (100) percent coverage fire sprinkler systems shall be provided with fire hydrants every five hundred (500) lineal feet of frontage. In isolated developments, no less than two (2) fire hydrants shall be provided.

☐ When any portion of a building is in excess of one hundred fifty (150) feet from a water supply on a public street there shall be provided on site fire hydrants and water mains capable of supplying the required fire flew. *Visalia Municipal Code 16.36.120(6)*

Emergency Access:

☒ A construction access road is required and shall be a minimum of 20 feet wide. The road shall be an all-weather driving surface accessible prior to and during construction. The access road shall be capable of holding 75,000 pound piece of fire apparatus, and shall provide access to within 100 feet of temporary or permanent fire department connections. *2013 CFC 3310*

☐ Buildings or portions of buildings or facilities with a vertical distance between the grade plans and the highest roof surface exceed 30 feet shall provide an approved fire apparatus access roads capable of accommodating fire department aerial apparatus. Access roads shall have a minimum unobstructed width of 26 feet, exclusive of shoulders. Access routes shall be located within a minimum of 15 feet and maximum of 30 feet from the building, and shall be positioned parallel to one entire side of the building. *2013 CFC D105*

☐ A fire apparatus access roads shall be provide and must comply with the CFC and extend to within 150 of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility. Minimum turning radius for emergency fire apparatus shall be 20 feet inside radius and 43 feet outside radius. *2013 CFC 503.1.1*

☐ Fire apparatus access roads in excess of 150 feet and dead end shall be provided with a turnaround. Length 151-500 feet shall be a minimum of 20 feet in width and have a 120 foot Hammerhead, 60-foot "Y" or 96-Foot diameter Cul-de-sac in accordance with Figure D103.1 of the 2013 CFC. Length 501-750 feet shall be 26 feet in width and have a 120 foot Hammerhead, 60-foot "Y" or 96-Foot diameter Cul-de-sac in accordance with Figure D103.1 of the 2013 CFC.

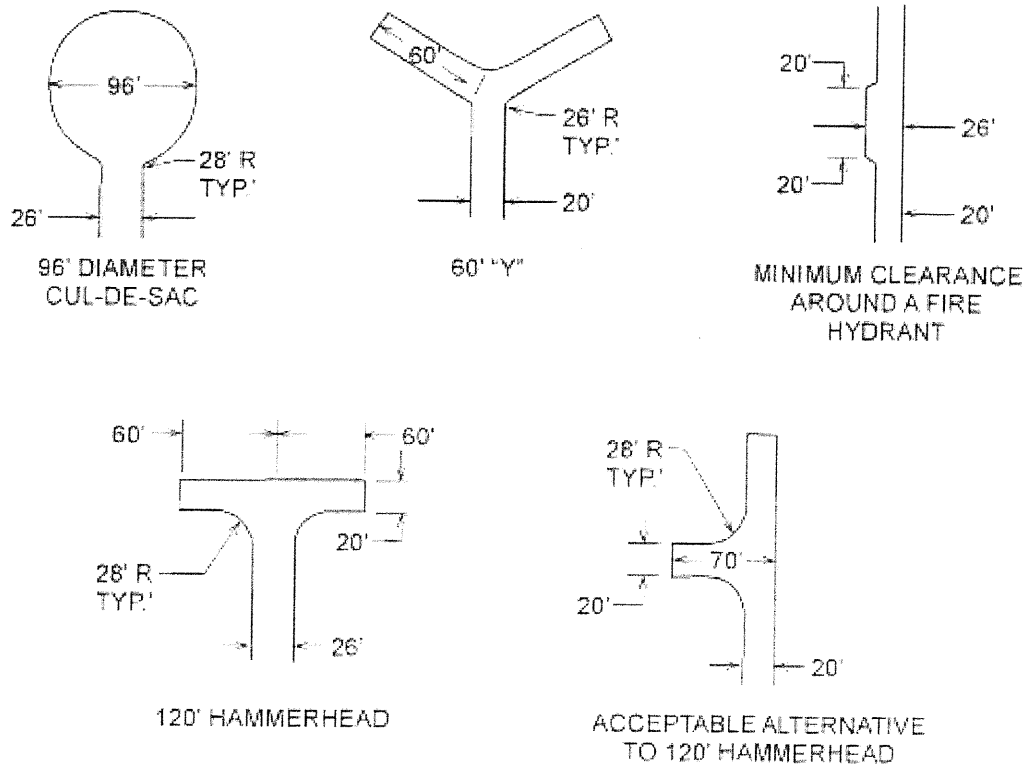


FIGURE D103.1
DEAD-END FIRE APPARATUS ACCESS ROAD TURNAROUND

☒ Gates on access roads shall be a minimum width of 20 feet and shall comply with the following: *2013 CFC D103.5*

- Typical chain and lock shall be the type that can be cut with a common bolt cutter, or the developer may opt to provide a Knox Box key lock system.
- Gates shall be of the swinging or sliding type.
- Gates shall allow manual operation by one person. (power outages)
- Gates shall be maintained in an operative condition at all times.
- Electric gates shall be equipped with a means of opening the gate by fire department personnel for emergency access. (Note: Knox boxes shall be ordered using an approved application that can be found at Fire Administration Office located at 707 W. Acequia Ave. Please allow adequate time for shipping and installation.)

☐ In any and all new One- or two-family dwellings residential developments regardless or the number of units, street width shall be a minimum of 36 feet form curb to curb to allow fire department access and to permit parking on both sides of the street. A minimum of 20 feet shall be provided for developments that don't allow parking on the streets. *2013 CFC D107.2*

Fire Protection Systems:

☐ An automatic fire sprinkler system will be required for this building. Also a fire hydrant is required within 50 feet of the Fire Department Connection (FDC). *2013 CFC 903 and Visalia Municipal Code 16.36.120(7)*

☒ Commercial cooking appliances and domestic cooking appliances used for commercial purposes that produces grease laden vapors shall be provided with a Type 1 Hood, in accordance with the California Mechanical Code, and an automatic fire extinguishing system. *2013 CFC 904.11& 609.2*

Special Comments:

☒ FIRE HYDRANTS REQUIRED FOR THIS PROJECT.

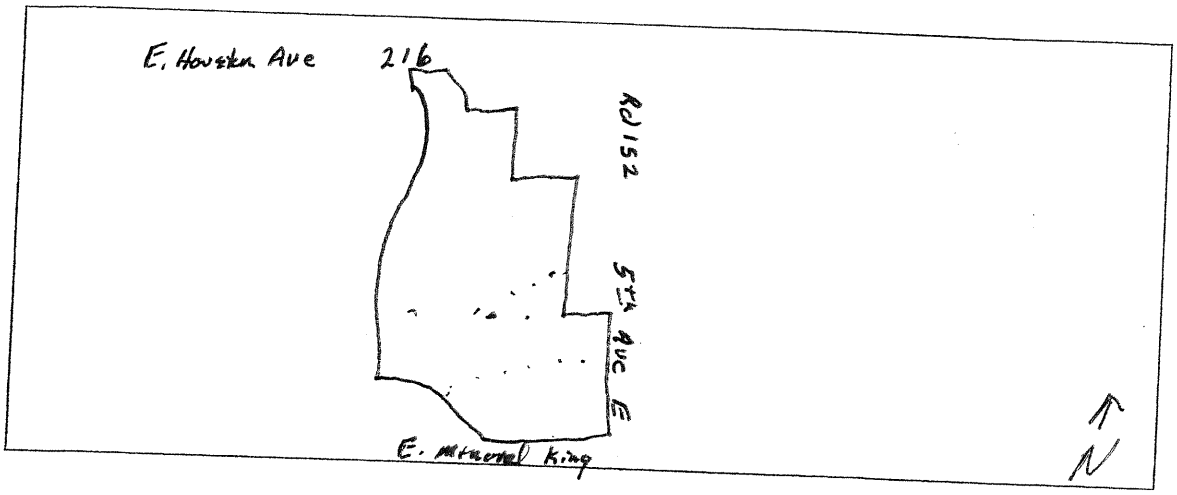
Maribel Vasquez
Fire Inspector

City of Visalia
Parks and Urban Forestry
336 N. Ben Maddox Way
Visalia, CA 93292

Date: 7-22-15

Site Plan Review # 15115

SITE PLAN REVIEW COMMENTS



COMMENTS: See Below ☑ None ☐

☑ Please plot and protect all Valley Oak Trees.

☐ Landscape along parkway to be planted by developer and maintained by a maintenance district.

☐ All drainage from curb and gutter along streets to be connected to storm drain system.

☐ All trees planted in street right-of-way to be approved by the Public Works Superintendent of Parks.

☐ Tie-ins to existing infrastructure may require a bore. Check with the Public Works Department prior to any street cut.

Other Comments:

There are a minimum of 21 Valley Oak trees that we spotted on this site. We need All the Valley Oak trees plotted on the plans and protected.

Joel Hooyer

Joel Hooyer
Parks and Urban Forestry Supervisor
559 713-4295 Fax 559 713-4818
Email: jhooyer@ci.visalia.ca.us

Google Maps

46" DBH

City of Visalia

Building: Site Plan Review Comments

DATE: JULY 22, 2015

SITE PLAN NO: SPR15115

PROJECT TITLE: EAST SIDE REGIONAL PARK & GROUND WATER

DESCRIPTION: 248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (VAE)

APPLICANT: CITY OF VISALIA

PROP OWNER: CITY OF VISALIA

LOCATION:

APN(S): 103-040-043 103-110-023 103-110-030 103-500-001 103-500-003 103-510-002

NOTE: These are general comments and DO NOT constitute a complete plan check for your specific project
Please refer to the applicable California Codes & local ordinance for additional requirements.

- ☐ Business Tax Certification is required. ***For information call (559) 713-4326***
- ☐ A building permit will be required. ***For information call (559) 713-4444***
- ☐ Submit 4 sets of professionally prepared plans and 2 sets of calculations. (Small Tenant Improvements)
- ☐ Submit 4 sets of plans prepared by an architect or engineer. Must comply with 2013 California Building Cod Sec. 2308 for conventional light-frame construction or submit 2 sets of engineered calculations.
- ☐ Indicate abandoned wells, septic systems and excavations on construction plans.

You are responsible to ensure compliance with the following checked items:

- ☐ Meet State and Federal requirements for accessibility for persons with disabilities.
- ☐ A path of travel, parking, common area and public right of way must comply with requirements for access for persons with disabilities.
- ☐ Multi family units shall be accessible or adaptable for persons with disabilities.
- ☐ Maintain sound transmission control between units minimum of 50 STC.
- ☐ Maintain fire-resistive requirements at property lines.
- ☐ A demolition permit & deposit is required. ***For information call (559) 713-4444***
- ☐ Obtain required clearance from San Joaquin Valley Air Pollution Board. Prior to am demolition work

For information call (661) 392-5500

- ☐ Location of cashier must provide clear view of gas pump island
- ☐ Plans must be approved by the Tulare County Health Department. ***For information call (559) 624-7400***
- ☐ Project is located in flood zone _____ * ☐ Hazardous materials report.
- ☐ Arrange for an on-site inspection. (Fee for inspection $151.90) ***For information call (559) 713-4444***
- ☐ School Development fees. Commercial $0.54 per square foot. Residential $3.36 per square foot.
- ☐ Existing address must be changed to be consistent with city address. ***For information call (559) 713-4320***
- ☐ Acceptable as submitted
- ☒ No comments
- ☐ See previous comments dated:_____

Special comments: _____

_____

SITE PLAN REVIEW COMMENTS

CITY OF VISALIA TRAFFIC SAFETY DIVISION

July 22, 2015

ITEM NO: 1
SITE PLAN NO: SPR15115
PROJECT TITLE: EAST SIDE REGIONAL PARK & GROUNDWATER RECHARGE PROJECT
DESCRIPTION: 248 ACRE REGIONAL PARK WITH GROUND WATER RECHARGE FACILITES (X/AE
APPLICANT: CITY OF VISALIA
PROP. OWNER: CITY OF VISALIA
LOCATION:
APN(S): 103-040-043 103-110-023
103-110-030 103-500-001
103-500-003 103-510-002

THE TRAFFIC DIVISION WILL PROHIBIT ON-STREET PARKING AS DEEMED NECESSARY

☐ No Comments

☐ See Previous Site Plan Comments

☐ Install Street Light(s) per City Standards.

☐ Install Street Name Blades at Locations.

☐ Install Stop Signs at Locations.

☐ Construct parking per City Standards PK-1 through PK-4.

☐ Construct drive approach per City Standards.

☒ Traffic Impact Analysis required.

Additional Comments:

•

Leslie Blair

15-115

Appendix C. Air Quality and Greenhouse Gas Impact Assessment

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR

Air Quality & Greenhouse Gas Impact Assessment

March 2019

Prepared for:
Provost & Pritchard
130 N Garden Street
Visalia, CA 93291

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722
Project Manager: Georgiena Vivian

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR
Air Quality & Greenhouse Gas Impact Assessment

Study Team

- ✓ Georgiena Vivian, President, VRPA Technologies, Inc., gvivian@vrpatechnologies.com, (559) 259-9257
- ✓ Jason Ellard, Transportation Engineer, VRPA Technologies, Inc., jellard@vrpatechnologies.com, (559) 271-1200

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Executive Summary

This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

The Project lies within the central portion of the San Joaquin Valley in Tulare County. The Project is located on the Valley floor at an elevation of approximately 331 feet above sea level with the surrounding area mostly flat.

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs.

IMPACTS

Short-Term (Construction) Emissions

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture.

PM10 emissions can result from construction activities of the project. The SJVAPCD requires implementation of effective and comprehensive control measures, rather than a detailed quantification of emissions. The SJVAPCD has determined that compliance with Regulation VIII for all sites and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Because the specific mix of construction equipment is not presently known for this project, construction emissions from equipment were estimated using the CalEEMod Model. The analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project will be constructed independently of each other and will not overlap. Tables E-1, E-2, E-3, and E-4 show the estimated construction emissions that would be generated from Phase 1, 2, and 3 of the Project. Results of the analysis show that emissions generated from the construction phase of the Project will not exceed the SJVAPCD emission thresholds.

Table E-1
Phase 1 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	5.52	6.82	0.86	0.01	1.37	0.77
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table E-2
Phase 2 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	3.89	6.87	0.64	0.01	1.20	0.72
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table E-3
Phase 2 Tower Street Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Tower Street Construction Emissions Per Year	2.31	2.89	0.28	0.00	1.42	0.39
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: Road Construction Emissions Model

Table E-4
Phase 3 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	4.31	7.44	1.71	0.01	2.79	1.47
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Long-Term Emissions

Long-Term emissions from the project are generated by mobile source (vehicle) emissions from the Project site and area sources such as water heaters and lawn maintenance equipment.

1. Localized Mobile Source Emissions – Ozone/Particulate Matter

The Tulare County area is nonattainment for Federal and State air quality standards for ozone and nonattainment for Federal and State standards for PM2.5. Nitrogen oxides and reactive organic gases are regulated as ozone precursors. Significance criteria have been established for criteria pollutant emissions as documented in Section 3.1. Operational emissions have been estimated for all phases of the Project using the CalEEMod Model. Results of the CalEEMod analysis are shown in Tables E-5, E-6, and E-7. Results indicate that the annual operational emissions from the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants.

Table E-5
Phase 1 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 1 Operational Emissions Per Year	0.02	0.01	0.04	0.00	0.03	0.00	172.84
Emissions from Walnut/Pecan Orchard	-4.82	-0.35			-2.72	-0.46	
NET Phase 1 Project Emissions	**0.00**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**172.84**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table E-6
Phase 2 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 2 Operational Emissions Per Year	4.42	3.42	0.83	0.01	0.77	0.22	1296.05
Emissions from Walnut/Pecan Orchard	-8.71	-0.63			-4.98	-0.83	
NET Phase 1 Project Emissions	**0.00**	**2.79**	**0.83**	**0.01**	**0.00**	**0.00**	**1296.05**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table E-7
Phase 3 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 3 Operational Emissions Per Year	6.06	5.56	0.99	0.02	1.60	0.45	2552.30
Emissions from Walnut/Pecan Orchard	-13.5	-0.98			-6.53	-1.16	
NET Full Buildout Project Emissions	**0.00**	**4.58**	**0.99**	**0.02**	**0.00**	**0.00**	**2552.30**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

2. Toxic Air Contaminants (TAC)

The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4 of Section 2.7 of the report. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic

sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Table 4, a health risk assessment is not needed at this time.

3. Odors

The proposed Project will not generate odorous emissions, but will attract people to its site for recreational activities. It should be noted that the Double D Dairy, LLC is located approximately 0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance. Given the size of the dairy, it is not anticipated that people attracted to the proposed Project will not be impacted by odors from Double D Dairy, LLC. As a result, the Project will not be evaluated for its potential to place sensitive receptors near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 (Section 2.7 of report) along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 fit the characteristics of the Project.

4. Naturally Occurring Asbestos (NOA)

Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem. The Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. Recommended mitigation measures to reduce any potential Project impacts to less than significant are provided below.

5. Green House Gas Emissions

As shown in Table E-8, the Project would generate 2,490.70 Metric Tons of Carbon Dioxide Equivalent per year (MTCO2eq./year) using an operational year of 2005, which includes area, energy, mobile, waste, and water sources. "Business as usual" (BAU) is referenced in CARB's AB 32 Scoping Plan as emissions projected to occur in 2020 if the average baseline emissions during the 2002-2004 period grew to 2020 levels, without control or Best Performance Standards (BPS) offsets. As a result, an estimate of the Project's operational emissions in 2005 were compared to operational emissions in 2020 in order to determine if the Project meets the 29% emission reduction. The SJVAPCD has reviewed relevant scientific information related to GHG emissions and has determined that they are not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. As a result, the SJVAPCD has determined that projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. Results of

the analysis show that the Project's GHG emissions in the year 2020 is 2,187.47 MTCO2eq./year. This represents an achievement of 13% GHG emission reduction on the basis of BAU, which does not meet the 29% GHG emission reduction target. However, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The nearest facility similar to the Project is located approximately 5 miles northwest of the neighboring residences.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 MTCO2eq./year for GHG emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table E-9 shows the yearly GHG emissions generated by each Phase of the Project, which are approximately 98% (Phase 1), 81% (Phase 2), and 64% (Phase 3) less than the threshold identified by the SCAQMD.

Table E-8
2005/2020 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Operational Emissions Per Year (2005)	2,490.70 MT/yr
Operational Emissions Per Year (2020)	2,187.47 MT/yr
SJVAPCD Level of Significance	29% Reduction Compared to BAU
Does the Project Meet the Standard?	No

Table E-9
Phase 1, 2 and 3 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Phase 1 Operational Emissions Per Year	172.84 MT/yr
Phase 2 Operational Emissions Per Year	1,296.05 MT/yr
Phase 3 Operational Emissions Per Year	2,552.30 MT/yr

CEQA ENVIRONMENTAL CHECKLIST

1. Air Quality

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

- Conflict with or obstruct implementation of the applicable air quality plan?

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Visalia General Plan Update, which was adopted in 2014. The Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

- Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Short-Term Impacts

As noted previously, the analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project will be constructed independently of each other and will not overlap. The annual emissions from the construction phase of Phase 1, 2, and 3 of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. The construction emissions are therefore considered less than significant with the implementation of the SJVAPCD applicable Regulation VIII control measures, which are provided below. If Phase 1, 2, or 3 of the Project is constructed simultaneously with another phase, the SJVAPCD threshold

for NOx emissions would be exceeded.

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.*
2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*
5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.*
6. *Following the addition of materials to, or the removal of materials from, the surface of outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.*
7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

1.1 Naturally Occurring Asbestos (NOA)

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. In order to control naturally-occurring asbestos dust, the Project will be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021. The Dust Control Plan may include the following measures:

1. Water wetting of road surfaces
2. Rinse vehicles and equipment
3. Wet loads of excavated material, and
4. Cover loads of excavated material

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Results show that Project operational emissions will not exceed applicable emission thresholds. The Project's long-term emissions are considered less than significant. Therefore,

no mitigation is needed.

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Tulare County is nonattainment for Ozone (1 hour and 8 hour) and PM10 (State standards) and PM2.5. The SJVAPCD has prepared the 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

As described in Section 4.1.2, impacts related to construction and operational emissions would be less than significant. In addition, results of the CALINE analysis (Section 3.3.2) show that the intersections of Lovers Lane and Mineral King Avenue, McAuliff Street and Mineral King Avenue, and Road 156 and Noble Avenue are expected to generate CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards. Further, as indicated in Section 3.3.2, the Project would not create objectionable odors affecting a substantial number of people. The Project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Therefore, no mitigation is needed.

- Expose sensitive receptors to substantial pollutant concentrations?

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. The screening level analysis for the Project shows that TAC's are not a concern. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. The Project will not expose sensitive receptors to substantial pollutant concentrations. Therefore, no mitigation is needed.

- Create objectionable odors affecting a substantial number of people?

The proposed Project will not generate odorous emissions, but will attract people to its site for recreational activities. It should be noted that the Double D Dairy, LLC is located approximately 0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance provided in Table 5. Given the size of the dairy, it is not anticipated that people attracted to the proposed Project will not be impacted by odors from Double D Dairy, LLC. As a result, the Project will not be evaluated for its potential to place sensitive receptors near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 fit the characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

2. *Greenhouse Gas Emissions*

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. The significance criteria established by the SJVAPCD is relied upon to make the following determinations. Would the project:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

As shown in Table E-8, the Project would generate 2,490.70 Metric Tons of Carbon Dioxide Equivalent per year (MTCO2eq./year) using an operational year of 2005, which includes area, energy, mobile, waste, and water sources. "Business as usual" (BAU) is referenced in CARB's AB 32 Scoping Plan as emissions projected to occur in 2020 if the average baseline emissions during the 2002-2004 period grew to 2020 levels, without control or Best Performance Standards (BPS) offsets. As a result, an estimate of the Project's operational emissions in 2005 were compared to operational emissions in 2020 in order to determine if the Project meets the 29% emission reduction. The SJVAPCD has reviewed relevant scientific information related to GHG emissions and has determined that they are not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. As a result, the SJVAPCD has determined that projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. Results of

the analysis show that the Project's GHG emissions in the year 2020 is 2,187.47 MTCO2eq./year. This represents an achievement of 13% GHG emission reduction on the basis of BAU, which does not meet the 29% GHG emission reduction target. However, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The nearest facility similar to the Project is located approximately 5 miles northwest of the neighboring residences.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 MTCO2eq./year for GHG emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table E-9 shows the yearly GHG emissions generated by each Phase of the Project, which are approximately 98% (Phase 1), 81% (Phase 2), and 64% (Phase 3) less than the threshold identified by the SCAQMD.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, no mitigation is needed.

- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

To assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific greenhouse gas emissions (GHG) on global climate change, the SJVAPCD has adopted the guidance: Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA and the policy: District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency. The guidance and policy rely on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual (BAU), is required to determine that a project would have a less than cumulatively significant impact.

As noted above, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The types of facilities incorporated into the Project coincide with the pedestrian infrastructure-based mitigation measures included in the SJVAPCD's Mitigation Measures document. Those measures include providing pedestrian

enhancing infrastructure that includes sidewalks and pedestrian paths and direct pedestrian connections.

The City of Visalia Climate Action Plan (CAP) was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals. The CAP identifies existing and proposed community measures designed to reduce GHG emissions. The Project incorporates the following identified existing and proposed community measures assisting the City achieve its 2020 15% and 2030 30% reduction goals:

1. Expansion of bicycle paths, lanes, and trails.

Based on the assessment above, the Project will further the achievement of the City's greenhouse gas reduction goals and will not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, no mitigation is needed.

1.0 Introduction

1.1 Description of the Region/Project

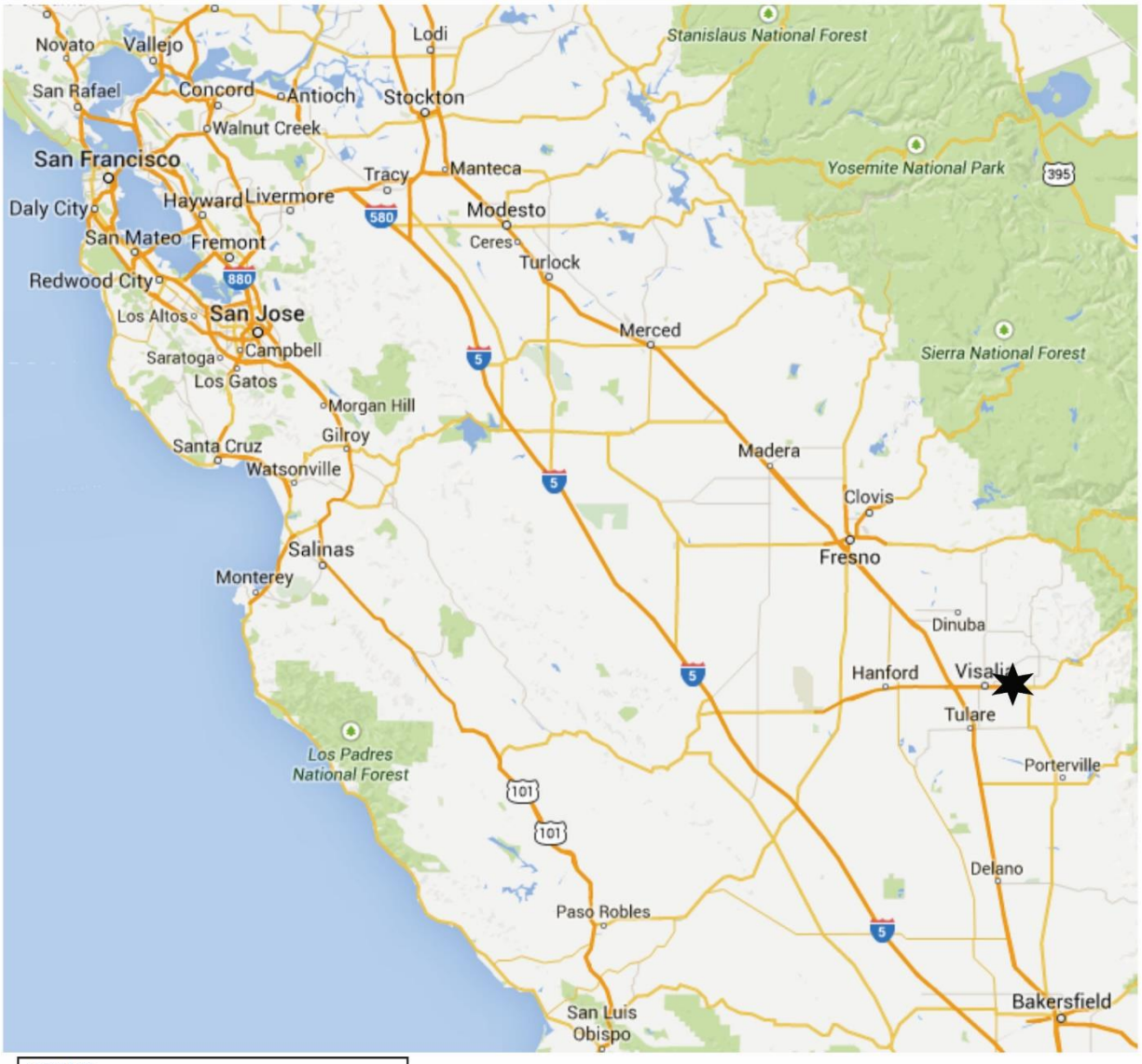
This Air Quality & Greenhouse Gas Impact Assessment has been prepared for the purpose of identifying potential air quality impacts that may result from the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west. Figures 1 and 2 show the location of the Project along with major roadways and highways. Figure 3 provides the locations of various components of the Project.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

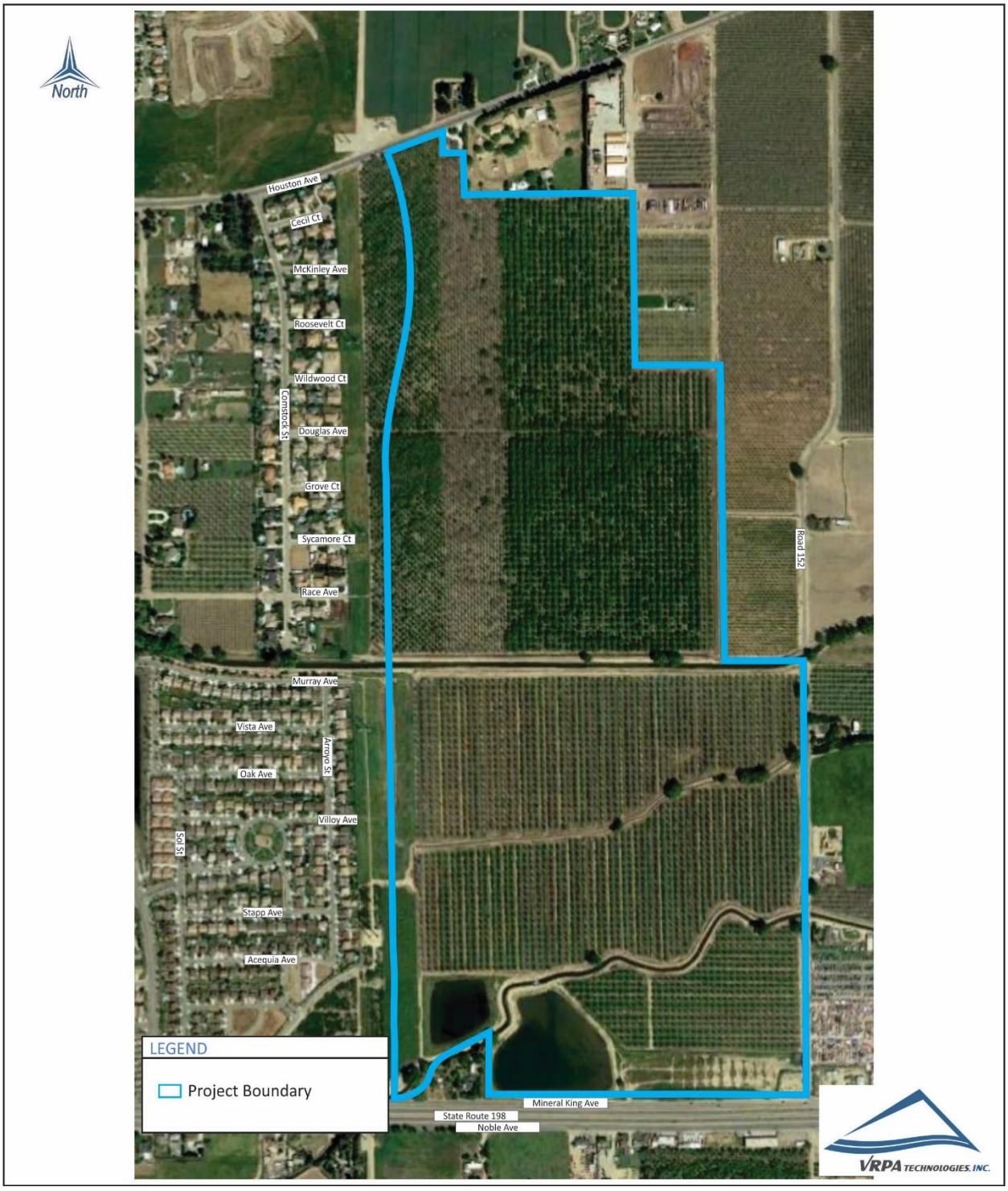
It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 1**
Regional Location



East Side Regional Park & Groundwater Recharge Project EIR **Figure 2**
Project Location



East Side Regional Park & Groundwater Recharge Project EIR **Figure 3**
Project Components

The approximately 148-acre regional park mentioned above will include individual components such as:

- ✓ Four (4) lighted and fenced Adult Softball Fields (325' to outfield)
- ✓ Four (4) lighted and fenced Youth Baseball Fields (225' to outfield)
- ✓ Five (5) lighted full-size Soccer Fields (210' X 330')
- ✓ Cricket Field
- ✓ Lighted Tennis Courts
- ✓ Lighted Pickleball Courts
- ✓ Lighted Full Basketball Court
- ✓ 18-hole disc golf course
- ✓ Amphitheater with seating capacity of 1,500
- ✓ Community Center Building (Approx. 30,000 sq. ft.) including outdoor swimming pools
- ✓ Dog Park (Approx. 3 acres)
- ✓ Multi-use trails with fitness equipment
- ✓ Event and Open space turf areas
- ✓ Children's Adventure play areas and splash pad
- ✓ Picnic Areas (formal and informal)
- ✓ Agriculture Education Barn
- ✓ Resource Center
- ✓ Maintenance Yard
- ✓ Parking Areas

The 100-acres of primary use recharge basins along the east and south areas will also be utilized for storm water lay-off as needed in very large storm events. The two basins west of the park on the west side of Tower Street will be utilized for park and street storm water runoff. The dog park area is also depressed to handle storm water runoff from the park. All three total 6 acres of basin area. Other low impact development techniques may be used throughout the park area to handle storm water. Ultimately, when not being utilized for recharge or flood lay-off purposes, and due to their large size, these recharge basin areas can be used for passive recreational activities. While noise will be generated during construction of these basins, they are not expected to generate significant noise levels during operation of the park.

Tulare County is located in one of the most polluted air basins in the country – the San Joaquin Valley Air Basin (SJVAB). The surrounding topography includes foothills and mountains to the east and west. These mountain ranges direct air circulation and dispersion patterns. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal

of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Tulare County is classified as Mediterranean, with moist cool winters and dry warm summers.

1.2 Regulatory

Air quality within the Project area is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies primarily responsible for improving the air quality within Tulare County are discussed below along with their individual responsibilities.

1.2.1 *Federal Agencies*

1.2.1.1 U.S. Environmental Protection Agency (EPA)

The Federal Clean Air Bill first adopted in 1967 and periodically amended since then, established federal ambient air quality standards. A 1987 amendment to the Bill set a deadline for the attainment of these standards. That deadline has since passed. The other federal Clean Air Bill Amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources. The U.S. Environmental Protection Agency (EPA) is responsible for enforcing the 1990 amendments.

The Federal Clean Air Act (FCAA) and the national ambient air quality standards identify levels of air quality for six "criteria" pollutants, which are considered the maximum levels of ambient air pollutants considered safe, with an adequate margin of safety, to protect public health and welfare. The six criteria pollutants include ozone, carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter (PM), and lead (Pb).

The Clean Air Act Section 176(c) (42 U.S.C. 7506(c)) and EPA transportation conformity regulations (40 CFR 93 Subpart A) require that each new Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP) be demonstrated to conform to the State Implementation Plan (SIP) before the RTP and TIP are approved by the MPO or accepted by the U.S. Department of Transportation (DOT). The conformity analysis is a federal requirement designed to demonstrate compliance with the national ambient air quality standards. However, because the San Joaquin Valley State Implementation Plan (SIP) for CO, PM10, PM2.5 and Ozone address attainment of both the state and federal standards, for these pollutants, demonstrating conformity to the federal standards is also an indication of progress toward attainment of the state standards. Compliance with the state air quality standards is provided on the pages following this federal conformity discussion.

The EPA approved San Joaquin Valley reclassification of the ozone (8-hour) designation to extreme nonattainment in the Federal Register on May 5, 2010, even though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard.

In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. In the Federal Register on October 26, 2015, the EPA revised the primary and secondary standard to 0.070 ppm to provide increased public health protection against health effects associated with long- and short-term exposures. The previous ozone standard was set in 2010 at 0.075ppm.

1.2.2 *Federal Regulations*

1.2.2.1 National Environmental Policy Act (NEPA)

The National Environmental Policy Act (NEPA) provides general information on the effects of federally funded projects. The act was implemented by regulations included in the Code of Federal Regulations (40CFR6). The code requires careful consideration concerning environmental impacts of federal actions or plans, including projects that receive federal funds. The regulations address impacts on land uses and conflicts with state, regional, or local plans and policies, among others. They also require that projects requiring NEPA review seek to avoid or minimize adverse effects of proposed actions and to restore and enhance environmental quality as much as possible. The Project is subject to NEPA compliance because of the potential for Federal grant funding for construction of the Project. The air quality assessment required under Federal air quality standards and regulations covers the basic outline for project-level assessment under NEPA guidelines. The FCAA also requires a parallel "Conformity" in addition to the basic impact assessment.

1.2.3 *State Agencies*

1.2.3.1 California Air Resources Board (CARB)

The California Air Resources Board (CARB) is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing its own air quality legislation called the California Clean Air Act (CCAA), adopted in 1988. The CARB was created in 1967 from the merging of the California Motor Vehicle Pollution Control Board and the Bureau of Air Sanitation and its Laboratory.

The CARB has primary responsibility in California to develop and implement air pollution control plans designed to achieve and maintain the National Ambient Air Quality Standards (NAAQS) established by the EPA. Whereas the CARB has primary responsibility and produces a major part of the SIP for pollution sources that are statewide in scope, it relies on the local air districts to provide additional strategies for sources under their jurisdiction. The CARB combines its data with all local district data and submits the completed SIP to the EPA. The SIP consists of the emissions standards for vehicular sources and consumer products set by the CARB, and attainment plans adopted by the Air Pollution Control Districts (APCDs) and Air Quality Management District's (AQMDs) and approved by the CARB.

States may establish their own standards, provided the state standards are at least as stringent as the NAAQS. California has established California Ambient Air Quality Standards (CAAQS) pursuant to California Health and Safety Code (CH&SC) [§39606(b)] and its predecessor statutes.

The CH&SC [§39608] requires the CARB to "identify" and "classify" each air basin in the state on a pollutant-by-pollutant basis. Subsequently, the CARB designated areas in California as nonattainment based on violations of the CAAQSs. Designations and classifications specific to the SJVAB can be found in the next section of this document. Areas in the state were also classified based on severity of air pollution problems. For each nonattainment class, the CCAA specifies air quality management strategies that must be adopted. For all nonattainment categories, attainment plans are required to demonstrate a five-percent-per-year reduction in nonattainment air pollutants or their precursors, averaged every consecutive three-year period, unless an approved alternative measure of progress is developed. In addition, air districts in violation of CAAQS are required to prepare an Air Quality Attainment Plan (AQAP) that lays out a program to attain and maintain the CCAA mandates.

Other CARB duties include monitoring air quality. The CARB has established and maintains, in conjunction with local APCDs and air quality management districts, a network of sampling stations (called the State and Local Air Monitoring [SLAMS] network), which monitor the present pollutant levels in the ambient air.

Tulare County is in the CARB-designated, SJVAB. A map of the SJVAB is provided in Figure 4. In addition to Tulare County, the SJVAB includes San Joaquin, Kings, Fresno, Madera, Merced, Stanislaus, and Kern Counties.

Federal and State standards for criteria pollutants are provided in Table 1.

1.2.4 *State Regulations*

1.2.4.1 CARB Mobile-Source Regulation

The State of California Air Pollution Control Board is responsible for controlling emissions from the operation of motor vehicles in the state. Rather than mandating the use of specific technology or the reliance on a specific fuel, the CARB's motor vehicle standards specify the allowable grams of pollution per mile driven. In other words, the regulations focus on the reductions needed rather than on the manner in which they are achieved. Towards this end, the CARB has adopted regulations, which required auto manufacturers to phase in less polluting vehicles.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 4**
San Joaquin Valley Air Basin

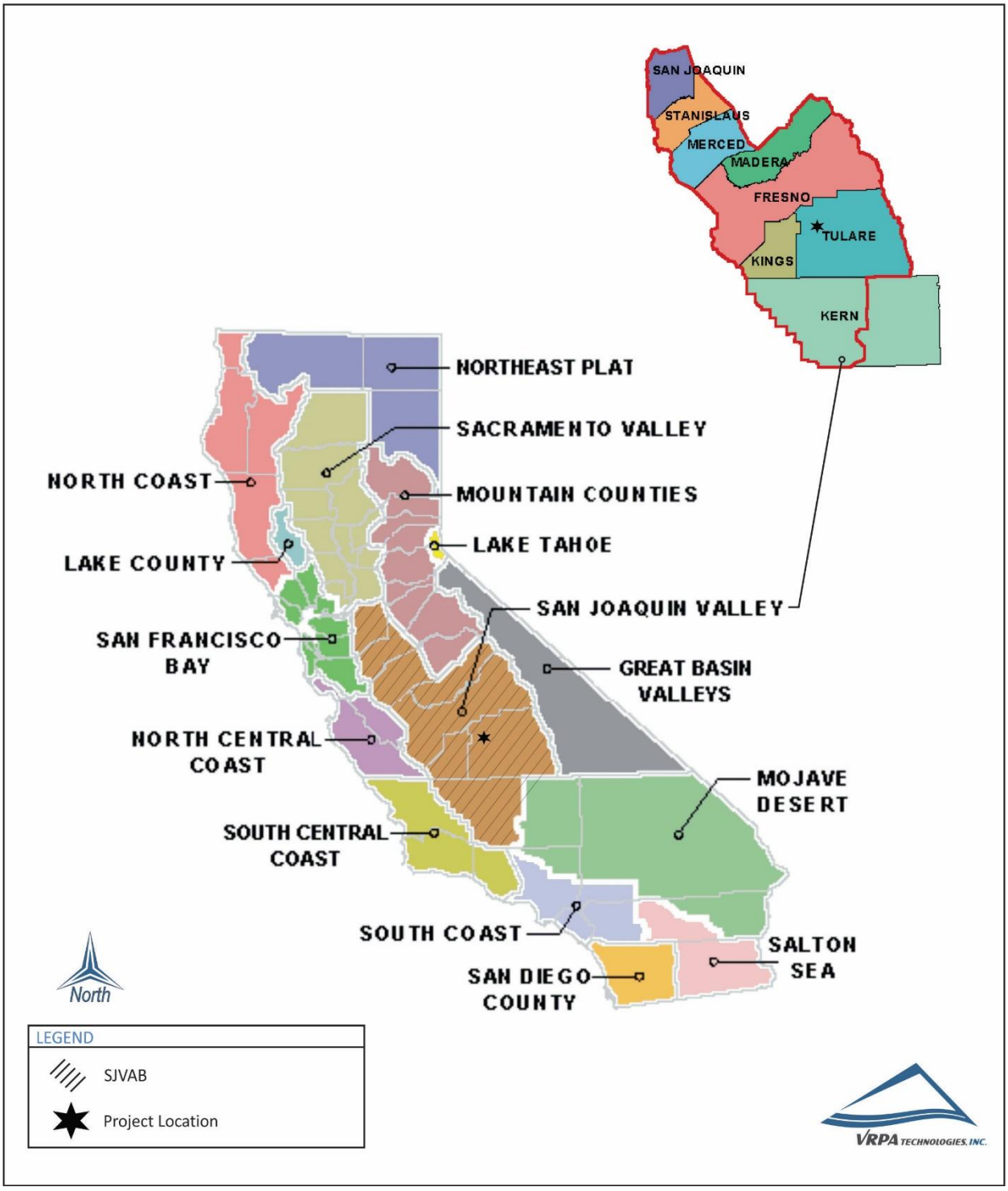


Table 1
Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		National Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3) [8]	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	--	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)		0.070 ppm (137 µg/m^3)		
Respirable Particulate Matter (PM10) [9]	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		--		
Fine Particulate Matter (PM2.5) [9]	24 Hour	--	--	35 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	12.0 µg/m^3	15 µg/m^3	
Carbon Monoxide (CO)	1 Hour	20 ppm (23 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 mg/m^3)	--	Non-Dispersive Infrared Photometry (NDIR)
	8 Hour	9.0 ppm (10 mg/m^3)		9 ppm (10 mg/m^3)	--	
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	
Nitrogen Dioxide (NO_2) [10]	1 Hour	0.18 ppm (339 µg/m^3)	Gas Phase Chemiluminescence	100 ppb (188 µg/m^3)	--	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (57 µg/m^3)		0.053 ppm (100 µg/m^3)	Same as Primary Standard	
Sulfur Dioxide (SO_2) [11]	1 Hour	0.25 ppm (655 µg/m^3)	Ultraviolet Fluorescence	75 ppb (196 µg/m^3)	--	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (for cetain areas) [11]	--	
	Annual Arithmetic Mean	--		0.030 ppm (for cetain areas) [11]	--	
Lead [12,13]	30 Day Average	1.5 µg/m^3	Atomic Absorption	--	--	High Volume Sampler and Atomic Absorption
	Calendar Quarter	--		1.5 µg/m^3 (for certain areas)[11]	Same as Primary Standard	
	Rolling 3-Month Average	--		0.15 µg/m^3		
Visibility Reducing Particles [14]	8 Hour	See footnote 14	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [12]	24 Hour	0.01 ppm (25 µg/m^3)	Gas Chromatography			

See footnotes on next page ...

Footnotes:

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An “equivalent method” of measurement may be used but must have a “consistent relationship to the reference method” and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

1.2.4.2 California Clean Air Act

The CCAA was first signed into law in 1988. The CCAA provides a comprehensive framework for air quality planning and regulation, and spells out, in statute, the state's air quality goals, planning and regulatory strategies, and performance. The CCAA establishes more stringent ambient air quality standards than those included in the FCAA. The CARB is the agency responsible for administering the CCAA. The CARB established ambient air quality standards pursuant to the CH&SC [§39606(b)], which are similar to the federal standards. The San Joaquin Valley Air Pollution Control District (SJVAPCD) is one of 35 air quality management districts that have prepared air quality management plans to accomplish a five percent annual reduction in emissions documenting progress toward the state ambient air quality standards.

1.2.4.3 Tanner Air Toxics Act

California regulates Toxic Air Contaminants (TAC) primarily through the Tanner Air Toxics Act (AB 1807) and the Air Toxics Hot Spots Information and Assessment Act of 1987 (AB 2588). The Tanner Act sets forth a formal procedure for CARB to designate substances as TAC. This includes research, public participation, and scientific peer review before CARB can designate a substance as a TAC. To date, CARB has identified more than 21 TAC and has adopted EPA's list of Hazardous Air Pollutants (HAPs) as TAC. Most recently, diesel PM was added to the CARB list of TAC. Once a TAC is identified, CARB then adopts an Airborne Toxics Control Measure (ATCM) for sources that emit that particular TAC. The CARB list of TAC is provided below:

- Benzene
- Ethylene Dibromide
- Ethylene Dichloride
- Hexavalent chromium
- Asbestos
- Dibenzo-p-dioxins and Dibenzofurans
- Cadmium
- Carbon Tetrachloride
- Ethylene Oxide
- Methylene Chloride
- Trichloroethylene
- Chloroform
- Vinyl chloride
- Inorganic Arsenic
- Nickel
- Perchloroethylene
- Formaldehyde
- 1,3-Butadiene
- Inorganic Lead

- Particulate Emissions from Diesel-Fueled Engines
- Environmental Tobacco Smoke
- EPA's Hazardous Air Pollutants (187)

If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure below that threshold. If there is no safe threshold, the measure must incorporate Best Available Control Technology (BACT) to minimize emissions.

1.2.4.4 California Environmental Quality Act (CEQA)

CEQA defines a significant impact on the environment as a substantial, or potentially substantial, adverse change in the physical conditions within the area affected by the project. Land use is a required impact assessment category under CEQA. CEQA documents generally evaluate land use in terms of compatibility with the existing land uses and consistency with local general plans and other local land use controls (zoning, specific plans, etc.).

1.2.4.5 Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 emission cap by 2020.

1.2.4.6 Senate Bill 375

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that will prescribe land use allocation in that MPO's regional transportation plan. CARB, in consultation with MPOs, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets.

This law also extends the minimum time period for the regional housing needs allocation cycle from five years to eight years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

1.2.5 *Regional Agencies*

1.2.5.1 San Joaquin Valley Air Pollution Control District

The SJVAPCD is the agency responsible for monitoring and regulating air pollutant emissions from stationary, area, and indirect sources within Tulare County and throughout the SJVAB. The District also has responsibility for monitoring air quality and setting and enforcing limits for source emissions. The CARB is the agency with the legal responsibility for regulating mobile source emissions. The District is precluded from such activities under State law.

The District was formed in mid-1991 and prepared and adopted the San Joaquin Valley Air Quality Attainment Plan (AQAP), dated January 30, 1992, in response to the requirements of the State CCAA. The CCAA requires each non-attainment district to reduce pertinent air contaminants by at least five percent (5%) per year until new, more stringent, 1988 State air quality standards are met.

Activities of the SJVAPCD include the preparation of plans for the attainment of ambient air quality standards, adoption and enforcement of rules and regulations concerning sources of air pollution, issuance of permits for stationary sources of air pollution, inspection of stationary sources of air pollution and response to citizen complaints, monitoring of ambient

air quality and meteorological conditions, and implementation of programs and regulations required by the FCAA and CCAA.

The SJVAPCD has prepared the 2013 Ozone Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone. The 2013 Ozone Plan provides a comprehensive list of regulatory and incentive-based measures to reduce emissions of ozone and particulate matter precursors throughout the SJVAB. The 2013 Ozone Plan calls for major advancements in pollution control technologies for mobile and stationary sources of air pollution. The 2013 Ozone Plan calls for a 75-percent reduction in ozone-forming oxides of nitrogen emissions. The 2013 Ozone Plan also addresses the remaining requirement under the 1979 revoked 1-hour ozone NAAQS.

The SJVAPCD has also prepared the *2007 PM10 Maintenance Plan and Request for Redesignation* (2007 PM10 Plan). On April 24, 2006, the SJVAPCD submitted a Request for Determination of PM10 Attainment for the Basin to the CARB. The CARB concurred with the request and submitted the request to the EPA on May 8, 2006. On October 30, 2006, the EPA issued a Final Rule determining that the Basin had attained the NAAQS for PM10. However, the EPA noted that the Final Rule did not constitute a redesignation to attainment until all of the FCAA requirements under Section 107(d)(3) were met.

The SJVAPCD has prepared the *2012 PM.2.5 Plan* to achieve Federal and State standards for improved air quality in the SJVAB. The *2012 PM.2.5 Plan* provides a comprehensive list of regulatory and incentive based measures to reduce PM2.5.

In addition to the *2013 Ozone Plan, the 2012 PM2.5 Plan,* and the *2007 PM10 Plan*, the SJVAPCD prepared the *Guide for Assessing and Mitigation Air Quality Impacts* (GAMAQI), dated March 19, 2015.

The GAMAQI is an advisory document that provides Lead Agencies, consultants, and project applicants with analysis guidance and uniform procedures for addressing air quality impacts in environmental documents. Local jurisdictions are not required to utilize the methodology outlined therein. This document describes the criteria that SJVAPCD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for determining whether or not projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts. The SJVAPCD is currently in the process of updating the GAMAQI and was used as a guidance document for this analysis.

The SJVAPCD Plans identified above represent that SJVAPCD's plan to achieve both state and federal air quality standards. The regulations and incentives contained in these documents

must be legally enforceable and permanent. These plans break emissions reductions and compliance into different emissions source categories.

1.2.6 *Regional Regulations*

The SJVAPCD has adopted numerous rules and regulations to implement its air quality plans. Following, are significant rules that will apply to the Project.

1.2.6.1 Regulation VIII – Fugitive PM10 Prohibitions

Regulation VIII is comprised of District Rules 8011 through 8081, which are designed to reduce PM_{10} emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and track out, landfill operations, etc.

1.2.6.2 Rule 8021 – Construction, Demolition, Excavation, and Other Earthmoving Activities

District Rule 8021 requires owners or operators of construction projects to submit a Dust Control Plan to the District if at any time the project involves non-residential developments of five or more acres of disturbed surface area or moving, depositing, or relocating of more than 2,500 cubic yards per day of bulk materials on at least three days of the project. The proposed project will meet these criteria and will be required to submit a Dust Control Plan to the District in order to comply with this rule.

1.2.6.3 Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations

If asphalt paving will be used, then paving operations of the proposed project will be subject to Rule 4641. This rule applies to the manufacture and use of cutback asphalt, slow cure asphalt and emulsified asphalt for paving and maintenance operations.

1.2.6.4 Rule 9510 – Indirect Source Review (ISR)

The purpose of this rule is to fulfill the District's emission reduction commitments in the PM10 and Ozone Attainment Plans, achieve emission reductions from construction activities, and to provide a mechanism for reducing emissions from the construction of and use of development projects through off-site measures.

1.2.7 *Local Plans*

1.2.7.1 City of Visalia General Plan

California State Law requires every city and county to adopt a comprehensive General Plan to guide its future development. The General Plan essentially serves as a "constitution for development"— the document that serves as the foundation for all land use decisions. The City of Visalia General Plan includes various elements, including air quality and greenhouse gases, that address local concerns and provides goals and policies to achieve its development

goals.

1.2.7.2 City of Visalia Climate Action Plan[1]

The City of Visalia Climate Action Plan (CAP) was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals.

The major long-term objectives of the City of Visalia's CAP for the City government and the community as a whole include the following:

- Reduce net GHG emissions from both municipal operations and community activities;
- Promote cleaner and healthier air to breathe;
- Help the City and its residents save on energy costs;
- Reduce vulnerability to changes in energy availability and price; and
- Increase public awareness of climate change issues.

The City of Visalia selected the years 2020 and 2030 to establish mitigation targets for the CAP. A reduction of 15% below the 2005 baseline year level is the target for 2020. A reduction of 30% below the 2005 baseline year level is the target for 2030. The City of Visalia established two mitigation milestones to correlate with the planning horizon of the 2030 General Plan Update, and to ensure that the City is working towards the State's goal of an 80% reduction below baseline by 2050.

The City of Visalia has instituted various actions in an effort to meet the year 2020 and 2030 mitigation targets. The measures identified to achieve mitigation targets are organized into five categories: Energy Systems, Transportation, Water and Resource Conservation, Transportation / Land Use, and Waste and Resource Conservation. Included in the Transportation category is a measure regarding the expansion of bicycle paths. The Project includes the development of multi-use trails which coincides with the goals of the CAP.

1 City of Visalia Climate Action Plan, December 2013

2.0 Environmental Setting

This section describes existing air quality within the San Joaquin Valley Air Basin and in Tulare County, including the identification of air pollutant standards, meteorological and topological conditions affecting air quality, and current air quality conditions. Air quality is described in relation to ambient air quality standards for criteria pollutants such as, ozone, carbon monoxide, and particulate matter. Air quality can be directly affected by the type and density of land use change and population growth in urban and rural areas.

2.1 Geographical Location

The SJVAB is comprised of eight counties: Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, and Tulare. Encompassing 24,840 square miles, the San Joaquin Valley is the second largest air basin in California. Cumulatively, counties within the Air Basin represent approximately 16 percent of the State's geographic area. The Air Basin is bordered by the Sierra Nevada Mountains on the east (8,000 to 14,492 feet in elevation), the Coastal Range on the west (4,500 feet in elevation), and the Tehachapi Mountains on the south (9,000 feet elevation). The San Joaquin Valley is open to the north extending to the Sacramento Valley Air Basin.

2.2 Topographic Conditions

Tulare County is located within the San Joaquin Valley Air Basin [as determined by the California Air Resources Board (CARB)]. Air basins are geographic areas sharing a common "air shed." A description of the Air Basin in the County, as designated by CARB, is provided in paragraph below. Air pollution is directly related to the region's topographic features, which impact air movement within the Basin.

Wind patterns within the SJVAB result from marine air that generally flows into the Basin from the San Joaquin River Delta. The Coastal Range hinders wind access into the Valley from the west, the Tehachapi's prevent southerly passage of airflow, and the high Sierra Nevada Mountain Range provides a significant barrier to the east. These topographic features result in weak airflow that becomes restricted vertically by high barometric pressure over the Valley. As a result, the SJVAB is highly susceptible to pollutant accumulation over time. Most of the surrounding mountains are above the normal height of summer inversion layers (1,500-3,000 feet).

2.3 Climatic Conditions

Tulare County is located in one of the most polluted air basins in the country. Temperature inversions can trap air within the Valley, thereby preventing the vertical dispersal of air pollutants. In addition to topographic conditions, the local climate can also contribute to air quality problems. Climate in Tulare County is classified as Mediterranean, with moist cool winters and dry warm summers.

Ozone, classified as a "regional" pollutant, often afflicts areas downwind of the original source of precursor emissions. Ozone can be easily transported by winds from a source area. Peak ozone levels tend to be higher in the southern portion of the Valley, as the prevailing summer winds sweep precursors downwind of northern source areas before concentrations peak. The separate designations reflect the fact that ozone precursor transport depends on daily meteorological conditions.

Other primary pollutants, carbon monoxide (CO), for example, may form high concentrations when wind speed is low. During the winter, Tulare County experiences cold temperatures and calm conditions that increase the likelihood of a climate conducive to high CO concentrations.

Precipitation and fog tend to reduce or limit some pollutant concentrations. Ozone needs sunlight for its formation, and clouds and fog block the required radiation. CO is slightly water-soluble so precipitation and fog tends to "reduce" CO concentrations in the atmosphere. PM10 is somewhat "washed" from the atmosphere with precipitation. Precipitation in the San Joaquin Valley is strongly influenced by the position of the semi-permanent subtropical high-pressure belt located off the Pacific coast. In the winter, this high- pressure system moves southward, allowing Pacific storms to move through the San Joaquin Valley. These storms bring in moist, maritime air that produces considerable precipitation on the western, upslope side of the Coast Ranges. Significant precipitation also occurs on the western side of the Sierra Nevada. On the valley floor, however, there is some down slope flow from the Coast Ranges and the resultant evaporation of moisture from associated warming results in a minimum of precipitation. Nevertheless, the majority of the precipitation falling in the San Joaquin Valley is produced by those storms during the winter. Precipitation during the summer months is in the form of convective rain showers and is rare. It is usually associated with an influx of moisture into the San Joaquin Valley through the San Francisco area during an anomalous flow pattern in the lower layers of the atmosphere. Although the hourly rates of precipitation from these storms may be high, their rarity keeps monthly totals low.

Precipitation on the San Joaquin Valley floor and in the Sierra Nevada decreases from north to south. Stockton in the north receives about 20 inches of precipitation per year, Fresno in the center, receives about 10 inches per year, and Bakersfield at the southern end of the valley receives less than 6 inches per year. This is primarily because the Pacific storm track often passes through the northern part of the state while the southern part of the state remains protected by the Pacific High. Precipitation in the San Joaquin Valley Air Basin (SJVAB) is confined primarily to the winter months with some also occurring in late summer and fall. Average annual rainfall for the entire San Joaquin Valley is approximately 5 to 16 inches. Snowstorms, hailstorms, and ice storms occur infrequently in the San Joaquin Valley and severe occurrences of any of these are very rare.

The winds and unstable air conditions experienced during the passage of storms result in periods of low pollutant concentrations and excellent visibility. Between winter storms, high pressure

and light winds allow cold moist air to pool on the San Joaquin Valley floor. This creates strong low-level temperature inversions and very stable air conditions. This situation leads to the San Joaquin Valley's famous Tule Fogs. The formation of natural fog is caused by local cooling of the atmosphere until it is saturated (dew point temperature). This type of fog, known as radiation fog is more likely to occur inland. Cooling may also be accomplished by heat radiation losses or by horizontal movement of a mass of air over a colder surface. This second type of fog, known as advection fog, generally occurs along the coast.

Conditions favorable to fog formation are also conditions favorable to high concentrations of CO and PM10. Ozone levels are low during these periods because of the lack of sunlight to drive the photochemical reaction. Maximum CO concentrations tend to occur on clear, cold nights when a strong surface inversion is present and large numbers of fireplaces are in use. A secondary peak in CO concentrations occurs during morning commute hours when a large number of motorists are on the road and the surface inversion has not yet broken.

The water droplets in fog, however, can act as a sink for CO and nitrogen oxides (NOx), lowering pollutant concentrations. At the same time, fog could help in the formation of secondary particulates such as ammonium sulfate. These secondary particulates are believed to be a significant contributor of winter season violations of the PM10 and PM2.5 standards.

2.4 Anthropogenic (Man-made) Sources

In addition to climatic conditions (wind, lack of rain, etc.), air pollution can be caused by anthropogenic or man-made sources. Air pollution in the SJVAB can be directly attributed to human activities, which cause air pollutant emissions. Human causes of air pollution in the Valley consist of population growth, urbanization (gas-fired appliances, residential wood heaters, etc.), mobile sources (i.e., cars, trucks, airplanes, trains, etc.), oil production, agriculture, and other socioeconomic activities. The most significant factors, which are accelerating the decline of air quality in the SJVAB, are the Valley's rapid population growth and its associated increases in traffic, urbanization, and industrial activity.

Carbon monoxide emissions overwhelmingly come from mobile sources in the San Joaquin Valley; on-road vehicles contributed 34 percent, while other mobile vehicles, such as trains, planes, and off-road vehicles, contribute another 20 percent in 2012 according to emission projections from the CARB. Motor vehicles account for significant portions of regional gaseous and particulate emissions. Local large employers such as industrial plants can also generate substantial regional gaseous and particulate emissions. In addition, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.).

Ozone is the result of a photochemical reaction between Oxides of nitrogen (NOx) and Reactive Organic Gases (ROG). Mobile sources contribute 83 percent of all NOx emitted from anthropogenic sources based on data provided in Appendix I of the Air District's 2013 Ozone Plan.

In addition, mobile sources contribute 22 percent of all the ROG emitted from sources within the San Joaquin Valley.

The principal factors that affect air quality in and around Tulare County are:

1. The sink effect, climatic subsidence and temperature inversions and low wind speeds
2. Automobile and truck travel
3. Increases in mobile and stationary pollutants generated by local urban growth

Automobiles, trucks, buses and other vehicles using hydrocarbon (HC) fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters; animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Tulare County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities. Finally, industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Tulare County consist of agricultural production and processing operations, wine production, and marketing operations.

The primary contributors of PM10 emissions in the San Joaquin Valley are farming activities (29%) and road dust, both paved and unpaved (24%) in 2012 according to emission projections from the CARB. Fugitive windblown dust from “open” fields contributed 14 percent of the PM10.

The four major sources of air pollutant emissions in the SJVAB include industrial plants, motor vehicles, construction activities, and agricultural activities. Industrial plants account for significant portions of regional gaseous and particulate emissions. Motor vehicles, including those from large employers, generate substantial regional gaseous and particulate emissions. Finally, construction and agricultural activities can generate significant temporary gaseous and particulate emissions (dust, ash, smoke, etc.). In addition to these primary sources of air pollution, urban areas upwind from Tulare County, including areas north and west of the San Joaquin Valley, can cause or generate emissions that are transported into Tulare County. All four of the major pollutant sources affect ambient air quality throughout the Air Basin.

2.4.1 *Motor Vehicles*

Automobiles, trucks, buses and other vehicles using hydrocarbon fuels release exhaust products into the air. Each vehicle by itself does not release large quantities; however, when considered as a group, the cumulative effect is significant.

2.4.2 *Agricultural and Other Miscellaneous Activities*

Other sources may not seem to fit into any one of the major categories or they may seem to fit in a number of them. These could include agricultural uses, dirt roads, animal shelters, animal feed lots, chemical plants and industrial waste disposal, which may be a source of dust, odors, or other pollutants. For Tulare County, this category includes several agriculturally related activities, such as plowing, harvesting, dusting with herbicides and pesticides and other related activities.

2.4.3 *Industrial Plants*

Industrial contaminants and their potential to produce various effects depend on the size and type of industry, pollution controls, local topography, and meteorological conditions. Major sources of industrial emissions in Tulare County consist of agricultural production and processing operations, wine production, and marketing operations.

2.5 Roadway Network

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of streets and roads.

The current hierarchical system of streets and roads within the study area consists of the following four (4) basic classifications:

2.5.1 Freeways – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the study area to other parts of the State.

- **SR 198 –** currently exists as a four-lane freeway with a posted speed limit of 65 miles per hour (mph) through the study area. According to the California Department of Transportation's (Caltrans) website, the AADT along SR 198 in 2013 was 26,500. To determine a 2014 volume, the 2013 volume estimate from Caltrans was increased by 1.02 resulting is approximately 27,000 trips in 2014.

2.5.2 Arterials – provide for mobility within study area, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. According to the Visalia General Plan, "arterials collect and distribute traffic from freeways and expressways to collector streets and vice versa. On arterials, the optimum distance between intersections is approximately one quarter mile. Driveways to major traffic generators may be permitted within the quarter-mile spacing. Other intersections closer than one quarter mile should be restricted to right turn access. Based upon the Visalia Improvement Standards (2013), the arterial right-of-

way widths range from 84 feet to 110 feet. Arterials feature two to three through lanes of traffic in each direction with a left turn channelization."

- **Lovers Lane/SR 216 –** is designated as an Arterial facility and currently exists as a four-lane divided roadway between Noble and Houston within the study area. No bike lanes are present and the facility has a posted speed limit of 45 mph.
- **Houston Avenue/SR 216 -** is designated by the City General Plan as an 11-25 Year Arterial between Lovers Lane and Road 152 in the study area. This segment currently exists as a four-lane divided roadway between Lovers Lane and McAuliff Street and as a two-lane road between McAuliff Street and Road 152. Bike lanes are located along Houston Avenue between Lovers Lane and McAuliff Street. The facility has a posted speed limit of 40 mph between Lovers Lane and McAuliff Street, except for the school zone, which includes a posted speed limit of 25 mph. The posted speed between McAuliff Street and Road 152 is 55 mph.
- **Ivanhoe Drive/SR 216 –** is designated by the City General Plan as an 11-25 Year Arterial and by the County General Plan as a Minor Arterial. The facility currently exists as a two-lane undivided roadway without bike lanes and with a posted speed limit of 40 and 55 mph.

2.5.3 ***Collectors*** – provide for internal traffic movement within communities and neighborhoods, and connect local roads to arterials. According to the Visalia General Plan, "Collectors also connect local and arterial streets and provide direct access to parcels. At major intersections, driveways on collector streets should be no closer than 100 feet to the intersection per the City of Visalia Improvement Standards. Non-residential driveways and/or intersecting streets on collector streets should be no closer than 300 to 400 feet apart. Major collectors carry four lanes of traffic within an 84-foot right-of-way and two bicycle lanes within an additional 10 feet of right-of-way. Collectors generally carry two lanes of traffic and are a minimum of 60 feet wide." The following collectors are identified in the Circulation Element as collectors:

- **McAuliff Street –** is a four-lane undivided roadway between Mineral King and Houston and a 4-lane divided roadway north of Houston. For purpose of LOS analysis, McAuliff was identified as an arterial roadway using the Modified HCM Segment LOS tables. Bike lanes are present along both sides of McAuliff Street except along the west side of the roadway between Willow Avenue and Mineral King Avenue. The posted speed along McAuliff Street is 45 mph.
- **Millcreek Parkway –** is a two-lane divided roadway without bike lanes and with a posted speed limit of 45 mph.
- **Mineral King Avenue –** currently exists as a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Noble Avenue** - is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Road 152 –** is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.

2.5.4 ***Local Streets*** – provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. According to the City General Plan, "access to local streets is unrestricted and right-of-way widths vary between 48 and 66 feet depending on surrounding land uses (2013 City of Visalia Design and Improvement Standards). All roadways not identified in the City of Visalia or Tulare County General Plans as freeways, arterials, or collectors are designated as local streets."

2.6 San Joaquin Valley Air Basin Monitoring

SJVAPCD and the CARB maintain numerous air quality monitoring sites throughout each County in the Air Basin to measure ozone, PM2.5, and PM10. It is important to note that the federal ozone 1-hour standard was revoked by the EPA and is no longer applicable for federal standards. The closest monitoring station to the Project is located at Visalia's N Church Street Monitoring Station. The station monitors particulates, ozone, carbon monoxide, and nitrogen dioxide. Monitoring data for the past three years is summarized in Table 2.

Table 3 identifies the Tulare County's attainment status. As indicated, the SJVAB is nonattainment for Ozone (1 hour and 8 hour) and PM. In accordance with the FCAA, EPA uses the design value at the time of standard promulgation to assign nonattainment areas to one of several classes that reflect the severity of the nonattainment problem; classifications range from marginal nonattainment to extreme nonattainment. The FCAA contains provisions for changing the classifications using factors such as clean air progress rates and requests from States to move areas to a higher classification.

On April 16, 2004 EPA issued a final rule classifying the SJVAB as extreme nonattainment for Ozone, effective May 17, 2004 (69 FR 20550). The (federal) 1-hour ozone standard was revoked on June 6, 2005. However, many of the requirements in the 1-hour attainment plan (SIP) continue to apply to the SJVAB. The current ozone plan is the (federal) 8-hour ozone plan adopted in 2007. The SJVAB was reclassified from a "serious" nonattainment area for the 8-hour ozone standard to "extreme' effective June 4, 2010.

Table 2
Maximum Pollutant Levels at Visalia's N Church Street Monitoring Station

Pollutant	Time Averaging	2014 Maximums	2015 Maximums	2016 Maximums	Standards National	Standards State
Ozone (O3)	1 hour	0.095 ppm	0.110 ppm	0.098 ppm	-	0.09 ppm
Ozone (O3)	8 hour	0.079 ppm	0.090 ppm	0.083 ppm	0.070 ppm	0.070 ppm
Carbon Monoxide (CO)	8 hour	**	**	**	9.0 ppm	9.0 ppm
Nitrogen Dioxide (NO2)	1 hour	0.065 ppm	0.062 ppm	0.058 ppm	100 ppb	0.18 ppm
Nitrogen Dioxide (NO2)	Annual Average	0.010 ppm	0.009 ppm	**	0.053 ppm	0.030 ppm
Particulates (PM10)	24 hour	104.2 µg/m3	140.3 µg/m3	137.1 µg/m3	150 µg/m3	50 µg/m3
Particulates (PM10)	Federal Annual Arithmetic Mean	45.4 µg/m3	28.9 µg/m3	43.3 µg/m3	-	20 µg/m3
Particulates (PM2.5)	24 hour	85.9 µg/m3	91.5 µg/m3	53.9 µg/m3	35 µg/m3	-
Particulates (PM2.5)	Federal Annual Arithmetic Mean	17.8 µg/m3	16.1 µg/m3	14.6 µg/m3	12 µg/m3	12 µg/m3

** There was insufficient data available to determine the value.
Source: CARB Website, 2017

Table 3
Tulare County Attainment Status

Pollutant	Designation/Classification	
	Federal Standards	State Standards
Ozone - 1 Hour	Revoked in 2005	Nonattainment/Severe
Ozone - 8 Hour	Nonattainment/Extreme [a]	No State Standard
PM10	Attainment	Nonattainment
PM2.5	Nonattainment	Nonattainment
Carbon Monoxide	Unclassified/Attainment	Attainment
Nitrogen Dioxide	Unclassified/Attainment	Attainment
Sulfur Dioxide	Unclassified	Attainment
Lead (Particulate)	Unclassified/Attainment	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Sulfates	No Federal Standard	Attainment
Visibility Reducing Particles	No Federal Standard	Unclassified

Source: CARB Website, 2015

a. Though the Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

Notes:

National Designation Categories

Non-Attainment Area: Any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.

Unclassified/Attainment Area: Any area that cannot be classified on the basis of available information as meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant or meets the national primary or secondary ambient air quality standard for the pollutant.

State Designation Categories

Unclassified: A pollutant is designated unclassified if the data are incomplete and do not support a designation of attainment or non-attainment.

Attainment: A pollutant is designated attainment if the State standard for that pollutant was not violated at any site in the area during a three-year period.

Non-attainment: A pollutant is designated non-attainment if there was at least one violation of a State standard for that pollutant in the area.

Non-Attainment/Transitional: A subcategory of the non-attainment designation. An area is designated non-attainment/transitional to signify that the area is close to attaining the standard for the pollutant.

2.7 Air Quality Standards

The FCAA, first adopted in 1963, and periodically amended since then, established National Ambient Air Quality Standards (NAAQS). A set of 1977 amendments determined a deadline for the attainment of these standards. That deadline has since passed. Other CAA amendments, passed in 1990, share responsibility with the State in reducing emissions from mobile sources.

In 1988, the State of California passed the CCAA (State 1988 Statutes, Chapter 568), which set forth a program for achieving more stringent California Ambient Air Quality Standards. The CARB implements State ambient air quality standards, as required in the CCAA, and cooperates with the federal government in implementing pertinent sections of the FCAA Amendments (FCAAA). Further, CARB regulates vehicular emissions throughout the State. The SJVAPCD regulates stationary sources, as well as some mobile sources. Attainment of the more stringent State PM10 Air Quality Standards is not currently required.

The EPA uses six "criteria pollutants" as indicators of air quality and has established for each of them a maximum concentration above which adverse effects on human health may occur. These threshold concentrations are called the NAAQS.

The SJVAPCD operates regional air quality monitoring networks that provide information on average concentrations of pollutants for which State or federal agencies have established ambient air quality standards. Descriptions of nine pollutants of importance in Tulare County follow.

2.7.1 *Ozone (1-hour and 8-hour)*

The most severe air quality problem in the Air Basin is the high level of ozone. Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. Here, ground level, or "bad" ozone, is an air pollutant that damages human health, vegetation, and many common materials. It is a key ingredient of urban smog. The troposphere extends to a level about 10 miles up, where it meets the second layer, the stratosphere. The stratospheric, or "good" ozone layer, extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays.

"Bad" ozone is what is known as a photochemical pollutant. It needs reactive organic gases (ROG), NOx, and sunlight. ROG and NOx are emitted from various sources throughout Tulare County. In order to reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors.

Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours in a stable atmosphere with strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

Ozone is a regional air pollutant. It is generated over a large area and is transported and spread by wind. Ozone, the primary constituent of smog, is the most complex, difficult to control, and pervasive of the criteria pollutants. Unlike other pollutants, ozone is not emitted directly into the air by specific sources. Ozone is created by sunlight acting on other air pollutants (called precursors), specifically NOx and ROG. Sources of precursor gases to the photochemical reaction that form ozone number in the thousands. Common sources include consumer products, gasoline vapors, chemical solvents, and combustion products of various fuels. Originating from gas stations, motor vehicles, large industrial facilities, and small businesses such as bakeries and dry cleaners, the ozone-forming chemical reactions often take place in another location, catalyzed by sunlight and heat. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins. Approximately 50 million people lived in counties with air quality levels above the EPA's health-based national air quality standard in 1994. The highest levels of ozone were recorded in Los Angeles, closely followed by the San Joaquin Valley. High levels also persist in other heavily populated areas, including the Texas Gulf Coast and much of the Northeast.

While the ozone in the upper atmosphere absorbs harmful ultraviolet light, ground-level ozone is damaging to the tissues of plants, animals, and humans, as well as to a wide variety of inanimate materials such as plastics, metals, fabrics, rubber, and paints. Societal costs from ozone damage include increased medical costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

- ***Health Effects***

  While ozone in the upper atmosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems, such as: forests and foothill communities; agricultural crops; and some man-made materials, such as rubber, paint, and plastic. High levels of ozone may negatively affect immune systems, making people more susceptible to respiratory illnesses, including bronchitis and pneumonia. Ozone accelerates aging and exacerbates pre-existing asthma and bronchitis and, in cases with high concentrations, can lead to the development of asthma in active children. Active people, both children and adults, appear to be more at risk from ozone exposure than those with a low level of activity. Additionally, the elderly and those with respiratory disease are also considered sensitive populations for ozone.

  People who work or play outdoors are at a greater risk for harmful health effects from ozone. Children and adolescents are also at greater risk because they are more likely than adults to spend time engaged in vigorous activities. Research indicates that children under 12 years of age spend nearly twice as much time outdoors daily than adults. Teenagers spend at least twice as much time as adults in active sports and outdoor

activities. In addition, children inhale more air per pound of body weight than adults, and they breathe more rapidly than adults. Children are less likely than adults to notice their own symptoms and avoid harmful exposures.

Ozone is a powerful oxidant—it can be compared to household bleach, which can kill living cells (such as germs or human skin cells) upon contact. Ozone can damage the respiratory tract, causing inflammation and irritation, and it can induce symptoms such as coughing, chest tightness, shortness of breath, and worsening of asthmatic symptoms. Ozone in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. Exposure to levels of ozone above the current ambient air quality standard leads to lung inflammation and lung tissue damage and a reduction in the amount of air inhaled into the lungs.

The CARB found ozone standards in Tulare County nonattainment of Federal and State standards.

2.7.2 *Suspended PM (PM10 and PM2.5)*

Particulate matter pollution consists of very small liquid and solid particles that remain suspended in the air for long periods. Some particles are large or concentrated enough to be seen as soot or smoke. Others are so small they can be detected only with an electron microscope. Particulate matter is a mixture of materials that can include smoke, soot, dust, salt, acids, and metals. Particulate matter is emitted from stationary and mobile sources, including diesel trucks and other motor vehicles; power plants; industrial processes; wood-burning stoves and fireplaces; wildfires; dust from roads, construction, landfills, and agriculture; and fugitive windblown dust. PM10 refers to particles less than or equal to 10 microns in aerodynamic diameter. PM2.5 refers to particles less than or equal to 2.5 microns in aerodynamic diameter and are a subset of PM10. Particulates of concern are those that are 10 microns or less in diameter. These are small enough to be inhaled, pass through the respiratory system and lodge in the lungs, possibly leading to adverse health effects.

In the western United States, there are sources of PM10 in both urban and rural areas. Because particles originate from a variety of sources, their chemical and physical compositions vary widely. The composition of PM10 and PM2.5 can also vary greatly with time, location, the sources of the material and meteorological conditions. Dust, sand, salt spray, metallic and mineral particles, pollen, smoke, mist, and acid fumes are the main components of PM10 and PM2.5. In addition to those listed previously, secondary particles can also be formed as precipitates from chemical and photochemical reactions of gaseous sulfur dioxide (SO2) and NOx in the atmosphere to create sulfates (SO4) and nitrates (NO3). Secondary particles are of greatest concern during the winter months where low inversion layers tend to trap the precursors of secondary particulates.

The District's 2008 PM2.5 Plan builds upon the aggressive emission reduction strategy adopted

in the 2007 Ozone Plan and strives to bring the valley into attainment status for the 1997 NAAQS for PM2.5. The 2008 PM2.5 Plan indicates that all planned reductions (from the 2007 Ozone Plan and state standard.

The following new controls considered in the 2008 PM2.5 Plan include:

- Tighter restrictions on residential wood burning and space heating
- More stringent limits on PM2.5, SO2, and NOx emissions from industrial sources
- Measures to reduce emissions from prescribed burning and agricultural burning
- More effective work practices to control PM2.5 in fugitive dust

The control strategy in this plan would also bring the valley closer to attainment status for the 2006 daily PM2.5 standard. The district presented the draft 2008 PM2.5 Plan to the District Governing Board on April 17, 2008, following a 30-day public comment period. This plan was delivered to the EPA in April 2008. The 2008 PM2.5 Plan for the 1997 PM2.5 standard (as revised in 2011) was approved by EPA on November 9, 2011, which contains motor vehicle emission budgets for PM2.5 and NOx established based on average annual daily emissions, as well as a trading mechanism. The motor vehicle emissions budget for PM2.5 includes directly emitted PM2.5 motor vehicle emissions from tailpipe, brake wear and tire wear. VOC, SOx, ammonia, and dust (from paved roads, unpaved roads, and road construction) were found to be insignificant and not included in the motor vehicle emission budgets for conformity purposes.

- ***Health Effects***

  PM10 and PM2.5 particles are small enough—about one-seventh the thickness of a human hair, or smaller—to be inhaled and lodged in the deepest parts of the lung where they evade the respiratory system's natural defenses. Health problems begin as the body reacts to these foreign particles. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis, and respiratory illnesses in children. Recent mortality studies have shown a statistically significant direct association between mortality and daily concentrations of particulate matter in the air. Non-health-related effects include reduced visibility and soiling of buildings. PM10 can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. PM10 and PM2.5 can aggravate respiratory disease and cause lung damage, cancer, and premature death.

  Although particulate matter can cause health problems for everyone, certain people are especially vulnerable to adverse health effects of PM10. These "sensitive populations" include children, the elderly, exercising adults, and those suffering from chronic lung disease such as asthma or bronchitis. Of greatest concern are recent studies that link PM10 exposure to the premature death of people who already have heart and lung disease, especially the elderly. Acidic PM10 can also damage manmade materials and is

a major cause of reduced visibility in many parts of the United States.

The CARB found PM10 standards in Tulare County in attainment of Federal standards and nonattainment for State standards. The CARB found PM2.5 standards in Tulare County nonattainment of Federal and State standards.

2.7.3 *Carbon Monoxide (CO)*

Carbon monoxide (CO) is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. CO is an odorless, colorless, poisonous gas that is highly reactive. CO is a byproduct of motor vehicle exhaust, contributes more than two thirds of all CO emissions nationwide. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. These emissions can result in high concentrations of CO, particularly in local areas with heavy traffic congestion. Other sources of CO emissions include industrial processes and fuel combustion in sources such as boilers and incinerators. Despite an overall downward trend in concentrations and emissions of CO, some metropolitan areas still experience high levels of CO.

- ***Health Effects***

  CO enters the bloodstream and binds more readily to hemoglobin than oxygen, reducing the oxygen-carrying capacity of blood and thus reducing oxygen delivery to organs and tissues. The health threat from CO is most serious for those who suffer from cardiovascular disease. Healthy individuals are also affected but only at higher levels of exposure. At high concentrations, CO can cause heart difficulties in people with chronic diseases and can impair mental abilities. Exposure to elevated CO levels is associated with visual impairment, reduced work capacity, reduced manual dexterity, poor learning ability, difficulty performing complex tasks, and in prolonged, enclosed exposure, death.

  The adverse health effects associated with exposure to ambient and indoor concentrations of CO are related to the concentration of carboxyhemoglobin (COHb) in the blood. Health effects observed may include an early onset of cardiovascular disease; behavioral impairment; decreased exercise performance of young, healthy men; reduced birth weight; sudden infant death syndrome (SIDS); and increased daily mortality rate.

  Most of the studies evaluating adverse health effects of CO on the central nervous system examine high-level poisoning. Such poisoning results in symptoms ranging from common flu and cold symptoms (shortness of breath on mild exertion, mild headaches, and nausea) to unconsciousness and death.

  The CARB found CO standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.7.4 *Nitrogen Dioxide (NO2)*

Nitrogen oxides (NOx) is a family of highly reactive gases that are primary precursors to the formation of ground-level ozone and react in the atmosphere to form acid rain. NOx is emitted from combustion processes in which fuel is burned at high temperatures, principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. A brownish gas, NOx is a strong oxidizing agent that reacts in the air to form corrosive nitric acid, as well as toxic organic nitrates.

- ***Health Effects***

  NOx is an ozone precursor that combines with Reactive Organic Gases (ROG) to form ozone. See the ozone section above for a discussion of the health effects of ozone.

  Direct inhalation of NOx can also cause a wide range of health effects. NOx can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. Short-term exposures (e.g., less than 3 hours) to low levels of nitrogen dioxide (NO2) may lead to changes in airway responsiveness and lung function in individuals with preexisting respiratory illnesses. These exposures may also increase respiratory illnesses in children. Long-term exposures to NO2 may lead to increased susceptibility to respiratory infection and may cause irreversible alterations in lung structure. Other health effects associated with NOx are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO2 may lead to eye and mucus membrane aggravation, along with pulmonary dysfunction. NOx can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to production of particulate nitrates. Airborne NOx can also impair visibility. NOx is a major component of acid deposition in California. NOx may affect both terrestrial and aquatic ecosystems. NOx in the air is a potentially significant contributor to a number of environmental effects such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduce the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

  NO2 is toxic to various animals as well as to humans. Its toxicity relates to its ability to combine with water to form nitric acid in the eye, lung, mucus membranes, and skin. Studies of the health impacts of NO2 include experimental studies on animals, controlled laboratory studies on humans, and observational studies.

  In animals, long-term exposure to NOx increases susceptibility to respiratory infections, lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO2, can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO2 concentrations and daily mortality from respiratory and cardiovascular causes as well as hospital admissions for respiratory conditions.

NOx contributes to a wide range of environmental effects both directly and when combined with other precursors in acid rain and ozone. Increased nitrogen inputs to terrestrial and wetland systems can lead to changes in plant species composition and diversity. Similarly, direct nitrogen inputs to aquatic ecosystems such as those found in estuarine and coastal waters can lead to eutrophication as discussed above. Nitrogen, alone or in acid rain, also can acidify soils and surface waters. Acidification of soils causes the loss of essential plant nutrients and increased levels of soluble aluminum, which is toxic to plants. Acidification of surface waters creates conditions of low pH and levels of aluminum that are toxic to fish and other aquatic organisms.

The CARB found NO2 standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.7.5 *Sulfur Dioxide (SO2)*

The major source of sulfur dioxide (SO2) is the combustion of high-sulfur fuels for electricity generation, petroleum refining and shipping. High concentrations of SO2 can result in temporary breathing impairment for asthmatic children and adults who are active outdoors. Short-term exposures of asthmatic individuals to elevated SO2 levels during moderate activity may result in breathing difficulties that can be accompanied by symptoms such as wheezing, chest tightness, or shortness of breath. Other effects that have been associated with longer-term exposures to high concentrations of SO2, in conjunction with high levels of PM, include aggravation of existing cardiovascular disease, respiratory illness, and alterations in the lungs' defenses. SO2 also is a major precursor to PM2.5, which is a significant health concern and a main contributor to poor visibility. In humid atmospheres, sulfur oxides can react with vapor to produce sulfuric acid, a component of acid rain.

The CARB found SO2 standards in the Tulare County as unclassified for Federal standards and attainment for State standards.

2.7.6 *Lead (Pb)*

Lead, a naturally occurring metal, can be a constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used until recently to increase the octane rating in automobile fuel. Since the 1980s, lead has been phased out in gasoline, reduced in drinking water, reduced in industrial air pollution, and banned or limited in consumer products. Gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels; however, the use of leaded fuel has been mostly phased out. Since this has occurred the ambient concentrations of lead have dropped dramatically.

Exposure to lead occurs mainly through inhalation of air and ingestion of lead in food, water, soil, or dust. It accumulates in the blood, bones, and soft tissues and can adversely affect the kidneys,

liver, nervous system, and other organs. Excessive exposure to lead may cause neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with damage to the nervous systems of fetuses and young children. Effects on the nervous systems of children are one of the primary health risk concerns from lead. In high concentrations, children can even suffer irreversible brain damage and death. Children 6 years old and under are most at risk, because their bodies are growing quickly.

The CARB found Lead standards in Tulare County as unclassified/attainment of Federal standards and attainment for State standards.

2.7.7 *Toxic Air Contaminants (TAC)*

In addition to the criteria pollutants discussed above, Toxic Air Contaminants (TAC) are another group of pollutants of concern. TAC are injurious in small quantities and are regulated despite the absence of criteria documents. The identification, regulation and monitoring of TAC is relatively recent compared to that for criteria pollutants. Unlike criteria pollutants, TAC are regulated on the basis of risk rather than specification of safe levels of contamination. The ten TAC are acetaldehyde, benzene, 1,3-butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchloroethylene, and diesel particulate matter (diesel PM). Caltrans' guidance for transportation studies references the Federal Highway Administration (FHWA) memorandum titled "Interim Guidance on Air Toxic Analysis in NEPA Documents" which discusses emissions quantification of six "priority" compounds of 21 Mobile Source Air Toxics (MSAT) identified by the United States Environmental Protection Agency (USEPA). The six diesel exhaust (particulate matter and organic gases), benzene, 1,3-butadiene, acetaldehyde, formaldehyde, and acrolein.

Some studies indicate that diesel PM poses the greatest health risk among the TAC listed above. A 10-year research program (California Air Resources Board 1998) demonstrated that diesel PM from diesel-fueled engines is a human carcinogen and that chronic (long-term) inhalation exposure to diesel PM poses a chronic health risk. In addition to increasing the risk of lung cancer, exposure to diesel exhaust can have other health effects. Diesel exhaust can irritate the eyes, nose, throat, and lungs, and it can cause coughs, headaches, lightheadedness, and nausea. Diesel exhaust is a major source of fine particulate pollution as well, and studies have linked elevated particle levels in the air to increased hospital admissions, emergency room visits, asthma attacks, and premature deaths among those suffering from respiratory problems.

Diesel PM differs from other TAC in that it is not a single substance but a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled, internal combustion engines, the composition of the emissions varies, depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present. Unlike the other TAC, however, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. The CARB has made preliminary concentration estimates based on a diesel PM exposure method. This method uses the CARB emissions inventory's PM10 database, ambient PM10 monitoring data, and the results from several studies

to estimate concentrations of diesel PM. Table 4 depicts the CARB Handbook's recommended buffer distances associated with various types of common sources.

Existing air quality concerns within Tulare County and the entire SJVAB are related to increases of regional criteria air pollutants (e.g., ozone and particulate matter), exposure to toxic air contaminants, odors, and increases in greenhouse gas emissions contributing to climate change. The primary source of ozone (smog) pollution is motor vehicles. Particulate matter is caused by dust, primarily dust generated from construction and grading activities, and smoke which is emitted from fireplaces, wood-burning stoves, and agricultural burning.

2.7.8 *Odors*

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor.

Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

TABLE 4
Recommendations on Siting New Sensitive Land Uses Such As Residences, Schools, Daycare Centers, Playgrounds, or Medical Facilities*

SOURCE CATEGORY	ADVISORY RECOMMENDATIONS
Freeways and High-Traffic Roads	- Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.
Distribution Centers	- Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). - Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.
Rail Yards	- Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. - Within one mile of a rail yard, consider possible siting limitations and mitigation approaches.
Ports	- Avoid siting of new sensitive land uses immediately downwind of ports in the most heavily impacted zones. Consult local air districts or the ARB on the status of pending analyses of health risks.
Refineries	- Avoid siting new sensitive land uses immediately downwind of petroleum refineries. Consult with local air districts and other local agencies to determine an appropriate separation.
Chrome Platers	- Avoid siting new sensitive land uses within 1,000 feet of a chrome plater.
Dry Cleaners Using Perchloroethylene	- Avoid siting new sensitive land uses within 300 feet of any dry cleaning operation. For operations with two or more machines, provide 500 feet. For operations with 3 or more machines, consult with the local air district. - Do not site new sensitive land uses in the same building with perchloroethylene dry cleaning operations.
Gasoline Dispensing Facilities	- Avoid siting new sensitive land uses within 300 feet of a large gas station (defined as a facility with a throughput of 3.6 million gallons per year or greater). A 50 foot separation is recommended for typical gas dispensing facilities.

*Notes:
• These recommendations are advisory. Land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues.
• Recommendations are based primarily on data showing that the air pollution exposures addressed here (i.e., localized) can be reduced as much as 80% with the recommended separation.
• The relative risk for these categories varies greatly (see Table 1-2). To determine the actual risk near a particular facility, a site-specific analysis would be required. Risk from diesel PM will decrease over time as cleaner technology phases in.
• These recommendations are designed to fill a gap where information about existing facilities may not be readily available and are not designed to substitute for more specific information if it exists. The recommended distances take into account other factors in addition to available health risk data (see individual category descriptions).
• Site-specific project design improvements may help reduce air pollution exposures and should also be considered when siting new sensitive land uses.
• This table does not imply that mixed residential and commercial development in general is incompatible. Rather it focuses on known problems like dry cleaners using perchloroethylene that can be addressed with reasonable preventative actions.
• A summary of the basis for the distance recommendations can be found in the ARB Handbook: Air Quality and Land Use Handbook: A Community Health Perspective.

Source: SJVAPCD 2017

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 along with a reasonable distance from the source within which, the degree of odors could possibly be significant. Information presented in Table 5 will be used as a screening level of analysis for potential odor sources for the proposed project.

TABLE 5
Screening Levels for Potential Odor Sources

Type of Facility	Distance
Wastewater Treatment Facilities	2 miles
Sanitary Landfill	1 mile
Transfer Station	1 mile
Compositing Facility	1 mile
Petroleum Refinery	2 miles
Asphalt Batch Plant	1 mile
Chemical Manufacturing	1 mile
Fiberglass Manufacturing	1 mile
Painting/Coating Operations (e.g. auto body shops)	1 mile
Food Processing Facility	1 mile
Feed Lot/Dairy	1 mile
Rendering Plant	1 mile

Source: SJVAPCD 2017

2.7.9 *Naturally Occurring Asbestos (NOA)*

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Asbestos is commonly found in ultramafic rock and near fault zones. The amount of asbestos that is typically present in these rocks ranges from less than 1% up to approximately 25% and sometimes more. It is released from ultramafic rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways, which are surfaced with these rocks, when land is graded for building purposes, or at quarrying operations. Asbestos is also released naturally through weathering and erosion. Once released from the rock,

asbestos can become airborne and may stay in the air for long periods of time. Asbestos is hazardous and can cause lung disease and cancer dependent upon the level of exposure. The longer a person is exposed to asbestos and the greater the intensity of the exposure, the greater the chances for a health problem.

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021.

2.7.10 *Greenhouse Gas Emissions*

Gases that trap heat in the atmosphere are often called greenhouse gases. Some greenhouse gases such as carbon dioxide occur naturally and are emitted to the atmosphere through natural processes and human activities. Other greenhouse gases (e.g., fluorinated gases) are created and emitted solely through human activities. The principal greenhouse gases that enter the atmosphere because of human activities are:

- **Carbon Dioxide (CO2):** Carbon dioxide enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and also as a result of other chemical reactions (e.g., manufacture of cement, asphalt paving, truck trips). Carbon dioxide is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH4):** Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and other agricultural practices and by the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N2O):** Nitrous oxide is emitted during agricultural and industrial activities, as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** Hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride are synthetic, powerful greenhouse gases that are emitted from a variety of industrial processes. Fluorinated gases are sometimes used as substitutes for ozone-depleting substances (i.e., CFCs, HCFCs, and halons). These gases are typically emitted in smaller quantities, but because they are potent greenhouse gases, they are sometimes referred to as High Global Warming Potential gases ("High GWP gases").

Various statewide and local initiatives to reduce California's contribution to GHG emissions have raised awareness that, even though the various contributors to and consequences of global climate change are not yet fully understood, global climate change is occurring. Every nation emits GHGs; therefore, global cooperation will be required to reduce the rate of GHG emissions. There are currently no state regulations in California that establish ambient air quality standards for GHGs. However, the state of California has passed legislation directing CARB to develop actions to reduce GHG emissions.

2.8 Existing On-Site Operations

The Project will be located on parcels of land that currently consist of walnut and pecan orchards. As a result of development of the Project, the emissions currently being emitted by the walnut and pecan orchard operations will be subtracted from the projected emissions of the proposed Project and replaced with Project emissions for the net result. Walnut and pecan orchard operation emissions were calculated using the formulas and emissions factors provided in Appendix A. Table 6 provides an assessment of existing emissions generated by the existing agricultural uses. It should be noted that walnut and pecan orchard operations will continue with the development of each phase of the Project until full development of the Project.

TABLE 6
Walnut/Pecan Orchards Emissions Estimates (tons/year)

Summary Report	CO	NO_X	PM_{10}	$PM_{2.5}$
Walnut/Pecan Orchard Emissions Per Year	13.50	0.98	6.53	1.16

Source: VRPA Technologies, Inc., 2017

3.0 Air-Quality Impacts

3.1 Methodology

The impact assessment for air quality focuses on potential effects the Project might have on air quality within the Tulare County region. The SJVAPCD has established thresholds of significance for determining environmental significance. These thresholds separate a project's short-term emissions from its long-term emissions. The short-term emissions are mainly related to the construction phase of a project, which are recognized to be short in duration. The long-term emissions are primarily related to the activities that will occur indefinitely as a result of Project operations. Impacts will be evaluated both on the basis of CEQA Appendix G criteria and SJVAPCD significance criteria. The impacts to be evaluated will be those involving construction and operational emissions of criteria pollutants. The SJVAPCD has established thresholds for certain pollutants shown in Table 7.

Table 7
SJVAPCD Air Quality Thresholds of Significance

Project Type	Ozone Precursor Emissions (tons/year)					
	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions	100	10	10	27	15	15
Operational Emissions (Permitted Equipment and Activities)	100	10	10	27	15	15
Operational Emissions (Non-Permitted Equipment and Activities)	100	10	10	27	15	15

Source: SJVAPCD 2017

3.1.1 *CalEEMod*

CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria pollutant and greenhouse gas (GHG) emissions associated with both construction and operations from a variety of land use projects. The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use.

The model is an accurate and comprehensive tool for quantifying air quality impacts from land use projects throughout California. The model can be used for a variety of situations where an air quality analysis is necessary or desirable such as CEQA and NEPA documents, pre-project planning, compliance with local air quality rules and regulations, etc. CalEEMod analysis worksheets are provided in Appendix B.

3.1.2 *Road Construction Emissions Model*

The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model, (commonly called "SacMetro") Version 8.1.0 calculates a linear-type project's emissions (such as a pipeline or roadway) by project phase over the entire construction period. The model can be used to estimate vehicle exhaust and fugitive dust emissions. Road Construction Emissions Model analysis worksheets are provided in Appendix C.

3.1.3 *California Line Source Dispersion Model (CALINE)*

CALINE is a dispersion model for predicting air pollutant levels near highways and arterial streets. It is the standard modeling program used by Caltrans to assess carbon monoxide impacts near transportation facilities. The model is based on the Gaussian diffusion equation and employs a mixing zone concept to characterize pollutant dispersion from automobiles over the roadway. CALINE analysis worksheets are provided in Appendix D.

3.2 Short-Term Impacts

Short-term impacts are mainly related to the construction phase of a project and are recognized to be short in duration. Construction air quality impacts are generally attributable to dust and exhaust pollutants generated by equipment and vehicles. Fugitive dust is emitted both during construction activity and as a result of wind erosion over exposed earth surfaces. Clearing and earth moving activities do comprise major sources of construction dust emissions, but traffic and general disturbances of soil surfaces also generate significant dust emissions. Further, dust generation is dependent on soil type and soil moisture. Exhaust pollutants are the non-useable gaseous waste products produced during the combustion process. Engine exhaust contains CO, HC, and NOx pollutants which are harmful to the environment.

Adverse effects of construction activities cause increased dust-fall and locally elevated levels of total suspended particulate. Dust-fall can be a nuisance to neighboring properties or previously completed developments surrounding or within the Project area and may require frequent washing during the construction period. Further, asphalt-paving materials used during construction will present temporary, minor sources of hydrocarbons that are precursors of ozone.

PM10 emissions can result from construction activities of the project. The SJVAPCD requires implementation of effective and comprehensive control measures, rather than a detailed quantification of emissions. The SJVAPCD has determined that compliance with Regulation VIII for all sites and other control measures will constitute sufficient mitigation to reduce PM10 impacts to a level considered less-than significant.

Ozone precursor emissions are also an impact of construction activities and can be quantified through calculations. Numerous variables factored into estimating total construction emission

include: level of activity, length of construction period, number of pieces and types of equipment in use, site characteristics, weather conditions, number of construction personnel, and amount of materials to be transported onsite or offsite. Additional exhaust emissions would be associated with the transport of workers and materials. Because the specific mix of construction equipment is not presently known for this project, construction emissions from equipment were estimated using the CalEEMod Model. The analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project will be constructed independently of each other and will not overlap.

3.2.1 *Phase 1 Construction*

Phase 1 of the Project includes development of the groundwater recharge basins and stormwater layoff basins. Table 8 shows the estimated construction emissions using CalEEMod that would be generated from Phase 1 of the Project. Results of the analysis show that emissions generated from construction of Phase 1 will not exceed the SJVAPCD emission thresholds.

Table 8
Phase 1 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	5.52	6.82	0.86	0.01	1.37	0.77
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

3.2.2 *Phase 2 Construction*

Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage improvements, Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Table 9 shows the estimated construction emissions that would be generated from the park development component of Phase 2 of the Project using CalEEMod. Results of the analysis show that emissions generated from this aspect of Phase 2 construction will not exceed the SJVAPCD emission thresholds.

The proposed Tower Street improvements will be developed in concert with Phase 2 of the Project. The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model was used to determine construction emissions associated with the development of Tower Street. Results of the analysis are provided in Table 10. Results of the analysis show that the combination of Phase 2 Project (Table 9) and Tower Street construction will not exceed SJVAPCD emission thresholds.

Table 9
Phase 2 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	3.89	6.87	0.64	0.01	1.20	0.72
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 10
Phase 2 Tower Street Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Tower Street Construction Emissions Per Year	2.31	2.89	0.28	0.00	1.42	0.39
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: Road Construction Emissions Model

3.2.3 *Phase 3 Construction*

Phase 3 of the Project involves the remaining development of the site which includes the Community Center, Amphitheater, Disc Golf Course, and recreational trails. Table 11 shows the CalEEMod-estimated construction emissions that would be generated from Phase 3 of the Project. Results of the analysis show that emissions generated from construction of Phase 3 will not exceed the SJVAPCD emission thresholds.

Table 11
Phase 3 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	4.31	7.44	1.71	0.01	2.79	1.47
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

3.3 Long-Term Emissions

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the project site and area sources such as lawn maintenance equipment. It should be noted that the proposed Project will be located on parcels of land that currently consists of a

walnut and pecan orchard. As a result of development of the Project, the emissions currently being emitted by the walnut and pecan orchard operations will be subtracted from the projected emissions of the proposed Project and replaced with Project emissions for the net result. Walnut and pecan orchard operation emissions are provided in Table 6 and were derived using the formulas and emissions factors provided in Appendix A.

3.3.1 *Localized Operational Emissions – Ozone/Particulate Matter*

The Tulare County area is nonattainment for Federal and State air quality standards for ozone and nonattainment for Federal and State standards for PM2.5. Nitrogen oxides and reactive organic gases are regulated as ozone precursors. Significance criteria have been established for criteria pollutant emissions as documented in Section 3.1. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix B.

Phase 1 Operations

Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities only. It is anticipated that Phase 1 of the project will generate very few daily trips and have very limited daily operations. Operational emissions have been estimated for the Project using the CalEEMod Model and detailed results are included in Appendix B of this report. Results of the CalEEMod analysis are shown in Table 12. Results indicate that the annual operational emissions from Phase 1 of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants.

Table 12
Phase 1 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 1 Operational Emissions Per Year	0.02	0.01	0.04	0.00	0.03	0.00	172.84
Emissions from Walnut/Pecan Orchard	-4.82	-0.35			-2.72	-0.46	
NET Phase 1 Project Emissions	**0.00**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**172.84**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Phase 2 Operations

Phase 2 of the Project will include the Tower Street and Road 152 frontage improvements, Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Results of the CalEEMod analysis are shown in Table 13. Results indicate that the annual operational emissions from Phase 2 of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. It should be noted that Phase 2 operational

emissions include operational emissions from Phase 1.

Phase 3 Operations

Phase 3 of the Project includes the remaining development of the site. Results of the CalEEMod analysis are shown in Table 14. Results indicate that the annual operational emissions from Phase 3 of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants. It should be noted that Phase 3 operational emissions include operational emissions from Phase 1 and Phase 2.

Table 13
Phase 2 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 2 Operational Emissions Per Year	4.42	3.42	0.83	0.01	0.77	0.22	1296.05
Emissions from Walnut/Pecan Orchard	-8.71	-0.63			-4.98	-0.83	
NET Phase 1 Project Emissions	**0.00**	**2.79**	**0.83**	**0.01**	**0.00**	**0.00**	**1296.05**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 14
Phase 3 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 3 Operational Emissions Per Year	6.06	5.56	0.99	0.02	1.60	0.45	2552.30
Emissions from Walnut/Pecan Orchard	-13.5	-0.98			-6.53	-1.16	
NET Full Buildout Project Emissions	**0.00**	**4.58**	**0.99**	**0.02**	**0.00**	**0.00**	**2552.30**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

3.3.2 *Localized Operational Emissions*

3.3.2.1 Carbon Monoxide

The SJVAPCD is currently in attainment for CO. Despite the success in achieving CO standards, an analysis of localized CO concentrations is warranted to ensure that standards are maintained. Also, an analysis is required to ensure that localized concentrations don't reach potentially unhealthful levels that could affect sensitive receptors (residents, school children, hospital patients, the elderly, etc.).

Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable Level of Service (LOS). CO "Hot Spot" modeling is required if a traffic study reveals that the project will reduce the LOS on one or more streets to E or F or if the project will worsen an existing LOS F.

To analyze the With and Without Project "worst case" CO concentrations at study roadway segments, the analysis methodology considered the highest annual maximum CO concentration reported in 2013, using 2.22 PPM as an estimate of the background concentration for the 8-hour standard and 2.4 PPM for the 1-hour standard (source: CARB annual publications). Other modeling assumptions include a wind speed of .5 m/s, flat topography, 500-meter mixing height, and a 5 degree wind deviation.

Traffic forecasts for Existing Plus Project (Phase 3 - Full Build) and Cumulative Year 2040 With and Without Project (Phase 3 - Full Build) conditions were used in the CALINE analysis to determine CO concentrations under worst case conditions. Intersections that are anticipated to operate at LOS E or F in the Existing Plus Project and Cumulative Year 2040 scenarios were analyzed to determine CO concentrations. The intersections with the highest volume approaches and adjacent sensitive receptors were evaluated. These locations represent worst-case conditions in the study area. The levels of traffic expected in the year 2040 relate to the cumulative effect of traffic increases resulting from the implementation of the general plans of local agencies and pending development projects. Traffic conditions considering the adopted general plan in the City of Visalia for the Year 2040 were estimated using the Tulare County Association of Governments (TCAG) regional travel model. In addition, the Cumulative Year 2040 scenario included the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. The proposed Sequoia Drive-In Business Park is located off of Road 156 and Noble Avenue in Tulare County. Project applicants have prepared and submitted a Notice of Preparation (NOP) to Tulare County for the proposed Sequoia Drive-In Business Park. Estimated traffic from the Sequoia Drive-In Business Park was manually distributed to the study area considering prevailing travel patterns and engineering judgment and is included in all Cumulative Year 2040 study scenarios.

Results of the CALINE analysis are shown in Tables 15 and 16. Detailed CALINE analysis worksheets are included in Appendix D of this report. Results of the Analysis show that the intersections of Lovers Lane and Mineral King Avenue, McAuliff Street and Mineral King Avenue, and Road 156 and Noble Avenue are expected to generate CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards. The Project will not exceed federal or state standards for Phase 1 or Phase 2 of the Project given the assessment of Phase 3 operations.

Table 15
Existing Plus Project Local Roadway Air Quality Segment Analysis (1 Hour and 8 Hour CO Concentration – PPM)

Air Quality Standard	Existing Plus Project	
	Lovers Lane / Mineral King Avenue	
	1 hr	8 hr
	8.4	3.6
Federal	35.0	9.0
Exceedance? (Y/N)	N	N
State	20.0	9.0
Exceedance? (Y/N)	N	N

Table 16
Cumulative Year 2040 Local Roadway Air Quality Segment Analysis (1 Hour and 8 Hour CO Concentration – PPM)

Air Quality Standard	Cumulative Year 2040											
	Lovers Lane / Mineral King Avenue				McAuliff Street / Mineral King Avenue				Road 156 / Noble Avenue			
	Without Project		Plus Project		Without Project		Plus Project		Without Project		Plus Project	
	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr	1 hr	8 hr
	9.6	3.9	9.6	3.9	6.2	3.2	6.6	3.2	8.2	4.3	8.3	4.4
Federal	35.0	9.0	35.0	9.0	35.0	9.0	35.0	9.0	35.0	9.0	35.0	9.0
Exceedance? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N
State	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0	20.0	9.0
Exceedance? (Y/N)	N	N	N	N	N	N	N	N	N	N	N	N

3.3.2.2 Toxic Air Contaminants (TAC)

The SJVAPCD's Guidance Document, Guidance for Assessing and Mitigating Air Quality Impacts – 2015, identifies the need for projects to analyze the potential for adverse air quality impacts to sensitive receptors. Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the proposed Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Table 4, a health risk assessment is not needed at this time.

3.3.2.3 Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air.

When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the SJVAPCD. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. Because the project is a transit oriented development, it is not expected to generate significant odors.

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The proposed Project will not generate odorous emissions, but will attract people to its site for recreational activities. It should be noted that the Double D Dairy, LLC is located approximately 0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance provided in Table 5. Given the size of the dairy, it is not anticipated that people attracted to the Project will not be impacted by odors from Double D Dairy, LLC. As a result, the Project will not be evaluated for its potential to place sensitive receptors near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 fit the characteristics of the Project.

3.3.2.4 Naturally Occurring Asbestos (NOA)

Asbestos is a term used for several types of naturally-occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in California. Construction of Phases 1, 2, and 3 of the Project may cause asbestos to become airborne due to the construction activities that will occur on site. The Project would be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021.

3.3.2.5 Green House Gas Emissions

State action on climate change is mandated by AB 32 and SB 375. TCAG, along with other regional planning agencies throughout the state, will be monitoring the progress of state agencies in developing approaches to address GHG emissions. As agreed-upon approaches for project-level CEQA analysis and for transportation planning are established, TCAG expects that climate change will be a key environmental consideration in future regional transportation planning. Both TCAG and responsible agencies will be required to adhere to any future applicable mandatory regulations regarding global warming resulting from the passage of AB 32 and SB 375, but the exact character of such future implementing strategies is not known at this time.

While the cumulative significance of climate change has been established, in absence of established project-level significance thresholds, it is speculative at this time to determine whether the GHG emissions related to the Project represents a considerable contribution to a significant cumulative impact.

As shown in Table 17, the Project would generate 2,490.70 Metric Tons of Carbon Dioxide Equivalent per year (MTCO2eq./year) using an operational year of 2005, which includes area, energy, mobile, waste, and water sources. "Business as usual" (BAU) is referenced in CARB's AB 32 Scoping Plan as emissions projected to occur in 2020 if the average baseline emissions during the 2002-2004 period grew to 2020 levels, without control or Best Performance Standards (BPS) offsets. As a result, an estimate of the Project's operational emissions in 2005 were compared to operational emissions in 2020 in order to determine if the Project meets the 29% emission reduction. The SJVAPCD has reviewed relevant scientific information related to GHG emissions and has determined that they are not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. As a result, the SJVAPCD has determined that projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. Results of the analysis show that the Project's GHG emissions in the year 2020 is 2,187.47 MTCO2eq./year. This represents an achievement of 13% GHG emission reduction on the basis of BAU, which does not meet the 29% GHG emission reduction target. However, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The nearest facility similar to the Project is located approximately 5 miles northwest of the neighboring residences.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 MTCO2eq./year for GHG emissions. Though the Project is under SJVAPCD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 18 shows the yearly GHG emissions generated by each Phase of the Project, which are approximately 98% (Phase 1), 81% (Phase 2), and 64% (Phase 3) less than the threshold identified by the SCAQMD.

Table 17
2005/2020 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Operational Emissions Per Year (2005)	2,490.70 MT/yr
Operational Emissions Per Year (2020)	2,187.47 MT/yr
SJVAPCD Level of Significance	29% Reduction Compared to BAU
Does the Project Meet the Standard?	No

Source: CalEEMod 2016.3.1

Table 18
Phase 1, 2 and 3 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Phase 1 Operational Emissions Per Year	172.84 MT/yr
Phase 2 Operational Emissions Per Year	1,296.05 MT/yr
Phase 3 Operational Emissions Per Year	2,552.30 MT/yr

Source: CalEEMod 2016.3.1

3.3.3 *Indirect Source Review*

The proposed Project is subject to the SJVAPCD's ISR program, which is also known as Rule 9510. Rule 9510 and the Administrative ISR Fee Rule (Rule 3180) are the result of state requirements outlined in the California Health and Safety Code, Section 40604 and the State Implementation Plan (SIP). The purpose of the SJVAPCD's ISR program is to reduce emissions of NOx and PM10 from new projects. In general, new development contributes to the air-pollution problem in the Valley by increasing the number of vehicles and vehicle miles traveled.

Utilizing the ISR Fee Estimator calculator available on the SJVAPCD website, it was determined that the Project's total cost for emission reductions is $152,168.64. The ISR Fee Estimator worksheets are included in Appendix E.

4.0 Impact Determinations and Recommended Mitigation

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impacts on the environment. The criteria used to determine the significance of an air quality or greenhouse gas impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, air quality or greenhouse gas impacts resulting from the Project are considered significant if the Project would result in:

Air Quality

a) Conflict with or obstruct implementation of the applicable air quality plan?
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?
d) Expose sensitive receptors to substantial pollutant concentrations?
e) Create objectionable odors affecting a substantial number of people?

Greenhouse Gas Emissions

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

4.1 Air Quality

4.1.1 *Conflict with or obstruct implementation of the applicable air quality plan*

The primary way of determining consistency with the air quality plan's (AQP's) assumptions is determining consistency with the applicable General Plan to ensure that the Project's population density and land use are consistent with the growth assumptions used in the AQPs for the air basin.

As required by California law, city and county General Plans contain a Land Use Element that details the types and quantities of land uses that the city or county estimates will be needed for future growth, and that designate locations for land uses to regulate growth. TCAG uses the growth projections and land use information in adopted general plans to estimate future average

daily trips and then VMT, which are then provided to SJVAPCD to estimate future emissions in the AQPs. Existing and future pollutant emissions computed in the AQP are based on land uses from area general plans. AQPs detail the control measures and emission reductions required for reaching attainment of the air standards.

The applicable General Plan for the project is the City of Visalia General Plan Update, which was adopted in 2014. The Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the applicable AQPs. As a result, the Project will not conflict with or obstruct implementation of any air quality plans. Therefore, no mitigation is needed.

4.1.2 *Violate any air quality standard or contribute substantially to an existing or projected air quality violation*

Short-Term Impacts

As noted previously, the analysis of construction impacts assumes that Phases 1, 2, and 3 of the Project will be constructed independently of each other and will not overlap. The annual emissions from the construction phase of Phase 1, 2, and 3 of the Project will be less than the applicable SJVAPCD emission thresholds for criteria pollutants as shown in Table 7. The construction emissions are therefore considered less than significant with the implementation of the SJVAPCD applicable Regulation VIII control measures, which are provided below. If Phase 1, 2, or 3 of the Project is constructed simultaneously with another phase, the SJVAPCD threshold for NOx emissions would be exceeded.

1. *All disturbed areas, including storage piles, which are not being actively utilized for construction purposes, shall be effectively stabilized of dust emissions using water, chemical stabilizer/suppressant, covered with a tarp or other suitable cover or vegetative ground cover.*
2. *All on-site unpaved roads and off-site unpaved access roads shall be effectively stabilized of dust emissions using water or chemical stabilizer/suppressant.*
3. *All land clearing, grubbing, scraping, excavation, land leveling, grading, cut & fill, and demolition activities shall be effectively controlled of fugitive dust emissions utilizing application of water or by presoaking.*
4. *When materials are transported off-site, all material shall be covered, or effectively wetted to limit visible dust emissions, and at least six inches of freeboard space from the top of the container shall be maintained.*
5. *All operations shall limit or expeditiously remove the accumulation of mud or dirt from adjacent public streets at the end of each workday. The use of dry rotary brushes is expressly prohibited except where preceded or accompanied by sufficient wetting to limit the visible dust emissions. Use of blower devices is expressly forbidden.*
6. *Following the addition of materials to, or the removal of materials from, the surface of*

outdoor storage piles, said piles shall be effectively stabilized of fugitive dust emissions utilizing sufficient water or chemical stabilizer/suppressant.

7. *Within urban areas, track out shall be immediately removed when it extends 50 or more feet from the site and at the end of each workday.*

4.1.2.1 Naturally Occurring Asbestos (NOA)

The proposed Project's construction phase may cause asbestos to become airborne due to the construction activities that will occur on site. In order to control naturally-occurring asbestos dust, the Project will be required to submit a Dust Control Plan under the SJVAPCD's Rule 8021. The Dust Control Plan may include the following measures:

1. Water wetting of road surfaces
2. Rinse vehicles and equipment
3. Wet loads of excavated material, and
4. Cover loads of excavated material

Long-Term Impacts

Long-Term emissions from the Project are generated primarily by mobile source (vehicle) emissions from the project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Tables 12, 13, 14, 15, and 16 summarize the Project's operational impacts by pollutant. Results show that Project operational emissions will not exceed applicable emission thresholds. The Project's long-term emissions are considered less than significant. Therefore, no mitigation is needed.

4.1.3 *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)*

Tulare County is nonattainment for Ozone (1 hour and 8 hour) and PM10 (State standards) and PM2.5. The SJVAPCD has prepared the 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan to achieve Federal and State standards for improved air quality in the SJVAB regarding ozone and PM. Inconsistency with any of the plans would be considered a cumulatively adverse air quality impact. As discussed in Section 4.1.1, the Project is consistent with the currently adopted General Plan for the City of Visalia and is therefore consistent with the population growth and VMT applied in the plan. Therefore, the Project is consistent with the growth assumptions used in the 2013 Ozone Plan, 2007 PM10 Maintenance Plan, and 2012 PM2.5 Plan.

As described in Section 4.1.2 above, impacts related to construction and operational emissions

would be less than significant. In addition, results of the CALINE analysis (Section 3.3.2) show that the intersections of Lovers Lane and Mineral King Avenue, McAuliff Street and Mineral King Avenue, and Road 156 and Noble Avenue are expected to generate CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards. Further, as indicated in Section 3.3.2, the Project would not create objectionable odors affecting a substantial number of people. The Project will not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard. Therefore, no mitigation is needed.

4.1.4 *Expose sensitive receptors to substantial pollutant concentrations*

Sensitive receptors refer to those segments of the population most susceptible to poor air quality (i.e., children, the elderly, and those with pre-existing serious health problems affected by air quality). Land uses that have the greatest potential to attract these types of sensitive receptors include schools, parks, playgrounds, daycare centers, nursing homes, hospitals, and residential communities. From a health risk perspective, the Project is a Type B Project in that it may potentially place sensitive receptors in the vicinity of existing sources.

The first step in evaluating the potential for impacts to sensitive receptors for TAC's from the Project is to perform a screening level analysis. For Type B Projects, one type of screening tool is found in the CARB Handbook: Air Quality and Land Use Handbook: A Community Perspective. This handbook includes a table (depicted in Table 4) with recommended buffer distances associated with various types of common sources. The screening level analysis for the Project shows that TAC's are not a concern based upon the recommendations provided in Table 4. An evaluation of nearby land uses shows that the Project will not place sensitive receptors in the vicinity of existing toxic sources. Since the Project is not located within the recommended buffer distances associated with the sources found in Table 4, the Project will not expose sensitive receptors to substantial pollutant concentrations. Therefore, no mitigation is needed.

4.1.5 *Create objectionable odors affecting a substantial number of people*

The SJVAPCD requires that an analysis of potential odor impacts be conducted for the following two situations:

- ✓ Generators – projects that would potentially generate odorous emissions proposed to be located near existing sensitive receptors or other land uses where people may congregate, and

- ✓ Receivers – residential or other sensitive receptor projects or other projects built for the intent of attracting people located near existing odor sources.

The proposed Project will not generate odorous emissions, but will attract people to its site for recreational activities. It should be noted that the Double D Dairy, LLC is located approximately

0.7 miles northeast of the Project site, which is less than the one (1) mile screening distance provided in Table 5. Given the size of the dairy, it is not anticipated that people attracted to the proposed Project will not be impacted by odors from Double D Dairy, LLC. As a result, the Project will not be evaluated for its potential to place sensitive receptors near existing odor sources.

The intensity of an odor source's operations and its proximity to sensitive receptors influences the potential significance of odor emissions. The SJVAPCD has identified some common types of facilities that have been known to produce odors in the SJV Air Basin. The types of facilities that are known to produce odors are shown in Table 5 above along with a reasonable distance from the source within which, the degree of odors could possibly be significant. None of the facilities shown in Table 5 fit the characteristics of the Project.

Based on the assessment above, the Project will not generate potential odorous emissions or attract receivers and other sensitive receptors near existing odor sources. Therefore, no mitigation is needed.

4.2 Greenhouse Gas Emissions

4.2.1 *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment*

As shown in Table 17, the Project would generate 2,490.70 Metric Tons of Carbon Dioxide Equivalent per year (MTCO2eq./year) using an operational year of 2005, which includes area, energy, mobile, waste, and water sources. "Business as usual" (BAU) is referenced in CARB's AB 32 Scoping Plan as emissions projected to occur in 2020 if the average baseline emissions during the 2002-2004 period grew to 2020 levels, without control or Best Performance Standards (BPS) offsets. As a result, an estimate of the Project's operational emissions in 2005 were compared to operational emissions in 2020 in order to determine if the Project meets the 29% emission reduction. The SJVAPCD has reviewed relevant scientific information related to GHG emissions and has determined that they are not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. As a result, the SJVAPCD has determined that projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. Results of the analysis show that the Project's GHG emissions in the year 2020 is 2,187.47 MTCO2eq./year. This represents an achievement of 13% GHG emission reduction on the basis of BAU, which does not meet the 29% GHG emission reduction target. However, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The nearest facility similar to the Project is located approximately 5 miles northwest of the neighboring residences. The types of facilities incorporated into the Project coincide with the pedestrian infrastructure-based mitigation measures included in the SJVAPCD's Mitigation Measures document available at http://www.valleyair.org/transportation/Mitigation-

Measures.pdf. Those measures include providing pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths and direct pedestrian connections.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 MTCO2eq./year for GHG emissions. Though the Project is not within the SCAQMD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by the Project. Table 18 shows the yearly GHG emissions generated by each Phase of the Project, which are approximately 98% (Phase 1), 81% (Phase 2), and 64% (Phase 3) less than the threshold identified by the SCAQMD.

Based on the assessment above, the Project will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, no mitigation is needed.

4.2.2 *Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases*

To assist Lead Agencies, project proponents, permit applicants, and interested parties in assessing and reducing the impacts of project-specific greenhouse gas emissions (GHG) on global climate change, the SJVAPCD has adopted the guidance: *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* and the policy: *District Policy – Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*. The guidance and policy rely on the use of performance based standards, otherwise known as Best Performance Standards (BPS) to assess significance of project-specific greenhouse gas emissions on global climate change during the environmental review process, as required by CEQA. Use of BPS is a method of streamlining the CEQA process of determining significance and is not a required emission reduction measure. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29 percent reduction in GHG emissions, from business-as-usual (BAU), is required to determine that a project would have a less than cumulatively significant impact.

As noted in Section 4.2.1, the Project incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The types of facilities incorporated into the Project coincide with the pedestrian infrastructure-based mitigation measures included in the SJVAPCD's Mitigation Measures document. Those measures include providing pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths and direct pedestrian connections.

The City of Visalia Climate Action Plan (CAP) was created as one of the first key steps to guiding the development and enhancement of actions designed to reduce Visalia's GHG emissions. The

CAP represents the results of a GHG emissions inventory effort which serves as a starting point for the development of a comprehensive municipal and community strategy for addressing GHG emission reduction goals. The CAP identifies existing and proposed community measures designed to reduce GHG emissions. The Project incorporates the following identified existing and proposed community measures assisting the City achieve its 2020 15% and 2030 30% reduction goals:

1. Expansion of bicycle paths, lanes, and trails.

Based on the assessment above, the Project will further the achievement of the City's greenhouse gas reduction goals and will not conflict with applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases. Therefore, no mitigation is needed.

APPENDIX A

Walnut/Pecan Orchard Emissions Factors

San Joaquin Valley
Air Pollution Control District

Open Burn Emission Factors

Approved By:	_____	Date:	_____
	Seyed Sadredin, Director of Permit Services		

The purpose of this document is to establish open burn emission factors to be used by the District to:

- Quantify emissions from open burns, and
- Quantify emissions reductions generated by diverting biomass from open burning*.

*For any facility which has other open burn emission factors listed on their Permit to Operate, an Authority to Construct must be obtained prior to using the attached emission factors.

Background Information:

There has long been uncertainty regarding the accuracy of emission factor numbers for the open burning of biomass material. Darley[1] had originally quantified many open burn emission factors for the California Air Resources Board in the 1970's. When specific data was not available, emission factors from AP-42[2] have often been used to quantify emissions from open burns. In 1996 Jenkins[3] presented detailed source test results of wind tunnel simulations of open burns which are more representative of specific field conditions.

The California Air Resources Board Planning and Technical Support Division has reviewed and adjusted the numbers from the sources listed above in an effort to produce the most accurate figures available, to represent typical open burning conditions[4]. The final results of the CARB comparison (August 2000 version) are presented in the table which follows.

Open Burn Emission Factors

March 2001 Version

Crop	PM_{10} (lbs/ton)	$PM_{2.5}$ (lbs/ton)	NO_x (lbs/ton)	SO_2 (lbs/ton)	VOC (lbs/ton)	CO (lbs/ton)
Row Crops						
Alfalfa	28.5	27.2	4.5	0.6	21.7	119.0
Barley	14.3	13.8	5.1	0.1	15.0	183.7
Corn	11.4	10.9	3.3	0.4	6.6	70.9
Oats	20.7	19.7	4.5	0.6	10.3	136.0
Rice	6.3	5.9	5.2	1.1	4.7	57.4
Safflower	17.7	16.9	4.5	0.6	14.8	144.0
Sorghum	17.7	16.9	4.5	0.6	5.1	77.0
Wheat	10.6	10.1	4.3	0.9	7.6	123.6
Orchard and Vine Crops						
Almond	7.0	6.7	5.9	0.1	5.2	52.2
Apple	3.9	3.7	5.2	0.1	2.3	42.0
Apricot	5.9	5.6	5.2	0.1	4.6	49.0
Avocado	20.6	19.4	5.2	0.1	18.5	116.0
Bean/Pea	13.7	13.0	5.2	0.1	18.5	116.0
Cherry	7.9	7.4	5.2	0.1	6.0	44.0
Citrus	5.9	5.6	5.2	0.1	6.8	81.0
Date Palm	9.8	9.3	5.2	0.1	3.8	56.0
Fig	6.9	6.5	5.2	0.1	6.0	57.0
Grape	4.9	4.6	5.2	0.1	3.8	51.0
Nectarine	3.9	3.7	5.2	0.1	2.3	33.0
Olive	11.8	11.1	5.2	0.1	10.3	144.0
Orchard	7.8	7.3	5.2	0.1	6.3	66.0
Peach	5.9	5.6	5.2	0.1	3.0	42.0
Pear	8.8	8.3	5.2	0.1	5.1	57.0
Prune	2.9	2.8	5.2	0.1	4.6	47.0
Walnut	4.2	4.0	4.5	0.2	4.8	67.0
Other Biomass Burning						
Grassland	15.9	15.2	4.5	0.6	10.7	114.0
Chaparral	20.1	17.3	3.5	0.1	14.4	153.7
Forest	19-30	17-27	3.5	0.1	8-21	154-312

References:

[1] Darley, E.F., *Hydrocarbon Characterization of Agricultural Waste Burning*, Darley, April 1979. Statewide Air Pollution Research Center, UC Riverside, under contract to the California Air Resources Board, #A7-068-30.

[2] *Compilation of Air Pollutant Emission Factors* Volume 1: Stationary Point and Area Sources, Fifth Edition, AP-42, January 1995, U.S. EPA. Table 2.5-5.

[3] Jenkins, B., *Atmospheric Pollutant Emission Factors from Open Burning of Agricultural and Forest Biomass by Wind Tunnel Simulations*, April 1996, UC Davis. Tables 4.1.1 to 4.1.8.

[4] Gaffney, P., *Emission Factors for Open Burning of Agricultural Residues*, August 2000, California Air Resources Board Planning and Technical Support Division.

Waste Burning Emission Factor Table

Crop Code	Crop Name	EIC Description	EIC Code	Emission Factors (lbs/ton)						Fuel Loading (tons/acre)	Source of Data
				PM10	PM25	NOX	SO2	VOC	CO		
Agriculture - Field Crops											
241	Alfalfa	Agriculture - Field Crop	670-662-0262-0000	28.50	27.20	4.50	0.60	21.70	119.00	0.800	AP-42, Jenkins NOx & SO2
247	Asparagus	Agriculture - Field Crop	670-662-0262-0000	40.00	39.34	4.49	0.61	66.00	150.00	1.500	AP-42, Jenkins NOx & SO2
242	Barley	Agriculture - Field Crop	670-662-0262-0000	14.30	13.80	5.10	0.10	15.00	183.70	1.700	Jenkins (EF)
243	Bean/pea	Agriculture - Field Crop	670-662-0262-0000	13.70	13.00	5.20	0.10	14.20	148.00	2.500	AP-42, Jenkins NOx & SO2
244	Corn	Agriculture - Field Crop	670-662-0262-0000	11.40	10.90	3.30	0.40	6.60	70.90	4.200	Jenkins (EF)
245	Cotton	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
609	Dried flowers	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
246	Flax	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
609	Flower straw	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
612	Nursery prunings	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
248	Oats	Agriculture - Field Crop	670-662-0262-0000	20.70	19.70	4.50	0.60	10.30	136.00	1.600	AP-42, Jenkins NOx & SO2
255	Other field crops	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
260	Pea vines	Agriculture - Field Crop	670-662-0262-0000	13.70	13.00	5.20	0.10	14.20	148.00	2.500	AP-42, Jenkins NOx & SO2
249	Peanuts	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
250	Rice	Agriculture - Field Crop	670-662-0262-0000	6.30	5.90	5.20	1.10	4.70	57.40	3.000	Jenkins (EF)
251	Rye	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
252	Safflower	Agriculture - Field Crop	670-662-0262-0000	17.70	16.90	4.50	0.60	14.80	144.00	1.300	AP-42, Jenkins NOx & SO2
253	Sorghum	Agriculture - Field Crop	670-662-0262-0000	17.70	16.90	4.50	0.60	5.10	77.00	2.900	AP-42, Jenkins NOx & SO2
613	Sudan	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
610	Sugar cane	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
256	Vegetable crops	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
254	Wheat	Agriculture - Field Crop	670-662-0262-0000	10.60	10.10	4.30	0.90	7.60	123.60	1.900	Jenkins (EF)
259	Wild hay	Agriculture - Field Crop	670-662-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
Agriculture - Pruning											
101	Almond	Agriculture - Pruning	670-660-0262-0000	7.00	6.70	5.90	0.10	5.20	52.20	1.000	Jenkins (EF)
102	Apple	Agriculture - Pruning	670-660-0262-0000	3.90	3.70	5.20	0.10	2.30	42.00	2.300	AP-42, Jenkins NOx & SO2
103	Apricot	Agriculture - Pruning	670-660-0262-0000	5.90	5.60	5.20	0.10	4.60	49.00	1.600	AP-42, Jenkins NOx & SO2
104	Avocado	Agriculture - Pruning	670-660-0262-0000	20.60	19.40	5.20	0.10	18.50	116.00	1.500	AP-42, Jenkins NOx & SO2
720	Bamboo	Agriculture - Pruning	670-660-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
105	Bushberry	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
106	Cherry	Agriculture - Pruning	670-660-0262-0000	7.90	7.40	5.20	0.10	6.00	44.00	1.000	AP-42, Jenkins NOx & SO2
602	Christmas trees	Agriculture - Pruning	670-660-0262-0000	8.67	7.76	4.27	0.14	4.35	64.69	1.000	Ponderosa Pine, Jenkins, use ARB's (Patrick Gaffney) fuel loading of 1 ton per acre
107	Citrus	Agriculture - Pruning	670-660-0262-0000	5.90	5.60	5.20	0.10	6.80	81.00	1.000	AP-42, Jenkins NOx & SO2
108	Date palm	Agriculture - Pruning	670-660-0262-0000	9.80	9.30	5.20	0.10	3.80	56.00	1.000	AP-42, Jenkins NOx & SO2
609	Dried flowers	Agriculture - Pruning	670-660-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
608	Eucalyptus	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)

Crop Code	Crop Name	EIC Description	EIC Code	Emission Factors (lbs/ton)						Fuel Loading (tons/acre)	Source of Data
				PM10	PM25	NOX	SO2	VOC	CO		
109	Fig	Agriculture - Pruning	670-660-0262-0000	6.90	6.50	5.20	0.10	6.00	57.00	2.200	AP-42, Jenkins NOx & SO2
609	Flower straw	Agriculture - Pruning	670-660-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
110	Grape	Agriculture - Pruning	670-660-0262-0000	4.90	4.60	5.20	0.10	3.80	51.00	2.500	AP-42, Jenkins NOx & SO2
603	Grape stumps/stakes	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	10.000	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter), Fuel Loading increased to 10 tons per acre based on consultations with compliance
111	Kiwi	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
112	Nectarine	Agriculture - Pruning	670-660-0262-0000	3.90	3.70	5.20	0.10	2.30	33.00	2.000	AP-42, Jenkins NOx & SO2
113	Olive	Agriculture - Pruning	670-660-0262-0000	11.80	11.10	5.20	0.10	10.30	114.00	1.200	AP-42, Jenkins NOx & SO2
114	Orchard removal	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	30.000	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter); Fuel Loading increased to 30 tons per acre based on consultations with compliance
126	Other prunings	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
710	Pasture trees	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
115	Peach	Agriculture - Pruning	670-660-0262-0000	5.90	5.60	5.20	0.10	3.00	42.00	2.500	AP-42, Jenkins NOx & SO2
116	Pear	Agriculture - Pruning	670-660-0262-0000	8.80	8.30	5.20	0.10	5.10	57.00	2.600	AP-42, Jenkins NOx & SO2
117	Pecan	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
118	Persimmon	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
119	Pistachio	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
120	Plum	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
129	Pluot (plum-apricot)	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
121	Pomegranate	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
122	Prune	Agriculture - Pruning	670-660-0262-0000	2.90	2.80	5.20	0.10	4.60	47.00	1.200	AP-42, Jenkins NOx & SO2
123	Quince	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
124	Raisin trays	Agriculture - Pruning	670-660-0262-0000	0.78	0.74	4.27	0.14	4.35	64.69	0.030	PM & loading from UCD/Asbaugh, NOx, etc from Jenkins pine
611	Rose pruning	Agriculture - Pruning	670-660-0262-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)

Crop Code	Crop Name	EIC Description	EIC Code	Emission Factors (lbs/ton)						Fuel Loading (tons/acre)	Source of Data
				PM10	PM25	NOX	SO2	VOC	CO		
614	Vineyard removal	Agriculture - Pruning	670-660-0262-0000	7.80	7.30	5.20	0.10	6.30	66.00	15.000	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter); Fuel Loading increased to 15 tons per acre based on consultations with compliance
125	Walnut	Agriculture - Pruning	670-660-0262-0000	4.20	4.00	4.50	0.20	4.80	67.00	1.200	Jenkins (EF)
Weed Abatement											
601	Berms	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
361	Brush	Weed Abatement	670-668-0200-0000	18.00	16.25	4.00	0.35	12.55	133.85	13.100	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter) and Jenkins fir & pine; Hardy, 1996, NOx & SO2 avg
581	Ditchbank & canal	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
604	Dodder weed	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
585	Fence rows	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
584	Grass	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
605	Lemon grass	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
582	Noxious weeds	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
606	Ponding/levee banks	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
587	Star thistle	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
586	Thistle	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
580	Tules	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
583	Tumbleweed	Weed Abatement	670-668-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
Range Improvement											
362	Chaparral	Range Improvement	670-660-0200-0000	20.10	17.30	3.50	0.10	14.40	153.70	23.000	Jenkins fir & pine; Hardy, 1996, NOx & SO2 avg
398	Grassland	Range Improvement	670-660-0200-0000	15.90	15.20	4.50	0.60	10.70	114.00	3.200	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
607	Pasture	Range Improvement	670-660-0200-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
Other											
703	Brooder paper	Other	670-995-0240-0000	0.78	0.74	4.27	0.14	4.35	64.69	0.030	PM & loading from UCD/Asbaugh, NOx, etc from Jenkins pine; using raisin tray
701	Diseased bee hives	Other	670-995-0240-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
258	Fert/pesticide sacks	Other	670-995-0240-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
800	Flood debris	Other	670-995-0240-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)
700	Other	Other	670-995-0240-0000	15.90	15.18	4.49	0.61	10.73	113.95	2.175	Average of Alfalfa, Barley, Corn, Oats, Rice, Dafflower, Sorghum, and Wheat (as of 9/12/00, Patrick Gaffney's letter)
805	Storm debris	Other	670-995-0240-0000	7.80	7.30	5.20	0.10	6.30	66.00	1.700	Average of Almond, Apple, Apricot, Avocado, Bean/Pea, Date Palm, Fig, Grape, Nectarine, Olive, Peach, Pear, Prune, and Walnut (as of 9/12/00, Patrick Gaffney's letter)

Incorporated.[1] PM_{10} emissions were measured during 1994 harvest operations. The cotton emission factor is based on seven tests for cotton picking and six tests for stalk cutting. The tests were performed using 2, 4, and 5 row pickers, and two different types of shredders. The average emission factors are shown in the table below. For almonds, the emission factor is based on the sum of shaking, sweeping, and almond pickup emissions tests as shown below. The almond harvest emission factor was also used for walnut harvesting because similar processes and equipment are used.

Harvest PM_{10} Emission Factors Measured by UC Davis

Agricultural Operation	Average PM_{10} Emission Rate (lbs/acre harvested)	Number of Tests
Cotton Picking	0.42	7
Cotton Stalk Cutting	0.7	6
Cotton Total	***1.12***	*13*
Almond Shaking	0.13	1
Almond Sweeping	1.76	4
1st Almond Pickup	12.83	4
2nd Almond Pickup	19.48	5
Almond Total	***34.2***	*14*

Unlike the soil preparation operations (e.g., discing, tilling, etc.) harvest operations tend to be fairly unique for each crop. Because of this, harvest emission factors generally combine all of the operations that go into harvesting a commodity into a single factor that includes emissions from all of the relevant operations. Because of this, acre-passes, which are used in estimating emissions from soil preparation operations, are not needed for harvesting.

Currently there is insufficient data to include the effects of soil moisture, equipment types, soil type or other factors in our harvest emissions estimates. For cotton and almonds, because both of the crops are harvested during the dry season, equipment types and soil probably play the larger role in emissions levels. If future testing shows that there are substantial variations based on the operational and environmental factors, they will be incorporated into the updates of this methodology.

UC Davis directly measured PM_{10} emissions. To compute TSP emissions, multiply the PM_{10} by 2.22, which is the ARB's soil size speciation value for agricultural tilling dust.[4]

Acres. The acreages used for estimating harvest emissions are from the California Department of Food and Agriculture's (CDFA) summary of crop acreage[2] harvested in 1993. The acreage data are subdivided by county and crop type for the entire state, and are compiled from individual county agricultural commissioner reports. Complete listings of individual county

SECTION 7.5

AGRICULTURAL HARVEST OPERATIONS

(New August 1997)

EMISSION INVENTORY SOURCE CATEGORY
Miscellaneous Processes / Farming Operations

EMISSION INVENTORY CODES (CES CODES) AND DESCRIPTION
620-615-5400-0000 (83980) Agricultural Harvest Operations

METHODS AND SOURCES

The activities used to harvest agricultural commodities entrain soil and plant material into the air. These emissions may simply be due to the vehicles traveling over the soil, or via the mechanical processing of the plant material and underlying soil, or, as in the case of almonds, via the actual blowing or sweeping of the crop to remove waste materials and position it for pickup. At the time of this update, harvest particulate matter emission factors measured in California are only available for cotton, almonds, and walnuts. Table 1 shows the PM_{10} harvest emissions estimates for these crops. As additional harvest emission factors for more crops are available, they will be incorporated into this methodology.

EMISSIONS ESTIMATION METHODOLOGY

Particulate emissions from harvest operations are computed by multiplying an emission factor by an activity factor. Agricultural harvest particulate dust emissions are estimated for walnuts, almonds, and cotton in each county in California using the following equation:

$$\text{Emissions}_{crop} = \text{Emission Factor}_{crop} \times \text{Acres Harvested}_{crop}$$

The individual crop emissions for each county are summed to produce the county and statewide particulate matter (PM) and PM_{10} harvest emission estimates. For harvesting, the emission factors are based on measurements performed by UC Davis,[1] and harvested acreage is based on 1993 summary data from the California Department of Food and Agriculture.[2] The remainder of this section discusses the emission factors and acreage in more detail.

Emission Factor. The emission factors used to estimate the PM_{10} dust emissions from agricultural harvesting are from a study performed by UC Davis under contract to Cotton

Incorporated.[1] PM_{10} emissions were measured during 1994 harvest operations. The cotton emission factor is based on seven tests for cotton picking and six tests for stalk cutting. The tests were performed using 2, 4, and 5 row pickers, and two different types of shredders. The average emission factors are shown in the table below. For almonds, the emission factor is based on the sum of shaking, sweeping, and almond pickup emissions tests as shown below. The almond harvest emission factor was also used for walnut harvesting because similar processes and equipment are used.

Harvest PM_{10} Emission Factors Measured by UC Davis

Agricultural Operation	Average PM_{10} Emission Rate (lbs/acre harvested)	Number of Tests
Cotton Picking	0.42	7
Cotton Stalk Cutting	0.7	6
Cotton Total	***1.12***	*13*
Almond Shaking	0.13	1
Almond Sweeping	1.76	4
1st Almond Pickup	12.83	4
2nd Almond Pickup	19.48	5
Almond Total	***34.2***	*14*

Unlike the soil preparation operations (e.g., discing, tilling, etc.) harvest operations tend to be fairly unique for each crop. Because of this, harvest emission factors generally combine all of the operations that go into harvesting a commodity into a single factor that includes emissions from all of the relevant operations. Because of this, acre-passes, which are used in estimating emissions from soil preparation operations, are not needed for harvesting.

Currently there is insufficient data to include the effects of soil moisture, equipment types, soil type or other factors in our harvest emissions estimates. For cotton and almonds, because both of the crops are harvested during the dry season, equipment types and soil probably play the larger role in emissions levels. If future testing shows that there are substantial variations based on the operational and environmental factors, they will be incorporated into the updates of this methodology.

UC Davis directly measured PM_{10} emissions. To compute TSP emissions, multiply the PM_{10} by 2.22, which is the ARB's soil size speciation value for agricultural tilling dust.[4]

Acres. The acreages used for estimating harvest emissions are from the California Department of Food and Agriculture's (CDFA) summary of crop acreage[2] harvested in 1993. The acreage data are subdivided by county and crop type for the entire state, and are compiled from individual county agricultural commissioner reports. Complete listings of individual county

TABLE 2 (continued)
Summary of Crop Emission Factor Assumption

CDFA Crop Code	CDFA Crop Description	Crop Profile	Assumption	Emission Factor (lbs PM10/acre)
208059	CITRUS, MISC BY-PROD	Citrus	Cotton/40	0.08
209999	CITRUS, UNSPECIFIED	Citrus	Cotton/40	0.08
211999	APPLES, ALL	Citrus	Cotton/40	0.08
212199	PEACHES, FREESTONE	Citrus	Cotton/40	0.08
212399	PEACHES, CLINGSTONE	Citrus	Cotton/40	0.08
212999	PEACHES, UNSPECIFIED	Citrus	Cotton/40	0.08
213199	CHERRIES, SWEET	Citrus	Cotton/40	0.08
214199	PEARS, BARLETT	Citrus	Cotton/40	0.08
214899	PEARS, ASIAN	Citrus	Cotton/40	0.08
214999	PEARS, UNSPECIFIED	Citrus	Cotton/40	0.08
215199	PLUMS	Citrus	Cotton/40	0.08
215399	PLUMCOTS	Citrus	Cotton/40	0.08
215999	PRUNES, DRIED	Citrus	Cotton/40	0.08
216199	GRAPES, TABLE	Grapes-Table	Cotton/20	0.17
216299	GRAPES, WINE	Grapes-Wine	Cotton/20	0.17
216399	GRAPES, RAISIN	Grapes-Raisin	Cotton/20	0.17
216999	GRAPES, UNSPECIFIED	Grapes-Wine	Cotton/20	0.17
217999	APRICOTS, ALL	Citrus	Cotton/40	0.08
218199	NECTARINES	Citrus	Cotton/40	0.08
218299	PERSIMMONS	Citrus	Cotton/40	0.08
218399	POMEGRANATES	Citrus	Cotton/40	0.08
218499	QUINCE	Citrus	Cotton/40	0.08
218839	CHERIMOYAS	Citrus	Cotton/40	0.08
218889	ORCHARD BIOMASS	Almonds	Cotton/40	0.08
218899	FRUITS & NUTS, UNSPEC	Citrus	Cotton/40	0.08
221999	AVOCADOS, ALL	Citrus	Cotton/40	0.08
224999	DATES	Citrus	Almonds/20	2.04
225999	FIGS, DRIED	Citrus	Almonds/20	2.04
226999	OLIVES	Citrus	Cotton/40	0.08
228019	GUAVAS	Citrus	Cotton/40	0.08
229999	KIWIFRUIT	Citrus	Cotton/40	0.08
230639	BERRIES, BLACKBERRIES	Grapes-Table	Cotton/40	0.08
230869	BERRIES, BOYSENBERRIES	Grapes-Table	Cotton/40	0.08
234799	BERRIES, LOGANBERRIES	Grapes-Table	Cotton/40	0.08
236199	BERRIES, RASPBERRIES	Grapes-Table	Cotton/40	0.08
237199	STRAWBERRIES, FRESH MKT	Melon	Cotton/40	0.08
237299	STRAWBERRIES, PROC	Melon	Cotton/40	0.08
237999	STRAWBERRIES, UNSPECIFIED	Melon	Cotton/40	0.08
239999	BERRIES, BUSH, UNSPECIFIED	Grapes-Table	Cotton/40	0.08
261999	ALMONDS, ALL	Almonds	Almonds/1	40.77
263999	WALNUTS, ENGLISH	Almonds	Almonds/1	40.77
264999	PECANS	Almonds	Almonds/10	4.08
265999	WALNUTS, BLACK	Almonds	Almonds/1	40.77
266999	CHESTNUTS	Almonds	Almonds/10	4.08
267999	MACADAMIA NUT	Almonds	Almonds/10	4.08
268079	PISTACHIOS	Almonds	Almonds/10	4.08
268099	ALMOND HULLS	Almonds	Almonds/1	40.77
301999	ARTICHOKES	Melon	Cotton/40	0.08
302199	ASPARAGUS, FRESH MKT	Melon	Cotton/2	1.68
302299	ASPARAGUS, PROC	Melon	Cotton/2	1.68
302999	ASPARAGUS, UNSPECIFIED	Melon	Cotton/2	1.68
303999	BEANS, GREEN LIMAS	DryBeans	Cotton/2	1.68
304199	BEANS, SNAP FR MKT	DryBeans	Cotton/20	0.17
304299	BEANS, SNAP PROC	DryBeans	Cotton/20	0.17
304399	BEANS FRESH UNSPECIFIED	DryBeans	Cotton/20	0.17
304999	BEANS, UNSPECIFIED SNAP	DryBeans	Cotton/20	0.17
305999	BEETS, GARDEN	Sugar Beets	Cotton/2	1.68
306999	RAPINI	Sugar Beets	Cotton/40	0.08
307189	BROCCOLI,FOOD SERV	Vegetables	Cotton/40	0.08
307199	BROCCOLI, FR MKT	Vegetables	Cotton/40	0.08
307299	BROCCOLI, PROC	Vegetables	Cotton/40	0.08
307919	BROCCOLI, UNSPECIFIED	Vegetables	Cotton/40	0.08
308999	BRUSSELS SPROUTS	Melon	Cotton/40	0.08
309999	CABBAGE, CH. & SPECIALTY	Lettuce	Cotton/40	0.08
310999	CABBAGE, HEAD	Lettuce	Cotton/40	0.08
313189	CARROTS, FOOD SERV	Sugar Beets	Cotton/20	0.17
313199	CARROTS, FR MKT	Sugar Beets	Cotton/20	0.17
313299	CARROTS, PROC	Sugar Beets	Cotton/20	0.17
313999	CARROTS, UNSPECIFIED	Sugar Beets	Cotton/20	0.17
314189	CAULIFLOWER, FOOD SERV	Vegetables	Cotton/40	0.08
314199	CAULIFLOWER, FR MKT	Vegetables	Cotton/40	0.08
314299	CAULIFLOWER, PROC	Vegetables	Cotton/40	0.08

SECTION 7.4

AGRICULTURAL LAND PREPARATION

(Revised January 2003)

EMISSION INVENTORY SOURCE CATEGORY
Miscellaneous Processes / Farming Operations

EMISSION INVENTORY CODES (CES CODES) AND DESCRIPTION
620-614-5400-0000 (47332) Agricultural Land Preparation

METHODS AND SOURCES

The land preparation source category includes estimates of the airborne soil particulate emissions produced during the preparation of agricultural lands for planting and after-harvest activities. Operations included in this methodology are discing, shaping, chiseling, leveling, and other mechanical operations used to prepare the soil. Dust emissions are produced by the mechanical disturbance of the soil by the implement used and the tractor pulling it. Soil preparation activities tend to be performed in the early spring and fall months. Table 1 shows the estimated soil preparation particulate emissions for each California county.

Particulate emissions from land preparation are computed by multiplying a crop specific emission factor by an activity factor. The crop specific emission factors are calculated using operation specific (i.e., discing or chiseling) emission factors developed by UC Davis researchers[1], which are combined with the number of operations provided in the crop calendars. The activity factor is based on the harvested acreage of each crop for each county in the state. In addition, acre-passes are computed, which are the number of passes per acre that are typically needed to prepare a field for planting a particular crop. By combining the crop acreage and the operation specific emission factor, we estimate the particulate matter produced by agricultural land preparation operations.

The particulate dust emissions from agricultural land preparation are estimated for each crop in each county in California using the following equation.

$$\text{Emissions}_{crop} = \text{Emission Factor}_{crop} \times \text{Acres}_{crop}$$

The crop emissions for each county are summed to produce the county and statewide particulate matter (PM) and PM_{10} emission estimates. The remainder of this section discusses each component of and related to the above equation.

TABLE 3 (continued)
Summary of CDFA Commodity Code and Assigned Crop Profile

CDFA Commodity Code	CDFA Crop Name	Crop Profile Used	Emission Factor (lbs/Acre/year)
203999	TANGERINES & MANDARINS	Citrus	0.07
204999	LEMONS ALL	Citrus	0.07
205999	LIMES ALL	Citrus	0.07
206999	TANGELOS	Citrus	0.07
207999	KUMQUATS	Citrus	0.07
208059	CITRUS BY-PRODUCTS MISC	Citrus	0.07
209999	CITRUS UNSPECIFIED	Citrus	0.07
211999	APPLES ALL	Citrus	0.07
212199	PEACHES FREESTONE	Citrus	0.07
212399	PEACHES CLINGSTONE	Citrus	0.07
212999	PEACHES UNSPECIFIED	Citrus	0.07
213199	CHERRIES SWEET	Citrus	0.07
214199	PEARS BARTLETT	Citrus	0.07
214899	PEARS ASIAN	Citrus	0.07
214999	PEARS UNSPECIFIED	Citrus	0.07
215199	PLUMS	Citrus	0.07
215399	PLUMCOTS	Citrus	0.07
215999	PLUMS DRIED	Citrus	0.07
216199	GRAPES TABLE	Grapes-Table	0.83
216299	GRAPES WINE	Grapes-Wine	1.50
216399	GRAPES RAISIN	Grapes-Raisin	2.60
216999	GRAPES UNSPECIFIED	Grapes-Wine	1.50
217999	APRICOTS ALL	Citrus	0.07
218199	NECTARINES	Citrus	0.07
218299	PERSIMMONS	Citrus	0.07
218399	POMEGRANATES	Citrus	0.07
218499	QUINCE	Citrus	0.07
218839	CHERIMOYAS	Citrus	0.07
218889	BIOMASS ORCHARD	Almonds	3.13
218899	FRUITS & NUTS UNSPECIFIED	Citrus	0.07
221999	AVOCADOS ALL	Citrus	0.07
224999	DATES	Citrus	0.07
225999	FIGS DRIED	Citrus	0.07
226999	OLIVES	Citrus	0.07
228019	GUAVAS	Citrus	0.07
229999	KIWIFRUIT	Citrus	0.07
230639	BERRIES BLACKBERRIES	Grapes-Table	0.83
230869	BERRIES BOYSENBERRIES	Grapes-Table	0.83
234799	BERRIES LOGANBERRIES	Grapes-Table	0.83
236199	BERRIES RASPBERRIES	Grapes-Table	0.83
237199	BERRIES STRAWBERRIES F MKT	Melon	5.70
237299	BERRIES STRAWBERRIES PROC	Melon	5.70
237999	BERRIES STRAWBERRIES UNSPEC	Melon	5.70
239999	BERRIES BUSHBERRIES UNSPEC	Grapes-Table	0.83
261999	ALMONDS ALL	Almonds	3.13
263999	WALNUTS ENGLISH	Almonds	3.13
264999	PECANS	Almonds	3.13
265999	WALNUTS BLACK	Almonds	3.13
266999	CHESTNUTS	Almonds	3.13
267999	MACADAMIA NUTS	Almonds	3.13
268079	PISTACHIOS	Almonds	3.13
268099	ALMOND HULLS	Almonds	3.13
301999	ARTICHOKES	Melon	5.70
302199	ASPARAGUS FRESH MARKET	Melon	5.70
302299	ASPARAGUS PROCESSING	Melon	5.70
302999	ASPARAGUS UNSPECIFIED	Melon	5.70
303999	BEANS LIMA GREEN	DryBeans	7.70
304199	BEANS SNAP FRESH MARKET	DryBeans	7.70
304299	BEANS SNAP PROCESSING	DryBeans	7.70
304399	BEANS FRESH UNSPECIFIED	DryBeans	7.70
304999	BEANS SNAP UNSPECIFIED	DryBeans	7.70
305999	BEETS GARDEN	Sugar Beets	22.80
306999	RAPPINI	Sugar Beets	22.80
307189	BROCCOLI FOOD SERVICE	Vegetables	8.50
307199	BROCCOLI FRESH MARKET	Vegetables	8.50
307299	BROCCOLI PROCESSING	Vegetables	8.50
307919	BROCCOLI UNSPECIFIED	Vegetables	8.50
308999	BRUSSELS SPROUTS	Melon	5.70

TABLE 2.a
Summary of Crop Profile, Acre-Pass, and Emission Factor

Crop profile	Land Preparation Operations	Category	Acre-Pass	Emission Factor	
				Operation (lbs/Acre-pass)	Crop (lbs/Acre/year)
Alfalfa	Unspecified	Discing	1.25	1.2	
	Land Maintenance	Land Planing	0.2	12.5	4
Almonds	Float	Land Planing	0.25	12.5	3.13
Citrus	Unspecified	Discing	0.06	1.2	0.07
Corn	List & Fertilize	Weeding	1	0.8	
	Mulch Beds	Discing	1	1.2	
	Finish Disc	Discing	1	1.2	
	Land Maintenance	Land Planing	0.2	12.5	
	Stubble Disc	Discing	1	1.2	6.9
Cotton	Land Preparation	Discing	4	1.2	
	Land Maintenance	Land Planing	0.2	12.5	
	Seed Bed Preparation	Weeding	2	0.8	8.9
DryBeans	Land Maintenance	Land Planing	0.2	12.5	
	Chisel	Discing	1	1.2	
	Shaping	Weeding	1	0.8	
	Disc	Discing	2	1.2	
	Listing	Weeding	1	0.8	7.7
Garbanzo	Chisel	Discing	1	1.2	
	Listing	Weeding	1	0.8	
	Shaping	Weeding	1	0.8	
	Disc	Discing	2	1.2	
	Land Maintenance	Land Planing	0.2	12.5	7.7
Garlic	Land Maintenance	Land Planing	0.2	12.5	
	Disc & Roll	Discing	1	1.2	
	Chisel	Discing	1	1.2	
	List	Weeding	1	0.8	
	Shape Beds	Weeding	1	0.8	6.5
Grapes-Raisin	Terrace	Weeding	1	0.8	
	Spring Tooth	Weeding	0.2	0.8	
	Subsoil	Ripping	0.05	4.6	
	Disc & Furrow-out	Discing	1	1.2	
	Level (new vineyard)	Land Planing	0.02	12.5	2.6
Grapes-Table	Subsoil	Ripping	0.05	4.6	
	Disc & Furrow-out	Discing	0.5	1.2	0.83
Grapes-Wine	Level (new vineyard)	Land Planing	0.02	12.5	
	Spring Tooth	Weeding	0.2	0.8	
	Subsoil	Ripping	0.05	4.6	
	Disc & Furrow-out	Discing	0.75	1.2	1.5
Lettuce*	Land Maintenance	Land Planing	0.2	12.5	
	Disc & Roll	Discing	2/2	1.2	
	Chisel	Discing	2/2	1.2	
	List	Weeding	2/2	0.8	
	Plane	Land Planing	½	12.5	
	Shape Beds & Roll	Weeding	2/2	0.8	12.75
Melon	Plow	Discing	1	1.2	
	Shape Beds	Weeding	1	0.8	
	Land Maintenance	Land Planing	0.2	12.5	
	Disc	Discing	1	1.2	5.7
No Land Prep	Unspecified	Discing	0	1.2	0
Onions	List	Weeding	1	0.8	
	Shape Beds	Weeding	1	0.8	
	Land Maintenance	Land Planing	0.2	12.5	
	Chisel	Discing	1	1.2	
	Disc & Roll	Discing	1	1.2	6.5
Rice	Chisel	Discing	1	1.2	
	Land Maintenance	Land Planing	0.2	12.5	
	Post Burn/Harvest Disc	Discing	0.5	1.2	
	Roll	Weeding	1	0.8	
	3 Wheel Plane	Land Planing	1	12.5	
	Harrow Disc	Discing	1	1.2	
	Stubble Disc	Discing	1	1.2	20
Safflower	List	Weeding	1	0.8	
	Land Maintenance	Land Planing	0.2	12.5	
	Stubble Disc	Discing	1	1.2	4.5

MISCELLANEOUS PROCESS METHODOLOGY 7.11
Unpaved Road Dust, Farm Roads

(Updated April 2016)

EMISSION INVENTORY SOURCE CATEGORY
Miscellaneous Processes / Road Dust

EMISSION INVENTORY CODE (CES CODE) AND DESCRIPTION
645-646-5400-0000 (47431) Unpaved Road Travel Dust – Farm Roads

Method Summary. This source category provides estimates of the entrained geologic particulate matter (PM) emissions that result from vehicular travel over unpaved roads on agricultural lands due to mechanical disturbance of the roadway and vehicle-generated air turbulence effects. Emissions vary during the year according to the level of agricultural activity in each region. The California Air Resources Board (ARB) estimates PM10 emissions for county by multiplying crop specific harvested acres by a crop specific vehicle miles traveled (VMT) factor and an emission factor for unpaved roads. Emissions are then distributed to the 69 air basin/county/air district (COABDIS) regions. Fractions for other PM components (PM2.5 and total PM) are calculated using an ARB speciation profile. This update provides emissions estimates based on activity data for 2012 and was developed for the 2016 SIP Ozone Inventory, Version 1.04.

Activity Data Source. Agricultural unpaved road activity data are based on county specific harvested crop acreage and on crop specific VMT factors (VMT/acre/year). Activity, expressed as pounds PM10 per VMT/acre/year, is based on crop specific commodity VMT factors that reflect annual land preparation and harvest activity. These factors are used to compute farm road VMT for each county.

Harvested Acreage. For this update, 2012 harvested acreage from the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS) was used for all regions. NASS data are compiled from county level reports provided by the California County Agricultural Commissioners for more than 200 commodities identified by the California Department of Food and Agriculture (CDFA). Acreage for pasture lands, mushrooms, greenhouse, nursery and flower crops, and forest firewood was excluded as was crop specific acreage aggregated statewide as "Sum of Others". For counties split among two or more air basins, acreage was apportioned based on land surface areas [ARB, 2009 Almanac], except for Kern County, which was assigned 98% to the SJV Air Basin and 2% to the Mojave Desert Air Basin. Complete listings of California crop acreage by county/air basin/air district (COABDIS) region for this update are available here: https://www.arb.ca.gov/ei/areasrc/fullpdf/2012acreage.pdf

Vehicle Miles Traveled (VMT). ARB staff and a group of agricultural experts in the SJV Air Basin developed 20 representative crop profiles (Crop Calendars) that characterize the monthly distribution of annual land preparation and harvest activities for about 90 percent of California's crop acreage [ARB, April 2003]. Crops that were not specifically addressed were assigned a crop profile from a similar crop. Five commodity VMT factors, presented in Table A, were used to develop the crop specific VMT factors presented in Table B. Annual VMT are calculated as the product of crop specific harvested acreage and the assigned VMT factor. There is no adjustment for rainfall as crop calendars are assumed to reflect weather-related travel patterns on farm roads.

Table A. VMT Factors for Unpaved Farm Roads

Commodity	VMT Factors (VMT/acre/year)
Grapes	0.38
Tree & Citrus Fruit	1.23
Nut Crops	0.49
Cotton (large field)	0.40
Cotton (small field)	2.40

Table B. CDFA Commodity and Assigned VMT Factor

CDFA Code	Crop Description	VMT Category	VMT Factor (VMT/acre/year)
101999	WHEAT ALL	Cotton (large)	0.40
104999	RYE GRAIN	Cotton (large)	0.40
106199	RICE MILLING	Cotton (large)	0.40
106269	FIELD CROP BY-PRODUCTS	Cotton (large)	0.40
111559	CORN WHITE	Cotton (large)	0.40
111991	CORN GRAIN	Cotton (large)	0.40
111992	CORN SILAGE	Cotton (small)	2.40
112999	OATS GRAIN	Cotton (large)	0.40
113995	BARLEY FEED	Cotton (large)	0.40
113999	BARLEY UNSPECIFIED	Cotton (large)	0.40
114991	SORGHUM GRAIN	Cotton (large)	0.40
115991	TRITICALE	Cotton (large)	0.40
121219	COTTON LINT UPLAND	Cotton (large)	0.40
121229	COTTON LINT PIMA	Cotton (large)	0.40
121299	COTTON LINT UNSPECIFIED	Cotton (large)	0.40
132999	SUGAR BEETS	Cotton (small)	2.40
151999	COTTONSEED	Cotton (large)	0.40
158269	SAFFLOWER	Cotton (large)	0.40
158316	SUNFLOWER SEED PLANTING	Cotton (small)	2.40
158499	JOJOBA	Cotton (small)	2.40
161131	BEANS LIMA LG. DRY	Cotton (small)	2.40
161132	BEANS LIMA BABY DRY	Cotton (small)	2.40
161199	BEANS LIMA UNSPECIFIED	Cotton (small)	2.40
161717	BEANS KIDNEY RED	Cotton (small)	2.40
161741	BEANS BLACKEYE (PEAS)	Cotton (small)	2.40
161742	BEANS GARBANZO	Cotton (small)	2.40
169999	BEANS DRY EDIBLE UNSPEC.	Cotton (small)	2.40
171019	WHEAT SEED	Cotton (large)	0.40
171049	RYE SEED	Cotton (large)	0.40
171069	RICE SEED	Cotton (large)	0.40
171129	OATS SEED	Cotton (large)	0.40
171139	BARLEY SEED	Cotton (large)	0.40
171519	COTTON SEED PLANTING	Cotton (large)	0.40
171582	SAFFLOWER SEED PLANTING	Cotton (large)	0.40
171619	BEANS SEED	Cotton (small)	2.40
171949	FIELD CROPS SEED MISC.	Cotton (large)	0.40
171959	SEED VEG & VINECROP	Cotton (small)	2.40
172119	SEED ALFALFA	Cotton (large)	0.40
172289	SEED CLOVER UNSPECIFIED	Cotton (large)	0.40
173079	SEED BERMUDA GRASS	Cotton (large)	0.40
173669	SEED SUDAN GRASS	Cotton (large)	0.40

Table B. CDFA Commodity and Assigned VMT Factor

CDFA Code	Crop Description	VMT Category	VMT Factor (VMT/acre/year)
173999	SEED GRASS UNSPECIFIED	Cotton (large)	0.40
178999	SEED OTHER (NO FLOWERS)	Cotton (large)	0.40
181999	HAY ALFALFA	Cotton (large)	0.40
188499	HAY GRAIN	Cotton (large)	0.40
188799	HAY WILD	Cotton (large)	0.40
188899	HAY SUDAN	Cotton (large)	0.40
188999	HAY OTHER UNSPECIFIED	Cotton (large)	0.40
195199	SILAGE	Cotton (large)	0.40
195299	HAY GREEN CHOP	Cotton (large)	0.40
195399	STRAW	Cotton (large)	0.40
198199	RICE WILD	Cotton (large)	0.40
198999	FIELD CROPS UNSPECIFIED	Cotton (large)	0.40
201119	ORANGES NAVEL	Tree & Citrus Fruit	1.23
201519	ORANGES VALENCIA	Tree & Citrus Fruit	1.23
201999	ORANGES UNSPECIFIED	Tree & Citrus Fruit	1.23
202999	GRAPEFRUIT ALL	Tree & Citrus Fruit	1.23
203999	TANGERINES & MANDARINS	Tree & Citrus Fruit	1.23
204999	LEMONS ALL	Tree & Citrus Fruit	1.23
205999	LIMES ALL	Tree & Citrus Fruit	1.23
206999	TANGELOS	Tree & Citrus Fruit	1.23
207999	KUMQUATS	Tree & Citrus Fruit	1.23
208059	CITRUS BY-PRODUCTS MISC.	Tree & Citrus Fruit	1.23
209999	CITRUS UNSPECIFIED	Tree & Citrus Fruit	1.23
211999	APPLES ALL	Tree & Citrus Fruit	1.23
212199	PEACHES FREESTONE	Tree & Citrus Fruit	1.23
212399	PEACHES CLINGSTONE	Tree & Citrus Fruit	1.23
212999	PEACHES UNSPECIFIED	Tree & Citrus Fruit	1.23
213199	CHERRIES SWEET	Tree & Citrus Fruit	1.23
214199	PEARS BARTLETT	Tree & Citrus Fruit	1.23
214899	PEARS ASIAN	Tree & Citrus Fruit	1.23
214999	PEARS UNSPECIFIED	Tree & Citrus Fruit	1.23
215199	PLUMS	Tree & Citrus Fruit	1.23
215399	PLUMCOTS	Tree & Citrus Fruit	1.23
215999	PLUMS DRIED	Tree & Citrus Fruit	1.23
216199	GRAPES TABLE	Cotton (small)	2.40
216299	GRAPES WINE	Grapes (all)	0.38
216399	GRAPES RAISIN	Grapes (all)	0.38
216999	GRAPES UNSPECIFIED	Grapes (all)	0.38
217999	APRICOTS ALL	Tree & Citrus Fruit	1.23
218199	NECTARINES	Tree & Citrus Fruit	1.23
218299	PERSIMMONS	Tree & Citrus Fruit	1.23

Table B. CDFA Commodity and Assigned VMT Factor

CDFA Code	Crop Description	VMT Category	VMT Factor (VMT/acre/year)
218399	POMEGRANATES	Tree & Citrus Fruit	1.23
218499	QUINCE	Tree & Citrus Fruit	1.23
218889	BIOMASS ORCHARD	Nut Crops	0.49
218899	FRUITS & NUTS UNSPECIFIED	Tree & Citrus Fruit	1.23
221999	AVOCADOS ALL	Tree & Citrus Fruit	1.23
224999	DATES	Tree & Citrus Fruit	1.23
225999	FIGS DRIED	Tree & Citrus Fruit	1.23
226999	OLIVES	Tree & Citrus Fruit	1.23
229999	KIWIFRUIT	Grapes (all)	0.38
234799	BERRIES LOGANBERRIES	Grapes (all)	0.38
236199	BERRIES RASPBERRIES	Grapes (all)	0.38
237199	BERRIES STRAWBERRIES F MKT	Cotton (small)	2.40
237299	BERRIES STRAWBERRIES PROC.	Cotton (small)	2.40
237999	BERRIES STRAWBERRIES UNSPEC	Cotton (small)	2.40
238199	BERRIES BLUEBERRIES	Grapes (all)	0.38
239999	BERRIES BUSHBERRIES UNSPEC.	Cotton (small)	2.40
261999	ALMONDS ALL	Nut Crops	0.49
263999	WALNUTS ENGLISH	Nut Crops	0.49
264999	PECANS	Nut Crops	0.49
265999	WALNUTS BLACK	Nut Crops	0.49
267999	MACADAMIA NUTS	Nut Crops	0.49
268079	PISTACHIOS	Nut Crops	0.49
268099	ALMOND HULLS	Nut Crops	0.49
301999	ARTICHOKES	Cotton (small)	2.40
302999	ASPARAGUS UNSPECIFIED	Cotton (small)	2.40
303999	BEANS LIMA GREEN	Cotton (small)	2.40
304199	BEANS SNAP FRESH MARKET	Cotton (small)	2.40
304399	BEANS FRESH UNSPECIFIED	Cotton (small)	2.40
304999	BEANS SNAP UNSPECIFIED	Cotton (small)	2.40
305999	BEETS GARDEN	Cotton (small)	2.40
306999	RAPPINI	Cotton (small)	2.40
307189	BROCCOLI FOOD SERVICE	Cotton (small)	2.40
307199	BROCCOLI FRESH MARKET	Cotton (small)	2.40
307299	BROCCOLI PROCESSING	Cotton (small)	2.40
307919	BROCCOLI UNSPECIFIED	Cotton (small)	2.40
308999	BRUSSELS SPROUTS	Cotton (small)	2.40
309999	CABBAGE CH. & SPECIALTY	Cotton (small)	2.40
310999	CABBAGE HEAD	Cotton (small)	2.40
313189	CARROTS FOOD SERVICE	Cotton (small)	2.40
313199	CARROTS FRESH MARKET	Cotton (small)	2.40
313299	CARROTS PROCESSING	Cotton (small)	2.40

Table B. CDFA Commodity and Assigned VMT Factor

CDFA Code	Crop Description	VMT Category	VMT Factor (VMT/acre/year)
313999	CARROTS UNSPECIFIED	Cotton (small)	2.40
314189	CAULIFLOWER FOOD SERVICE	Cotton (small)	2.40
314199	CAULIFLOWER FRESH MARKET	Cotton (small)	2.40
314999	CAULIFLOWER UNSPECIFIED	Cotton (small)	2.40
316189	CELERY FOOD SERVICE	Cotton (small)	2.40
316199	CELERY FRESH MARKET	Cotton (small)	2.40
316999	CELERY UNSPECIFIED	Cotton (small)	2.40
318999	RADICCHIO	Cotton (small)	2.40
323999	CORN SWEET ALL	Cotton (small)	2.40
325999	CUCUMBERS	Cotton (small)	2.40
330999	EGGPLANT ALL	Cotton (small)	2.40
331999	ENDIVE ALL	Cotton (small)	2.40
332999	ESCAROLE ALL	Cotton (small)	2.40
333999	ANISE (FENNEL)	Cotton (small)	2.40
335999	GARLIC ALL	Cotton (small)	2.40
337999	KALE	Cotton (small)	2.40
339196	LETTUCE BULK SALAD PRODS.	Cotton (small)	2.40
339999	LETTUCE UNSPECIFIED	Cotton (small)	2.40
340999	LETTUCE HEAD	Cotton (small)	2.40
341999	LETTUCE ROMAINE	Cotton (small)	2.40
342999	LETTUCE LEAF	Cotton (small)	2.40
343999	MELONS CANTALOUPE	Cotton (small)	2.40
348999	MELONS HONEYDEW	Cotton (small)	2.40
354299	MELONS UNSPECIFIED	Cotton (small)	2.40
354999	MELONS WATERMELON	Cotton (small)	2.40
358999	ONIONS	Cotton (small)	2.40
359999	PARSLEY	Cotton (small)	2.40
361999	PEAS GREEN UNSPECIFIED	Cotton (small)	2.40
363999	PEPPERS BELL	Cotton (small)	2.40
364999	PEPPERS CHILI HOT	Cotton (small)	2.40
366999	PUMPKINS	Cotton (small)	2.40
367999	RADISHES	Cotton (small)	2.40
372999	ONIONS GREEN & SHALLOT	Cotton (small)	2.40
374189	SPINACH FOOD SERVICE	Cotton (small)	2.40
374199	SPINACH FRESH MARKET	Cotton (small)	2.40
374999	SPINACH UNSPECIFIED	Cotton (small)	2.40
375999	SQUASH	Cotton (small)	2.40
376999	SWISS CHARD	Cotton (small)	2.40
378199	TOMATOES FRESH MARKET	Cotton (small)	2.40
378299	TOMATOES PROCESSING	Cotton (large)	0.40
378999	TOMATOES UNSPECIFIED	Cotton (small)	2.40

Table B. CDFA Commodity and Assigned VMT Factor

CDFA Code	Crop Description	VMT Category	VMT Factor (VMT/acre/year)
380999	TURNIPS ALL	Cotton (small)	2.40
381999	GREENS TURNIP & MUSTARD	Cotton (small)	2.40
387999	LEEKS	Cotton (small)	2.40
391999	POTATOES IRISH ALL	Cotton (large)	0.40
392999	POTATOES SWEET	Cotton (large)	0.40
393999	HORSERADISH	Cotton (small)	2.40
394199	SALAD GREENS NEC.	Cotton (small)	2.40
394999	PEAS EDIBLE POD (SNOW)	Cotton (small)	2.40
395999	VEGETABLES ORIENTAL ALL	Cotton (small)	2.40
398499	TOMATILLO	Cotton (small)	2.40
398559	CILANTRO	Cotton (small)	2.40
398599	SPICES AND HERBS	Cotton (small)	2.40
398999	VEGETABLES UNSPECIFIED	Cotton (small)	2.40

Emission Factor Source. The statewide emission factor for geologic dust emissions from vehicular travel on all unpaved roads is 2.0 lbs PM10 per VMT [ARB, May 2003]. This is based on tests performed in the San Joaquin Valley by the University of California, Davis (UCD) [Flocchini, 2001] and the Desert Research Institute (DRI) [Gilles, 1996].

Emissions. PM10 emissions on unpaved farm roads are calculated for each crop as the product of VMT and the PM10 emission factor (EF_{PM10}) for unpaved roads. Emissions are summed by county, then distributed to each COABDIS region:
PM10 (tons/year) = VMT x EF_{PM10}/(2000 lbs/ton)
EF_{PM10} = 2.0 lbs PM10/VMT (statewide unpaved road default)

PM2.5 and total PM are derived from calculated PM10 emissions using ARB's size speciation profile #470 [Houck, 1989; Cowherd, 2005]. Particle size fractions are based on an average of dust measurements from 8 fields in the San Joaquin Valley and on 2006 updates to ARB PM2.5 speciation profiles [Gaffney, 2006] that apportioned more of the fine PM (<2.5 microns) into the coarse PM (>2.5 microns) category.

Total PM and PM2.5 emissions on unpaved farm roads are calculated as follows:
Total PM emissions (tons/year) = PM10 (tons/year)/0.5943
PM2.5 emissions (tons/year) = (PM10 (tons/year)/0.5943) x 0.0594
= PM10 x 0.10

Table 1 presents tons per year PM10, PM2.5 and total PM emissions from unpaved farm roads for 2012 by COABDIS region, along with harvested acreage and VMT.

Temporal Data. Monthly temporal profiles allocate emissions to reflect the percentage of annual activity occurring each month and in the summer (May - October) and winter (November - April) seasons. The profiles reflect the crop mix and the associated harvested acreage unique to each county. Monthly emissions are calculated by multiplying annual emissions by the monthly fraction. No adjustments are made for rainfall as the crop calendars are assumed to reflect seasonal activity patterns. Farm road activity is assumed to be the same each day of the week and to occur primarily during daylight hours. Table 2 presents the monthly temporal emissions profiles by COABDIS region; a single county profile is used for counties split into two or more air districts.

Growth Parameter. Growth projections vary by region [Griffin, 2011]. For all regions of the state except the SJV Air Basin, growth reflects linear regressions of the 2000-2009 NASS harvested crop acreage for regions showing a definite trend (-3% to +3% annually) and no growth when the regression analysis showed either no observable trend or an unsustainable trend. For the SJV Air Basin, growth reflects linear regressions of 2000-2009 FMMP farmland acreage by COABDIS, applied to NASS harvested crop acreage for base year 2007. For all regions, growth is projected through 2020.

Changes in Method and Emissions Estimate. The significant changes for this update include:

- Emissions were updated based on 2012 harvested acreage data.
- County specific temporal profiles were updated to reflect seasonal variations in emissions, based on the mix of crops and associated harvested acreage.

These changes produced an emissions reduction of about 1% from the previous 2008 published inventory estimates.

PREPARED BY
Janet Spencer
April 2016

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Table 1
2012 Dust Emissions from Unpaved Farm Roads

Air Basin	County	Air District	Harvested Acres	VMT	Emissions, tons/year		
					PM10	PM2.5	Total PM
GBV	Alpine	GBU	150.00	60.00	0.06	0.01	0.10
GBV	Inyo	GBU	5,028.00	2,047.00	2.05	0.2	3.44
GBV	Mono	GBU	15,933.00	6,833.13	6.83	0.68	11.50
LC	Lake	LAK	15,605.00	8,195.14	8.2	0.82	13.79
LT	El Dorado	ED	325.89	218.44	0.22	0.02	0.37
LT	Placer	PLA	1,028.05	434.27	0.43	0.04	0.73
MC	Amador	AMA	6,271.00	2,476.24	2.48	0.25	4.17
MC	Calaveras	CAL	2,125.00	1,016.11	1.02	0.1	1.71
MC	El Dorado	ED	3,295.11	2,208.63	2.21	0.22	3.72
MC	Mariposa	MPA	104.00	39.00	0.04	0	0.07
MC	Nevada	NSI	312.00	117.00	0.12	0.01	0.20
MC	Placer	PLA	13,364.65	5,645.47	5.65	0.56	9.50
MC	Plumas	NSI	10,000.00	4,000.00	4	0.4	6.73
MC	Sierra	NSI	3,550.00	1,420.00	1.42	0.14	2.39
MC	Tuolumne	TUO	560.00	457.96	0.46	0.05	0.77
MD	Kern	KER	15,759.98	10,868.58	10.87	1.09	18.29
MD	Los Angeles	AV	5,110.78	2,200.92	2.2	0.22	3.70
MD	Riverside	MOJ	31,548.09	31,122.26	31.12	3.11	52.37
MD	Riverside	SC	46,394.25	45,768.02	45.77	4.57	77.01
MD	San Bernardino	MOJ	25,338.64	25,172.31	25.17	2.52	42.36
NC	Del Norte	NCU	2,600.00	1,040.00	1.04	0.1	1.75
NC	Humboldt	NCU	10,600.00	4,240.00	4.24	0.42	7.13
NC	Mendocino	MEN	18,925.00	9,292.66	9.29	0.93	15.64
NC	Sonoma	NS	50,931.32	22,268.88	22.27	2.23	37.47
NC	Trinity	NCU	664.00	262.75	0.26	0.03	0.44
NCC	Monterey	MBU	373,871.00	783,158.29	783.16	78.28	1,317.78
NCC	San Benito	MBU	47,657.00	68,854.16	68.85	6.88	115.86
NCC	Santa Cruz	MBU	17,226.00	30,404.55	30.4	3.04	51.16
NEP	Lassen	LAS	72,743.00	29,097.20	29.1	2.91	48.96
NEP	Modoc	MOD	86,465.00	48,862.00	48.86	4.88	82.22
NEP	Siskiyou	SIS	104,817.00	46,327.39	46.33	4.63	77.95
SC	Los Angeles	SC	5,763.22	2,481.88	2.48	0.25	4.18
SC	Orange	SC	1,035.00	2,401.11	2.4	0.24	4.04
SC	Riverside	SC	51,961.56	51,260.18	51.26	5.12	86.25
SC	San Bernardino	SC	1,617.36	1,606.74	1.61	0.16	2.70
SCC	San Luis Obispo	SLO	108,293.00	112,155.72	112.16	11.21	188.72
SCC	Santa Barbara	SB	117,363.00	211,456.21	211.46	21.13	355.81
SCC	Ventura	VEN	93,692.00	167,859.22	167.86	16.78	282.45
SD	San Diego	SD	49,072.00	61,686.99	61.69	6.17	103.80

Table 1
2012 Dust Emissions from Unpaved Farm Roads

Air Basin	County	Air District	Harvested Acres	VMT	Emissions, tons/year		
					PM10	PM2.5	Total PM
SF	Alameda	BA	10,035.00	4,392.05	4.39	0.44	7.39
SF	Contra Costa	BA	30,709.00	23,224.81	23.22	2.32	39.08
SF	Marin	BA	4,096.00	2,293.75	2.29	0.23	3.86
SF	Napa	BA	44,036.00	16,735.41	16.74	1.67	28.16
SF	San Francisco	BA	0	0	0	0	0
SF	San Mateo	BA	3,141.00	5,532.21	5.53	0.55	9.31
SF	Santa Clara	BA	19,407.00	31,382.58	31.38	3.14	52.81
SF	Solano	BA	50,426.00	31,350.57	31.35	3.13	52.75
SF	Sonoma	BA	23,967.68	10,479.47	10.48	1.05	17.63
SJV	Fresno	SJU	1,073,350.00	900,335.42	900.34	89.99	1,514.95
SJV	Kern	SJU	772,239.04	532,560.36	532.56	53.23	896.11
SJV	Kings	SJU	557,583.00	383,570.03	383.57	38.34	645.41
SJV	Madera	SJU	310,420.00	207,546.99	207.55	20.74	349.23
SJV	Merced	SJU	562,198.00	454,888.15	454.89	45.47	765.42
SJV	San Joaquin	SJU	690,367.00	482,386.64	482.39	48.21	811.69
SJV	Stanislaus	SJU	538,956.00	505,716.64	505.72	50.55	850.95
SJV	Tulare	SJU	893,908.00	922,802.60	922.8	92.23	1,552.76
SS	Imperial	IMP	565,617.00	519,490.84	519.49	51.92	874.12
SS	Riverside	SC	55,673.10	54,921.63	54.92	5.49	92.41
SV	Butte	BUT	213,910.00	109,466.31	109.47	10.94	184.19
SV	Colusa	COL	294,470.00	173,908.90	173.91	17.38	292.63
SV	Glenn	GLE	242,036.00	144,947.55	144.95	14.49	243.90
SV	Placer	PLA	6,168.30	2,605.60	2.61	0.26	4.38
SV	Sacramento	SAC	127,756.00	72,570.47	72.57	7.25	122.11
SV	Shasta	SHA	30,060.00	11,966.17	11.97	1.2	20.13
SV	Solano	YS	82,274.00	51,150.92	51.15	5.11	86.07
SV	Sutter	FR	230,115.00	140,785.42	140.79	14.07	236.89
SV	Tehama	TEH	63,510.00	43,372.61	43.37	4.34	72.98
SV	Yolo	YS	412,022.00	233,733.11	233.73	23.36	393.29
SV	Yuba	FR	63,866.00	35,858.44	35.86	3.58	60.34
Statewide Totals			9,389,416	7,914,992	7,915	791	13,318

Table 2
Temporal Profiles for 2012 Dust Emissions from Unpaved Farm Roads
(Annual sum of monthly values may not equal 100 due to rounding)

Air Basin	County	Air District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GBV	Alpine	GBU	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
GBV	Inyo	GBU	0.17	0.17	9.91	9.91	9.91	9.91	9.91	9.91	9.91	10.09	10.09	10.09
GBV	Mono	GBU	0.10	0.10	9.16	9.16	9.16	9.86	9.87	11.02	11.02	11.03	10.33	9.18
LC	Lake	LAK	3.27	2.22	4.32	6.15	8.11	8.11	6.15	6.15	12.21	16.36	15.45	11.51
LT	El Dorado	ED	4.15	4.15	4.52	7.87	9.54	9.54	7.87	7.87	8.43	14.25	12.58	9.23
LT	Placer	PLA	0.96	0.52	5.91	12.36	20.11	5.75	1.85	0.85	10.33	14.54	17.31	9.51
MC	Amador	AMA	0.80	0.17	4.01	9.13	12.32	12.32	9.13	9.13	11.11	14.47	11.91	5.53
MC	Calaveras	CAL	1.13	1.13	2.31	5.85	7.62	7.62	5.85	5.85	15.25	18.15	16.39	12.85
MC	El Dorado	ED	4.15	4.15	4.52	7.87	9.54	9.54	7.87	7.87	8.43	14.25	12.58	9.23
MC	Mariposa	MPA	0.00	0.00	0.00	10.53	15.79	15.79	10.53	10.53	10.53	15.79	10.53	0.00
MC	Nevada	NSI	0.00	0.00	0.00	10.53	15.79	15.79	10.53	10.53	10.53	15.79	10.53	0.00
MC	Placer	PLA	0.96	0.52	5.91	12.36	20.11	5.75	1.85	0.85	10.33	14.54	17.31	9.51
MC	Plumas	NSI	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
MC	Sierra	NSI	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
MC	Tuolumne	TUO	4.98	4.98	7.60	7.60	7.60	7.60	7.60	7.60	7.60	12.29	12.29	12.29
MD	Kern	KER	1.25	2.24	3.23	9.22	6.02	8.14	4.87	3.70	8.62	13.97	25.06	13.69
MD	Los Angeles	AV	0.94	0.16	10.33	9.14	9.32	9.32	9.30	9.30	10.08	10.43	11.02	10.66
MD	Riverside	MOJ	3.79	5.11	7.57	7.27	5.47	6.52	9.51	5.28	5.78	14.04	17.68	11.98
MD	Riverside	SC	3.79	5.11	7.57	7.27	5.47	6.52	9.51	5.28	5.78	14.04	17.68	11.98
MD	San Bernardino	MOJ	2.99	1.63	9.27	5.45	3.25	4.22	17.62	3.36	5.31	22.00	14.72	10.17
NC	Del Norte	NCU	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
NC	Humboldt	NCU	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
NC	Mendocino	MEN	2.21	2.21	2.21	9.34	12.91	12.91	9.34	9.34	9.34	14.81	11.25	4.11
NC	Sonoma	NS	1.29	1.10	2.51	9.15	12.66	13.56	10.04	9.15	9.34	13.77	12.23	5.20
NC	Trinity	NCU	0.00	0.00	8.37	10.09	10.94	10.94	10.09	10.09	10.09	10.94	10.09	8.37
NCC	Monterey	MBU	2.75	4.05	7.10	6.00	3.03	3.49	21.90	3.55	3.56	26.53	12.39	5.65
NCC	San Benito	MBU	3.16	3.11	5.71	5.82	3.25	3.49	20.36	4.76	5.09	26.01	12.39	6.85
NCC	Santa Cruz	MBU	2.28	8.79	10.18	4.96	3.01	5.18	12.86	4.53	4.53	14.18	17.09	12.42
NEP	Lassen	LAS	0.00	0.00	9.51	9.75	10.00	10.14	10.02	9.38	9.63	9.75	11.03	10.78
NEP	Modoc	MOD	2.28	2.47	7.75	7.56	7.56	9.55	9.59	9.02	9.02	10.21	12.59	12.40
NEP	Siskiyou	SIS	2.01	0.42	8.49	5.32	5.32	9.62	9.66	7.28	8.86	8.99	17.02	17.02
SC	Los Angeles	SC	0.94	0.16	10.33	9.14	9.32	9.32	9.30	9.30	10.08	10.43	11.02	10.66
SC	Orange	SC	0.76	15.59	15.44	0.61	0.58	5.54	5.94	5.76	5.76	1.65	21.22	21.15
SC	Riverside	SC	3.79	5.11	7.57	7.27	5.47	6.52	9.51	5.28	5.78	14.04	17.68	11.98
SC	San Bernardino	SC	2.99	1.63	9.27	5.45	3.25	4.22	17.62	3.36	5.31	22.00	14.72	10.17
SCC	San Luis Obispo	SLO	4.11	5.26	6.82	6.39	6.16	7.27	12.04	6.09	6.53	15.37	13.56	10.40
SCC	Santa Barbara	SB	4.45	6.95	8.31	6.14	5.07	5.61	13.04	5.38	5.40	17.52	13.06	9.06
SCC	Ventura	VEN	3.23	7.17	8.56	4.68	2.65	3.59	15.70	4.17	4.22	20.96	15.23	9.84
SD	San Diego	SD	6.05	6.83	6.94	6.19	5.91	6.13	7.77	6.56	6.64	13.89	14.02	13.06

Table 2
Temporal Profiles for 2012 Dust Emissions from Unpaved Farm Roads
(Annual sum of monthly values may not equal 100 due to rounding)

Air Basin	County	Air District	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
SF	Alameda	BA	1.63	0.98	7.76	9.11	10.43	10.43	9.11	9.11	9.76	11.89	11.22	8.57
SF	Contra Costa	BA	8.19	2.82	16.66	2.48	2.64	2.82	3.03	2.87	9.69	12.18	19.06	17.57
SF	Marin	BA	2.56	2.56	6.06	6.38	6.54	11.11	10.95	6.38	6.38	7.82	16.79	16.47
SF	Napa	BA	0.12	0.12	0.27	10.45	15.55	15.55	10.45	10.45	10.45	15.65	10.56	0.37
SF	San Francisco	BA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SF	San Mateo	BA	1.39	14.60	14.93	1.81	1.86	5.23	5.19	5.61	5.61	9.93	19.94	13.91
SF	Santa Clara	BA	4.26	5.87	7.95	3.61	1.93	2.42	15.02	4.83	5.88	22.88	15.67	9.68
SF	Solano	BA	4.79	2.47	11.37	3.46	3.55	5.66	6.17	4.05	9.36	11.44	19.52	18.17
SF	Sonoma	BA	1.29	1.10	2.51	9.15	12.66	13.56	10.04	9.15	9.34	13.77	12.23	5.20
SJV	Fresno	SJU	3.46	4.02	7.40	3.87	3.56	5.26	6.90	6.08	10.13	15.63	19.21	14.48
SJV	Kern	SJU	1.25	2.24	3.23	9.22	6.02	8.14	4.87	3.70	8.62	13.97	25.06	13.69
SJV	Kings	SJU	6.09	2.89	12.92	1.69	1.64	3.99	4.22	1.89	8.24	10.97	23.71	21.74
SJV	Madera	SJU	4.18	1.11	7.70	3.76	4.01	4.90	3.85	3.17	13.32	15.50	20.63	17.87
SJV	Merced	SJU	6.38	1.98	13.56	1.70	1.78	3.15	3.60	2.29	10.72	12.16	21.77	20.91
SJV	San Joaquin	SJU	5.15	3.00	11.12	2.38	2.81	5.01	4.94	3.14	10.10	12.17	21.10	19.08
SJV	Stanislaus	SJU	5.37	4.64	13.86	1.52	1.55	2.39	2.89	1.84	10.97	15.50	21.54	17.92
SJV	Tulare	SJU	6.43	2.33	12.49	4.42	3.35	4.92	3.76	2.19	8.26	11.71	22.15	17.98
SS	Imperial	IMP	2.99	3.07	7.89	6.20	4.73	6.44	15.45	5.90	6.44	17.16	13.37	10.38
SS	Riverside	SC	3.79	5.11	7.57	7.27	5.47	6.52	9.51	5.28	5.78	14.04	17.68	11.98
SV	Butte	BUT	1.69	1.79	4.39	7.09	10.89	3.84	1.95	1.41	14.36	17.97	19.43	15.19
SV	Colusa	COL	2.81	3.66	7.96	7.54	11.44	4.32	2.69	2.06	10.88	15.85	18.36	12.42
SV	Glenn	GLE	3.76	2.78	9.09	5.70	8.25	3.96	2.67	1.88	11.61	15.40	19.40	15.49
SV	Placer	PLA	0.96	0.52	5.91	12.36	20.11	5.75	1.85	0.85	10.33	14.54	17.31	9.51
SV	Sacramento	SAC	5.64	1.56	11.00	4.80	6.02	6.70	5.90	4.55	9.18	11.34	17.70	15.59
SV	Shasta	SHA	0.00	0.00	8.66	10.72	12.75	8.74	7.71	7.71	10.69	11.72	11.69	9.63
SV	Solano	YS	4.79	2.47	11.37	3.46	3.55	5.66	6.17	4.05	9.36	11.44	19.52	18.17
SV	Sutter	FR	4.05	2.29	8.45	7.38	10.98	4.36	2.85	2.28	10.68	14.52	18.07	14.09
SV	Tehama	TEH	3.63	3.42	4.63	4.20	4.21	4.76	4.76	4.20	13.34	16.73	18.06	18.05
SV	Yolo	YS	6.82	1.46	13.03	3.25	4.08	3.64	3.93	2.91	10.49	11.87	19.73	18.79
SV	Yuba	FR	2.54	2.54	5.03	9.44	13.86	5.03	2.82	2.82	11.52	16.27	16.27	11.86

280 ACRES PM 10

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) \times Fuel\ Loading\ (_{ton/acre}) \times Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})}$$

280 × 1.45 × 6.0 / 2000 = 1.22 TONS/YEAR

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	6.0/ton for walnut/pecan (avg) crops

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) \times Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

280 × 3.13 / 2000 = 0.44 TONS/YEAR

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) \times Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

280 × 22.4 / 2000 = 3.14 TONS/YEAR

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) \times VMT\ (_{VMT/acre}) \times Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

2 × 0.49 × 280 / 2000 = 0.14 TONS/YEAR

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT \times 240\ days \times Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

6.61 × 240 × 2 / 2000 = 1.59 TONS/YEAR

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) \times 43560\ (ft^2))}}{5280\ (_{ft/mile})} \times 10$$

280 → VT = 6.61

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL = 6.53 TONS/YEAR

280 ACRES PM 2.5

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) \times Fuel\ Loading\ (_{ton/acre}) \times Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})}$$

280 × 1.45 × 5.605 = 1.15 TONS/YEAR

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.0~~ 5.605 ton for walnut/pecan (avg) crops

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) \times Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) \times Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) \times VMT\ (_{VMT/acre}) \times Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})} \times 0.10$$

2 × 0.49 × 280 × 0.10 = 0.014 TONS/YEAR

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT \times 240\ days \times Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) \times 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL = 1.16 TONS/YEAR

280 ACRES NO$_x$

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})}$$

280 1.45 4.85

0.98 TONS/YEAR

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.8~~ 4.85 ton for walnut/pecan (avg) crops

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

280 ACRES CO

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})}$$

280 1.45 66.5

$= 13.5$ TONS/YEAR

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.8~~/ton for walnut/pecan (avg) crops

66.5

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VMT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

100 ACRES PM10 PHASE 1

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.44$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	6.0/ton for walnut/pecan (avg) crops

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})} = 0.16$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})} = 1.12$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})} = 0.05$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})} = 0.95$$

$$VMT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL 2.72 TONS/YEAR

100 ACRES $PM_{2.5}$ PHASE 1

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.41$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.0~~ 5.65/ton for walnut/pecan (avg) crops

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})} = 0.05$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL 0.46 TONS/YEAR

100 ACRES NOx PHASE 1

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.35\ TONS/YEAR$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.0~~ 4.85 ton for walnut/pecan (avg) crops

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VMT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

100 ACRES CO PHASE 1

1. Agriculture Burning

$$Emission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 4.82\ TONS/YEAR$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.6~~ 10.5/ton for walnut/pecan (avg) crops

2. Land Preparation

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$Emission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$Emission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$Emission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

80 ACRES PM_{10} PHASE 2

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.35$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	6.0/ton for walnut/pecan (avg) crops

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})} = 0.13$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})} = 0.89$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})} = 0.04$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})} = 0.85$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL 2.26 TONS/YEAR

80 ACRES PM2.5 PHASE 2

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.33$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~8.0~~ 5.65/ton for walnut/pecan (avg) crops

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})} = 0.04$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

TOTAL 0.37 TONS/YEAR

80 ACRES NO_x PHASE 2

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 0.28$$

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.0~~ 4.85/ton for walnut/pecan (avg) crops

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VMT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

80 ACRES CO PHASE 2

1. Agriculture Burning

$$mission_{(tons/year)} = \frac{(Acreage\ (_{acre/year}) x\ Fuel\ Loading\ (_{ton/acre}) x\ Emission\ Factor\ (_{lbs/ton}))}{2000\ (_{lbs/ton})} = 3.89$$

TONS/YEAR

Where:

Acreage	=	Project Acreage
Fuel Loading	=	quantity/residue burned in tons per acre, (1.45 ton/acre for walnut/pecan [avg] crops)
Emission Factor	=	~~6.0~~/ton for walnut/pecan (avg) crops

16.5

2. Land Preparation

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	land preparation emission factor (3.13 lbs PM10/acre/yr for nut crops)

3. Harvesting

$$mission_{(tons/year)} = \frac{Acreage\ (_{acre/year}) x\ Emission\ Factor\ (_{lbs/ton})}{2000\ (_{lbs/ton})}$$

Where:

Acreage	=	Project Acreage
Emission Factor	=	harvest emission factor (22.4 lbs PM10/acre/yr for walnut/pecan (avg) crops

4. Unpaved Roads

$$mission_{(tons/year)} = \frac{(Emission\ Factor\ (_{lbs/VMT}) x\ VMT\ (_{VMT/acre}) x\ Acreage\ (_{acre/year}))}{2000\ (_{lbs/ton})}$$

Where:

Emission Factor	=	2 lbs per VMT
VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Acreage	=	Project Acreage

5. Unpaved Vehicle/Equipment Parking and Traffic Areas

$$mission_{(tons/year)} = \frac{(VMT\ x\ 240\ days\ x\ Emission\ Factor\ (_{lbs/VMT}))}{2000\ (_{lbs/ton})}$$

$$VT = \frac{\sqrt{(Acreage\ (_{acre}) x\ 43560\ (_{ft^2}))}}{5280\ (_{ft/mile})}$$

Where:

VMT	=	vehicle mile traveled (0.49 per acre per year for nut crops)
Emission Factor	=	2 lbs per VMT
Vehicle Trips (VT)	=	10 VT, default average value
Acreage	=	Project Acreage
240 days	=	estimated total days per year of trip traveled on unpaves ares, default value

Source: SJVAPCD

APPENDIX B

CalEEMod Worksheets

Phase 1 East Side Regional Park

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Golf Course	100.00	Acre	100.00	4,356,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 1 East Side Regional Park - Tulare County, Annual

Project Characteristics -

Land Use - Project Description/Trip Generation
Golf Course is associated with 100 acre Recharge Basins for Phase 1 of the Project

Construction Phase - Adjusted total construction days to reflect a construction schedule that would be more consistent with the Project

Trips and VMT - Trips associated with Building Construction and Architectural Coating were modified in accordance with Appendix E2 of the CalEEMod User Guide

Demolition -

Architectural Coating - Non-Residential Interior/Exterior Area value based on Methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Vehicle Trips - Golf Course should be characterized as Recharge Basins. Rates applied will generate daily trips associated with the Recharge Basin.

Area Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Grading - Phase 1 - 100 acre area for recharge basin

Off-road Equipment - Phase 1 - Recharge Basins

Off-road Equipment - Phase 1 - Recharge Basin

Off-road Equipment -

Table Name	Column Name	Default Value	New Value
tblGrading	AcresOfGrading	387.50	100.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	VendorTripNumber	714.00	0.00
tblVehicleEF	HHD	0.92	0.94
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.10	0.12

tblVehicleEF	HHD	3.50	3.70
tblVehicleEF	HHD	0.82	0.84
tblVehicleEF	HHD	2.56	2.79
tblVehicleEF	HHD	5,695.38	5,733.29
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	26.66	28.09
tblVehicleEF	HHD	4.44	4.75
tblVehicleEF	HHD	19.99	19.97
tblVehicleEF	HHD	0.04	0.05
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	9.3000e-005	1.3800e-004
tblVehicleEF	HHD	1.2800e-004	1.5200e-004
tblVehicleEF	HHD	5.2840e-003	6.8420e-003
tblVehicleEF	HHD	0.94	0.99
tblVehicleEF	HHD	6.0000e-005	7.0000e-005
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.4200e-004	4.1100e-004
tblVehicleEF	HHD	0.07	0.09

tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2300e-004	1.3300e-004
tblVehicleEF	HHD	1.2800e-004	1.5200e-004
tblVehicleEF	HHD	5.2840e-003	6.8420e-003
tblVehicleEF	HHD	1.07	1.13
tblVehicleEF	HHD	6.0000e-005	7.0000e-005
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.4200e-004	4.1100e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.87	0.89
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.10	0.11
tblVehicleEF	HHD	2.56	2.71
tblVehicleEF	HHD	0.83	0.85
tblVehicleEF	HHD	2.42	2.67
tblVehicleEF	HHD	6,028.55	6,067.43
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	27.50	28.98
tblVehicleEF	HHD	4.22	4.52
tblVehicleEF	HHD	19.98	19.96
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03

tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	9.3000e-005	1.3800e-004
tblVehicleEF	HHD	3.0100e-004	3.6200e-004
tblVehicleEF	HHD	6.1650e-003	8.0140e-003
tblVehicleEF	HHD	0.88	0.94
tblVehicleEF	HHD	1.3700e-004	1.6300e-004
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.4800e-004	4.2100e-004
tblVehicleEF	HHD	0.07	0.08
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2100e-004	1.3100e-004
tblVehicleEF	HHD	3.0100e-004	3.6200e-004
tblVehicleEF	HHD	6.1650e-003	8.0140e-003
tblVehicleEF	HHD	1.01	1.07
tblVehicleEF	HHD	1.3700e-004	1.6300e-004
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.4800e-004	4.2100e-004
tblVehicleEF	HHD	0.07	0.09
tblVehicleEF	HHD	0.99	1.01
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.11	0.13
tblVehicleEF	HHD	4.81	5.07

tblVehicleEF	HHD	0.82	0.84
tblVehicleEF	HHD	2.77	3.02
tblVehicleEF	HHD	5,235.28	5,271.86
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	25.50	26.87
tblVehicleEF	HHD	4.53	4.84
tblVehicleEF	HHD	20.00	19.98
tblVehicleEF	HHD	0.05	0.06
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	9.3000e-005	1.3800e-004
tblVehicleEF	HHD	4.0000e-005	4.6000e-005
tblVehicleEF	HHD	5.8070e-003	7.7300e-003
tblVehicleEF	HHD	1.01	1.07
tblVehicleEF	HHD	2.4000e-005	2.7000e-005
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.6900e-004	4.4000e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.05	0.05

tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2600e-004	1.3700e-004
tblVehicleEF	HHD	4.0000e-005	4.6000e-005
tblVehicleEF	HHD	5.8070e-003	7.7300e-003
tblVehicleEF	HHD	1.15	1.22
tblVehicleEF	HHD	2.4000e-005	2.7000e-005
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.6900e-004	4.4000e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	LDA	5.1610e-003	5.8980e-003
tblVehicleEF	LDA	8.5340e-003	0.01
tblVehicleEF	LDA	0.69	0.78
tblVehicleEF	LDA	1.67	1.93
tblVehicleEF	LDA	276.38	286.20
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.11	0.13
tblVehicleEF	LDA	1.6100e-003	1.6230e-003
tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.05

tblVehicleEF	LDA	0.12	0.14
tblVehicleEF	LDA	2.7690e-003	2.8690e-003
tblVehicleEF	LDA	6.6700e-004	6.9100e-004
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	5.9840e-003	6.8230e-003
tblVehicleEF	LDA	7.0720e-003	8.5460e-003
tblVehicleEF	LDA	0.87	0.98
tblVehicleEF	LDA	1.40	1.62
tblVehicleEF	LDA	304.58	315.40
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	1.6100e-003	1.6230e-003
tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.16	0.18
tblVehicleEF	LDA	0.17	0.20
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04

tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	3.0530e-003	3.1630e-003
tblVehicleEF	LDA	6.6200e-004	6.8500e-004
tblVehicleEF	LDA	0.16	0.18
tblVehicleEF	LDA	0.17	0.20
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.13
tblVehicleEF	LDA	4.8370e-003	5.5410e-003
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.63	0.72
tblVehicleEF	LDA	2.04	2.35
tblVehicleEF	LDA	264.86	274.26
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.12	0.15
tblVehicleEF	LDA	1.6100e-003	1.6230e-003
tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.05	0.05

tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	2.6530e-003	2.7490e-003
tblVehicleEF	LDA	6.7400e-004	6.9800e-004
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.15	0.18
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	2.45	2.86
tblVehicleEF	LDT1	5.89	6.52
tblVehicleEF	LDT1	335.00	342.88
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.26	0.30
tblVehicleEF	LDT1	0.33	0.36
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003
tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.32	0.34
tblVehicleEF	LDT1	0.53	0.57
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.32	0.35

tblVehicleEF	LDT1	0.43	0.49
tblVehicleEF	LDT1	3.3840e-003	3.4700e-003
tblVehicleEF	LDT1	8.7400e-004	9.0100e-004
tblVehicleEF	LDT1	0.32	0.34
tblVehicleEF	LDT1	0.53	0.57
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.32	0.35
tblVehicleEF	LDT1	0.47	0.54
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	2.97	3.44
tblVehicleEF	LDT1	4.90	5.45
tblVehicleEF	LDT1	366.72	375.07
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003
tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.74	0.80
tblVehicleEF	LDT1	0.69	0.75
tblVehicleEF	LDT1	0.43	0.47
tblVehicleEF	LDT1	0.06	0.08
tblVehicleEF	LDT1	0.31	0.34

tblVehicleEF	LDT1	0.36	0.41
tblVehicleEF	LDT1	3.7100e-003	3.8010e-003
tblVehicleEF	LDT1	8.5600e-004	8.8200e-004
tblVehicleEF	LDT1	0.74	0.80
tblVehicleEF	LDT1	0.69	0.75
tblVehicleEF	LDT1	0.43	0.47
tblVehicleEF	LDT1	0.09	0.11
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	0.39	0.45
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	2.31	2.71
tblVehicleEF	LDT1	7.23	7.99
tblVehicleEF	LDT1	322.03	329.72
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.28	0.32
tblVehicleEF	LDT1	0.36	0.40
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003
tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.54	0.58
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.38	0.41

tblVehicleEF	LDT1	0.52	0.59
tblVehicleEF	LDT1	3.2530e-003	3.3360e-003
tblVehicleEF	LDT1	8.9800e-004	9.2800e-004
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.54	0.58
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.38	0.41
tblVehicleEF	LDT1	0.57	0.64
tblVehicleEF	LDT2	9.1760e-003	0.01
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	1.13	1.31
tblVehicleEF	LDT2	2.82	3.25
tblVehicleEF	LDT2	380.83	391.70
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.25	0.29
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003
tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.10	0.12

tblVehicleEF	LDT2	0.20	0.24
tblVehicleEF	LDT2	3.8200e-003	3.9310e-003
tblVehicleEF	LDT2	9.3100e-004	9.6100e-004
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.22	0.26
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	1.40	1.61
tblVehicleEF	LDT2	2.36	2.72
tblVehicleEF	LDT2	418.43	430.30
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.23	0.28
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003
tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.10	0.11

tblVehicleEF	LDT2	0.17	0.20
tblVehicleEF	LDT2	4.2000e-003	4.3220e-003
tblVehicleEF	LDT2	9.2300e-004	9.5100e-004
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.18	0.22
tblVehicleEF	LDT2	8.6630e-003	0.01
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	1.05	1.22
tblVehicleEF	LDT2	3.45	3.96
tblVehicleEF	LDT2	365.46	375.92
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.15	0.18
tblVehicleEF	LDT2	0.27	0.32
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003
tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.12	0.14

tblVehicleEF	LDT2	0.24	0.28
tblVehicleEF	LDT2	3.6650e-003	3.7730e-003
tblVehicleEF	LDT2	9.4200e-004	9.7400e-004
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.26	0.31
tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.75	1.87
tblVehicleEF	LHD1	2.82	2.99
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77
tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.84	2.93
tblVehicleEF	LHD1	0.89	0.90
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003
tblVehicleEF	LHD1	1.1430e-003	1.1400e-003

tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	3.9710e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5400e-003	1.5470e-003
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.28	0.29
tblVehicleEF	LHD1	6.7810e-003	6.8140e-003
tblVehicleEF	LHD1	3.1700e-004	3.2400e-004
tblVehicleEF	LHD1	3.9710e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5400e-003	1.5470e-003
tblVehicleEF	LHD1	0.24	0.24
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.30	0.32
tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.79	1.91
tblVehicleEF	LHD1	2.63	2.79
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77

tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.68	2.77
tblVehicleEF	LHD1	0.84	0.85
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003
tblVehicleEF	LHD1	1.1430e-003	1.1400e-003
tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	9.1730e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4180e-003	3.4720e-003
tblVehicleEF	LHD1	0.20	0.20
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.26	0.28
tblVehicleEF	LHD1	6.7820e-003	6.8140e-003
tblVehicleEF	LHD1	3.1400e-004	3.2100e-004
tblVehicleEF	LHD1	9.1730e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4180e-003	3.4720e-003
tblVehicleEF	LHD1	0.24	0.25

tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.29	0.30
tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.73	1.85
tblVehicleEF	LHD1	3.06	3.25
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77
tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.90	3.00
tblVehicleEF	LHD1	0.95	0.96
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003
tblVehicleEF	LHD1	1.1430e-003	1.1400e-003
tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	1.2850e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5300e-004	6.4700e-004

tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.30	0.31
tblVehicleEF	LHD1	6.7810e-003	6.8130e-003
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tblVehicleEF	LHD1	1.2850e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5300e-004	6.4700e-004
tblVehicleEF	LHD1	0.23	0.24
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.32	0.34
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.02	1.09
tblVehicleEF	LHD2	1.43	1.55
tblVehicleEF	LHD2	15.00	15.02
tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	2.40	2.60
tblVehicleEF	LHD2	0.56	0.58
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01

tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	1.7850e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.2300e-004	7.4700e-004
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.14	0.16
tblVehicleEF	LHD2	7.1290e-003	7.1830e-003
tblVehicleEF	LHD2	2.4400e-004	2.4800e-004
tblVehicleEF	LHD2	1.7850e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	7.4700e-004
tblVehicleEF	LHD2	0.19	0.19
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.03	1.11

tblVehicleEF	LHD2	1.34	1.44
tblVehicleEF	LHD2	15.00	15.02
tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	2.28	2.46
tblVehicleEF	LHD2	0.53	0.55
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	4.0930e-003	4.3430e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	1.5880e-003	1.6590e-003
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	7.1290e-003	7.1830e-003
tblVehicleEF	LHD2	2.4200e-004	2.4600e-004
tblVehicleEF	LHD2	4.0930e-003	4.3430e-003
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5880e-003	1.6590e-003
tblVehicleEF	LHD2	0.19	0.20
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.02	1.08
tblVehicleEF	LHD2	1.55	1.68
tblVehicleEF	LHD2	15.00	15.02
tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	2.45	2.65
tblVehicleEF	LHD2	0.60	0.62
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	5.9000e-004	6.1700e-004

tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1200e-004	3.1700e-004
tblVehicleEF	LHD2	0.16	0.16
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	7.1290e-003	7.1820e-003
tblVehicleEF	LHD2	2.4600e-004	2.5000e-004
tblVehicleEF	LHD2	5.9000e-004	6.1700e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1200e-004	3.1700e-004
tblVehicleEF	LHD2	0.19	0.19
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.17	0.18
tblVehicleEF	MCY	0.39	0.38
tblVehicleEF	MCY	0.17	0.17
tblVehicleEF	MCY	22.33	22.97
tblVehicleEF	MCY	9.92	9.91
tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.19	1.19
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003

tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	1.71	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.28	2.32
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.26	2.28
tblVehicleEF	MCY	2.0290e-003	2.0320e-003
tblVehicleEF	MCY	7.1900e-004	7.2300e-004
tblVehicleEF	MCY	1.71	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.74	2.78
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.46	2.48
tblVehicleEF	MCY	0.38	0.37
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	22.76	23.42
tblVehicleEF	MCY	9.21	9.23
tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.03	1.03
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003

tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	4.16	4.14
tblVehicleEF	MCY	1.54	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.21	2.25
tblVehicleEF	MCY	0.77	0.78
tblVehicleEF	MCY	1.93	1.94
tblVehicleEF	MCY	2.0330e-003	2.0360e-003
tblVehicleEF	MCY	6.9700e-004	7.0200e-004
tblVehicleEF	MCY	4.16	4.14
tblVehicleEF	MCY	1.54	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.67	2.69
tblVehicleEF	MCY	0.77	0.78
tblVehicleEF	MCY	2.10	2.11
tblVehicleEF	MCY	0.40	0.40
tblVehicleEF	MCY	0.20	0.20
tblVehicleEF	MCY	24.01	24.75
tblVehicleEF	MCY	11.37	11.33
tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.29	1.30
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003

tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.08	1.09
tblVehicleEF	MCY	0.24	0.24
tblVehicleEF	MCY	2.41	2.46
tblVehicleEF	MCY	0.90	0.92
tblVehicleEF	MCY	2.72	2.74
tblVehicleEF	MCY	2.0600e-003	2.0640e-003
tblVehicleEF	MCY	7.5600e-004	7.6100e-004
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.08	1.09
tblVehicleEF	MCY	0.24	0.24
tblVehicleEF	MCY	2.90	2.94
tblVehicleEF	MCY	0.90	0.92
tblVehicleEF	MCY	2.96	2.98
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	2.04	2.18
tblVehicleEF	MDV	4.79	5.12
tblVehicleEF	MDV	525.65	534.03
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.27	0.29
tblVehicleEF	MDV	0.46	0.49
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003

tblVehicleEF	MDV	2.5530e-003	2.6540e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.39	0.42
tblVehicleEF	MDV	5.2790e-003	5.3650e-003
tblVehicleEF	MDV	1.2740e-003	1.2940e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.43	0.46
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	2.49	2.66
tblVehicleEF	MDV	4.04	4.32
tblVehicleEF	MDV	576.02	585.23
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.25	0.27
tblVehicleEF	MDV	0.43	0.46
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003

tblVehicleEF	MDV	2.5530e-003	2.6540e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.33	0.35
tblVehicleEF	MDV	5.7890e-003	5.8840e-003
tblVehicleEF	MDV	1.2600e-003	1.2790e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.39
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	1.92	2.05
tblVehicleEF	MDV	5.81	6.21
tblVehicleEF	MDV	505.05	513.10
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.29	0.32
tblVehicleEF	MDV	0.50	0.54
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003

tblVehicleEF	MDV	2.5530e-003	2.6540e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.46	0.50
tblVehicleEF	MDV	5.0710e-003	5.1540e-003
tblVehicleEF	MDV	1.2920e-003	1.3130e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.51	0.55
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	5.14	6.12
tblVehicleEF	MH	8.10	8.85
tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.45	2.56
tblVehicleEF	MH	1.01	1.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003

tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	1.99	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.49	0.52
tblVehicleEF	MH	0.22	0.25
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.51	0.59
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.5300e-004	7.9700e-004
tblVehicleEF	MH	1.99	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.49	0.52
tblVehicleEF	MH	0.29	0.33
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.56	0.64
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	5.32	6.33
tblVehicleEF	MH	7.45	8.23
tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.27	2.37
tblVehicleEF	MH	0.95	0.98
tblVehicleEF	MH	0.01	0.01

tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003
tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	4.65	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.10	1.17
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.48	0.55
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.4200e-004	7.8600e-004
tblVehicleEF	MH	4.65	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.10	1.17
tblVehicleEF	MH	0.30	0.34
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.53	0.60
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	5.10	6.16
tblVehicleEF	MH	9.04	9.85
tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.54	2.66

tblVehicleEF	MH	1.08	1.12
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003
tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	0.63	0.66
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	0.25	0.26
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.56	0.64
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.6900e-004	8.1400e-004
tblVehicleEF	MH	0.63	0.66
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	0.25	0.26
tblVehicleEF	MH	0.28	0.33
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.61	0.70
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	0.53	0.58
tblVehicleEF	MHD	0.90	1.09
tblVehicleEF	MHD	6.62	8.00

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tblVehicleEF	MHD	1,222.75	1,227.27
tblVehicleEF	MHD	39.27	44.67
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.69	1.80
tblVehicleEF	MHD	3.52	4.01
tblVehicleEF	MHD	14.76	14.48
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	1.1790e-003	1.7740e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	1.0920e-003	1.6560e-003
tblVehicleEF	MHD	2.2740e-003	2.8560e-003
tblVehicleEF	MHD	0.06	0.08
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	8.7100e-004	1.0910e-003
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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.40	0.52
tblVehicleEF	MHD	1.8820e-003	1.8500e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.0900e-004	5.8900e-004
tblVehicleEF	MHD	2.2740e-003	2.8560e-003
tblVehicleEF	MHD	0.06	0.08
tblVehicleEF	MHD	0.07	0.07
tblVehicleEF	MHD	8.7100e-004	1.0910e-003

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tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.44	0.57
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.38	0.41
tblVehicleEF	MHD	0.91	1.10
tblVehicleEF	MHD	6.19	7.57
tblVehicleEF	MHD	208.25	204.61
tblVehicleEF	MHD	1,222.75	1,227.27
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tblVehicleEF	MHD	3.34	3.81
tblVehicleEF	MHD	14.71	14.43
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	1.1790e-003	1.7740e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.09	0.11
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tblVehicleEF	MHD	5.4090e-003	6.8420e-003
tblVehicleEF	MHD	0.07	0.10
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.0580e-003	2.5950e-003
tblVehicleEF	MHD	0.24	0.29

tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.38	0.49
tblVehicleEF	MHD	1.9940e-003	1.9590e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.0200e-004	5.8100e-004
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tblVehicleEF	MHD	2.0580e-003	2.5950e-003
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tblVehicleEF	MHD	0.02	0.03
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tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.10	0.12
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tblVehicleEF	MHD	1,222.75	1,227.27
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tblVehicleEF	MHD	3.58	4.09
tblVehicleEF	MHD	14.81	14.54
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.10	0.12

tblVehicleEF	MHD	1.1790e-003	1.7740e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	1.0920e-003	1.6560e-003
tblVehicleEF	MHD	6.7800e-004	8.3900e-004
tblVehicleEF	MHD	0.06	0.09
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	3.3400e-004	4.1200e-004
tblVehicleEF	MHD	0.24	0.29
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.43	0.56
tblVehicleEF	MHD	1.7300e-003	1.7010e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.1900e-004	6.0100e-004
tblVehicleEF	MHD	6.7800e-004	8.3900e-004
tblVehicleEF	MHD	0.06	0.09
tblVehicleEF	MHD	0.08	0.08
tblVehicleEF	MHD	3.3400e-004	4.1200e-004
tblVehicleEF	MHD	0.28	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.47	0.61
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	1.15	1.30
tblVehicleEF	OBUS	8.38	8.91

tblVehicleEF	OBUS	149.92	145.25
tblVehicleEF	OBUS	1,368.09	1,375.36
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tblVehicleEF	OBUS	1.02	1.03
tblVehicleEF	OBUS	3.07	3.24
tblVehicleEF	OBUS	3.67	3.65
tblVehicleEF	OBUS	5.6900e-004	6.1900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	1.0940e-003	1.1150e-003
tblVehicleEF	OBUS	5.4500e-004	5.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	3.4430e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	9.8600e-004	1.0030e-003
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.52	0.56
tblVehicleEF	OBUS	1.4420e-003	1.3980e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.3100e-004	8.4800e-004
tblVehicleEF	OBUS	3.4430e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	9.8600e-004	1.0030e-003

tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.57	0.61
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.29	0.29
tblVehicleEF	OBUS	1.18	1.33
tblVehicleEF	OBUS	7.66	8.14
tblVehicleEF	OBUS	157.85	152.89
tblVehicleEF	OBUS	1,368.09	1,375.36
tblVehicleEF	OBUS	68.30	69.13
tblVehicleEF	OBUS	1.8160e-003	1.8100e-003
tblVehicleEF	OBUS	1.05	1.06
tblVehicleEF	OBUS	2.90	3.06
tblVehicleEF	OBUS	3.60	3.57
tblVehicleEF	OBUS	4.8000e-004	5.2200e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	1.0940e-003	1.1150e-003
tblVehicleEF	OBUS	4.5900e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	7.9960e-003	8.2550e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.1810e-003	2.2410e-003
tblVehicleEF	OBUS	0.12	0.13

tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.49	0.52
tblVehicleEF	OBUS	1.5180e-003	1.4710e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1800e-004	8.3500e-004
tblVehicleEF	OBUS	7.9960e-003	8.2550e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	2.1810e-003	2.2410e-003
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.54	0.57
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.35	0.35
tblVehicleEF	OBUS	1.13	1.27
tblVehicleEF	OBUS	9.29	9.88
tblVehicleEF	OBUS	138.97	134.69
tblVehicleEF	OBUS	1,368.09	1,375.36
tblVehicleEF	OBUS	68.30	69.13
tblVehicleEF	OBUS	1.8160e-003	1.8100e-003
tblVehicleEF	OBUS	0.98	0.99
tblVehicleEF	OBUS	3.14	3.31
tblVehicleEF	OBUS	3.77	3.75
tblVehicleEF	OBUS	6.9300e-004	7.5400e-004
tblVehicleEF	OBUS	0.01	0.02

tblVehicleEF	OBUS	1.0940e-003	1.1150e-003
tblVehicleEF	OBUS	6.6300e-004	7.2100e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	1.1300e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	4.9900e-004	5.0300e-004
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.56	0.60
tblVehicleEF	OBUS	1.3380e-003	1.2970e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4600e-004	8.6500e-004
tblVehicleEF	OBUS	1.1300e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	4.9900e-004	5.0300e-004
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.61	0.65
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.09	0.11
tblVehicleEF	SBUS	4.62	4.69
tblVehicleEF	SBUS	0.90	1.22
tblVehicleEF	SBUS	5.25	6.10

tblVehicleEF	SBUS	1,334.84	1,334.04
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
tblVehicleEF	SBUS	1.1810e-003	1.2110e-003
tblVehicleEF	SBUS	14.74	15.26
tblVehicleEF	SBUS	6.27	6.66
tblVehicleEF	SBUS	16.51	16.50
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	5.8210e-003	7.4620e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.55	0.56
tblVehicleEF	SBUS	1.4860e-003	1.8120e-003
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.28	0.34
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.8100e-004	4.0000e-004
tblVehicleEF	SBUS	5.8210e-003	7.4620e-003
tblVehicleEF	SBUS	0.04	0.05

tblVehicleEF	SBUS	0.78	0.79
tblVehicleEF	SBUS	1.4860e-003	1.8120e-003
tblVehicleEF	SBUS	0.17	0.19
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.31	0.37
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.07	0.09
tblVehicleEF	SBUS	4.43	4.50
tblVehicleEF	SBUS	0.92	1.25
tblVehicleEF	SBUS	3.52	4.10
tblVehicleEF	SBUS	1,405.67	1,404.69
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
tblVehicleEF	SBUS	1.1810e-003	1.2110e-003
tblVehicleEF	SBUS	15.21	15.75
tblVehicleEF	SBUS	5.94	6.30
tblVehicleEF	SBUS	16.48	16.47
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	0.01	0.02

tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.55	0.56
tblVehicleEF	SBUS	3.2850e-003	4.0750e-003
tblVehicleEF	SBUS	0.14	0.16
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.23	0.27
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.5200e-004	3.6600e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.77	0.79
tblVehicleEF	SBUS	3.2850e-003	4.0750e-003
tblVehicleEF	SBUS	0.17	0.19
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.25	0.30
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.11	0.13
tblVehicleEF	SBUS	4.88	4.96
tblVehicleEF	SBUS	0.88	1.19
tblVehicleEF	SBUS	7.11	8.26
tblVehicleEF	SBUS	1,237.04	1,236.48
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
tblVehicleEF	SBUS	1.1810e-003	1.2110e-003
tblVehicleEF	SBUS	14.09	14.58

tblVehicleEF	SBUS	6.40	6.80
tblVehicleEF	SBUS	16.54	16.54
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	1.8710e-003	2.3350e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.56	0.57
tblVehicleEF	SBUS	7.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.34	0.40
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	4.1200e-004	4.3600e-004
tblVehicleEF	SBUS	1.8710e-003	2.3350e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.79	0.80
tblVehicleEF	SBUS	7.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.16	0.19
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.37	0.44

tblVehicleEF	UBUS	1.86	1.96
tblVehicleEF	UBUS	0.11	0.12
tblVehicleEF	UBUS	10.88	11.68
tblVehicleEF	UBUS	22.75	24.72
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	6.40	6.92
tblVehicleEF	UBUS	14.28	14.55
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.17	0.18
tblVehicleEF	UBUS	4.6240e-003	4.7430e-003
tblVehicleEF	UBUS	0.74	0.80
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.51	1.60
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.8320e-003	1.8630e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.17	0.18
tblVehicleEF	UBUS	4.6240e-003	4.7430e-003
tblVehicleEF	UBUS	2.67	2.83

tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.65	1.75
tblVehicleEF	UBUS	1.87	1.96
tblVehicleEF	UBUS	0.10	0.11
tblVehicleEF	UBUS	11.04	11.86
tblVehicleEF	UBUS	18.50	20.11
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	5.99	6.47
tblVehicleEF	UBUS	14.10	14.36
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.22	0.23
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.75	0.81
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.34	1.42
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.7600e-003	1.7840e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.22	0.23

tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	2.69	2.86
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.46	1.55
tblVehicleEF	UBUS	1.86	1.95
tblVehicleEF	UBUS	0.13	0.13
tblVehicleEF	UBUS	10.72	11.50
tblVehicleEF	UBUS	27.73	30.12
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	6.60	7.13
tblVehicleEF	UBUS	14.48	14.77
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003
tblVehicleEF	UBUS	4.8070e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2250e-003	2.2530e-003
tblVehicleEF	UBUS	0.72	0.78
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.70	1.80
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.9160e-003	1.9540e-003

tblVehicleEF	UBUS	4.8070e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2250e-003	2.2530e-003
tblVehicleEF	UBUS	2.65	2.81
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.86	1.97
tblVehicleTrips	ST_TR	5.82	0.04
tblVehicleTrips	SU_TR	5.88	0.04
tblVehicleTrips	WD_TR	5.04	0.04

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.8594	6.8178	5.5204	9.1200e-003	1.0375	0.3276	1.3651	0.4665	0.3030	0.7694	0.0000	834.2134	834.2134	0.1727	0.0000	838.5306
2018	0.5323	0.9469	3.7193	7.0300e-003	0.6195	0.0427	0.6622	0.1647	0.0408	0.2055	0.0000	631.3159	631.3159	0.0354	0.0000	632.2001
Maximum	**0.8594**	**6.8178**	**5.5204**	**9.1200e-003**	**1.0375**	**0.3276**	**1.3651**	**0.4665**	**0.3030**	**0.7694**	**0.0000**	**834.2134**	**834.2134**	**0.1727**	**0.0000**	**838.5306**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.8594	6.8178	5.5204	9.1200e-003	1.0375	0.3276	1.3651	0.4665	0.3030	0.7694	0.0000	834.2128	834.2128	0.1727	0.0000	838.5299
2018	0.5323	0.9469	3.7193	7.0300e-003	0.6195	0.0427	0.6622	0.1647	0.0408	0.2055	0.0000	631.3158	631.3158	0.0354	0.0000	632.2001
Maximum	**0.8594**	**6.8178**	**5.5204**	**9.1200e-003**	**1.0375**	**0.3276**	**1.3651**	**0.4665**	**0.3030**	**0.7694**	**0.0000**	**834.2128**	**834.2128**	**0.1727**	**0.0000**	**838.5299**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2017	4-1-2017	1.5119	1.5119
2	4-2-2017	7-1-2017	2.0156	2.0156
3	7-2-2017	10-1-2017	2.4291	2.4291
4	10-2-2017	1-1-2018	1.7633	1.7633
5	1-2-2018	4-1-2018	1.1954	1.1954
6	4-2-2018	7-1-2018	0.0657	0.0657
7	7-2-2018	9-30-2018	0.1586	0.1586
		Highest	2.4291	2.4291

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0410	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7100e-003	0.0124	0.0161	5.0000e-005	2.7400e-003	7.0000e-005	2.8000e-003	7.4000e-004	7.0000e-005	8.0000e-004	0.0000	4.2747	4.2747	2.6000e-004	0.0000	4.2812
Waste						0.0000	0.0000		0.0000	0.0000	18.8782	0.0000	18.8782	1.1157	0.0000	46.7698
Water						0.0000	0.0000		0.0000	0.0000	0.0000	121.3155	121.3155	5.4900e-003	1.1300e-003	121.7908
Total	**0.0428**	**0.0124**	**0.0170**	**5.0000e-005**	**2.7400e-003**	**7.0000e-005**	**2.8000e-003**	**7.4000e-004**	**7.0000e-005**	**8.0000e-004**	**18.8782**	**125.5919**	**144.4701**	**1.1214**	**1.1300e-003**	**172.8438**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0410	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	1.7100e-003	0.0124	0.0161	5.0000e-005	2.7400e-003	7.0000e-005	2.8000e-003	7.4000e-004	7.0000e-005	8.0000e-004	0.0000	4.2747	4.2747	2.6000e-004	0.0000	4.2812
Waste						0.0000	0.0000		0.0000	0.0000	18.8782	0.0000	18.8782	1.1157	0.0000	46.7698
Water						0.0000	0.0000		0.0000	0.0000	0.0000	121.3155	121.3155	5.4900e-003	1.1300e-003	121.7908
Total	**0.0428**	**0.0124**	**0.0170**	**5.0000e-005**	**2.7400e-003**	**7.0000e-005**	**2.8000e-003**	**7.4000e-004**	**7.0000e-005**	**8.0000e-004**	**18.8782**	**125.5919**	**144.4701**	**1.1214**	**1.1300e-003**	**172.8438**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase 1 East Side Regional Park - Tulare County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2017	4/7/2017	5	100	
2	Site Preparation	Site Preparation	4/8/2017	6/2/2017	5	60	
3	Grading	Grading	6/3/2017	11/3/2017	5	155	
4	Building Construction	Building Construction	11/4/2017	4/6/2018	5	1550	
5	Paving	Paving	4/7/2018	7/20/2018	5	110	
6	Architectural Coating	Architectural Coating	7/21/2018	11/2/2018	5	110	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 100

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase 1 East Side Regional Park - Tulare County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	1	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	0	8.00	130	0.42
Paving	Paving Equipment	0	8.00	132	0.36
Paving	Rollers	0	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	5	1,830.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	0	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	366.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1436	1.4962	0.8054	1.3600e-003		0.0768	0.0768		0.0715	0.0715	0.0000	124.6018	124.6018	0.0341	0.0000	125.4534
Total	**0.1436**	**1.4962**	**0.8054**	**1.3600e-003**		**0.0768**	**0.0768**		**0.0715**	**0.0715**	**0.0000**	**124.6018**	**124.6018**	**0.0341**	**0.0000**	**125.4534**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.5600e-003	0.0256	4.0000e-005	4.1800e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.9464	3.9464	1.8000e-004	0.0000	3.9508
Total	**3.5100e-003**	**2.5600e-003**	**0.0256**	**4.0000e-005**	**4.1800e-003**	**3.0000e-005**	**4.2200e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.9464**	**3.9464**	**1.8000e-004**	**0.0000**	**3.9508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1436	1.4962	0.8054	1.3600e-003		0.0768	0.0768		0.0715	0.0715	0.0000	124.6016	124.6016	0.0341	0.0000	125.4533
Total	**0.1436**	**1.4962**	**0.8054**	**1.3600e-003**		**0.0768**	**0.0768**		**0.0715**	**0.0715**	**0.0000**	**124.6016**	**124.6016**	**0.0341**	**0.0000**	**125.4533**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.5600e-003	0.0256	4.0000e-005	4.1800e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.9464	3.9464	1.8000e-004	0.0000	3.9508
Total	**3.5100e-003**	**2.5600e-003**	**0.0256**	**4.0000e-005**	**4.1800e-003**	**3.0000e-005**	**4.2200e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.9464**	**3.9464**	**1.8000e-004**	**0.0000**	**3.9508**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0992	1.0455	0.4691	7.6000e-004		0.0576	0.0576		0.0530	0.0530	0.0000	70.6688	70.6688	0.0217	0.0000	71.2101
Total	**0.0992**	**1.0455**	**0.4691**	**7.6000e-004**	**0.3613**	**0.0576**	**0.4189**	**0.1986**	**0.0530**	**0.2516**	**0.0000**	**70.6688**	**70.6688**	**0.0217**	**0.0000**	**71.2101**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.7500e-003	0.0176	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.7061	2.7061	1.2000e-004	0.0000	2.7091
Total	**2.4000e-003**	**1.7500e-003**	**0.0176**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.7061**	**2.7061**	**1.2000e-004**	**0.0000**	**2.7091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0992	1.0455	0.4691	7.6000e-004		0.0576	0.0576		0.0530	0.0530	0.0000	70.6687	70.6687	0.0217	0.0000	71.2100
Total	**0.0992**	**1.0455**	**0.4691**	**7.6000e-004**	**0.3613**	**0.0576**	**0.4189**	**0.1986**	**0.0530**	**0.2516**	**0.0000**	**70.6687**	**70.6687**	**0.0217**	**0.0000**	**71.2100**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.7500e-003	0.0176	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.7061	2.7061	1.2000e-004	0.0000	2.7091
Total	**2.4000e-003**	**1.7500e-003**	**0.0176**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.7061**	**2.7061**	**1.2000e-004**	**0.0000**	**2.7091**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3689	0.0000	0.3689	0.1861	0.0000	0.1861	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3162	3.7367	2.1330	3.4100e-003		0.1690	0.1690		0.1555	0.1555	0.0000	316.5791	316.5791	0.0970	0.0000	319.0041
Total	**0.3162**	**3.7367**	**2.1330**	**3.4100e-003**	**0.3689**	**0.1690**	**0.5379**	**0.1861**	**0.1555**	**0.3416**	**0.0000**	**316.5791**	**316.5791**	**0.0970**	**0.0000**	**319.0041**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3400e-003	5.3600e-003	0.0537	9.0000e-005	8.7600e-003	7.0000e-005	8.8300e-003	2.3300e-003	7.0000e-005	2.4000e-003	0.0000	8.2686	8.2686	3.7000e-004	0.0000	8.2779
Total	**7.3400e-003**	**5.3600e-003**	**0.0537**	**9.0000e-005**	**8.7600e-003**	**7.0000e-005**	**8.8300e-003**	**2.3300e-003**	**7.0000e-005**	**2.4000e-003**	**0.0000**	**8.2686**	**8.2686**	**3.7000e-004**	**0.0000**	**8.2779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3689	0.0000	0.3689	0.1861	0.0000	0.1861	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3162	3.7367	2.1330	3.4100e-003		0.1690	0.1690		0.1555	0.1555	0.0000	316.5788	316.5788	0.0970	0.0000	319.0037
Total	**0.3162**	**3.7367**	**2.1330**	**3.4100e-003**	**0.3689**	**0.1690**	**0.5379**	**0.1861**	**0.1555**	**0.3416**	**0.0000**	**316.5788**	**316.5788**	**0.0970**	**0.0000**	**319.0037**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3400e-003	5.3600e-003	0.0537	9.0000e-005	8.7600e-003	7.0000e-005	8.8300e-003	2.3300e-003	7.0000e-005	2.4000e-003	0.0000	8.2686	8.2686	3.7000e-004	0.0000	8.2779
Total	**7.3400e-003**	**5.3600e-003**	**0.0537**	**9.0000e-005**	**8.7600e-003**	**7.0000e-005**	**8.8300e-003**	**2.3300e-003**	**7.0000e-005**	**2.4000e-003**	**0.0000**	**8.2686**	**8.2686**	**3.7000e-004**	**0.0000**	**8.2779**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.3515	0.2299	3.7000e-004		0.0217	0.0217		0.0207	0.0207	0.0000	32.3231	32.3231	7.0200e-003	0.0000	32.4985
Total	**0.0428**	**0.3515**	**0.2299**	**3.7000e-004**		**0.0217**	**0.0217**		**0.0207**	**0.0207**	**0.0000**	**32.3231**	**32.3231**	**7.0200e-003**	**0.0000**	**32.4985**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2444	0.1782	1.7860	3.0600e-003	0.2915	2.4200e-003	0.2940	0.0775	2.2400e-003	0.0797	0.0000	275.1195	275.1195	0.0123	0.0000	275.4267
Total	**0.2444**	**0.1782**	**1.7860**	**3.0600e-003**	**0.2915**	**2.4200e-003**	**0.2940**	**0.0775**	**2.2400e-003**	**0.0797**	**0.0000**	**275.1195**	**275.1195**	**0.0123**	**0.0000**	**275.4267**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0428	0.3515	0.2299	3.7000e-004		0.0217	0.0217		0.0207	0.0207	0.0000	32.3231	32.3231	7.0200e-003	0.0000	32.4985
Total	**0.0428**	**0.3515**	**0.2299**	**3.7000e-004**		**0.0217**	**0.0217**		**0.0207**	**0.0207**	**0.0000**	**32.3231**	**32.3231**	**7.0200e-003**	**0.0000**	**32.4985**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.2444	0.1782	1.7860	3.0600e-003	0.2915	2.4200e-003	0.2940	0.0775	2.2400e-003	0.0797	0.0000	275.1195	275.1195	0.0123	0.0000	275.4267
Total	**0.2444**	**0.1782**	**1.7860**	**3.0600e-003**	**0.2915**	**2.4200e-003**	**0.2940**	**0.0775**	**2.2400e-003**	**0.0797**	**0.0000**	**275.1195**	**275.1195**	**0.0123**	**0.0000**	**275.4267**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0650	0.5474	0.3874	6.4000e-004		0.0323	0.0323		0.0308	0.0308	0.0000	56.0732	56.0732	0.0119	0.0000	56.3716
Total	**0.0650**	**0.5474**	**0.3874**	**6.4000e-004**		**0.0323**	**0.0323**		**0.0308**	**0.0308**	**0.0000**	**56.0732**	**56.0732**	**0.0119**	**0.0000**	**56.3716**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3756	0.2671	2.6867	5.1700e-003	0.5102	3.9600e-003	0.5141	0.1356	3.6500e-003	0.1393	0.0000	465.8443	465.8443	0.0186	0.0000	466.3079
Total	**0.3756**	**0.2671**	**2.6867**	**5.1700e-003**	**0.5102**	**3.9600e-003**	**0.5141**	**0.1356**	**3.6500e-003**	**0.1393**	**0.0000**	**465.8443**	**465.8443**	**0.0186**	**0.0000**	**466.3079**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0650	0.5474	0.3874	6.4000e-004		0.0323	0.0323		0.0308	0.0308	0.0000	56.0731	56.0731	0.0119	0.0000	56.3715
Total	**0.0650**	**0.5474**	**0.3874**	**6.4000e-004**		**0.0323**	**0.0323**		**0.0308**	**0.0308**	**0.0000**	**56.0731**	**56.0731**	**0.0119**	**0.0000**	**56.3715**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.3756	0.2671	2.6867	5.1700e-003	0.5102	3.9600e-003	0.5141	0.1356	3.6500e-003	0.1393	0.0000	465.8443	465.8443	0.0186	0.0000	466.3079
Total	**0.3756**	**0.2671**	**2.6867**	**5.1700e-003**	**0.5102**	**3.9600e-003**	**0.5141**	**0.1356**	**3.6500e-003**	**0.1393**	**0.0000**	**465.8443**	**465.8443**	**0.0186**	**0.0000**	**466.3079**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.0752	0.0695	1.1000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003	0.0000	9.5747	9.5747	9.1000e-004	0.0000	9.5975
Total	**0.0112**	**0.0752**	**0.0695**	**1.1000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**9.5747**	**9.5747**	**9.1000e-004**	**0.0000**	**9.5975**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0805	0.0572	0.5757	1.1100e-003	0.1093	8.5000e-004	0.1102	0.0291	7.8000e-004	0.0299	0.0000	99.8238	99.8238	3.9700e-003	0.0000	99.9231
Total	**0.0805**	**0.0572**	**0.5757**	**1.1100e-003**	**0.1093**	**8.5000e-004**	**0.1102**	**0.0291**	**7.8000e-004**	**0.0299**	**0.0000**	**99.8238**	**99.8238**	**3.9700e-003**	**0.0000**	**99.9231**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.0752	0.0695	1.1000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003	0.0000	9.5747	9.5747	9.1000e-004	0.0000	9.5975
Total	**0.0112**	**0.0752**	**0.0695**	**1.1000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**9.5747**	**9.5747**	**9.1000e-004**	**0.0000**	**9.5975**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0805	0.0572	0.5757	1.1100e-003	0.1093	8.5000e-004	0.1102	0.0291	7.8000e-004	0.0299	0.0000	99.8238	99.8238	3.9700e-003	0.0000	99.9231
Total	**0.0805**	**0.0572**	**0.5757**	**1.1100e-003**	**0.1093**	**8.5000e-004**	**0.1102**	**0.0291**	**7.8000e-004**	**0.0299**	**0.0000**	**99.8238**	**99.8238**	**3.9700e-003**	**0.0000**	**99.9231**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.7100e-003	0.0124	0.0161	5.0000e-005	2.7400e-003	7.0000e-005	2.8000e-003	7.4000e-004	7.0000e-005	8.0000e-004	0.0000	4.2747	4.2747	2.6000e-004	0.0000	4.2812
Unmitigated	1.7100e-003	0.0124	0.0161	5.0000e-005	2.7400e-003	7.0000e-005	2.8000e-003	7.4000e-004	7.0000e-005	8.0000e-004	0.0000	4.2747	4.2747	2.6000e-004	0.0000	4.2812

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	4.00	4.00	4.00	7,229	7,229
Total	4.00	4.00	4.00	7,229	7,229

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.496227	0.035864	0.170091	0.158035	0.026569	0.006201	0.020975	0.076251	0.001816	0.001427	0.004483	0.001181	0.000880

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0410	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003
Unmitigated	0.0410	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003
Total	**0.0411**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7900e-003**	**1.7900e-003**	**0.0000**	**0.0000**	**1.9100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0410					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	9.3000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.7900e-003	1.7900e-003	0.0000	0.0000	1.9100e-003
Total	**0.0411**	**1.0000e-005**	**9.3000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.7900e-003**	**1.7900e-003**	**0.0000**	**0.0000**	**1.9100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	121.3155	5.4900e-003	1.1300e-003	121.7908
Unmitigated	121.3155	5.4900e-003	1.1300e-003	121.7908

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 119.148	121.3155	5.4900e-003	1.1300e-003	121.7908
Total		**121.3155**	**5.4900e-003**	**1.1300e-003**	**121.7908**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 119.148	121.3155	5.4900e-003	1.1300e-003	121.7908
Total		**121.3155**	**5.4900e-003**	**1.1300e-003**	**121.7908**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	18.8782	1.1157	0.0000	46.7698
Unmitigated	18.8782	1.1157	0.0000	46.7698

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	93	18.8782	1.1157	0.0000	46.7698
Total		**18.8782**	**1.1157**	**0.0000**	**46.7698**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	93	18.8782	1.1157	0.0000	46.7698
Total		**18.8782**	**1.1157**	**0.0000**	**46.7698**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Phase 2 East Side Regional Park - Tulare County, Annual

Phase 1 East Side Regional Park

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Golf Course	70.80	Acre	70.80	1,800.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Phase 2 East Side Regional Park - Tulare County, Annual

Project Characteristics -

Land Use - Project Description/Trip Generation
Golf Course is associated with 13 Total Ball Fields for Phase 1 of the Project
Square Footage Associated with approximate restroom(s) sq. ft.

Construction Phase - Adjusted total construction days to reflect a construction schedule that would be more consistent with the Project

Trips and VMT - Trips associated with Building Construction and Architectural Coating were modified in accordance with Appendix E2 of the CalEEMod User Guide

Architectural Coating - Non-Residential Interior/Exterior Area value based on Methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Vehicle Trips - Golf Course should be characterized as 13 Total Ball Fields. Rates applied will generate daily trips associated with ball fields considering ITE Land Use Code 488

Area Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Demolition -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	900.00	1,215.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	2,700.00	1,215.00
tblArchitecturalCoating	ConstArea_Parking	0.00	100,000.00
tblAreaCoating	Area_Nonresidential_Exterior	900	1215
tblAreaCoating	Area_Nonresidential_Interior	2700	1215
tblAreaCoating	Area_Parking	0	1000000
tblConstructionPhase	NumDays	1,110.00	110.00
tblConstructionPhase	PhaseEndDate	9/2/2022	11/2/2018
tblConstructionPhase	PhaseEndDate	2/4/2022	4/6/2018
tblConstructionPhase	PhaseEndDate	5/20/2022	7/20/2018
tblConstructionPhase	PhaseStartDate	5/21/2022	7/23/2018
tblConstructionPhase	PhaseStartDate	2/5/2022	4/9/2018
tblLandUse	BuildingSpaceSquareFeet	0.00	1,800.00
tblLandUse	GreenSpaceSquareFeet	3,084,048.00	0.00

Phase 2 East Side Regional Park - Tulare County, Annual

tblLandUse	LandUseSquareFeet	3,084,048.00	1,800.00
tblProjectCharacteristics	OperationalYear	2018	2019
tblTripsAndVMT	VendorTripNumber	0.00	15.00
tblTripsAndVMT	WorkerTripNumber	1.00	15.00
tblTripsAndVMT	WorkerTripNumber	0.00	15.00
tblVehicleEF	HHD	0.92	0.94
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.10	0.12
tblVehicleEF	HHD	3.50	3.70
tblVehicleEF	HHD	0.82	0.84
tblVehicleEF	HHD	2.56	2.79
tblVehicleEF	HHD	5,695.38	5,733.29
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	26.66	28.09
tblVehicleEF	HHD	4.44	4.75
tblVehicleEF	HHD	19.99	19.97
tblVehicleEF	HHD	0.04	0.05
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03

tblVehicleEF	HHD	9.3000e-005	1.3800e-004
tblVehicleEF	HHD	1.2800e-004	1.5200e-004
tblVehicleEF	HHD	5.2840e-003	6.8420e-003
tblVehicleEF	HHD	0.94	0.99
tblVehicleEF	HHD	6.0000e-005	7.0000e-005
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.4200e-004	4.1100e-004
tblVehicleEF	HHD	0.07	0.09
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2300e-004	1.3300e-004
tblVehicleEF	HHD	1.2800e-004	1.5200e-004
tblVehicleEF	HHD	5.2840e-003	6.8420e-003
tblVehicleEF	HHD	1.07	1.13
tblVehicleEF	HHD	6.0000e-005	7.0000e-005
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.4200e-004	4.1100e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.87	0.89
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.10	0.11
tblVehicleEF	HHD	2.56	2.71
tblVehicleEF	HHD	0.83	0.85
tblVehicleEF	HHD	2.42	2.67
tblVehicleEF	HHD	6,028.55	6,067.43
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67

tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	27.50	28.98
tblVehicleEF	HHD	4.22	4.52
tblVehicleEF	HHD	19.98	19.96
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.03	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	9.3000e-005	1.3800e-004
tblVehicleEF	HHD	3.0100e-004	3.6200e-004
tblVehicleEF	HHD	6.1650e-003	8.0140e-003
tblVehicleEF	HHD	0.88	0.94
tblVehicleEF	HHD	1.3700e-004	1.6300e-004
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.4800e-004	4.2100e-004
tblVehicleEF	HHD	0.07	0.08
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2100e-004	1.3100e-004
tblVehicleEF	HHD	3.0100e-004	3.6200e-004
tblVehicleEF	HHD	6.1650e-003	8.0140e-003
tblVehicleEF	HHD	1.01	1.07

tblVehicleEF	HHD	1.3700e-004	1.6300e-004
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.4800e-004	4.2100e-004
tblVehicleEF	HHD	0.07	0.09
tblVehicleEF	HHD	0.99	1.01
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	0.11	0.13
tblVehicleEF	HHD	4.81	5.07
tblVehicleEF	HHD	0.82	0.84
tblVehicleEF	HHD	2.77	3.02
tblVehicleEF	HHD	5,235.28	5,271.86
tblVehicleEF	HHD	1,626.09	1,644.85
tblVehicleEF	HHD	8.05	8.67
tblVehicleEF	HHD	0.08	0.07
tblVehicleEF	HHD	25.50	26.87
tblVehicleEF	HHD	4.53	4.84
tblVehicleEF	HHD	20.00	19.98
tblVehicleEF	HHD	0.05	0.06
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	9.9000e-005	1.4600e-004
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.9110e-003	8.9060e-003
tblVehicleEF	HHD	0.02	0.03
tblVehicleEF	HHD	9.3000e-005	1.3800e-004

tblVehicleEF	HHD	4.0000e-005	4.6000e-005
tblVehicleEF	HHD	5.8070e-003	7.7300e-003
tblVehicleEF	HHD	1.01	1.07
tblVehicleEF	HHD	2.4000e-005	2.7000e-005
tblVehicleEF	HHD	0.15	0.16
tblVehicleEF	HHD	3.6900e-004	4.4000e-004
tblVehicleEF	HHD	0.08	0.09
tblVehicleEF	HHD	0.05	0.05
tblVehicleEF	HHD	0.02	0.02
tblVehicleEF	HHD	1.2600e-004	1.3700e-004
tblVehicleEF	HHD	4.0000e-005	4.6000e-005
tblVehicleEF	HHD	5.8070e-003	7.7300e-003
tblVehicleEF	HHD	1.15	1.22
tblVehicleEF	HHD	2.4000e-005	2.7000e-005
tblVehicleEF	HHD	0.18	0.19
tblVehicleEF	HHD	3.6900e-004	4.4000e-004
tblVehicleEF	HHD	0.08	0.10
tblVehicleEF	LDA	5.1610e-003	5.8980e-003
tblVehicleEF	LDA	8.5340e-003	0.01
tblVehicleEF	LDA	0.69	0.78
tblVehicleEF	LDA	1.67	1.93
tblVehicleEF	LDA	276.38	286.20
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.07	0.07
tblVehicleEF	LDA	0.11	0.13
tblVehicleEF	LDA	1.6100e-003	1.6230e-003

tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.12	0.14
tblVehicleEF	LDA	2.7690e-003	2.8690e-003
tblVehicleEF	LDA	6.6700e-004	6.9100e-004
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.13	0.15
tblVehicleEF	LDA	5.9840e-003	6.8230e-003
tblVehicleEF	LDA	7.0720e-003	8.5460e-003
tblVehicleEF	LDA	0.87	0.98
tblVehicleEF	LDA	1.40	1.62
tblVehicleEF	LDA	304.58	315.40
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.06	0.07
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	1.6100e-003	1.6230e-003

tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.16	0.18
tblVehicleEF	LDA	0.17	0.20
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	3.0530e-003	3.1630e-003
tblVehicleEF	LDA	6.6200e-004	6.8500e-004
tblVehicleEF	LDA	0.16	0.18
tblVehicleEF	LDA	0.17	0.20
tblVehicleEF	LDA	0.10	0.12
tblVehicleEF	LDA	0.02	0.03
tblVehicleEF	LDA	0.04	0.04
tblVehicleEF	LDA	0.10	0.13
tblVehicleEF	LDA	4.8370e-003	5.5410e-003
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.63	0.72
tblVehicleEF	LDA	2.04	2.35
tblVehicleEF	LDA	264.86	274.26
tblVehicleEF	LDA	63.84	65.72
tblVehicleEF	LDA	0.50	0.48
tblVehicleEF	LDA	0.07	0.08
tblVehicleEF	LDA	0.12	0.15
tblVehicleEF	LDA	1.6100e-003	1.6230e-003

tblVehicleEF	LDA	2.3240e-003	2.3780e-003
tblVehicleEF	LDA	1.4840e-003	1.4970e-003
tblVehicleEF	LDA	2.1370e-003	2.1880e-003
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.01	0.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.14	0.16
tblVehicleEF	LDA	2.6530e-003	2.7490e-003
tblVehicleEF	LDA	6.7400e-004	6.9800e-004
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.14	0.16
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tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.05	0.05
tblVehicleEF	LDA	0.15	0.18
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	2.45	2.86
tblVehicleEF	LDT1	5.89	6.52
tblVehicleEF	LDT1	335.00	342.88
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.26	0.30
tblVehicleEF	LDT1	0.33	0.36
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003

tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.32	0.34
tblVehicleEF	LDT1	0.53	0.57
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.06	0.07
tblVehicleEF	LDT1	0.32	0.35
tblVehicleEF	LDT1	0.43	0.49
tblVehicleEF	LDT1	3.3840e-003	3.4700e-003
tblVehicleEF	LDT1	8.7400e-004	9.0100e-004
tblVehicleEF	LDT1	0.32	0.34
tblVehicleEF	LDT1	0.53	0.57
tblVehicleEF	LDT1	0.19	0.21
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.32	0.35
tblVehicleEF	LDT1	0.47	0.54
tblVehicleEF	LDT1	0.02	0.03
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	2.97	3.44
tblVehicleEF	LDT1	4.90	5.45
tblVehicleEF	LDT1	366.72	375.07
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.24	0.27
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003

tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.74	0.80
tblVehicleEF	LDT1	0.69	0.75
tblVehicleEF	LDT1	0.43	0.47
tblVehicleEF	LDT1	0.06	0.08
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	0.36	0.41
tblVehicleEF	LDT1	3.7100e-003	3.8010e-003
tblVehicleEF	LDT1	8.5600e-004	8.8200e-004
tblVehicleEF	LDT1	0.74	0.80
tblVehicleEF	LDT1	0.69	0.75
tblVehicleEF	LDT1	0.43	0.47
tblVehicleEF	LDT1	0.09	0.11
tblVehicleEF	LDT1	0.31	0.34
tblVehicleEF	LDT1	0.39	0.45
tblVehicleEF	LDT1	0.02	0.02
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	2.31	2.71
tblVehicleEF	LDT1	7.23	7.99
tblVehicleEF	LDT1	322.03	329.72
tblVehicleEF	LDT1	76.84	78.42
tblVehicleEF	LDT1	0.04	0.04
tblVehicleEF	LDT1	0.28	0.32
tblVehicleEF	LDT1	0.36	0.40
tblVehicleEF	LDT1	3.6570e-003	4.0160e-003

tblVehicleEF	LDT1	5.2500e-003	5.7330e-003
tblVehicleEF	LDT1	3.3740e-003	3.7090e-003
tblVehicleEF	LDT1	4.8330e-003	5.2850e-003
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.54	0.58
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.05	0.07
tblVehicleEF	LDT1	0.38	0.41
tblVehicleEF	LDT1	0.52	0.59
tblVehicleEF	LDT1	3.2530e-003	3.3360e-003
tblVehicleEF	LDT1	8.9800e-004	9.2800e-004
tblVehicleEF	LDT1	0.10	0.11
tblVehicleEF	LDT1	0.54	0.58
tblVehicleEF	LDT1	0.07	0.07
tblVehicleEF	LDT1	0.08	0.10
tblVehicleEF	LDT1	0.38	0.41
tblVehicleEF	LDT1	0.57	0.64
tblVehicleEF	LDT2	9.1760e-003	0.01
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	1.13	1.31
tblVehicleEF	LDT2	2.82	3.25
tblVehicleEF	LDT2	380.83	391.70
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.14	0.16
tblVehicleEF	LDT2	0.25	0.29
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003

tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.20	0.24
tblVehicleEF	LDT2	3.8200e-003	3.9310e-003
tblVehicleEF	LDT2	9.3100e-004	9.6100e-004
tblVehicleEF	LDT2	0.11	0.13
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.10	0.12
tblVehicleEF	LDT2	0.22	0.26
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	0.01	0.01
tblVehicleEF	LDT2	1.40	1.61
tblVehicleEF	LDT2	2.36	2.72
tblVehicleEF	LDT2	418.43	430.30
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.23	0.28
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003

tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.17	0.20
tblVehicleEF	LDT2	4.2000e-003	4.3220e-003
tblVehicleEF	LDT2	9.2300e-004	9.5100e-004
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.26	0.29
tblVehicleEF	LDT2	0.17	0.19
tblVehicleEF	LDT2	0.04	0.05
tblVehicleEF	LDT2	0.10	0.11
tblVehicleEF	LDT2	0.18	0.22
tblVehicleEF	LDT2	8.6630e-003	0.01
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	1.05	1.22
tblVehicleEF	LDT2	3.45	3.96
tblVehicleEF	LDT2	365.46	375.92
tblVehicleEF	LDT2	88.16	90.39
tblVehicleEF	LDT2	0.17	0.17
tblVehicleEF	LDT2	0.15	0.18
tblVehicleEF	LDT2	0.27	0.32
tblVehicleEF	LDT2	1.7430e-003	1.7960e-003

tblVehicleEF	LDT2	2.6850e-003	2.8200e-003
tblVehicleEF	LDT2	1.6040e-003	1.6540e-003
tblVehicleEF	LDT2	2.4700e-003	2.5970e-003
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.24	0.28
tblVehicleEF	LDT2	3.6650e-003	3.7730e-003
tblVehicleEF	LDT2	9.4200e-004	9.7400e-004
tblVehicleEF	LDT2	0.04	0.04
tblVehicleEF	LDT2	0.21	0.23
tblVehicleEF	LDT2	0.03	0.03
tblVehicleEF	LDT2	0.03	0.04
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.26	0.31
tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.75	1.87
tblVehicleEF	LHD1	2.82	2.99
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77
tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03

tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.84	2.93
tblVehicleEF	LHD1	0.89	0.90
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003
tblVehicleEF	LHD1	1.1430e-003	1.1400e-003
tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	3.9710e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5400e-003	1.5470e-003
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.28	0.29
tblVehicleEF	LHD1	6.7810e-003	6.8140e-003
tblVehicleEF	LHD1	3.1700e-004	3.2400e-004
tblVehicleEF	LHD1	3.9710e-003	4.0450e-003
tblVehicleEF	LHD1	0.10	0.10
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.5400e-003	1.5470e-003
tblVehicleEF	LHD1	0.24	0.24
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.30	0.32

tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.79	1.91
tblVehicleEF	LHD1	2.63	2.79
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77
tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.68	2.77
tblVehicleEF	LHD1	0.84	0.85
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003
tblVehicleEF	LHD1	1.1430e-003	1.1400e-003
tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	9.1730e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4180e-003	3.4720e-003
tblVehicleEF	LHD1	0.20	0.20
tblVehicleEF	LHD1	0.29	0.28

tblVehicleEF	LHD1	0.26	0.28
tblVehicleEF	LHD1	6.7820e-003	6.8140e-003
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tblVehicleEF	LHD1	9.1730e-003	9.3810e-003
tblVehicleEF	LHD1	0.12	0.13
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.4180e-003	3.4720e-003
tblVehicleEF	LHD1	0.24	0.25
tblVehicleEF	LHD1	0.29	0.28
tblVehicleEF	LHD1	0.29	0.30
tblVehicleEF	LHD1	4.8040e-003	4.8820e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.14	0.14
tblVehicleEF	LHD1	1.73	1.85
tblVehicleEF	LHD1	3.06	3.25
tblVehicleEF	LHD1	9.62	9.62
tblVehicleEF	LHD1	692.75	695.77
tblVehicleEF	LHD1	26.40	26.80
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	2.90	3.00
tblVehicleEF	LHD1	0.95	0.96
tblVehicleEF	LHD1	1.1940e-003	1.1920e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	1.0580e-003	1.1500e-003

tblVehicleEF	LHD1	1.1430e-003	1.1400e-003
tblVehicleEF	LHD1	2.6000e-003	2.5960e-003
tblVehicleEF	LHD1	0.03	0.03
tblVehicleEF	LHD1	9.7700e-004	1.0630e-003
tblVehicleEF	LHD1	1.2850e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5300e-004	6.4700e-004
tblVehicleEF	LHD1	0.19	0.20
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.30	0.31
tblVehicleEF	LHD1	6.7810e-003	6.8130e-003
tblVehicleEF	LHD1	3.2100e-004	3.2900e-004
tblVehicleEF	LHD1	1.2850e-003	1.2960e-003
tblVehicleEF	LHD1	0.11	0.11
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	6.5300e-004	6.4700e-004
tblVehicleEF	LHD1	0.23	0.24
tblVehicleEF	LHD1	0.32	0.31
tblVehicleEF	LHD1	0.32	0.34
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.02	1.09
tblVehicleEF	LHD2	1.43	1.55
tblVehicleEF	LHD2	15.00	15.02

tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	2.40	2.60
tblVehicleEF	LHD2	0.56	0.58
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	1.7850e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	7.2300e-004	7.4700e-004
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.14	0.16
tblVehicleEF	LHD2	7.1290e-003	7.1830e-003
tblVehicleEF	LHD2	2.4400e-004	2.4800e-004
tblVehicleEF	LHD2	1.7850e-003	1.8860e-003
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.2300e-004	7.4700e-004

tblVehicleEF	LHD2	0.19	0.19
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.03	1.11
tblVehicleEF	LHD2	1.34	1.44
tblVehicleEF	LHD2	15.00	15.02
tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
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tblVehicleEF	LHD2	2.28	2.46
tblVehicleEF	LHD2	0.53	0.55
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	4.0930e-003	4.3430e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.01	0.01

tblVehicleEF	LHD2	1.5880e-003	1.6590e-003
tblVehicleEF	LHD2	0.16	0.17
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.14	0.15
tblVehicleEF	LHD2	7.1290e-003	7.1830e-003
tblVehicleEF	LHD2	2.4200e-004	2.4600e-004
tblVehicleEF	LHD2	4.0930e-003	4.3430e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.5880e-003	1.6590e-003
tblVehicleEF	LHD2	0.19	0.20
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	3.5340e-003	3.6090e-003
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.02	1.08
tblVehicleEF	LHD2	1.55	1.68
tblVehicleEF	LHD2	15.00	15.02
tblVehicleEF	LHD2	734.00	739.40
tblVehicleEF	LHD2	21.72	21.91
tblVehicleEF	LHD2	6.2010e-003	6.6400e-003
tblVehicleEF	LHD2	0.14	0.14
tblVehicleEF	LHD2	2.45	2.65
tblVehicleEF	LHD2	0.60	0.62
tblVehicleEF	LHD2	1.4640e-003	1.4720e-003

tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.8100e-004	5.1400e-004
tblVehicleEF	LHD2	1.4010e-003	1.4080e-003
tblVehicleEF	LHD2	2.7210e-003	2.7190e-003
tblVehicleEF	LHD2	0.03	0.03
tblVehicleEF	LHD2	4.4400e-004	4.7400e-004
tblVehicleEF	LHD2	5.9000e-004	6.1700e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.1200e-004	3.1700e-004
tblVehicleEF	LHD2	0.16	0.16
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.15	0.16
tblVehicleEF	LHD2	7.1290e-003	7.1820e-003
tblVehicleEF	LHD2	2.4600e-004	2.5000e-004
tblVehicleEF	LHD2	5.9000e-004	6.1700e-004
tblVehicleEF	LHD2	0.05	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	3.1200e-004	3.1700e-004
tblVehicleEF	LHD2	0.19	0.19
tblVehicleEF	LHD2	0.13	0.14
tblVehicleEF	LHD2	0.17	0.18
tblVehicleEF	MCY	0.39	0.38
tblVehicleEF	MCY	0.17	0.17
tblVehicleEF	MCY	22.33	22.97
tblVehicleEF	MCY	9.92	9.91

tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.19	1.19
tblVehicleEF	MCY	0.31	0.31
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003
tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	1.71	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.28	2.32
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.26	2.28
tblVehicleEF	MCY	2.0290e-003	2.0320e-003
tblVehicleEF	MCY	7.1900e-004	7.2300e-004
tblVehicleEF	MCY	1.71	1.70
tblVehicleEF	MCY	1.04	1.04
tblVehicleEF	MCY	0.91	0.90
tblVehicleEF	MCY	2.74	2.78
tblVehicleEF	MCY	0.78	0.80
tblVehicleEF	MCY	2.46	2.48
tblVehicleEF	MCY	0.38	0.37
tblVehicleEF	MCY	0.14	0.14
tblVehicleEF	MCY	22.76	23.42
tblVehicleEF	MCY	9.21	9.23

tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.03	1.03
tblVehicleEF	MCY	0.29	0.29
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003
tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	4.16	4.14
tblVehicleEF	MCY	1.54	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.21	2.25
tblVehicleEF	MCY	0.77	0.78
tblVehicleEF	MCY	1.93	1.94
tblVehicleEF	MCY	2.0330e-003	2.0360e-003
tblVehicleEF	MCY	6.9700e-004	7.0200e-004
tblVehicleEF	MCY	4.16	4.14
tblVehicleEF	MCY	1.54	1.53
tblVehicleEF	MCY	2.35	2.34
tblVehicleEF	MCY	2.67	2.69
tblVehicleEF	MCY	0.77	0.78
tblVehicleEF	MCY	2.10	2.11
tblVehicleEF	MCY	0.40	0.40
tblVehicleEF	MCY	0.20	0.20
tblVehicleEF	MCY	24.01	24.75
tblVehicleEF	MCY	11.37	11.33

tblVehicleEF	MCY	160.07	159.24
tblVehicleEF	MCY	48.96	49.40
tblVehicleEF	MCY	4.4830e-003	4.5610e-003
tblVehicleEF	MCY	1.29	1.30
tblVehicleEF	MCY	0.34	0.34
tblVehicleEF	MCY	1.6820e-003	1.6530e-003
tblVehicleEF	MCY	4.3610e-003	4.5260e-003
tblVehicleEF	MCY	1.5820e-003	1.5570e-003
tblVehicleEF	MCY	4.1340e-003	4.2950e-003
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.08	1.09
tblVehicleEF	MCY	0.24	0.24
tblVehicleEF	MCY	2.41	2.46
tblVehicleEF	MCY	0.90	0.92
tblVehicleEF	MCY	2.72	2.74
tblVehicleEF	MCY	2.0600e-003	2.0640e-003
tblVehicleEF	MCY	7.5600e-004	7.6100e-004
tblVehicleEF	MCY	0.48	0.47
tblVehicleEF	MCY	1.08	1.09
tblVehicleEF	MCY	0.24	0.24
tblVehicleEF	MCY	2.90	2.94
tblVehicleEF	MCY	0.90	0.92
tblVehicleEF	MCY	2.96	2.98
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	2.04	2.18
tblVehicleEF	MDV	4.79	5.12

tblVehicleEF	MDV	525.65	534.03
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.27	0.29
tblVehicleEF	MDV	0.46	0.49
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003
tblVehicleEF	MDV	2.5530e-003	2.6540e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.39	0.42
tblVehicleEF	MDV	5.2790e-003	5.3650e-003
tblVehicleEF	MDV	1.2740e-003	1.2940e-003
tblVehicleEF	MDV	0.13	0.14
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.10	0.10
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.43	0.46
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.02	0.03
tblVehicleEF	MDV	2.49	2.66
tblVehicleEF	MDV	4.04	4.32

tblVehicleEF	MDV	576.02	585.23
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.25	0.27
tblVehicleEF	MDV	0.43	0.46
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003
tblVehicleEF	MDV	2.5530e-003	2.6540e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.06	0.06
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.33	0.35
tblVehicleEF	MDV	5.7890e-003	5.8840e-003
tblVehicleEF	MDV	1.2600e-003	1.2790e-003
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.31	0.31
tblVehicleEF	MDV	0.22	0.22
tblVehicleEF	MDV	0.08	0.09
tblVehicleEF	MDV	0.14	0.14
tblVehicleEF	MDV	0.36	0.39
tblVehicleEF	MDV	0.02	0.02
tblVehicleEF	MDV	0.03	0.04
tblVehicleEF	MDV	1.92	2.05
tblVehicleEF	MDV	5.81	6.21

tblVehicleEF	MDV	505.05	513.10
tblVehicleEF	MDV	118.80	120.15
tblVehicleEF	MDV	0.16	0.17
tblVehicleEF	MDV	0.29	0.32
tblVehicleEF	MDV	0.50	0.54
tblVehicleEF	MDV	1.7830e-003	1.8170e-003
tblVehicleEF	MDV	2.7700e-003	2.8780e-003
tblVehicleEF	MDV	1.6480e-003	1.6790e-003
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tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.05	0.06
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.46	0.50
tblVehicleEF	MDV	5.0710e-003	5.1540e-003
tblVehicleEF	MDV	1.2920e-003	1.3130e-003
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.26	0.26
tblVehicleEF	MDV	0.04	0.04
tblVehicleEF	MDV	0.07	0.08
tblVehicleEF	MDV	0.17	0.17
tblVehicleEF	MDV	0.51	0.55
tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.04	0.04
tblVehicleEF	MH	5.14	6.12
tblVehicleEF	MH	8.10	8.85

tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.45	2.56
tblVehicleEF	MH	1.01	1.04
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003
tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	1.99	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.49	0.52
tblVehicleEF	MH	0.22	0.25
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.51	0.59
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.5300e-004	7.9700e-004
tblVehicleEF	MH	1.99	2.11
tblVehicleEF	MH	0.11	0.12
tblVehicleEF	MH	0.49	0.52
tblVehicleEF	MH	0.29	0.33
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.56	0.64
tblVehicleEF	MH	0.06	0.07
tblVehicleEF	MH	0.04	0.04

tblVehicleEF	MH	5.32	6.33
tblVehicleEF	MH	7.45	8.23
tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.27	2.37
tblVehicleEF	MH	0.95	0.98
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003
tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	4.65	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.10	1.17
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.48	0.55
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.4200e-004	7.8600e-004
tblVehicleEF	MH	4.65	4.95
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	1.10	1.17
tblVehicleEF	MH	0.30	0.34
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.53	0.60

tblVehicleEF	MH	0.06	0.06
tblVehicleEF	MH	0.04	0.05
tblVehicleEF	MH	5.10	6.16
tblVehicleEF	MH	9.04	9.85
tblVehicleEF	MH	1,234.45	1,238.57
tblVehicleEF	MH	60.97	63.98
tblVehicleEF	MH	8.8000e-004	9.4900e-004
tblVehicleEF	MH	2.54	2.66
tblVehicleEF	MH	1.08	1.12
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.9660e-003	2.3960e-003
tblVehicleEF	MH	3.2670e-003	3.2660e-003
tblVehicleEF	MH	0.05	0.05
tblVehicleEF	MH	1.8300e-003	2.2390e-003
tblVehicleEF	MH	0.63	0.66
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	0.25	0.26
tblVehicleEF	MH	0.22	0.26
tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.56	0.64
tblVehicleEF	MH	0.01	0.01
tblVehicleEF	MH	7.6900e-004	8.1400e-004
tblVehicleEF	MH	0.63	0.66
tblVehicleEF	MH	0.13	0.14
tblVehicleEF	MH	0.25	0.26
tblVehicleEF	MH	0.28	0.33

tblVehicleEF	MH	0.03	0.03
tblVehicleEF	MH	0.61	0.70
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	0.53	0.58
tblVehicleEF	MHD	0.90	1.09
tblVehicleEF	MHD	6.62	8.00
tblVehicleEF	MHD	196.49	193.05
tblVehicleEF	MHD	1,222.75	1,227.27
tblVehicleEF	MHD	39.27	44.67
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.69	1.80
tblVehicleEF	MHD	3.52	4.01
tblVehicleEF	MHD	14.76	14.48
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	1.1790e-003	1.7740e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	1.0920e-003	1.6560e-003
tblVehicleEF	MHD	2.2740e-003	2.8560e-003
tblVehicleEF	MHD	0.06	0.08
tblVehicleEF	MHD	0.06	0.06
tblVehicleEF	MHD	8.7100e-004	1.0910e-003
tblVehicleEF	MHD	0.24	0.29
tblVehicleEF	MHD	0.02	0.03

tblVehicleEF	MHD	0.40	0.52
tblVehicleEF	MHD	1.8820e-003	1.8500e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.0900e-004	5.8900e-004
tblVehicleEF	MHD	2.2740e-003	2.8560e-003
tblVehicleEF	MHD	0.06	0.08
tblVehicleEF	MHD	0.07	0.07
tblVehicleEF	MHD	8.7100e-004	1.0910e-003
tblVehicleEF	MHD	0.28	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.44	0.57
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.09	0.10
tblVehicleEF	MHD	0.38	0.41
tblVehicleEF	MHD	0.91	1.10
tblVehicleEF	MHD	6.19	7.57
tblVehicleEF	MHD	208.25	204.61
tblVehicleEF	MHD	1,222.75	1,227.27
tblVehicleEF	MHD	39.27	44.67
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.74	1.86
tblVehicleEF	MHD	3.34	3.81
tblVehicleEF	MHD	14.71	14.43
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	1.1790e-003	1.7740e-003

tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	1.0920e-003	1.6560e-003
tblVehicleEF	MHD	5.4090e-003	6.8420e-003
tblVehicleEF	MHD	0.07	0.10
tblVehicleEF	MHD	0.05	0.06
tblVehicleEF	MHD	2.0580e-003	2.5950e-003
tblVehicleEF	MHD	0.24	0.29
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.38	0.49
tblVehicleEF	MHD	1.9940e-003	1.9590e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.0200e-004	5.8100e-004
tblVehicleEF	MHD	5.4090e-003	6.8420e-003
tblVehicleEF	MHD	0.07	0.10
tblVehicleEF	MHD	0.07	0.07
tblVehicleEF	MHD	2.0580e-003	2.5950e-003
tblVehicleEF	MHD	0.28	0.33
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.42	0.54
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.01	0.02
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	0.72	0.78
tblVehicleEF	MHD	0.89	1.09
tblVehicleEF	MHD	7.21	8.69
tblVehicleEF	MHD	180.48	177.33

tblVehicleEF	MHD	1,222.75	1,227.27
tblVehicleEF	MHD	39.27	44.67
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	1.61	1.72
tblVehicleEF	MHD	3.58	4.09
tblVehicleEF	MHD	14.81	14.54
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.10	0.12
tblVehicleEF	MHD	1.1790e-003	1.7740e-003
tblVehicleEF	MHD	0.02	0.02
tblVehicleEF	MHD	0.09	0.11
tblVehicleEF	MHD	1.0920e-003	1.6560e-003
tblVehicleEF	MHD	6.7800e-004	8.3900e-004
tblVehicleEF	MHD	0.06	0.09
tblVehicleEF	MHD	0.06	0.07
tblVehicleEF	MHD	3.3400e-004	4.1200e-004
tblVehicleEF	MHD	0.24	0.29
tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.43	0.56
tblVehicleEF	MHD	1.7300e-003	1.7010e-003
tblVehicleEF	MHD	0.01	0.01
tblVehicleEF	MHD	5.1900e-004	6.0100e-004
tblVehicleEF	MHD	6.7800e-004	8.3900e-004
tblVehicleEF	MHD	0.06	0.09
tblVehicleEF	MHD	0.08	0.08
tblVehicleEF	MHD	3.3400e-004	4.1200e-004
tblVehicleEF	MHD	0.28	0.33

tblVehicleEF	MHD	0.02	0.03
tblVehicleEF	MHD	0.47	0.61
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tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	0.31	0.31
tblVehicleEF	OBUS	1.15	1.30
tblVehicleEF	OBUS	8.38	8.91
tblVehicleEF	OBUS	149.92	145.25
tblVehicleEF	OBUS	1,368.09	1,375.36
tblVehicleEF	OBUS	68.30	69.13
tblVehicleEF	OBUS	1.8160e-003	1.8100e-003
tblVehicleEF	OBUS	1.02	1.03
tblVehicleEF	OBUS	3.07	3.24
tblVehicleEF	OBUS	3.67	3.65
tblVehicleEF	OBUS	5.6900e-004	6.1900e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	1.0940e-003	1.1150e-003
tblVehicleEF	OBUS	5.4500e-004	5.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	3.4430e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	9.8600e-004	1.0030e-003
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	0.06	0.06

tblVehicleEF	OBUS	0.52	0.56
tblVehicleEF	OBUS	1.4420e-003	1.3980e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.3100e-004	8.4800e-004
tblVehicleEF	OBUS	3.4430e-003	3.5420e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	9.8600e-004	1.0030e-003
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.57	0.61
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.04
tblVehicleEF	OBUS	0.29	0.29
tblVehicleEF	OBUS	1.18	1.33
tblVehicleEF	OBUS	7.66	8.14
tblVehicleEF	OBUS	157.85	152.89
tblVehicleEF	OBUS	1,368.09	1,375.36
tblVehicleEF	OBUS	68.30	69.13
tblVehicleEF	OBUS	1.8160e-003	1.8100e-003
tblVehicleEF	OBUS	1.05	1.06
tblVehicleEF	OBUS	2.90	3.06
tblVehicleEF	OBUS	3.60	3.57
tblVehicleEF	OBUS	4.8000e-004	5.2200e-004
tblVehicleEF	OBUS	0.01	0.02
tblVehicleEF	OBUS	1.0940e-003	1.1150e-003

tblVehicleEF	OBUS	4.5900e-004	4.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	7.9960e-003	8.2550e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	2.1810e-003	2.2410e-003
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.49	0.52
tblVehicleEF	OBUS	1.5180e-003	1.4710e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1800e-004	8.3500e-004
tblVehicleEF	OBUS	7.9960e-003	8.2550e-003
tblVehicleEF	OBUS	0.03	0.04
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	2.1810e-003	2.2410e-003
tblVehicleEF	OBUS	0.15	0.16
tblVehicleEF	OBUS	0.05	0.06
tblVehicleEF	OBUS	0.54	0.57
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	0.35	0.35
tblVehicleEF	OBUS	1.13	1.27
tblVehicleEF	OBUS	9.29	9.88
tblVehicleEF	OBUS	138.97	134.69

tblVehicleEF	OBUS	1,368.09	1,375.36
tblVehicleEF	OBUS	68.30	69.13
tblVehicleEF	OBUS	1.8160e-003	1.8100e-003
tblVehicleEF	OBUS	0.98	0.99
tblVehicleEF	OBUS	3.14	3.31
tblVehicleEF	OBUS	3.77	3.75
tblVehicleEF	OBUS	6.9300e-004	7.5400e-004
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tblVehicleEF	OBUS	1.0940e-003	1.1150e-003
tblVehicleEF	OBUS	6.6300e-004	7.2100e-004
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tblVehicleEF	OBUS	1.0120e-003	1.0330e-003
tblVehicleEF	OBUS	1.1300e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.05	0.05
tblVehicleEF	OBUS	4.9900e-004	5.0300e-004
tblVehicleEF	OBUS	0.12	0.13
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.56	0.60
tblVehicleEF	OBUS	1.3380e-003	1.2970e-003
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.4600e-004	8.6500e-004
tblVehicleEF	OBUS	1.1300e-003	1.1530e-003
tblVehicleEF	OBUS	0.03	0.03
tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	4.9900e-004	5.0300e-004
tblVehicleEF	OBUS	0.15	0.16

tblVehicleEF	OBUS	0.06	0.06
tblVehicleEF	OBUS	0.61	0.65
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.09	0.11
tblVehicleEF	SBUS	4.62	4.69
tblVehicleEF	SBUS	0.90	1.22
tblVehicleEF	SBUS	5.25	6.10
tblVehicleEF	SBUS	1,334.84	1,334.04
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
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tblVehicleEF	SBUS	14.74	15.26
tblVehicleEF	SBUS	6.27	6.66
tblVehicleEF	SBUS	16.51	16.50
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	5.8210e-003	7.4620e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.55	0.56
tblVehicleEF	SBUS	1.4860e-003	1.8120e-003

tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.28	0.34
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	3.8100e-004	4.0000e-004
tblVehicleEF	SBUS	5.8210e-003	7.4620e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.78	0.79
tblVehicleEF	SBUS	1.4860e-003	1.8120e-003
tblVehicleEF	SBUS	0.17	0.19
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.31	0.37
tblVehicleEF	SBUS	0.85	0.85
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.07	0.09
tblVehicleEF	SBUS	4.43	4.50
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tblVehicleEF	SBUS	3.52	4.10
tblVehicleEF	SBUS	1,405.67	1,404.69
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
tblVehicleEF	SBUS	1.1810e-003	1.2110e-003
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tblVehicleEF	SBUS	5.94	6.30
tblVehicleEF	SBUS	16.48	16.47
tblVehicleEF	SBUS	0.02	0.02

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
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tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	0.01	0.02
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.55	0.56
tblVehicleEF	SBUS	3.2850e-003	4.0750e-003
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tblVehicleEF	SBUS	0.04	0.05
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tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	0.25	0.30
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tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.11	0.13

tblVehicleEF	SBUS	4.88	4.96
tblVehicleEF	SBUS	0.88	1.19
tblVehicleEF	SBUS	7.11	8.26
tblVehicleEF	SBUS	1,237.04	1,236.48
tblVehicleEF	SBUS	1,183.62	1,185.76
tblVehicleEF	SBUS	28.93	29.38
tblVehicleEF	SBUS	1.1810e-003	1.2110e-003
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tblVehicleEF	SBUS	6.40	6.80
tblVehicleEF	SBUS	16.54	16.54
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.04	0.04
tblVehicleEF	SBUS	5.5500e-004	7.1800e-004
tblVehicleEF	SBUS	0.02	0.02
tblVehicleEF	SBUS	2.8130e-003	2.8110e-003
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	5.1000e-004	6.6000e-004
tblVehicleEF	SBUS	1.8710e-003	2.3350e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.56	0.57
tblVehicleEF	SBUS	7.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.14	0.15
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.34	0.40
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.01	0.01

tblVehicleEF	SBUS	4.1200e-004	4.3600e-004
tblVehicleEF	SBUS	1.8710e-003	2.3350e-003
tblVehicleEF	SBUS	0.04	0.05
tblVehicleEF	SBUS	0.79	0.80
tblVehicleEF	SBUS	7.7100e-004	9.2900e-004
tblVehicleEF	SBUS	0.16	0.19
tblVehicleEF	SBUS	0.03	0.04
tblVehicleEF	SBUS	0.37	0.44
tblVehicleEF	UBUS	1.86	1.96
tblVehicleEF	UBUS	0.11	0.12
tblVehicleEF	UBUS	10.88	11.68
tblVehicleEF	UBUS	22.75	24.72
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	6.40	6.92
tblVehicleEF	UBUS	14.28	14.55
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.17	0.18
tblVehicleEF	UBUS	4.6240e-003	4.7430e-003
tblVehicleEF	UBUS	0.74	0.80

tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.51	1.60
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.8320e-003	1.8630e-003
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.17	0.18
tblVehicleEF	UBUS	4.6240e-003	4.7430e-003
tblVehicleEF	UBUS	2.67	2.83
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.65	1.75
tblVehicleEF	UBUS	1.87	1.96
tblVehicleEF	UBUS	0.10	0.11
tblVehicleEF	UBUS	11.04	11.86
tblVehicleEF	UBUS	18.50	20.11
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	5.99	6.47
tblVehicleEF	UBUS	14.10	14.36
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.22	0.23

tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	0.75	0.81
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.34	1.42
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.7600e-003	1.7840e-003
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	0.22	0.23
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	2.69	2.86
tblVehicleEF	UBUS	0.03	0.03
tblVehicleEF	UBUS	1.46	1.55
tblVehicleEF	UBUS	1.86	1.95
tblVehicleEF	UBUS	0.13	0.13
tblVehicleEF	UBUS	10.72	11.50
tblVehicleEF	UBUS	27.73	30.12
tblVehicleEF	UBUS	1,923.00	1,934.28
tblVehicleEF	UBUS	142.76	142.44
tblVehicleEF	UBUS	1.4270e-003	1.4830e-003
tblVehicleEF	UBUS	6.60	7.13
tblVehicleEF	UBUS	14.48	14.77
tblVehicleEF	UBUS	0.51	0.52
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.2880e-003	1.2850e-003
tblVehicleEF	UBUS	0.22	0.22
tblVehicleEF	UBUS	0.07	0.08
tblVehicleEF	UBUS	1.1840e-003	1.1820e-003

tblVehicleEF	UBUS	4.8070e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2250e-003	2.2530e-003
tblVehicleEF	UBUS	0.72	0.78
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.70	1.80
tblVehicleEF	UBUS	0.01	0.01
tblVehicleEF	UBUS	1.9160e-003	1.9540e-003
tblVehicleEF	UBUS	4.8070e-003	4.9380e-003
tblVehicleEF	UBUS	0.18	0.19
tblVehicleEF	UBUS	2.2250e-003	2.2530e-003
tblVehicleEF	UBUS	2.65	2.81
tblVehicleEF	UBUS	0.04	0.04
tblVehicleEF	UBUS	1.86	1.97
tblVehicleTrips	ST_TR	5.82	21.60
tblVehicleTrips	SU_TR	5.88	21.60
tblVehicleTrips	WD_TR	5.04	13.10

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.6386	6.8660	3.8940	6.3500e-003	0.8585	0.3397	1.1983	0.4018	0.3141	0.7159	0.0000	585.3209	585.3209	0.1658	0.0000	589.4664
2018	0.5354	1.6325	1.3259	2.1900e-003	0.0166	0.0948	0.1114	4.5000e-003	0.0887	0.0932	0.0000	197.1350	197.1350	0.0468	0.0000	198.3060
Maximum	**0.6386**	**6.8660**	**3.8940**	**6.3500e-003**	**0.8585**	**0.3397**	**1.1983**	**0.4018**	**0.3141**	**0.7159**	**0.0000**	**585.3209**	**585.3209**	**0.1658**	**0.0000**	**589.4664**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.6386	6.8660	3.8940	6.3500e-003	0.8585	0.3397	1.1983	0.4018	0.3141	0.7159	0.0000	585.3203	585.3203	0.1658	0.0000	589.4657
2018	0.5354	1.6325	1.3259	2.1900e-003	0.0166	0.0948	0.1114	4.5000e-003	0.0887	0.0932	0.0000	197.1348	197.1348	0.0468	0.0000	198.3058
Maximum	**0.6386**	**6.8660**	**3.8940**	**6.3500e-003**	**0.8585**	**0.3397**	**1.1983**	**0.4018**	**0.3141**	**0.7159**	**0.0000**	**585.3203**	**585.3203**	**0.1658**	**0.0000**	**589.4657**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Phase 2 East Side Regional Park - Tulare County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2017	4-1-2017	1.5119	1.5119
2	4-2-2017	7-1-2017	2.0156	2.0156
3	7-2-2017	10-1-2017	2.4291	2.4291
4	10-2-2017	1-1-2018	1.5492	1.5492
5	1-2-2018	4-1-2018	0.9146	0.9146
6	4-2-2018	7-1-2018	0.6304	0.6304
7	7-2-2018	9-30-2018	0.4301	0.4301
		Highest	2.4291	2.4291

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3556	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4713	3.4172	4.4229	0.0127	0.7519	0.0189	0.7708	0.2021	0.0179	0.2201	0.0000	1,174.9141	1,174.9141	0.0718	0.0000	1,176.7100
Waste						0.0000	0.0000		0.0000	0.0000	13.3649	0.0000	13.3649	0.7898	0.0000	33.1110
Water						0.0000	0.0000		0.0000	0.0000	0.0000	85.8913	85.8913	3.8800e-003	8.0000e-004	86.2279
Total	**0.8268**	**3.4172**	**4.4235**	**0.0127**	**0.7519**	**0.0189**	**0.7708**	**0.2021**	**0.0179**	**0.2201**	**13.3649**	**1,260.8067**	**1,274.1717**	**0.8656**	**8.0000e-004**	**1,296.0502**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3556	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.4713	3.4172	4.4229	0.0127	0.7519	0.0189	0.7708	0.2021	0.0179	0.2201	0.0000	1,174.9141	1,174.9141	0.0718	0.0000	1,176.7100
Waste						0.0000	0.0000		0.0000	0.0000	13.3649	0.0000	13.3649	0.7898	0.0000	33.1110
Water						0.0000	0.0000		0.0000	0.0000	0.0000	85.8913	85.8913	3.8800e-003	8.0000e-004	86.2279
Total	**0.8268**	**3.4172**	**4.4235**	**0.0127**	**0.7519**	**0.0189**	**0.7708**	**0.2021**	**0.0179**	**0.2201**	**13.3649**	**1,260.8067**	**1,274.1717**	**0.8656**	**8.0000e-004**	**1,296.0502**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase 2 East Side Regional Park - Tulare County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2017	4/7/2017	5	70	
2	Site Preparation	Site Preparation	4/8/2017	6/2/2017	5	40	
3	Grading	Grading	6/3/2017	11/3/2017	5	110	
4	Building Construction	Building Construction	11/4/2017	4/6/2018	5	110	
5	Paving	Paving	4/9/2018	7/20/2018	5	75	
6	Architectural Coating	Architectural Coating	7/23/2018	11/2/2018	5	75	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 275

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 1,215; Non-Residential Outdoor: 1,215; Striped Parking Area: 100,000 (Architectural Coating – sqft)

OffRoad Equipment

Phase 2 East Side Regional Park - Tulare County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase 2 East Side Regional Park - Tulare County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	15.00	15.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1436	1.4962	0.8054	1.3600e-003		0.0768	0.0768		0.0715	0.0715	0.0000	124.6018	124.6018	0.0341	0.0000	125.4534
Total	**0.1436**	**1.4962**	**0.8054**	**1.3600e-003**		**0.0768**	**0.0768**		**0.0715**	**0.0715**	**0.0000**	**124.6018**	**124.6018**	**0.0341**	**0.0000**	**125.4534**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.5600e-003	0.0256	4.0000e-005	4.1800e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.9464	3.9464	1.8000e-004	0.0000	3.9508
Total	**3.5100e-003**	**2.5600e-003**	**0.0256**	**4.0000e-005**	**4.1800e-003**	**3.0000e-005**	**4.2200e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.9464**	**3.9464**	**1.8000e-004**	**0.0000**	**3.9508**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1436	1.4962	0.8054	1.3600e-003		0.0768	0.0768		0.0715	0.0715	0.0000	124.6016	124.6016	0.0341	0.0000	125.4533
Total	**0.1436**	**1.4962**	**0.8054**	**1.3600e-003**		**0.0768**	**0.0768**		**0.0715**	**0.0715**	**0.0000**	**124.6016**	**124.6016**	**0.0341**	**0.0000**	**125.4533**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.5100e-003	2.5600e-003	0.0256	4.0000e-005	4.1800e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.9464	3.9464	1.8000e-004	0.0000	3.9508
Total	**3.5100e-003**	**2.5600e-003**	**0.0256**	**4.0000e-005**	**4.1800e-003**	**3.0000e-005**	**4.2200e-003**	**1.1100e-003**	**3.0000e-005**	**1.1400e-003**	**0.0000**	**3.9464**	**3.9464**	**1.8000e-004**	**0.0000**	**3.9508**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0992	1.0455	0.4691	7.6000e-004		0.0576	0.0576		0.0530	0.0530	0.0000	70.6688	70.6688	0.0217	0.0000	71.2101
Total	**0.0992**	**1.0455**	**0.4691**	**7.6000e-004**	**0.3613**	**0.0576**	**0.4189**	**0.1986**	**0.0530**	**0.2516**	**0.0000**	**70.6688**	**70.6688**	**0.0217**	**0.0000**	**71.2101**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.7500e-003	0.0176	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.7061	2.7061	1.2000e-004	0.0000	2.7091
Total	**2.4000e-003**	**1.7500e-003**	**0.0176**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.7061**	**2.7061**	**1.2000e-004**	**0.0000**	**2.7091**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3613	0.0000	0.3613	0.1986	0.0000	0.1986	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0992	1.0455	0.4691	7.6000e-004		0.0576	0.0576		0.0530	0.0530	0.0000	70.6687	70.6687	0.0217	0.0000	71.2100
Total	**0.0992**	**1.0455**	**0.4691**	**7.6000e-004**	**0.3613**	**0.0576**	**0.4189**	**0.1986**	**0.0530**	**0.2516**	**0.0000**	**70.6687**	**70.6687**	**0.0217**	**0.0000**	**71.2100**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-003	1.7500e-003	0.0176	3.0000e-005	2.8700e-003	2.0000e-005	2.8900e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.7061	2.7061	1.2000e-004	0.0000	2.7091
Total	**2.4000e-003**	**1.7500e-003**	**0.0176**	**3.0000e-005**	**2.8700e-003**	**2.0000e-005**	**2.8900e-003**	**7.6000e-004**	**2.0000e-005**	**7.8000e-004**	**0.0000**	**2.7061**	**2.7061**	**1.2000e-004**	**0.0000**	**2.7091**

3.4 Grading - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3162	3.7367	2.1330	3.4100e-003		0.1690	0.1690		0.1555	0.1555	0.0000	316.5791	316.5791	0.0970	0.0000	319.0041
Total	**0.3162**	**3.7367**	**2.1330**	**3.4100e-003**	**0.4770**	**0.1690**	**0.6460**	**0.1978**	**0.1555**	**0.3533**	**0.0000**	**316.5791**	**316.5791**	**0.0970**	**0.0000**	**319.0041**

3.4 Grading - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3400e-003	5.3600e-003	0.0537	9.0000e-005	8.7600e-003	7.0000e-005	8.8300e-003	2.3300e-003	7.0000e-005	2.4000e-003	0.0000	8.2686	8.2686	3.7000e-004	0.0000	8.2779
Total	**7.3400e-003**	**5.3600e-003**	**0.0537**	**9.0000e-005**	**8.7600e-003**	**7.0000e-005**	**8.8300e-003**	**2.3300e-003**	**7.0000e-005**	**2.4000e-003**	**0.0000**	**8.2686**	**8.2686**	**3.7000e-004**	**0.0000**	**8.2779**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4770	0.0000	0.4770	0.1978	0.0000	0.1978	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.3162	3.7367	2.1330	3.4100e-003		0.1690	0.1690		0.1555	0.1555	0.0000	316.5788	316.5788	0.0970	0.0000	319.0037
Total	**0.3162**	**3.7367**	**2.1330**	**3.4100e-003**	**0.4770**	**0.1690**	**0.6460**	**0.1978**	**0.1555**	**0.3533**	**0.0000**	**316.5788**	**316.5788**	**0.0970**	**0.0000**	**319.0037**

3.4 Grading - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3400e-003	5.3600e-003	0.0537	9.0000e-005	8.7600e-003	7.0000e-005	8.8300e-003	2.3300e-003	7.0000e-005	2.4000e-003	0.0000	8.2686	8.2686	3.7000e-004	0.0000	8.2779
Total	**7.3400e-003**	**5.3600e-003**	**0.0537**	**9.0000e-005**	**8.7600e-003**	**7.0000e-005**	**8.8300e-003**	**2.3300e-003**	**7.0000e-005**	**2.4000e-003**	**0.0000**	**8.2686**	**8.2686**	**3.7000e-004**	**0.0000**	**8.2779**

3.5 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0623	0.5311	0.3637	5.4000e-004		0.0358	0.0358		0.0336	0.0336	0.0000	48.0986	48.0986	0.0119	0.0000	48.3948
Total	**0.0623**	**0.5311**	**0.3637**	**5.4000e-004**		**0.0358**	**0.0358**		**0.0336**	**0.0336**	**0.0000**	**48.0986**	**48.0986**	**0.0119**	**0.0000**	**48.3948**

3.5 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0100e-003	0.0454	0.0113	9.0000e-005	1.9800e-003	4.7000e-004	2.4500e-003	5.7000e-004	4.5000e-004	1.0200e-003	0.0000	8.1965	8.1965	4.8000e-004	0.0000	8.2086
Worker	2.0000e-003	1.4600e-003	0.0146	3.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.2551	2.2551	1.0000e-004	0.0000	2.2576
Total	**4.0100e-003**	**0.0469**	**0.0259**	**1.2000e-004**	**4.3700e-003**	**4.9000e-004**	**4.8600e-003**	**1.2100e-003**	**4.7000e-004**	**1.6700e-003**	**0.0000**	**10.4516**	**10.4516**	**5.8000e-004**	**0.0000**	**10.4662**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0623	0.5311	0.3637	5.4000e-004		0.0358	0.0358		0.0336	0.0336	0.0000	48.0985	48.0985	0.0119	0.0000	48.3948
Total	**0.0623**	**0.5311**	**0.3637**	**5.4000e-004**		**0.0358**	**0.0358**		**0.0336**	**0.0336**	**0.0000**	**48.0985**	**48.0985**	**0.0119**	**0.0000**	**48.3948**

3.5 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0100e-003	0.0454	0.0113	9.0000e-005	1.9800e-003	4.7000e-004	2.4500e-003	5.7000e-004	4.5000e-004	1.0200e-003	0.0000	8.1965	8.1965	4.8000e-004	0.0000	8.2086
Worker	2.0000e-003	1.4600e-003	0.0146	3.0000e-005	2.3900e-003	2.0000e-005	2.4100e-003	6.4000e-004	2.0000e-005	6.5000e-004	0.0000	2.2551	2.2551	1.0000e-004	0.0000	2.2576
Total	**4.0100e-003**	**0.0469**	**0.0259**	**1.2000e-004**	**4.3700e-003**	**4.9000e-004**	**4.8600e-003**	**1.2100e-003**	**4.7000e-004**	**1.6700e-003**	**0.0000**	**10.4516**	**10.4516**	**5.8000e-004**	**0.0000**	**10.4662**

3.5 Building Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0938	0.8187	0.6153	9.4000e-004		0.0525	0.0525		0.0494	0.0494	0.0000	83.2185	83.2185	0.0204	0.0000	83.7282
Total	**0.0938**	**0.8187**	**0.6153**	**9.4000e-004**		**0.0525**	**0.0525**		**0.0494**	**0.0494**	**0.0000**	**83.2185**	**83.2185**	**0.0204**	**0.0000**	**83.7282**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0200e-003	0.0748	0.0170	1.5000e-004	3.4700e-003	6.7000e-004	4.1400e-003	1.0000e-003	6.4000e-004	1.6400e-003	0.0000	14.2975	14.2975	7.7000e-004	0.0000	14.3167
Worker	3.0800e-003	2.1900e-003	0.0220	4.0000e-005	4.1800e-003	3.0000e-005	4.2100e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.8184	3.8184	1.5000e-004	0.0000	3.8222
Total	**6.1000e-003**	**0.0770**	**0.0390**	**1.9000e-004**	**7.6500e-003**	**7.0000e-004**	**8.3500e-003**	**2.1100e-003**	**6.7000e-004**	**2.7800e-003**	**0.0000**	**18.1159**	**18.1159**	**9.2000e-004**	**0.0000**	**18.1389**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0938	0.8187	0.6153	9.4000e-004		0.0525	0.0525		0.0494	0.0494	0.0000	83.2184	83.2184	0.0204	0.0000	83.7281
Total	**0.0938**	**0.8187**	**0.6153**	**9.4000e-004**		**0.0525**	**0.0525**		**0.0494**	**0.0494**	**0.0000**	**83.2184**	**83.2184**	**0.0204**	**0.0000**	**83.7281**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0200e-003	0.0748	0.0170	1.5000e-004	3.4700e-003	6.7000e-004	4.1400e-003	1.0000e-003	6.4000e-004	1.6400e-003	0.0000	14.2975	14.2975	7.7000e-004	0.0000	14.3167
Worker	3.0800e-003	2.1900e-003	0.0220	4.0000e-005	4.1800e-003	3.0000e-005	4.2100e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.8184	3.8184	1.5000e-004	0.0000	3.8222
Total	**6.1000e-003**	**0.0770**	**0.0390**	**1.9000e-004**	**7.6500e-003**	**7.0000e-004**	**8.3500e-003**	**2.1100e-003**	**6.7000e-004**	**2.7800e-003**	**0.0000**	**18.1159**	**18.1159**	**9.2000e-004**	**0.0000**	**18.1389**

3.6 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0616	0.6570	0.5549	8.5000e-004		0.0359	0.0359		0.0330	0.0330	0.0000	78.0436	78.0436	0.0243	0.0000	78.6510
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0616**	**0.6570**	**0.5549**	**8.5000e-004**		**0.0359**	**0.0359**		**0.0330**	**0.0330**	**0.0000**	**78.0436**	**78.0436**	**0.0243**	**0.0000**	**78.6510**

3.6 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-003	2.3500e-003	0.0236	5.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0911	4.0911	1.6000e-004	0.0000	4.0952
Total	**3.3000e-003**	**2.3500e-003**	**0.0236**	**5.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0911**	**4.0911**	**1.6000e-004**	**0.0000**	**4.0952**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0616	0.6570	0.5549	8.5000e-004		0.0359	0.0359		0.0330	0.0330	0.0000	78.0435	78.0435	0.0243	0.0000	78.6509
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0616**	**0.6570**	**0.5549**	**8.5000e-004**		**0.0359**	**0.0359**		**0.0330**	**0.0330**	**0.0000**	**78.0435**	**78.0435**	**0.0243**	**0.0000**	**78.6509**

3.6 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-003	2.3500e-003	0.0236	5.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0911	4.0911	1.6000e-004	0.0000	4.0952
Total	**3.3000e-003**	**2.3500e-003**	**0.0236**	**5.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0911**	**4.0911**	**1.6000e-004**	**0.0000**	**4.0952**

3.7 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3561					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.0752	0.0695	1.1000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003	0.0000	9.5747	9.5747	9.1000e-004	0.0000	9.5975
Total	**0.3673**	**0.0752**	**0.0695**	**1.1000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**9.5747**	**9.5747**	**9.1000e-004**	**0.0000**	**9.5975**

3.7 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-003	2.3500e-003	0.0236	5.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0911	4.0911	1.6000e-004	0.0000	4.0952
Total	**3.3000e-003**	**2.3500e-003**	**0.0236**	**5.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0911**	**4.0911**	**1.6000e-004**	**0.0000**	**4.0952**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.3561					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.0752	0.0695	1.1000e-004		5.6500e-003	5.6500e-003		5.6500e-003	5.6500e-003	0.0000	9.5747	9.5747	9.1000e-004	0.0000	9.5975
Total	**0.3673**	**0.0752**	**0.0695**	**1.1000e-004**		**5.6500e-003**	**5.6500e-003**		**5.6500e-003**	**5.6500e-003**	**0.0000**	**9.5747**	**9.5747**	**9.1000e-004**	**0.0000**	**9.5975**

3.7 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-003	2.3500e-003	0.0236	5.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0911	4.0911	1.6000e-004	0.0000	4.0952
Total	**3.3000e-003**	**2.3500e-003**	**0.0236**	**5.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0911**	**4.0911**	**1.6000e-004**	**0.0000**	**4.0952**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.4713	3.4172	4.4229	0.0127	0.7519	0.0189	0.7708	0.2021	0.0179	0.2201	0.0000	1,174.9141	1,174.9141	0.0718	0.0000	1,176.7100
Unmitigated	0.4713	3.4172	4.4229	0.0127	0.7519	0.0189	0.7708	0.2021	0.0179	0.2201	0.0000	1,174.9141	1,174.9141	0.0718	0.0000	1,176.7100

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Golf Course	927.48	1,529.28	1529.28	1,986,965	1,986,965
Total	927.48	1,529.28	1,529.28	1,986,965	1,986,965

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Golf Course	0.496227	0.035864	0.170091	0.158035	0.026569	0.006201	0.020975	0.076251	0.001816	0.001427	0.004483	0.001181	0.000880

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3556	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003
Unmitigated	0.3556	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003
Total	**0.3556**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2700e-003**	**1.2700e-003**	**0.0000**	**0.0000**	**1.3500e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3485					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	6.0000e-005	1.0000e-005	6.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.2700e-003	1.2700e-003	0.0000	0.0000	1.3500e-003
Total	**0.3556**	**1.0000e-005**	**6.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.2700e-003**	**1.2700e-003**	**0.0000**	**0.0000**	**1.3500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	85.8913	3.8800e-003	8.0000e-004	86.2279
Unmitigated	85.8913	3.8800e-003	8.0000e-004	86.2279

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 84.3569	85.8913	3.8800e-003	8.0000e-004	86.2279
Total		**85.8913**	**3.8800e-003**	**8.0000e-004**	**86.2279**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Golf Course	0 / 84.3569	85.8913	3.8800e-003	8.0000e-004	86.2279
Total		**85.8913**	**3.8800e-003**	**8.0000e-004**	**86.2279**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	13.3649	0.7898	0.0000	33.1110
Unmitigated	13.3649	0.7898	0.0000	33.1110

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	65.84	13.3649	0.7898	0.0000	33.1110
Total		**13.3649**	**0.7898**	**0.0000**	**33.1110**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Golf Course	65.84	13.3649	0.7898	0.0000	33.1110
Total		**13.3649**	**0.7898**	**0.0000**	**33.1110**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

East Side Regional Park & Groundwater Recharge Facility

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	67.50	Acre	67.50	6,000.00	0
Golf Course	13.00	Hole	70.81	1,800.00	0
Recreational Swimming Pool	30.00	1000sqft	0.69	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Project Characteristics - Operational Year of 2022 was assumed considering full build out of the Project

Land Use - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Construction Phase - Adjusted total construction days to reflect a construction schedule that would be more consistent with the Project

Trips and VMT - Trips associated with Building Construction and Architectutal Coating were modified in accordance with Appendix E2 of the CalEEMod User Guide

Grading - Project encompasses 239 acres

Architectural Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Vehicle Trips - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Area Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Land Use Change -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	3,027,392.00	108,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	9,082,176.00	108,000.00
tblArchitecturalCoating	ConstArea_Parking	0.00	300,000.00
tblAreaCoating	Area_Nonresidential_Exterior	3027392	108000
tblAreaCoating	Area_Nonresidential_Interior	9082176	108000
tblAreaCoating	Area_Parking	0	300000
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	NumDays	3,100.00	180.00
tblConstructionPhase	PhaseEndDate	10/29/2021	10/15/2021
tblConstructionPhase	PhaseEndDate	2/21/2020	2/7/2020
tblConstructionPhase	PhaseEndDate	1/1/2017	10/6/2017
tblConstructionPhase	PhaseEndDate	12/14/2018	5/31/2019

tblConstructionPhase	PhaseEndDate	12/25/2020	12/11/2020
tblConstructionPhase	PhaseEndDate	10/6/2017	3/23/2018
tblConstructionPhase	PhaseStartDate	12/26/2020	12/14/2020
tblConstructionPhase	PhaseStartDate	12/15/2018	6/3/2019
tblConstructionPhase	PhaseStartDate	10/7/2017	3/26/2018
tblConstructionPhase	PhaseStartDate	2/22/2020	2/10/2020
tblConstructionPhase	PhaseStartDate	1/2/2017	10/9/2017
tblLandUse	BuildingSpaceSquareFeet	0.00	2,940,300.00
tblLandUse	BuildingSpaceSquareFeet	0.00	3,084,484.00
tblLandUse	BuildingSpaceSquareFeet	0.00	30,000.00
tblLandUse	GreenSpaceSquareFeet	2,940,300.00	0.00
tblLandUse	LandUseSquareFeet	2,940,300.00	6,000.00
tblLandUse	LandUseSquareFeet	0.00	1,800.00
tblLandUse	LotAcreage	90.75	70.81
tblLandUse	RecSwimmingAreaSquareFeet	30,000.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2022
tblTripsAndVMT	VendorTripNumber	6.00	25.00
tblTripsAndVMT	WorkerTripNumber	16.00	64.00
tblTripsAndVMT	WorkerTripNumber	3.00	15.00
tblVehicleTrips	ST_TR	22.75	5.65
tblVehicleTrips	ST_TR	40.63	117.43
tblVehicleTrips	SU_TR	16.74	6.44
tblVehicleTrips	SU_TR	39.53	117.43
tblVehicleTrips	WD_TR	1.89	4.57
tblVehicleTrips	WD_TR	35.74	71.33

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.5728	5.8529	3.1044	5.1900e-003	1.1002	0.3058	1.4061	0.6002	0.2838	0.8840	0.0000	477.3427	477.3427	0.1305	0.0000	480.6052
2018	0.6634	7.4385	4.3077	7.5800e-003	2.4487	0.3422	2.7908	1.1587	0.3148	1.4735	0.0000	692.1437	692.1437	0.2104	0.0000	697.4046
2019	0.4784	4.8503	3.3950	6.4300e-003	1.4044	0.2303	1.6346	0.5737	0.2139	0.7876	0.0000	575.6269	575.6269	0.1437	0.0000	579.2189
2020	0.3086	1.8787	1.9536	3.2100e-003	0.0234	0.0996	0.1230	6.2800e-003	0.0920	0.0983	0.0000	282.0507	282.0507	0.0803	0.0000	284.0584
2021	1.7088	0.1616	0.2316	4.2000e-004	0.0123	9.7700e-003	0.0221	3.2700e-003	9.7700e-003	0.0130	0.0000	36.5402	36.5402	2.1000e-003	0.0000	36.5926
Maximum	**1.7088**	**7.4385**	**4.3077**	**7.5800e-003**	**2.4487**	**0.3422**	**2.7908**	**1.1587**	**0.3148**	**1.4735**	**0.0000**	**692.1437**	**692.1437**	**0.2104**	**0.0000**	**697.4046**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2017	0.5728	5.8529	3.1044	5.1900e-003	1.1002	0.3058	1.4061	0.6002	0.2838	0.8840	0.0000	477.3422	477.3422	0.1305	0.0000	480.6047
2018	0.6634	7.4385	4.3077	7.5800e-003	2.4487	0.3422	2.7908	1.1587	0.3148	1.4735	0.0000	692.1429	692.1429	0.2104	0.0000	697.4038
2019	0.4784	4.8503	3.3950	6.4300e-003	1.4044	0.2303	1.6346	0.5737	0.2139	0.7876	0.0000	575.6263	575.6263	0.1437	0.0000	579.2183
2020	0.3086	1.8787	1.9536	3.2100e-003	0.0234	0.0996	0.1230	6.2800e-003	0.0920	0.0983	0.0000	282.0504	282.0504	0.0803	0.0000	284.0581
2021	1.7088	0.1616	0.2316	4.2000e-004	0.0123	9.7700e-003	0.0221	3.2700e-003	9.7700e-003	0.0130	0.0000	36.5401	36.5401	2.1000e-003	0.0000	36.5926
Maximum	**1.7088**	**7.4385**	**4.3077**	**7.5800e-003**	**2.4487**	**0.3422**	**2.7908**	**1.1587**	**0.3148**	**1.4735**	**0.0000**	**692.1429**	**692.1429**	**0.2104**	**0.0000**	**697.4038**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-2-2017	4-1-2017	1.5119	1.5119
2	4-2-2017	7-1-2017	1.5285	1.5285
3	7-2-2017	10-1-2017	1.5453	1.5453
4	10-2-2017	1-1-2018	1.8267	1.8267
5	1-2-2018	4-1-2018	1.6940	1.6940
6	4-2-2018	7-1-2018	2.1068	2.1068

7	**7-2-2018**	**10-1-2018**	2.1299	2.1299
8	**10-2-2018**	**1-1-2019**	2.1281	2.1281
9	**1-2-2019**	**4-1-2019**	1.9108	1.9108
10	**4-2-2019**	**7-1-2019**	1.5583	1.5583
11	**7-2-2019**	**10-1-2019**	0.9025	0.9025
12	**10-2-2019**	**1-1-2020**	0.9039	0.9039
13	**1-2-2020**	**4-1-2020**	0.6190	0.6190
14	**4-2-2020**	**7-1-2020**	0.5053	0.5053
15	**7-2-2020**	**10-1-2020**	0.5108	0.5108
16	**10-2-2020**	**1-1-2021**	0.5188	0.5188
17	**1-2-2021**	**4-1-2021**	0.5839	0.5839
18	**4-2-2021**	**7-1-2021**	0.5904	0.5904
19	**7-2-2021**	**9-30-2021**	0.5904	0.5904
		Highest	2.1299	2.1299

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3271	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.6612	5.5648	6.0592	0.0244	1.5840	0.0209	1.6049	0.4256	0.0197	0.4453	0.0000	2,260.5925	2,260.5925	0.1140	0.0000	2,263.4412
Waste						0.0000	0.0000		0.0000	0.0000	36.2400	0.0000	36.2400	2.1417	0.0000	89.7830
Water						0.0000	0.0000		0.0000	0.0000	0.5629	195.8871	196.4500	0.0667	3.2000e-003	199.0698
Total	**0.9883**	**5.5648**	**6.0602**	**0.0244**	**1.5840**	**0.0209**	**1.6049**	**0.4256**	**0.0197**	**0.4453**	**36.8029**	**2,456.4816**	**2,493.2845**	**2.3224**	**3.2000e-003**	**2,552.2961**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3271	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.6612	5.5648	6.0592	0.0244	1.5840	0.0209	1.6049	0.4256	0.0197	0.4453	0.0000	2,260.5925	2,260.5925	0.1140	0.0000	2,263.4412
Waste						0.0000	0.0000		0.0000	0.0000	36.2400	0.0000	36.2400	2.1417	0.0000	89.7830
Water						0.0000	0.0000		0.0000	0.0000	0.5629	195.8871	196.4500	0.0667	3.2000e-003	199.0698
Total	**0.9883**	**5.5648**	**6.0602**	**0.0244**	**1.5840**	**0.0209**	**1.6049**	**0.4256**	**0.0197**	**0.4453**	**36.8029**	**2,456.4816**	**2,493.2845**	**2.3224**	**3.2000e-003**	**2,552.2961**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2017	10/6/2017	5	200	
2	Site Preparation	Site Preparation	10/9/2017	3/23/2018	5	120	
3	Grading	Grading	3/26/2018	5/31/2019	5	310	
4	Building Construction	Building Construction	6/3/2019	2/7/2020	5	180	
5	Paving	Paving	2/10/2020	12/11/2020	5	220	
6	Architectural Coating	Architectural Coating	12/14/2020	10/15/2021	5	220	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 108,000; Non-Residential Outdoor: 108,000; Striped Parking Area: 300,000 (Architectural Coating – sqft)

OffRoad Equipment

East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	64.00	25.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4103	4.2748	2.3012	3.8800e-003		0.2194	0.2194		0.2043	0.2043	0.0000	356.0050	356.0050	0.0973	0.0000	358.4384
Total	**0.4103**	**4.2748**	**2.3012**	**3.8800e-003**		**0.2194**	**0.2194**		**0.2043**	**0.2043**	**0.0000**	**356.0050**	**356.0050**	**0.0973**	**0.0000**	**358.4384**

3.2 Demolition - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0100	7.3000e-003	0.0732	1.3000e-004	0.0120	1.0000e-004	0.0121	3.1800e-003	9.0000e-005	3.2700e-003	0.0000	11.2754	11.2754	5.0000e-004	0.0000	11.2880
Total	**0.0100**	**7.3000e-003**	**0.0732**	**1.3000e-004**	**0.0120**	**1.0000e-004**	**0.0121**	**3.1800e-003**	**9.0000e-005**	**3.2700e-003**	**0.0000**	**11.2754**	**11.2754**	**5.0000e-004**	**0.0000**	**11.2880**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.4103	4.2747	2.3012	3.8800e-003		0.2194	0.2194		0.2043	0.2043	0.0000	356.0046	356.0046	0.0973	0.0000	358.4380
Total	**0.4103**	**4.2747**	**2.3012**	**3.8800e-003**		**0.2194**	**0.2194**		**0.2043**	**0.2043**	**0.0000**	**356.0046**	**356.0046**	**0.0973**	**0.0000**	**358.4380**

3.2 Demolition - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0100	7.3000e-003	0.0732	1.3000e-004	0.0120	1.0000e-004	0.0121	3.1800e-003	9.0000e-005	3.2700e-003	0.0000	11.2754	11.2754	5.0000e-004	0.0000	11.2880
Total	**0.0100**	**7.3000e-003**	**0.0732**	**1.3000e-004**	**0.0120**	**1.0000e-004**	**0.0121**	**3.1800e-003**	**9.0000e-005**	**3.2700e-003**	**0.0000**	**11.2754**	**11.2754**	**5.0000e-004**	**0.0000**	**11.2880**

3.3 Site Preparation - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1488	1.5683	0.7037	1.1400e-003		0.0864	0.0864		0.0795	0.0795	0.0000	106.0032	106.0032	0.0325	0.0000	106.8152
Total	**0.1488**	**1.5683**	**0.7037**	**1.1400e-003**	**1.0840**	**0.0864**	**1.1703**	**0.5958**	**0.0795**	**0.6753**	**0.0000**	**106.0032**	**106.0032**	**0.0325**	**0.0000**	**106.8152**

3.3 Site Preparation - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6100e-003	2.6300e-003	0.0264	5.0000e-005	4.3000e-003	4.0000e-005	4.3400e-003	1.1400e-003	3.0000e-005	1.1800e-003	0.0000	4.0591	4.0591	1.8000e-004	0.0000	4.0637
Total	**3.6100e-003**	**2.6300e-003**	**0.0264**	**5.0000e-005**	**4.3000e-003**	**4.0000e-005**	**4.3400e-003**	**1.1400e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**4.0591**	**4.0591**	**1.8000e-004**	**0.0000**	**4.0637**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1488	1.5683	0.7037	1.1400e-003		0.0864	0.0864		0.0795	0.0795	0.0000	106.0031	106.0031	0.0325	0.0000	106.8150
Total	**0.1488**	**1.5683**	**0.7037**	**1.1400e-003**	**1.0840**	**0.0864**	**1.1703**	**0.5958**	**0.0795**	**0.6753**	**0.0000**	**106.0031**	**106.0031**	**0.0325**	**0.0000**	**106.8150**

3.3 Site Preparation - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.6100e-003	2.6300e-003	0.0264	5.0000e-005	4.3000e-003	4.0000e-005	4.3400e-003	1.1400e-003	3.0000e-005	1.1800e-003	0.0000	4.0591	4.0591	1.8000e-004	0.0000	4.0637
Total	**3.6100e-003**	**2.6300e-003**	**0.0264**	**5.0000e-005**	**4.3000e-003**	**4.0000e-005**	**4.3400e-003**	**1.1400e-003**	**3.0000e-005**	**1.1800e-003**	**0.0000**	**4.0591**	**4.0591**	**1.8000e-004**	**0.0000**	**4.0637**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1369	1.4460	0.6743	1.1400e-003		0.0773	0.0773		0.0711	0.0711	0.0000	104.2797	104.2797	0.0325	0.0000	105.0913
Total	**0.1369**	**1.4460**	**0.6743**	**1.1400e-003**	**1.0840**	**0.0773**	**1.1613**	**0.5958**	**0.0711**	**0.6670**	**0.0000**	**104.2797**	**104.2797**	**0.0325**	**0.0000**	**105.0913**

3.3 Site Preparation - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1700e-003	2.2500e-003	0.0227	4.0000e-005	4.3000e-003	3.0000e-005	4.3300e-003	1.1400e-003	3.0000e-005	1.1700e-003	0.0000	3.9275	3.9275	1.6000e-004	0.0000	3.9314
Total	**3.1700e-003**	**2.2500e-003**	**0.0227**	**4.0000e-005**	**4.3000e-003**	**3.0000e-005**	**4.3300e-003**	**1.1400e-003**	**3.0000e-005**	**1.1700e-003**	**0.0000**	**3.9275**	**3.9275**	**1.6000e-004**	**0.0000**	**3.9314**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.0840	0.0000	1.0840	0.5958	0.0000	0.5958	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1369	1.4460	0.6743	1.1400e-003		0.0773	0.0773		0.0711	0.0711	0.0000	104.2796	104.2796	0.0325	0.0000	105.0912
Total	**0.1369**	**1.4460**	**0.6743**	**1.1400e-003**	**1.0840**	**0.0773**	**1.1613**	**0.5958**	**0.0711**	**0.6670**	**0.0000**	**104.2796**	**104.2796**	**0.0325**	**0.0000**	**105.0912**

3.3 Site Preparation - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1700e-003	2.2500e-003	0.0227	4.0000e-005	4.3000e-003	3.0000e-005	4.3300e-003	1.1400e-003	3.0000e-005	1.1700e-003	0.0000	3.9275	3.9275	1.6000e-004	0.0000	3.9314
Total	**3.1700e-003**	**2.2500e-003**	**0.0227**	**4.0000e-005**	**4.3000e-003**	**3.0000e-005**	**4.3300e-003**	**1.1400e-003**	**3.0000e-005**	**1.1700e-003**	**0.0000**	**3.9275**	**3.9275**	**1.6000e-004**	**0.0000**	**3.9314**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5116	5.9819	3.5265	6.2300e-003		0.2647	0.2647		0.2435	0.2435	0.0000	569.3174	569.3174	0.1772	0.0000	573.7484
Total	**0.5116**	**5.9819**	**3.5265**	**6.2300e-003**	**1.3444**	**0.2647**	**1.6091**	**0.5575**	**0.2435**	**0.8010**	**0.0000**	**569.3174**	**569.3174**	**0.1772**	**0.0000**	**573.7484**

3.4 Grading - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	8.3800e-003	0.0843	1.6000e-004	0.0160	1.2000e-004	0.0161	4.2600e-003	1.1000e-004	4.3700e-003	0.0000	14.6190	14.6190	5.8000e-004	0.0000	14.6336
Total	**0.0118**	**8.3800e-003**	**0.0843**	**1.6000e-004**	**0.0160**	**1.2000e-004**	**0.0161**	**4.2600e-003**	**1.1000e-004**	**4.3700e-003**	**0.0000**	**14.6190**	**14.6190**	**5.8000e-004**	**0.0000**	**14.6336**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5116	5.9819	3.5265	6.2300e-003		0.2647	0.2647		0.2435	0.2435	0.0000	569.3168	569.3168	0.1772	0.0000	573.7477
Total	**0.5116**	**5.9819**	**3.5265**	**6.2300e-003**	**1.3444**	**0.2647**	**1.6091**	**0.5575**	**0.2435**	**0.8010**	**0.0000**	**569.3168**	**569.3168**	**0.1772**	**0.0000**	**573.7477**

3.4 Grading - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	8.3800e-003	0.0843	1.6000e-004	0.0160	1.2000e-004	0.0161	4.2600e-003	1.1000e-004	4.3700e-003	0.0000	14.6190	14.6190	5.8000e-004	0.0000	14.6336
Total	**0.0118**	**8.3800e-003**	**0.0843**	**1.6000e-004**	**0.0160**	**1.2000e-004**	**0.0161**	**4.2600e-003**	**1.1000e-004**	**4.3700e-003**	**0.0000**	**14.6190**	**14.6190**	**5.8000e-004**	**0.0000**	**14.6336**

3.4 Grading - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2583	2.9714	1.8190	3.3800e-003		0.1299	0.1299		0.1195	0.1195	0.0000	303.5722	303.5722	0.0961	0.0000	305.9734
Total	**0.2583**	**2.9714**	**1.8190**	**3.3800e-003**	**1.3444**	**0.1299**	**1.4742**	**0.5575**	**0.1195**	**0.6769**	**0.0000**	**303.5722**	**303.5722**	**0.0961**	**0.0000**	**305.9734**

3.4 Grading - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	3.9300e-003	0.0398	9.0000e-005	8.6800e-003	6.0000e-005	8.7500e-003	2.3100e-003	6.0000e-005	2.3700e-003	0.0000	7.6956	7.6956	2.7000e-004	0.0000	7.7025
Total	**5.7000e-003**	**3.9300e-003**	**0.0398**	**9.0000e-005**	**8.6800e-003**	**6.0000e-005**	**8.7500e-003**	**2.3100e-003**	**6.0000e-005**	**2.3700e-003**	**0.0000**	**7.6956**	**7.6956**	**2.7000e-004**	**0.0000**	**7.7025**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3444	0.0000	1.3444	0.5575	0.0000	0.5575	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2583	2.9714	1.8190	3.3800e-003		0.1299	0.1299		0.1195	0.1195	0.0000	303.5718	303.5718	0.0961	0.0000	305.9730
Total	**0.2583**	**2.9714**	**1.8190**	**3.3800e-003**	**1.3444**	**0.1299**	**1.4742**	**0.5575**	**0.1195**	**0.6769**	**0.0000**	**303.5718**	**303.5718**	**0.0961**	**0.0000**	**305.9730**

3.4 Grading - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7000e-003	3.9300e-003	0.0398	9.0000e-005	8.6800e-003	6.0000e-005	8.7500e-003	2.3100e-003	6.0000e-005	2.3700e-003	0.0000	7.6956	7.6956	2.7000e-004	0.0000	7.7025
Total	**5.7000e-003**	**3.9300e-003**	**0.0398**	**9.0000e-005**	**8.6800e-003**	**6.0000e-005**	**8.7500e-003**	**2.3100e-003**	**6.0000e-005**	**2.3700e-003**	**0.0000**	**7.6956**	**7.6956**	**2.7000e-004**	**0.0000**	**7.7025**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1795	1.6020	1.3045	2.0500e-003		0.0980	0.0980		0.0922	0.0922	0.0000	178.6792	178.6792	0.0435	0.0000	179.7674
Total	**0.1795**	**1.6020**	**1.3045**	**2.0500e-003**		**0.0980**	**0.0980**		**0.0922**	**0.0922**	**0.0000**	**178.6792**	**178.6792**	**0.0435**	**0.0000**	**179.7674**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5800e-003	0.2555	0.0543	5.4000e-004	0.0126	2.0400e-003	0.0146	3.6300e-003	1.9500e-003	5.5800e-003	0.0000	51.3392	51.3392	2.6000e-003	0.0000	51.4043
Worker	0.0254	0.0175	0.1774	3.8000e-004	0.0387	2.9000e-004	0.0390	0.0103	2.6000e-004	0.0106	0.0000	34.3407	34.3407	1.2300e-003	0.0000	34.3714
Total	**0.0350**	**0.2730**	**0.2318**	**9.2000e-004**	**0.0513**	**2.3300e-003**	**0.0536**	**0.0139**	**2.2100e-003**	**0.0161**	**0.0000**	**85.6799**	**85.6799**	**3.8300e-003**	**0.0000**	**85.7757**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1795	1.6020	1.3045	2.0500e-003		0.0980	0.0980		0.0922	0.0922	0.0000	178.6790	178.6790	0.0435	0.0000	179.7672
Total	**0.1795**	**1.6020**	**1.3045**	**2.0500e-003**		**0.0980**	**0.0980**		**0.0922**	**0.0922**	**0.0000**	**178.6790**	**178.6790**	**0.0435**	**0.0000**	**179.7672**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.5800e-003	0.2555	0.0543	5.4000e-004	0.0126	2.0400e-003	0.0146	3.6300e-003	1.9500e-003	5.5800e-003	0.0000	51.3392	51.3392	2.6000e-003	0.0000	51.4043
Worker	0.0254	0.0175	0.1774	3.8000e-004	0.0387	2.9000e-004	0.0390	0.0103	2.6000e-004	0.0106	0.0000	34.3407	34.3407	1.2300e-003	0.0000	34.3714
Total	**0.0350**	**0.2730**	**0.2318**	**9.2000e-004**	**0.0513**	**2.3300e-003**	**0.0536**	**0.0139**	**2.2100e-003**	**0.0161**	**0.0000**	**85.6799**	**85.6799**	**3.8300e-003**	**0.0000**	**85.7757**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2686	0.2359	3.8000e-004		0.0156	0.0156		0.0147	0.0147	0.0000	32.4254	32.4254	7.9100e-003	0.0000	32.6232
Total	**0.0297**	**0.2686**	**0.2359**	**3.8000e-004**		**0.0156**	**0.0156**		**0.0147**	**0.0147**	**0.0000**	**32.4254**	**32.4254**	**7.9100e-003**	**0.0000**	**32.6232**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3900e-003	0.0427	8.4800e-003	1.0000e-004	2.3100e-003	2.4000e-004	2.5500e-003	6.7000e-004	2.3000e-004	9.0000e-004	0.0000	9.3873	9.3873	4.3000e-004	0.0000	9.3981
Worker	4.2300e-003	2.8200e-003	0.0286	7.0000e-005	7.1400e-003	5.0000e-005	7.1900e-003	1.9000e-003	5.0000e-005	1.9400e-003	0.0000	6.1312	6.1312	1.9000e-004	0.0000	6.1360
Total	**5.6200e-003**	**0.0455**	**0.0371**	**1.7000e-004**	**9.4500e-003**	**2.9000e-004**	**9.7400e-003**	**2.5700e-003**	**2.8000e-004**	**2.8400e-003**	**0.0000**	**15.5185**	**15.5185**	**6.2000e-004**	**0.0000**	**15.5341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0297	0.2686	0.2359	3.8000e-004		0.0156	0.0156		0.0147	0.0147	0.0000	32.4254	32.4254	7.9100e-003	0.0000	32.6231
Total	**0.0297**	**0.2686**	**0.2359**	**3.8000e-004**		**0.0156**	**0.0156**		**0.0147**	**0.0147**	**0.0000**	**32.4254**	**32.4254**	**7.9100e-003**	**0.0000**	**32.6231**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3900e-003	0.0427	8.4800e-003	1.0000e-004	2.3100e-003	2.4000e-004	2.5500e-003	6.7000e-004	2.3000e-004	9.0000e-004	0.0000	9.3873	9.3873	4.3000e-004	0.0000	9.3981
Worker	4.2300e-003	2.8200e-003	0.0286	7.0000e-005	7.1400e-003	5.0000e-005	7.1900e-003	1.9000e-003	5.0000e-005	1.9400e-003	0.0000	6.1312	6.1312	1.9000e-004	0.0000	6.1360
Total	**5.6200e-003**	**0.0455**	**0.0371**	**1.7000e-004**	**9.4500e-003**	**2.9000e-004**	**9.7400e-003**	**2.5700e-003**	**2.8000e-004**	**2.8400e-003**	**0.0000**	**15.5185**	**15.5185**	**6.2000e-004**	**0.0000**	**15.5341**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1492	1.5472	1.6117	2.5100e-003		0.0828	0.0828		0.0762	0.0762	0.0000	220.3104	220.3104	0.0713	0.0000	222.0918
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1492**	**1.5472**	**1.6117**	**2.5100e-003**		**0.0828**	**0.0828**		**0.0762**	**0.0762**	**0.0000**	**220.3104**	**220.3104**	**0.0713**	**0.0000**	**222.0918**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7800e-003	5.1900e-003	0.0527	1.3000e-004	0.0131	9.0000e-005	0.0132	3.4900e-003	9.0000e-005	3.5800e-003	0.0000	11.2907	11.2907	3.5000e-004	0.0000	11.2995
Total	**7.7800e-003**	**5.1900e-003**	**0.0527**	**1.3000e-004**	**0.0131**	**9.0000e-005**	**0.0132**	**3.4900e-003**	**9.0000e-005**	**3.5800e-003**	**0.0000**	**11.2907**	**11.2907**	**3.5000e-004**	**0.0000**	**11.2995**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1492	1.5472	1.6117	2.5100e-003		0.0828	0.0828		0.0762	0.0762	0.0000	220.3102	220.3102	0.0713	0.0000	222.0915
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1492**	**1.5472**	**1.6117**	**2.5100e-003**		**0.0828**	**0.0828**		**0.0762**	**0.0762**	**0.0000**	**220.3102**	**220.3102**	**0.0713**	**0.0000**	**222.0915**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7800e-003	5.1900e-003	0.0527	1.3000e-004	0.0131	9.0000e-005	0.0132	3.4900e-003	9.0000e-005	3.5800e-003	0.0000	11.2907	11.2907	3.5000e-004	0.0000	11.2995
Total	**7.7800e-003**	**5.1900e-003**	**0.0527**	**1.3000e-004**	**0.0131**	**9.0000e-005**	**0.0132**	**3.4900e-003**	**9.0000e-005**	**3.5800e-003**	**0.0000**	**11.2907**	**11.2907**	**3.5000e-004**	**0.0000**	**11.2995**

3.7 Architectural Coating - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1142					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	**0.1159**	**0.0118**	**0.0128**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.4000e-004**	**0.0000**	**1.7907**

3.7 Architectural Coating - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.3600e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.4000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7185	0.7185	2.0000e-005	0.0000	0.7191
Total	**5.0000e-004**	**3.3000e-004**	**3.3600e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.4000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7185**	**0.7185**	**2.0000e-005**	**0.0000**	**0.7191**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1142					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7000e-003	0.0118	0.0128	2.0000e-005		7.8000e-004	7.8000e-004		7.8000e-004	7.8000e-004	0.0000	1.7873	1.7873	1.4000e-004	0.0000	1.7907
Total	**0.1159**	**0.0118**	**0.0128**	**2.0000e-005**		**7.8000e-004**	**7.8000e-004**		**7.8000e-004**	**7.8000e-004**	**0.0000**	**1.7873**	**1.7873**	**1.4000e-004**	**0.0000**	**1.7907**

3.7 Architectural Coating - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-004	3.3000e-004	3.3600e-003	1.0000e-005	8.4000e-004	1.0000e-005	8.4000e-004	2.2000e-004	1.0000e-005	2.3000e-004	0.0000	0.7185	0.7185	2.0000e-005	0.0000	0.7191
Total	**5.0000e-004**	**3.3000e-004**	**3.3600e-003**	**1.0000e-005**	**8.4000e-004**	**1.0000e-005**	**8.4000e-004**	**2.2000e-004**	**1.0000e-005**	**2.3000e-004**	**0.0000**	**0.7185**	**0.7185**	**2.0000e-005**	**0.0000**	**0.7191**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.6796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1573	0.1872	3.1000e-004		9.6900e-003	9.6900e-003		9.6900e-003	9.6900e-003	0.0000	26.2985	26.2985	1.8000e-003	0.0000	26.3436
Total	**1.7022**	**0.1573**	**0.1872**	**3.1000e-004**		**9.6900e-003**	**9.6900e-003**		**9.6900e-003**	**9.6900e-003**	**0.0000**	**26.2985**	**26.2985**	**1.8000e-003**	**0.0000**	**26.3436**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-003	4.3100e-003	0.0443	1.1000e-004	0.0123	8.0000e-005	0.0124	3.2700e-003	8.0000e-005	3.3500e-003	0.0000	10.2416	10.2416	2.9000e-004	0.0000	10.2490
Total	**6.7000e-003**	**4.3100e-003**	**0.0443**	**1.1000e-004**	**0.0123**	**8.0000e-005**	**0.0124**	**3.2700e-003**	**8.0000e-005**	**3.3500e-003**	**0.0000**	**10.2416**	**10.2416**	**2.9000e-004**	**0.0000**	**10.2490**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.6796					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0226	0.1573	0.1872	3.1000e-004		9.6900e-003	9.6900e-003		9.6900e-003	9.6900e-003	0.0000	26.2985	26.2985	1.8000e-003	0.0000	26.3436
Total	**1.7022**	**0.1573**	**0.1872**	**3.1000e-004**		**9.6900e-003**	**9.6900e-003**		**9.6900e-003**	**9.6900e-003**	**0.0000**	**26.2985**	**26.2985**	**1.8000e-003**	**0.0000**	**26.3436**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-003	4.3100e-003	0.0443	1.1000e-004	0.0123	8.0000e-005	0.0124	3.2700e-003	8.0000e-005	3.3500e-003	0.0000	10.2416	10.2416	2.9000e-004	0.0000	10.2490
Total	**6.7000e-003**	**4.3100e-003**	**0.0443**	**1.1000e-004**	**0.0123**	**8.0000e-005**	**0.0124**	**3.2700e-003**	**8.0000e-005**	**3.3500e-003**	**0.0000**	**10.2416**	**10.2416**	**2.9000e-004**	**0.0000**	**10.2490**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6612	5.5648	6.0592	0.0244	1.5840	0.0209	1.6049	0.4256	0.0197	0.4453	0.0000	2,260.5925	2,260.5925	0.1140	0.0000	2,263.4412
Unmitigated	0.6612	5.5648	6.0592	0.0244	1.5840	0.0209	1.6049	0.4256	0.0197	0.4453	0.0000	2,260.5925	2,260.5925	0.1140	0.0000	2,263.4412

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	308.48	381.38	434.70	719,278	719,278
Golf Course	927.29	1,526.59	1526.59	1,985,331	1,985,331
Recreational Swimming Pool	1,014.60	273.00	408.00	1,485,584	1,485,584
Total	2,250.37	2,180.97	2,369.29	4,190,192	4,190,192

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.525564	0.032657	0.173666	0.133675	0.020482	0.005111	0.020758	0.078919	0.001825	0.001263	0.004259	0.001112	0.000710
Golf Course	0.525564	0.032657	0.173666	0.133675	0.020482	0.005111	0.020758	0.078919	0.001825	0.001263	0.004259	0.001112	0.000710
Recreational Swimming Pool	0.525564	0.032657	0.173666	0.133675	0.020482	0.005111	0.020758	0.078919	0.001825	0.001263	0.004259	0.001112	0.000710

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Golf Course	0	0.0000	0.0000	0.0000	0.0000
Recreational Swimming Pool	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3271	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003
Unmitigated	0.3271	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1794					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003
Total	**0.3271**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9700e-003**	**1.9700e-003**	**1.0000e-005**	**0.0000**	**2.1000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1794					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1476					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	9.0000e-005	1.0000e-005	1.0200e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.9700e-003	1.9700e-003	1.0000e-005	0.0000	2.1000e-003
Total	**0.3271**	**1.0000e-005**	**1.0200e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.9700e-003**	**1.9700e-003**	**1.0000e-005**	**0.0000**	**2.1000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	196.4500	0.0667	3.2000e-003	199.0698
Unmitigated	196.4500	0.0667	3.2000e-003	199.0698

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425	81.8879	3.7000e-003	7.7000e-004	82.2088
Golf Course	0 / 108.132	110.0990	4.9800e-003	1.0300e-003	110.5304
Recreational Swimming Pool	1.77429 / 1.08747	4.4631	0.0580	1.4000e-003	6.3306
Total		**196.4500**	**0.0667**	**3.2000e-003**	**199.0698**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425	81.8879	3.7000e-003	7.7000e-004	82.2088
Golf Course	0 / 108.132	110.0990	4.9800e-003	1.0300e-003	110.5304
Recreational Swimming Pool	1.77429 / 1.08747	4.4631	0.0580	1.4000e-003	6.3306
Total		**196.4500**	**0.0667**	**3.2000e-003**	**199.0698**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	36.2400	2.1417	0.0000	89.7830
Unmitigated	36.2400	2.1417	0.0000	89.7830

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8	1.1774	0.0696	0.0000	2.9168
Golf Course	1.73	0.3512	0.0208	0.0000	0.8700
Recreational Swimming Pool	171	34.7115	2.0514	0.0000	85.9962
Total		**36.2400**	**2.1417**	**0.0000**	**89.7830**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8	1.1774	0.0696	0.0000	2.9168
Golf Course	1.73	0.3512	0.0208	0.0000	0.8700
Recreational Swimming Pool	171	34.7115	2.0514	0.0000	85.9962
Total		**36.2400**	**2.1417**	**0.0000**	**89.7830**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2005 East Side Regional Park & Groundwater Recharge Facility

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	67.50	Acre	67.50	6,000.00	0
Golf Course	13.00	Hole	70.81	1,800.00	0
Recreational Swimming Pool	30.00	1000sqft	0.69	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2005
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

2005 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Project Characteristics - Operational Year of 2022 was assumed considering full build out of the Project

Land Use - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Construction Phase - Adjusted total construction days to reflect a construction schedule that would be more consistent with the Project

Trips and VMT - Trips associated with Building Construction and Architectutal Coating were modified in accordance with Appendix E2 of the CalEEMod User Guide

Grading - Project encompasses 239 acres

Architectural Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Vehicle Trips - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Area Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Land Use Change -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblAreaCoating	Area_EF_Residential_Exterior	250	150
tblAreaCoating	Area_EF_Residential_Interior	250	150
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblConstructionPhase	PhaseEndDate	10/15/2021	10/14/2004
tblConstructionPhase	PhaseEndDate	2/7/2020	2/7/2003
tblConstructionPhase	PhaseEndDate	10/6/2017	10/6/2000

tblConstructionPhase	PhaseEndDate	5/31/2019	5/31/2002
tblConstructionPhase	PhaseEndDate	12/11/2020	12/12/2003
tblConstructionPhase	PhaseEndDate	3/23/2018	3/23/2001
tblConstructionPhase	PhaseStartDate	12/12/2020	12/12/2003
tblConstructionPhase	PhaseStartDate	6/1/2019	6/1/2002
tblConstructionPhase	PhaseStartDate	1/2/2017	1/2/2000
tblConstructionPhase	PhaseStartDate	3/24/2018	3/24/2001
tblConstructionPhase	PhaseStartDate	2/8/2020	2/8/2003
tblConstructionPhase	PhaseStartDate	10/7/2017	10/7/2000
tblLandUse	BuildingSpaceSquareFeet	0.00	6,000.00
tblLandUse	BuildingSpaceSquareFeet	0.00	1,800.00
tblLandUse	BuildingSpaceSquareFeet	0.00	30,000.00
tblLandUse	GreenSpaceSquareFeet	2,940,300.00	0.00
tblLandUse	LandUseSquareFeet	2,940,300.00	6,000.00
tblLandUse	LandUseSquareFeet	0.00	1,800.00
tblLandUse	LotAcreage	90.75	70.81
tblLandUse	RecSwimmingAreaSquareFeet	30,000.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2005

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000																537.5618
2001																803.3815
2002																592.0042
2003																324.1017
2004																29.1435
Maximum																**803.3815**

2.1 Overall Construction

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000																537.5612
2001																803.3806
2002																592.0035
2003																324.1013
2004																29.1435
Maximum																**803.3806**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area																2.2000e-003
Energy																0.0000
Mobile																2,201.8447
Waste																89.7830
Water																199.0698
Total																**2,490.6997**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area																2.2000e-003
Energy																0.0000
Mobile																2,201.8447
Waste																89.7830
Water																199.0698
Total																**2,490.6997**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

2005 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2000	10/6/2000	5	200	
2	Site Preparation	Site Preparation	10/7/2000	3/23/2001	5	120	
3	Grading	Grading	3/24/2001	5/31/2002	5	310	
4	Building Construction	Building Construction	6/1/2002	2/7/2003	5	3100	
5	Paving	Paving	2/8/2003	12/12/2003	5	220	
6	Architectural Coating	Architectural Coating	12/12/2003	10/14/2004	5	220	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 56,700; Non-Residential Outdoor: 18,900; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

2005 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

2005 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	16.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																399.2952
Total																**399.2952**

3.2 Demolition - 2000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																12.9176
Total																**12.9176**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																399.2947
Total																**399.2947**

3.2 Demolition - 2000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																12.9176
Total																**12.9176**

3.3 Site Preparation - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6987
Total																**120.6987**

3.3 Site Preparation - 2000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6986
Total																**120.6986**

3.3 Site Preparation - 2000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

3.3 Site Preparation - 2001

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6987
Total																**120.6987**

3.3 Site Preparation - 2001

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6986
Total																**120.6986**

3.3 Site Preparation - 2001

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

3.4 Grading - 2001

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																660.7230
Total																**660.7230**

3.4 Grading - 2001

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																17.3095
Total																**17.3095**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																660.7222
Total																**660.7222**

3.4 Grading - 2001

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																17.3095
Total																**17.3095**

3.4 Grading - 2002

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																358.3025
Total																**358.3025**

3.4 Grading - 2002

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																9.3868
Total																**9.3868**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																358.3021
Total																**358.3021**

3.4 Grading - 2002

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																9.3868
Total																**9.3868**

3.5 Building Construction - 2002

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.1244
Total																**201.1244**

3.5 Building Construction - 2002

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																12.7187
Worker																10.4718
Total																**23.1905**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.1242
Total																**201.1242**

3.5 Building Construction - 2002

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																12.7187
Worker																10.4718
Total																**23.1905**

3.5 Building Construction - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																37.0492
Total																**37.0492**

3.5 Building Construction - 2003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																2.3429
Worker																1.9290
Total																**4.2719**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																37.0492
Total																**37.0492**

3.5 Building Construction - 2003

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																2.3429
Worker																1.9290
Total																**4.2719**

3.6 Paving - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																266.5906
Paving																0.0000
Total																**266.5906**

3.6 Paving - 2003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																14.2093
Total																**14.2093**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																266.5903
Paving																0.0000
Total																**266.5903**

3.6 Paving - 2003

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																14.2093
Total																**14.2093**

3.7 Architectural Coating - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																1.7998
Total																**1.7998**

3.7 Architectural Coating - 2003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																0.1809
Total																**0.1809**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																1.7998
Total																**1.7998**

3.7 Architectural Coating - 2003

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																0.1809
Total																**0.1809**

3.7 Architectural Coating - 2004

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																26.4825
Total																**26.4825**

3.7 Architectural Coating - 2004

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.6610
Total																**2.6610**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																26.4825
Total																**26.4825**

3.7 Architectural Coating - 2004

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.6610
Total																**2.6610**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated																2,201.8447
Unmitigated																2,201.8447

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	127.58	1,535.63	1129.95	1,007,483	1,007,483
Golf Course	464.62	528.19	513.89	868,832	868,832
Recreational Swimming Pool	1,014.60	273.00	408.00	1,485,584	1,485,584
Total	1,606.80	2,336.82	2,051.84	3,361,899	3,361,899

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.400578	0.072321	0.156798	0.206467	0.047356	0.007805	0.025221	0.073219	0.001514	0.001309	0.004110	0.001377	0.001925
Golf Course	0.400578	0.072321	0.156798	0.206467	0.047356	0.007805	0.025221	0.073219	0.001514	0.001309	0.004110	0.001377	0.001925
Recreational Swimming Pool	0.400578	0.072321	0.156798	0.206467	0.047356	0.007805	0.025221	0.073219	0.001514	0.001309	0.004110	0.001377	0.001925

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated																0.0000
Electricity Unmitigated																0.0000
NaturalGas Mitigated																0.0000
NaturalGas Unmitigated																0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0																0.0000
Golf Course	0																0.0000
Recreational Swimming Pool	0																0.0000
Total																	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0																0.0000
Golf Course	0																0.0000
Recreational Swimming Pool	0																0.0000
Total																	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0				0.0000
Golf Course	0				0.0000
Recreational Swimming Pool	0				0.0000
Total					**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0				0.0000
Golf Course	0				0.0000
Recreational Swimming Pool	0				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated																2.2000e-003
Unmitigated																2.2000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating																0.0000
Consumer Products																0.0000
Landscaping																2.2000e-003
Total																**2.2000e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating																0.0000
Consumer Products																0.0000
Landscaping																2.2000e-003
Total																**2.2000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				199.0698
Unmitigated				199.0698

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425				82.2088
Golf Course	0 / 108.132				110.5304
Recreational Swimming Pool	1.77429 / 1.08747				6.3306
Total					**199.0698**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425				82.2088
Golf Course	0 / 108.132				110.5304
Recreational Swimming Pool	1.77429 / 1.08747				6.3306
Total					**199.0698**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				89.7830
Unmitigated				89.7830

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8				2.9168
Golf Course	1.73				0.8700
Recreational Swimming Pool	171				85.9962
Total					**89.7830**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8				2.9168
Golf Course	1.73				0.8700
Recreational Swimming Pool	171				85.9962
Total					**89.7830**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

2020 East Side Regional Park & Groundwater Recharge Facility

Tulare County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	67.50	Acre	67.50	6,000.00	0
Golf Course	13.00	Hole	70.81	1,800.00	0
Recreational Swimming Pool	30.00	1000sqft	0.69	30,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	51
Climate Zone	7			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

2020 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Project Characteristics - Operational Year of 2022 was assumed considering full build out of the Project

Land Use - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Construction Phase - Adjusted total construction days to reflect a construction schedule that would be more consistent with the Project

Trips and VMT - Trips associated with Building Construction and Architectutal Coating were modified in accordance with Appendix E2 of the CalEEMod User Guide

Grading - Project encompasses 239 acres

Architectural Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Vehicle Trips - Project Description/Trip Generation
City Park should be characterized as a Regional Park
Recreational Swimming Pool should be characterized as a Community Center
Golf Course should be characterized as 13 Total Ball Fields

Area Coating - Non-Residential Interior/Exterior Area value based on methodology presented in Appendix A of the CalEEMod User Guide. Parking lot square footage estimated considering number of parking stalls and typical parking stall size.

Land Use Change -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	40	0
tblLandUse	BuildingSpaceSquareFeet	0.00	6,000.00
tblLandUse	BuildingSpaceSquareFeet	0.00	1,800.00
tblLandUse	BuildingSpaceSquareFeet	0.00	30,000.00
tblLandUse	GreenSpaceSquareFeet	2,940,300.00	0.00
tblLandUse	LandUseSquareFeet	2,940,300.00	6,000.00
tblLandUse	LandUseSquareFeet	0.00	1,800.00
tblLandUse	LotAcreage	90.75	70.81
tblLandUse	RecSwimmingAreaSquareFeet	30,000.00	0.00
tblProjectCharacteristics	OperationalYear	2018	2020

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

2020 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000																537.5618
2001																803.3815
2002																592.0042
2003																385.1723
2004																386.6481
2005																382.9067
2006																382.9067
2007																384.3794
2008																385.8521
2009																384.3794
2010																365.8909
2011																363.8058
2012																365.0081
2013																363.5427
2014																321.3653
2015																73.3944
Maximum																**803.3815**

2.1 Overall Construction

Mitigated Construction

2020 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2000																537.5612
2001																803.3806
2002																592.0035
2003																385.1719
2004																386.6477
2005																382.9063
2006																382.9063
2007																384.3790
2008																385.8517
2009																384.3790
2010																365.8906
2011																363.8054
2012																365.0077
2013																363.5424
2014																321.3649
2015																73.3943
Maximum																**803.3806**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area																2.1100e-003
Energy																0.0000
Mobile																1,898.6104
Waste																89.7830
Water																199.0698
Total																**2,187.4653**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area																2.1100e-003
Energy																0.0000
Mobile																1,898.6104
Waste																89.7830
Water																199.0698
Total																**2,187.4653**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

2020 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/2/2000	10/6/2000	5	200	
2	Site Preparation	Site Preparation	10/7/2000	3/23/2001	5	120	
3	Grading	Grading	3/24/2001	5/31/2002	5	310	
4	Building Construction	Building Construction	6/1/2002	4/18/2014	5	3100	
5	Paving	Paving	4/19/2014	2/20/2015	5	220	
6	Architectural Coating	Architectural Coating	2/21/2015	12/25/2015	5	220	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 775

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 56,700; Non-Residential Outdoor: 18,900; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

2020 East Side Regional Park & Groundwater Recharge Facility - Tulare County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	16.00	6.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	3.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																399.2952
Total																**399.2952**

3.2 Demolition - 2000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																12.9176
Total																**12.9176**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																399.2947
Total																**399.2947**

3.2 Demolition - 2000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																12.9176
Total																**12.9176**

3.3 Site Preparation - 2000

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6987
Total																**120.6987**

3.3 Site Preparation - 2000

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6986
Total																**120.6986**

3.3 Site Preparation - 2000

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

3.3 Site Preparation - 2001

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6987
Total																**120.6987**

3.3 Site Preparation - 2001

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																120.6986
Total																**120.6986**

3.3 Site Preparation - 2001

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																4.6503
Total																**4.6503**

3.4 Grading - 2001

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																660.7230
Total																**660.7230**

3.4 Grading - 2001

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																17.3095
Total																**17.3095**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																660.7222
Total																**660.7222**

3.4 Grading - 2001

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																17.3095
Total																**17.3095**

3.4 Grading - 2002

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																358.3025
Total																**358.3025**

3.4 Grading - 2002

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																9.3868
Total																**9.3868**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust																0.0000
Off-Road																358.3021
Total																**358.3021**

3.4 Grading - 2002

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																9.3868
Total																**9.3868**

3.5 Building Construction - 2002

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.1244
Total																**201.1244**

3.5 Building Construction - 2002

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																12.7187
Worker																10.4718
Total																**23.1905**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.1242
Total																**201.1242**

3.5 Building Construction - 2002

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																12.7187
Worker																10.4718
Total																**23.1905**

3.5 Building Construction - 2003

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.3518
Total																**345.3518**

3.5 Building Construction - 2003

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.8393
Worker																17.9812
Total																**39.8205**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.3514
Total																**345.3514**

3.5 Building Construction - 2003

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.8393
Worker																17.9812
Total																**39.8205**

3.5 Building Construction - 2004

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																346.6750
Total																**346.6750**

3.5 Building Construction - 2004

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.9230
Worker																18.0501
Total																**39.9731**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																346.6746
Total																**346.6746**

3.5 Building Construction - 2004

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.9230
Worker																18.0501
Total																**39.9731**

3.5 Building Construction - 2005

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																343.7129
Total																**343.7129**

3.5 Building Construction - 2005

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.5275
Worker																17.6663
Total																**39.1938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																343.7124
Total																**343.7124**

3.5 Building Construction - 2005

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.5275
Worker																17.6663
Total																**39.1938**

3.5 Building Construction - 2006

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																343.7129
Total																**343.7129**

3.5 Building Construction - 2006

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.5275
Worker																17.6663
Total																**39.1938**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																343.7124
Total																**343.7124**

3.5 Building Construction - 2006

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.5275
Worker																17.6663
Total																**39.1938**

3.5 Building Construction - 2007

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.0348
Total																**345.0348**

3.5 Building Construction - 2007

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6103
Worker																17.7343
Total																**39.3446**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.0344
Total																**345.0344**

3.5 Building Construction - 2007

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6103
Worker																17.7343
Total																**39.3446**

3.5 Building Construction - 2008

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																346.3568
Total																**346.3568**

3.5 Building Construction - 2008

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6931
Worker																17.8022
Total																**39.4953**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																346.3564
Total																**346.3564**

3.5 Building Construction - 2008

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6931
Worker																17.8022
Total																**39.4953**

3.5 Building Construction - 2009

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.0348
Total																**345.0348**

3.5 Building Construction - 2009

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6103
Worker																17.7343
Total																**39.3446**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																345.0344
Total																**345.0344**

3.5 Building Construction - 2009

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																21.6103
Worker																17.7343
Total																**39.3446**

3.5 Building Construction - 2010

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																328.2446
Total																**328.2446**

3.5 Building Construction - 2010

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.0316
Worker																17.6148
Total																**37.6464**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																328.2442
Total																**328.2442**

3.5 Building Construction - 2010

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.0316
Worker																17.6148
Total																**37.6464**

3.5 Building Construction - 2011

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																326.1951
Total																**326.1951**

3.5 Building Construction - 2011

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.0730
Worker																17.5377
Total																**37.6107**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																326.1947
Total																**326.1947**

3.5 Building Construction - 2011

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.0730
Worker																17.5377
Total																**37.6107**

3.5 Building Construction - 2012

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																326.8060
Total																**326.8060**

3.5 Building Construction - 2012

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.7409
Worker																17.4612
Total																**38.2021**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																326.8056
Total																**326.8056**

3.5 Building Construction - 2012

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.7409
Worker																17.4612
Total																**38.2021**

3.5 Building Construction - 2013

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																325.5414
Total																**325.5414**

3.5 Building Construction - 2013

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.8218
Worker																17.1796
Total																**38.0014**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																325.5410
Total																**325.5410**

3.5 Building Construction - 2013

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																20.8218
Worker																17.1796
Total																**38.0014**

3.5 Building Construction - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																96.8741
Total																**96.8741**

3.5 Building Construction - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																6.3696
Worker																5.0603
Total																**11.4298**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																96.8740
Total																**96.8740**

3.5 Building Construction - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																6.3696
Worker																5.0603
Total																**11.4298**

3.6 Paving - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.9312
Paving																0.0000
Total																**201.9312**

3.6 Paving - 2014

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																11.1301
Total																**11.1301**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																201.9310
Paving																0.0000
Total																**201.9310**

3.6 Paving - 2014

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																11.1301
Total																**11.1301**

3.6 Paving - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																40.4232
Paving																0.0000
Total																**40.4232**

3.6 Paving - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.1899
Total																**2.1899**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road																40.4232
Paving																0.0000
Total																**40.4232**

3.6 Paving - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.1899
Total																**2.1899**

3.7 Architectural Coating - 2015

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																28.1772
Total																**28.1772**

3.7 Architectural Coating - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.6041
Total																**2.6041**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating																0.0000
Off-Road																28.1772
Total																**28.1772**

3.7 Architectural Coating - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling																0.0000
Vendor																0.0000
Worker																2.6041
Total																**2.6041**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated																1,898.6104
Unmitigated																1,898.6104

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	127.58	1,535.63	1129.95	1,007,483	1,007,483
Golf Course	464.62	528.19	513.89	868,832	868,832
Recreational Swimming Pool	1,014.60	273.00	408.00	1,485,584	1,485,584
Total	1,606.80	2,336.82	2,051.84	3,361,899	3,361,899

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Golf Course	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9
Recreational Swimming Pool	9.50	7.30	7.30	33.00	48.00	19.00	52	39	9

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.506900	0.034567	0.171206	0.149208	0.024362	0.005798	0.021031	0.077362	0.001819	0.001371	0.004402	0.001155	0.000818
Golf Course	0.506900	0.034567	0.171206	0.149208	0.024362	0.005798	0.021031	0.077362	0.001819	0.001371	0.004402	0.001155	0.000818
Recreational Swimming Pool	0.506900	0.034567	0.171206	0.149208	0.024362	0.005798	0.021031	0.077362	0.001819	0.001371	0.004402	0.001155	0.000818

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated																0.0000
Electricity Unmitigated																0.0000
NaturalGas Mitigated																0.0000
NaturalGas Unmitigated																0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0																0.0000
Golf Course	0																0.0000
Recreational Swimming Pool	0																0.0000
Total																	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0																0.0000
Golf Course	0																0.0000
Recreational Swimming Pool	0																0.0000
Total																	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0				0.0000
Golf Course	0				0.0000
Recreational Swimming Pool	0				0.0000
Total					**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0				0.0000
Golf Course	0				0.0000
Recreational Swimming Pool	0				0.0000
Total					**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated																2.1100e-003
Unmitigated																2.1100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating																0.0000
Consumer Products																0.0000
Landscaping																2.1100e-003
Total																**2.1100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating																0.0000
Consumer Products																0.0000
Landscaping																2.1100e-003
Total																**2.1100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				199.0698
Unmitigated				199.0698

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425				82.2088
Golf Course	0 / 108.132				110.5304
Recreational Swimming Pool	1.77429 / 1.08747				6.3306
Total					**199.0698**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 80.425				82.2088
Golf Course	0 / 108.132				110.5304
Recreational Swimming Pool	1.77429 / 1.08747				6.3306
Total					**199.0698**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				89.7830
Unmitigated				89.7830

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8				2.9168
Golf Course	1.73				0.8700
Recreational Swimming Pool	171				85.9962
Total					**89.7830**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	5.8				2.9168
Golf Course	1.73				0.8700
Recreational Swimming Pool	171				85.9962
Total					**89.7830**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX C

Road Construction Emissions Model Worksheets

Road Construction Emissions Model, Version 8.1.0

Daily Emission Estimates for -> Tower Street Development														
Project Phases (Pounds)	**ROG (lbs/day)**	**CO (lbs/day)**	**NOx (lbs/day)**	**Total PM10 (lbs/day)**	**Exhaust PM10 (lbs/day)**	**Fugitive Dust PM10 (lbs/day)**	**Total PM2.5 (lbs/day)**	**Exhaust PM2.5 (lbs/day)**	**Fugitive Dust PM2.5 (lbs/day)**	**SOx (lbs/day)**	**CO2 (lbs/day)**	**CH4 (lbs/day)**	**N2O (lbs/day)**	**CO2e (lbs/day)**
Grubbing/Land Clearing	1.04	7.50	11.08	23.28	0.48	22.80	5.16	0.42	4.74	0.02	1,780.39	0.43	0.02	1,797.20
Grading/Excavation	5.51	44.87	59.18	25.54	2.74	22.80	7.23	2.48	4.74	0.09	8,427.26	2.46	0.08	8,513.27
Drainage/Utilities/Sub-Grade	4.70	39.06	47.06	25.12	2.32	22.80	6.88	2.14	4.74	0.07	6,945.91	1.57	0.07	7,004.86
Paving	1.78	18.00	16.77	1.02	1.02	0.00	0.91	0.91	0.00	0.03	2,929.44	0.74	0.03	2,957.41
Maximum (pounds/day)	5.51	44.87	59.18	25.54	2.74	22.80	7.23	2.48	4.74	0.09	8,427.26	2.46	0.08	8,513.27
Total (tons/construction project)	0.28	2.31	2.89	1.42	0.14	1.28	0.39	0.13	0.27	0.00	423.68	0.11	0.00	427.70

Notes:

Project Start Year ->	2020
Project Length (months) ->	6
Total Project Area (acres) ->	9
Maximum Area Disturbed/Day (acres) ->	2
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	0	0	280	40
Grading/Excavation	0	0	0	0	760	40
Drainage/Utilities/Sub-Grade	0	0	0	0	680	40
Paving	0	0	0	0	520	40

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> Tower Street Development														
Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	**ROG (tons/phase)**	**CO (tons/phase)**	**NOx (tons/phase)**	**Total PM10 (tons/phase)**	**Exhaust PM10 (tons/phase)**	**Fugitive Dust PM10 (tons/phase)**	**Total PM2.5 (tons/phase)**	**Exhaust PM2.5 (tons/phase)**	**Fugitive Dust PM2.5 (tons/phase)**	**SOx (tons/phase)**	**CO2 (tons/phase)**	**CH4 (tons/phase)**	**N2O (tons/phase)**	**CO2e (MT/phase)**
Grubbing/Land Clearing	0.01	0.05	0.07	0.15	0.00	0.15	0.03	0.00	0.03	0.00	11.75	0.00	0.00	10.76
Grading/Excavation	0.15	1.18	1.56	0.67	0.07	0.60	0.19	0.07	0.13	0.00	222.48	0.06	0.00	203.89
Drainage/Utilities/Sub-Grade	0.11	0.90	1.09	0.58	0.05	0.53	0.16	0.05	0.11	0.00	160.45	0.04	0.00	146.80
Paving	0.02	0.18	0.17	0.01	0.01	0.00	0.01	0.01	0.00	0.00	29.00	0.01	0.00	26.56
Maximum (tons/phase)	0.15	1.18	1.56	0.67	0.07	0.60	0.19	0.07	0.13	0.00	222.48	0.06	0.00	203.89
Total (tons/construction project)	0.28	2.31	2.89	1.42	0.14	1.28	0.39	0.13	0.27	0.00	423.68	0.11	0.00	388.01

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 8.1.0**

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a
yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	Tower Street Development	
Construction Start Year	2020	Enter a Year between 2014 and 2025 (inclusive)
Project Type	1	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	6.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	1.08	miles
Total Project Area	9.14	acres
Maximum Area Disturbed/Day	2.28	acres
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00		
Asphalt	Grubbing/Land Clearing	20.00		
	Grading/Excavation	20.00		
	Drainage/Utilities/Sub-Grade	20.00		
	Paving	20.00		

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/ceqa/mitigation.shtml). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that can be modified by the user, although those modifications are optional.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing		0.60		1/1/2020
Grading/Excavation		2.40		1/20/2020
Drainage/Utilities/Sub-Grade		2.10		4/2/2020
Paving		0.90		6/5/2020
Totals (Months)	6			

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions **User Input**	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Grading/Excavation (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Paving (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Asphalt Hauling emission default values can be overridden in cells D87 through D90, and F87 through F90.

Asphalt Hauling Emissions **User Input**	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing		30.00		0	0.00
Miles/round trip: Grading/Excavation		30.00		0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade		30.00		0	0.00
Miles/round trip: Paving		30.00		0	0.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Grading/Excavation (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Paving (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D113 through D118.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip		20	Calculated	Calculated
One-way trips/day		2	Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing		7	14	280.00
No. of employees: Grading/Excavation		19	38	760.00
No. of employees: Drainage/Utilities/Sub-Grade		17	34	680.00
No. of employees: Paving		13	26	520.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Grading/Excavation (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Paving (grams/mile)	0.02	1.08	0.11	0.05	0.02	0.00	371.46	0.01	0.00	373.08
Grubbing/Land Clearing (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
Grading/Excavation (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
Draining/Utilities/Sub-Grade (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
Paving (grams/trip)	1.00	2.55	0.20	0.00	0.00	0.00	84.03	0.01	0.01	86.84
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.04	0.74	0.08	0.03	0.01	0.00	231.90	0.01	0.00	232.98
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	1.53	0.00	0.00	1.54
Pounds per day - Grading/Excavation	0.12	2.02	0.21	0.08	0.03	0.01	629.43	0.02	0.01	632.37
Tons per const. Period - Grading/Excavation	0.00	0.05	0.01	0.00	0.00	0.00	16.62	0.00	0.00	16.69
Pounds per day - Drainage/Utilities/Sub-Grade	0.11	1.80	0.19	0.07	0.03	0.01	563.18	0.01	0.01	565.81
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.04	0.00	0.00	0.00	0.00	13.01	0.00	0.00	13.07
Pounds per day - Paving	0.08	1.38	0.14	0.05	0.02	0.00	430.66	0.01	0.01	432.68
Tons per const. Period - Paving	0.00	0.01	0.00	0.00	0.00	0.00	4.26	0.00	0.00	4.28
Total tons per construction project	0.01	0.11	0.01	0.00	0.00	0.00	35.42	0.00	0.00	35.59

Note: Water Truck default values can be overridden in cells D145 through D148, and F145 through F148.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Miles Traveled/Vehicle/Day	Miles Traveled/Vehicle/Day	Daily VMT
Grubbing/Land Clearing - Exhaust		1		40.00	40.00
Grading/Excavation - Exhaust		1		40.00	40.00
Drainage/Utilities/Subgrade		1		40.00	40.00
Paving		1		40.00	40.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Grading/Excavation (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Draining/Utilities/Sub-Grade (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Paving (grams/mile)	0.07	0.37	1.46	0.10	0.04	0.01	1,571.31	0.00	0.05	1,586.79
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.01	0.03	0.13	0.01	0.00	0.00	138.57	0.00	0.00	139.93
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.91	0.00	0.00	0.92
Pounds per day - Grading/Excavation	0.01	0.03	0.13	0.01	0.00	0.00	138.57	0.00	0.00	139.93
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	3.66	0.00	0.00	3.69
Pounds per day - Drainage/Utilities/Sub-Grade	0.01	0.03	0.13	0.01	0.00	0.00	138.57	0.00	0.00	139.93
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	0.00	3.23
Pounds per day - Paving	0.01	0.03	0.13	0.01	0.00	0.00	138.57	0.00	0.00	139.93
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	1.37	0.00	0.00	1.39
Total tons per construction project	0.00	0.00	0.01	0.00	0.00	0.00	9.15	0.00	0.00	9.24

Note: Fugitive dust default values can be overridden in cells D171 through D173.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing		2.28	22.80	0.15	4.74	0.03
Fugitive Dust - Grading/Excavation		2.28	22.80	0.60	4.74	0.13
Fugitive Dust - Drainage/Utilities/Subgrade		2.28	22.80	0.53	4.74	0.11

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.57	2.45	7.31	0.28	0.25	0.01	746.04	0.24	0.01	754.08
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Excavators	0.25	3.37	2.49	0.12	0.11	0.01	515.95	0.17	0.00	521.51
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Signal Boards	0.17	0.90	1.08	0.04	0.04	0.00	147.94	0.02	0.00	148.69
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day		0.99	6.73	10.87	0.44	0.41	0.02	1,409.93	0.42	0.01	1,424.29
Grubbing/Land Clearing	tons per phase		0.01	0.04	0.07	0.00	0.00	0.00	9.31	0.00	0.00	9.40

Grading/Excavation	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0		Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Crawler Tractors	0.57	2.45	7.31	0.28	0.25	0.01	746.04	0.24	0.01	754.08
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Excavators	0.76	10.11	7.47	0.36	0.33	0.02	1,547.84	0.50	0.01	1,564.52
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Graders	0.72	4.58	7.00	0.39	0.36	0.01	604.94	0.20	0.01	611.44
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Rollers	0.42	3.83	4.21	0.27	0.25	0.01	514.48	0.17	0.00	520.03
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rubber Tired Loaders	0.37	1.61	4.34	0.14	0.13	0.01	596.22	0.19	0.01	602.65
	2		Model Default Tier	Scrapers	1.96	14.71	23.18	0.90	0.83	0.03	2,894.06	0.94	0.03	2,925.26
	3		Model Default Tier	Signal Boards	0.17	0.90	1.08	0.04	0.04	0.00	147.94	0.02	0.00	148.69
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.42	4.61	4.25	0.27	0.25	0.01	607.74	0.20	0.01	614.28
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day		5.39	42.82	58.85	2.66	2.45	0.08	7,659.26	2.44	0.07	7,740.97
Grading/Excavation	tons per phase		0.14	1.13	1.55	0.07	0.06	0.00	202.20	0.06	0.00	204.36

Drainage/Utilities/Subgrade	Default Number of Vehicles	Mitigation Option: Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Air Compressors	0.32	2.44	2.25	0.15	0.15	0.00	375.26	0.03	0.00	376.83
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Generator Sets	0.40	3.71	3.48	0.20	0.20	0.01	623.04	0.04	0.00	625.31
	1		Model Default Tier	Graders	0.72	4.58	7.00	0.39	0.36	0.01	604.94	0.20	0.01	611.44
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Plate Compactors	0.04	0.21	0.25	0.01	0.01	0.00	34.48	0.00	0.00	34.65
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pumps	0.42	3.76	3.53	0.21	0.21	0.01	623.04	0.04	0.00	625.36
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Rough Terrain Forklifts	0.13	2.30	1.73	0.07	0.07	0.00	333.68	0.11	0.00	337.28
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Scrapers	1.96	14.71	23.18	0.90	0.83	0.03	2,894.06	0.94	0.03	2,925.26
	3		Model Default Tier	Signal Boards	0.17	0.90	1.08	0.04	0.04	0.00	147.94	0.02	0.00	148.69
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.42	4.61	4.25	0.27	0.25	0.01	607.74	0.20	0.01	614.28
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

			ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day		4.59	37.22	46.75	2.24	2.11	0.07	6,244.17	1.56	0.05	6,299.12
Drainage/Utilities/Sub-Grade	tons per phase		0.11	0.86	1.08	0.05	0.05	0.00	144.24	0.04	0.00	145.51

Paving	Default Number of Vehicles	Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Mitigation Option Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*		Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1		Model Default Tier	Pavers	0.25	2.81	2.72	0.13	0.12	0.00	441.26	0.14	0.00	446.02
	1		Model Default Tier	Paving Equipment	0.21	2.52	2.13	0.11	0.10	0.00	391.54	0.13	0.00	395.76
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Rollers	0.63	5.75	6.32	0.40	0.37	0.01	771.73	0.25	0.01	780.04
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3		Model Default Tier	Signal Boards	0.17	0.90	1.08	0.04	0.04	0.00	147.94	0.02	0.00	148.69
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2		Model Default Tier	Tractors/Loaders/Backhoes	0.42	4.61	4.25	0.27	0.25	0.01	607.74	0.20	0.01	614.28
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment	If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Number of Vehicles	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Paving	pounds per day	1.69	16.58	16.50	0.95	0.88	0.02	2,360.21	0.73	0.02	2,384.80
Paving	tons per phase	0.02	0.16	0.16	0.01	0.01	0.00	23.37	0.01	0.00	23.61
Total Emissions all Phases (tons per construction period) =>		0.27	2.20	2.87	0.13	0.12	0.00	379.12	0.11	0.00	382.88

Equipment default values for horsepower and hours/day can be overridden in cells D391 through D424 and F391 through F424.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63		8
Air Compressors		78		8
Bore/Drill Rigs		206		8
Cement and Mortar Mixers		9		8
Concrete/Industrial Saws		81		8
Cranes		226		8
Crawler Tractors		208		8
Crushing/Proc. Equipment		85		8
Excavators		163		8
Forklifts		89		8
Generator Sets		84		8
Graders		175		8
Off-Highway Tractors		123		8
Off-Highway Trucks		400		8
Other Construction Equipment		172		8
Other General Industrial Equipment		88		8
Other Material Handling Equipment		167		8
Pavers		126		8
Paving Equipment		131		8
Plate Compactors		8		8
Pressure Washers		13		8
Pumps		84		8
Rollers		81		8
Rough Terrain Forklifts		100		8
Rubber Tired Dozers		255		8
Rubber Tired Loaders		200		8
Scrapers		362		8
Signal Boards		6		8
Skid Steer Loaders		65		8
Surfacing Equipment		254		8
Sweepers/Scrubbers		64		8
Tractors/Loaders/Backhoes		98		8
Trenchers		81		8
Welders		46		8

END OF DATA ENTRY SHEET

APPENDIX D
CALINE Worksheets

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Lov SB In	*	-2	750	-2	150	* AG	987	24.1	.0	10.4
B. Lov SB In	*	-2	150	-2	0	* AG	987	24.1	.0	10.4
C. Lov SB Out	*	-2	0	-2	-150	* AG	868	24.1	.0	10.4
D. Lov SB Out	*	-2	-150	-2	-750	* AG	868	24.1	.0	10.4
E. Lov NB In	*	2	-750	2	-150	* AG	1582	24.1	.0	10.4
F. Lov NB In	*	2	-150	2	0	* AG	1582	24.1	.0	10.4
G. Lov NB Out	*	2	0	2	150	* AG	700	24.1	.0	10.4
H. Lov NB Out	*	2	150	2	750	* AG	700	24.1	.0	10.4
I. MK WB In	*	750	2	150	2	* AG	321	24.1	.0	10.4
J. MK WB In	*	150	2	0	2	* AG	321	24.1	.0	10.4
K. MK WB Out	*	0	2	-150	2	* AG	479	24.1	.0	10.4
L. MK WB Out	*	-150	2	-750	2	* AG	479	24.1	.0	10.4
M. MK EB In	*	-750	-2	-150	-2	* AG	189	24.1	.0	10.4
N. MK EB In	*	-150	-2	0	-2	* AG	189	24.1	.0	10.4
O. MK EB Out	*	0	-2	150	-2	* AG	1032	24.1	.0	10.4
P. MK EB Out	*	150	-2	750	-2	* AG	1032	24.1	.0	10.4
Q. MK WB L	*	150	1	0	0	* AG	167	24.1	.0	10.4
R. MK EB L	*	0	0	-150	-1	* AG	28	24.1	.0	10.4
S. Lov NB L	*	1	-150	0	0	* AG	208	24.1	.0	10.4
T. Lov SB L	*	0	0	-1	150	* AG	221	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	-17	17	1.8
2. Recpt 2	*	-19	19	1.8
3. Recpt 3	*	-20	20	1.8

4. Recpt 4	*	35	35 1.8
5. Recpt 5	*	37	37 1.8
6. Recpt 6	*	39	39 1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	175.	8.4	.0	.0	1.0	1.2	2.0	.8	.0	.0
2. Recpt 2	174.	8.0	.0	.0	1.0	1.0	1.8	.9	.0	.0
3. Recpt 3	174.	7.7	.0	.0	.8	1.1	1.9	.8	.0	.0
4. Recpt 4	188.	6.7	.0	.0	.1	1.1	1.6	.3	.0	.0
5. Recpt 5	188.	6.6	.0	.0	.0	1.1	1.7	.3	.0	.0
6. Recpt 6	188.	6.4	.0	.0	.0	1.1	1.7	.2	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0
2. Recpt 2	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0
3. Recpt 3	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0
4. Recpt 4	.0	.2	.0	.0	.0	.0	.6	.0	.1	.0	.0	.0
5. Recpt 5	.0	.2	.0	.0	.0	.0	.6	.0	.1	.0	.0	.0
6. Recpt 6	.0	.2	.0	.0	.0	.0	.6	.0	.1	.0	.0	.0

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.4	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. Lov SB In	-2	750	-2	150	AG	.0	10.4
B. Lov SB In	-2	150	-2	0	AG	.0	10.4
C. Lov SB Out	-2	0	-2	-150	AG	.0	10.4
D. Lov SB Out	-2	-150	-2	-750	AG	.0	10.4
E. Lov NB In	2	-750	2	-150	AG	.0	10.4
F. Lov NB In	2	-150	2	0	AG	.0	10.4
G. Lov NB Out	2	0	2	150	AG	.0	10.4
H. Lov NB Out	2	150	2	750	AG	.0	10.4
I. MK WB In	750	2	150	2	AG	.0	10.4
J. MK WB In	150	2	0	2	AG	.0	10.4
K. MK WB Out	0	2	-150	2	AG	.0	10.4
L. MK WB Out	-150	2	-750	2	AG	.0	10.4
M. MK EB In	-750	-2	-150	-2	AG	.0	10.4
N. MK EB In	-150	-2	0	-2	AG	.0	10.4
O. MK EB Out	0	-2	150	-2	AG	.0	10.4
P. MK EB Out	150	-2	750	-2	AG	.0	10.4
Q. MK WB L	150	1	0	0	AG	.0	10.4
R. MK EB L	0	0	-150	-1	AG	.0	10.4

S. Lov NB	L	*	1	-150	0	0	*	AG	.0	10.4
T. Lov SB	L	*	0	0	-1	150	*	AG	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: ESRP 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	987	987	868	868	1582	1582	700	700	321	321
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: ESRP 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	479	479	189	189	1032	1032	167	28	208	221

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	479	479	189	189	1032	1032	167	28	208	221
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	-17	17	1.8	*	3.6
2. Recpt 2	*	-19	19	1.8	*	3.4
3. Recpt 3	*	-20	20	1.8	*	3.3
4. Recpt 4	*	35	35	1.8	*	2.5
5. Recpt 5	*	37	37	1.8	*	2.5
6. Recpt 6	*	39	39	1.8	*	2.5

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Future 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Lov SB In	*	-2	750	-2	150	* AG	1268	24.1	.0	10.4
B. Lov SB In	*	-2	150	-2	0	* AG	1268	24.1	.0	10.4
C. Lov SB Out	*	-2	0	-2	-150	* AG	1221	24.1	.0	10.4
D. Lov SB Out	*	-2	-150	-2	-750	* AG	1221	24.1	.0	10.4
E. Lov NB In	*	2	-750	2	-150	* AG	1932	24.1	.0	10.4
F. Lov NB In	*	2	-150	2	0	* AG	1932	24.1	.0	10.4
G. Lov NB Out	*	2	0	2	150	* AG	940	24.1	.0	10.4
H. Lov NB Out	*	2	150	2	750	* AG	940	24.1	.0	10.4
I. MK WB In	*	750	2	150	2	* AG	420	24.1	.0	10.4
J. MK WB In	*	150	2	0	2	* AG	420	24.1	.0	10.4
K. MK WB Out	*	0	2	-150	2	* AG	550	24.1	.0	10.4
L. MK WB Out	*	-150	2	-750	2	* AG	550	24.1	.0	10.4
M. MK EB In	*	-750	-2	-150	-2	* AG	271	24.1	.0	10.4
N. MK EB In	*	-150	-2	0	-2	* AG	271	24.1	.0	10.4
O. MK EB Out	*	0	-2	150	-2	* AG	1180	24.1	.0	10.4
P. MK EB Out	*	150	-2	750	-2	* AG	1180	24.1	.0	10.4
Q. MK WB L	*	150	1	0	0	* AG	217	24.1	.0	10.4
R. MK EB L	*	0	0	-150	-1	* AG	35	24.1	.0	10.4
S. Lov NB L	*	1	-150	0	0	* AG	239	24.1	.0	10.4
T. Lov SB L	*	0	0	-1	150	* AG	253	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Future 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	-17	17	1.8
2. Recpt 2	*	-19	19	1.8
3. Recpt 3	*	-20	20	1.8

4. Recpt 4	*	35	35 1.8
5. Recpt 5	*	37	37 1.8
6. Recpt 6	*	39	39 1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	175.	9.6	.0	.0	1.3	1.5	2.3	1.0	.0	.0
2. Recpt 2	174.	9.1	.0	.0	1.3	1.3	2.0	1.1	.0	.0
3. Recpt 3	174.	8.8	.0	.0	1.1	1.4	2.1	.9	.0	.0
4. Recpt 4	188.	7.5	.0	.0	.1	1.4	1.8	.4	.0	.0
5. Recpt 5	188.	7.3	.0	.0	.1	1.4	1.9	.3	.0	.0
6. Recpt 6	188.	7.2	.0	.0	.0	1.4	1.9	.2	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.6	.0	.0	.3	.0	.0	.0	.0	.2	.0
2. Recpt 2	.0	.0	.5	.0	.0	.3	.0	.0	.0	.0	.3	.0
3. Recpt 3	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0
4. Recpt 4	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0
5. Recpt 5	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0
6. Recpt 6	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Future 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Future 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. Lov SB In	-2	750	-2	150	AG	.0	10.4
B. Lov SB In	-2	150	-2	0	AG	.0	10.4
C. Lov SB Out	-2	0	-2	-150	AG	.0	10.4
D. Lov SB Out	-2	-150	-2	-750	AG	.0	10.4
E. Lov NB In	2	-750	2	-150	AG	.0	10.4
F. Lov NB In	2	-150	2	0	AG	.0	10.4
G. Lov NB Out	2	0	2	150	AG	.0	10.4
H. Lov NB Out	2	150	2	750	AG	.0	10.4
I. MK WB In	750	2	150	2	AG	.0	10.4
J. MK WB In	150	2	0	2	AG	.0	10.4
K. MK WB Out	0	2	-150	2	AG	.0	10.4
L. MK WB Out	-150	2	-750	2	AG	.0	10.4
M. MK EB In	-750	-2	-150	-2	AG	.0	10.4
N. MK EB In	-150	-2	0	-2	AG	.0	10.4
O. MK EB Out	0	-2	150	-2	AG	.0	10.4
P. MK EB Out	150	-2	750	-2	AG	.0	10.4
Q. MK WB L	150	1	0	0	AG	.0	10.4
R. MK EB L	0	0	-150	-1	AG	.0	10.4

S. Lov NB	L	*	1	-150	0	0	*	AG	.0	10.4
T. Lov SB	L	*	0	0	-1	150	*	AG	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: ESRP Future 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	1268	1268	1221	1221	1932	1932	940	940	420	420
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: ESRP Future 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	550	550	271	271	1180	1180	217	35	239	253

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	550	550	271	271	1180	1180	217	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

	*	COORDINATES (M)			*	AVG
RECEPTOR	*	X	Y	Z	*	(PPM)
1. Recpt 1	*	-17	17	1.8	*	3.9
2. Recpt 2	*	-19	19	1.8	*	3.7
3. Recpt 3	*	-20	20	1.8	*	3.5
4. Recpt 4	*	35	35	1.8	*	2.6
5. Recpt 5	*	37	37	1.8	*	2.6
6. Recpt 6	*	39	39	1.8	*	2.5

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Lov SB In	*	-2	750	-2	150	* AG	1270	24.1	.0	10.4
B. Lov SB In	*	-2	150	-2	0	* AG	1270	24.1	.0	10.4
C. Lov SB Out	*	-2	0	-2	-150	* AG	1230	24.1	.0	10.4
D. Lov SB Out	*	-2	-150	-2	-750	* AG	1230	24.1	.0	10.4
E. Lov NB In	*	2	-750	2	-150	* AG	1960	24.1	.0	10.4
F. Lov NB In	*	2	-150	2	0	* AG	1960	24.1	.0	10.4
G. Lov NB Out	*	2	0	2	150	* AG	940	24.1	.0	10.4
H. Lov NB Out	*	2	150	2	750	* AG	940	24.1	.0	10.4
I. MK WB In	*	750	2	150	2	* AG	429	24.1	.0	10.4
J. MK WB In	*	150	2	0	2	* AG	429	24.1	.0	10.4
K. MK WB Out	*	0	2	-150	2	* AG	552	24.1	.0	10.4
L. MK WB Out	*	-150	2	-750	2	* AG	552	24.1	.0	10.4
M. MK EB In	*	-750	-2	-150	-2	* AG	273	24.1	.0	10.4
N. MK EB In	*	-150	-2	0	-2	* AG	273	24.1	.0	10.4
O. MK EB Out	*	0	-2	150	-2	* AG	1210	24.1	.0	10.4
P. MK EB Out	*	150	-2	750	-2	* AG	1210	24.1	.0	10.4
Q. MK WB L	*	150	1	0	0	* AG	225	24.1	.0	10.4
R. MK EB L	*	0	0	-150	-1	* AG	35	24.1	.0	10.4
S. Lov NB L	*	1	-150	0	0	* AG	239	24.1	.0	10.4
T. Lov SB L	*	0	0	-1	150	* AG	253	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	-17	17	1.8
2. Recpt 2	*	-19	19	1.8
3. Recpt 3	*	-20	20	1.8

4. Recpt 4	*	35	35 1.8
5. Recpt 5	*	37	37 1.8
6. Recpt 6	*	39	39 1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	175.	9.6	.0	.0	1.3	1.6	2.3	1.0	.0	.0
2. Recpt 2	174.	9.2	.0	.0	1.3	1.3	2.0	1.1	.0	.0
3. Recpt 3	174.	8.8	.0	.0	1.1	1.4	2.1	.9	.0	.0
4. Recpt 4	188.	7.5	.0	.0	.1	1.4	1.8	.4	.0	.0
5. Recpt 5	188.	7.4	.0	.0	.1	1.4	1.9	.3	.0	.0
6. Recpt 6	188.	7.2	.0	.0	.0	1.4	1.9	.2	.0	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.6	.0	.0	.3	.0	.0	.0	.0	.2	.0
2. Recpt 2	.0	.0	.5	.0	.0	.3	.0	.0	.0	.0	.3	.0
3. Recpt 3	.0	.0	.5	.0	.0	.2	.0	.0	.0	.0	.2	.0
4. Recpt 4	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0
5. Recpt 5	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0
6. Recpt 6	.0	.3	.0	.0	.0	.0	.7	.0	.2	.0	.0	.0

Lovers Lane / Mineral King Avenue

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. Lov SB In	-2	750	-2	150	AG	.0	10.4
B. Lov SB In	-2	150	-2	0	AG	.0	10.4
C. Lov SB Out	-2	0	-2	-150	AG	.0	10.4
D. Lov SB Out	-2	-150	-2	-750	AG	.0	10.4
E. Lov NB In	2	-750	2	-150	AG	.0	10.4
F. Lov NB In	2	-150	2	0	AG	.0	10.4
G. Lov NB Out	2	0	2	150	AG	.0	10.4
H. Lov NB Out	2	150	2	750	AG	.0	10.4
I. MK WB In	750	2	150	2	AG	.0	10.4
J. MK WB In	150	2	0	2	AG	.0	10.4
K. MK WB Out	0	2	-150	2	AG	.0	10.4
L. MK WB Out	-150	2	-750	2	AG	.0	10.4
M. MK EB In	-750	-2	-150	-2	AG	.0	10.4
N. MK EB In	-150	-2	0	-2	AG	.0	10.4
O. MK EB Out	0	-2	150	-2	AG	.0	10.4
P. MK EB Out	150	-2	750	-2	AG	.0	10.4
Q. MK WB L	150	1	0	0	AG	.0	10.4
R. MK EB L	0	0	-150	-1	AG	.0	10.4

S. Lov NB	L	*	1	-150	0	0	*	AG	.0	10.4
T. Lov SB	L	*	0	0	-1	150	*	AG	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: ESRP Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	1270	1270	1230	1230	1960	1960	940	940	429	429
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: ESRP Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	552	552	273	273	1210	1210	225	35	239	253

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	552	552	273	273	1210	1210	225	35	239	253
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	-17	17	1.8	*	3.9
2. Recpt 2	*	-19	19	1.8	*	3.7
3. Recpt 3	*	-20	20	1.8	*	3.5
4. Recpt 4	*	35	35	1.8	*	2.6
5. Recpt 5	*	37	37	1.8	*	2.6
6. Recpt 6	*	39	39	1.8	*	2.5

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP MK and McAuliff Future No 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. McAu SB In	*	-2	750	-2	150	* AG	514	24.1	.0	10.4
B. McAu SB In	*	-2	150	-2	0	* AG	514	24.1	.0	10.4
C.	*	-2	0	-2	-150	* AG	0	24.1	.0	10.4
D.	*	-2	-150	-2	-750	* AG	0	24.1	.0	10.4
E.	*	2	-750	2	-150	* AG	0	24.1	.0	10.4
F.	*	2	-150	2	0	* AG	0	24.1	.0	10.4
G. McAu NB Out	*	2	0	2	150	* AG	690	24.1	.0	10.4
H. McAu NB Out	*	2	150	2	750	* AG	690	24.1	.0	10.4
I. MK WB In	*	750	2	150	2	* AG	537	24.1	.0	10.4
J. MK WB In	*	150	2	0	2	* AG	537	24.1	.0	10.4
K. MK WB Out	*	0	2	-150	2	* AG	431	24.1	.0	10.4
L. MK WB Out	*	-150	2	-750	2	* AG	431	24.1	.0	10.4
M. MK EB In	*	-750	-2	-150	-2	* AG	491	24.1	.0	10.4
N. MK EB In	*	-150	-2	0	-2	* AG	491	24.1	.0	10.4
O. MK EB Out	*	0	-2	150	-2	* AG	421	24.1	.0	10.4
P. MK EB Out	*	150	-2	750	-2	* AG	421	24.1	.0	10.4
Q.	*	150	1	0	0	* AG	0	24.1	.0	10.4
R. MK EB L	*	0	0	-150	-1	* AG	335	24.1	.0	10.4
S.	*	1	-150	0	0	* AG	0	24.1	.0	10.4
T. Lov SB L	*	0	0	-1	150	* AG	265	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP MK and McAuliff Future No 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	-18	18	1.8
2. Recpt 2	*	-20	20	1.8
3. Recpt 3	*	-21	21	1.8

4. Recpt 4	*	24	24	1.8
5. Recpt 5	*	26	26	1.8
6. Recpt 6	*	27	27	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	95.	6.2	.0	.5	.0	.0	.0	.0	.6	.0
2. Recpt 2	95.	6.0	.0	.5	.0	.0	.0	.0	.6	.0
3. Recpt 3	95.	5.9	.0	.5	.0	.0	.0	.0	.6	.0
4. Recpt 4	263.	5.7	.0	.4	.0	.0	.0	.0	.6	.0
5. Recpt 5	263.	5.6	.0	.4	.0	.0	.0	.0	.6	.0
6. Recpt 6	263.	5.5	.0	.4	.0	.0	.0	.0	.5	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.8	.6	.0	.0	.0	.0	.3	.8	.0	.0	.0	.3
2. Recpt 2	.9	.4	.0	.0	.0	.0	.2	.8	.0	.0	.0	.3
3. Recpt 3	.9	.3	.0	.0	.0	.0	.1	.8	.0	.0	.0	.2
4. Recpt 4	.0	.0	.4	.6	.7	.3	.0	.0	.0	.2	.0	.2
5. Recpt 5	.0	.0	.3	.6	.7	.2	.0	.0	.0	.2	.0	.2
6. Recpt 6	.0	.0	.3	.6	.8	.2	.0	.0	.0	.1	.0	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP MK and McAuliff Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP MK and McAuliff Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. McAu SB In	-2	750	-2	150	AG	.0	10.4
B. McAu SB In	-2	150	-2	0	AG	.0	10.4
C.	-2	0	-2	-150	AG	.0	10.4
D.	-2	-150	-2	-750	AG	.0	10.4
E.	2	-750	2	-150	AG	.0	10.4
F.	2	-150	2	0	AG	.0	10.4
G. McAu NB Out	2	0	2	150	AG	.0	10.4
H. McAu NB Out	2	150	2	750	AG	.0	10.4
I. MK WB In	750	2	150	2	AG	.0	10.4
J. MK WB In	150	2	0	2	AG	.0	10.4
K. MK WB Out	0	2	-150	2	AG	.0	10.4
L. MK WB Out	-150	2	-750	2	AG	.0	10.4
M. MK EB In	-750	-2	-150	-2	AG	.0	10.4
N. MK EB In	-150	-2	0	-2	AG	.0	10.4
O. MK EB Out	0	-2	150	-2	AG	.0	10.4
P. MK EB Out	150	-2	750	-2	AG	.0	10.4
Q.	150	1	0	0	AG	.0	10.4
R. MK EB L	0	0	-150	-1	AG	.0	10.4

S.	*	1	-150	0	0 *	AG	.0	10.4
T. Lov SB L	*	0	0	-1	150 *	AG	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: ESRP MK and McAuliff Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	514	514	0	0	0	0	690	690	537	537
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: ESRP MK and McAuliff Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	431	431	491	491	421	421	0	335	0	265

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	431	431	491	491	421	421	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	-18	18	1.8	*	3.2
2. Recpt 2	*	-20	20	1.8	*	3.0
3. Recpt 3	*	-21	21	1.8	*	2.9
4. Recpt 4	*	24	24	1.8	*	2.8
5. Recpt 5	*	26	26	1.8	*	2.7
6. Recpt 6	*	27	27	1.8	*	2.7

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP MK and McAuliff Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. McAu SB In	*	-2	750	-2	150	* AG	514	24.1	.0	10.4
B. McAu SB In	*	-2	150	-2	0	* AG	514	24.1	.0	10.4
C.	*	-2	0	-2	-150	* AG	0	24.1	.0	10.4
D.	*	-2	-150	-2	-750	* AG	0	24.1	.0	10.4
E.	*	2	-750	2	-150	* AG	0	24.1	.0	10.4
F.	*	2	-150	2	0	* AG	0	24.1	.0	10.4
G. McAu NB Out	*	2	0	2	150	* AG	690	24.1	.0	10.4
H. McAu NB Out	*	2	150	2	750	* AG	690	24.1	.0	10.4
I. MK WB In	*	750	2	150	2	* AG	605	24.1	.0	10.4
J. MK WB In	*	150	2	0	2	* AG	605	24.1	.0	10.4
K. MK WB Out	*	0	2	-150	2	* AG	499	24.1	.0	10.4
L. MK WB Out	*	-150	2	-750	2	* AG	499	24.1	.0	10.4
M. MK EB In	*	-750	-2	-150	-2	* AG	609	24.1	.0	10.4
N. MK EB In	*	-150	-2	0	-2	* AG	609	24.1	.0	10.4
O. MK EB Out	*	0	-2	150	-2	* AG	539	24.1	.0	10.4
P. MK EB Out	*	150	-2	750	-2	* AG	539	24.1	.0	10.4
Q.	*	150	1	0	0	* AG	0	24.1	.0	10.4
R. MK EB L	*	0	0	-150	-1	* AG	335	24.1	.0	10.4
S.	*	1	-150	0	0	* AG	0	24.1	.0	10.4
T. Lov SB L	*	0	0	-1	150	* AG	265	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP MK and McAuliff Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	-18	18	1.8
2. Recpt 2	*	-20	20	1.8
3. Recpt 3	*	-21	21	1.8

4. Recpt 4	*	24	24 1.8
5. Recpt 5	*	26	26 1.8
6. Recpt 6	*	27	27 1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	95.	6.6	.0	.5	.0	.0	.0	.0	.6	.0
2. Recpt 2	95.	6.4	.0	.5	.0	.0	.0	.0	.6	.0
3. Recpt 3	95.	6.2	.0	.5	.0	.0	.0	.0	.6	.0
4. Recpt 4	263.	6.0	.0	.4	.0	.0	.0	.0	.6	.0
5. Recpt 5	263.	5.9	.0	.4	.0	.0	.0	.0	.6	.0
6. Recpt 6	263.	5.7	.0	.4	.0	.0	.0	.0	.5	.0

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.9	.6	.0	.0	.0	.0	.3	.9	.0	.0	.0	.3
2. Recpt 2	1.0	.5	.0	.0	.0	.0	.2	.9	.0	.0	.0	.3
3. Recpt 3	1.0	.4	.0	.0	.0	.0	.2	.9	.0	.0	.0	.2
4. Recpt 4	.0	.0	.4	.6	.8	.3	.0	.0	.0	.2	.0	.2
5. Recpt 5	.0	.0	.4	.7	.9	.2	.0	.0	.0	.2	.0	.2
6. Recpt 6	.0	.0	.3	.7	.9	.2	.0	.0	.0	.1	.0	.2

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP MK and McAuliff Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP MK and McAuliff Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. McAu SB In	-2	750	-2	150	AG	.0	10.4
B. McAu SB In	-2	150	-2	0	AG	.0	10.4
C.	-2	0	-2	-150	AG	.0	10.4
D.	-2	-150	-2	-750	AG	.0	10.4
E.	2	-750	2	-150	AG	.0	10.4
F.	2	-150	2	0	AG	.0	10.4
G. McAu NB Out	2	0	2	150	AG	.0	10.4
H. McAu NB Out	2	150	2	750	AG	.0	10.4
I. MK WB In	750	2	150	2	AG	.0	10.4
J. MK WB In	150	2	0	2	AG	.0	10.4
K. MK WB Out	0	2	-150	2	AG	.0	10.4
L. MK WB Out	-150	2	-750	2	AG	.0	10.4
M. MK EB In	-750	-2	-150	-2	AG	.0	10.4
N. MK EB In	-150	-2	0	-2	AG	.0	10.4
O. MK EB Out	0	-2	150	-2	AG	.0	10.4
P. MK EB Out	150	-2	750	-2	AG	.0	10.4
Q.	150	1	0	0	AG	.0	10.4
R. MK EB L	0	0	-150	-1	AG	.0	10.4

S.	*	1	-150	0	0 *	AG	.0	10.4
T. Lov SB L	*	0	0	-1	150 *	AG	.0	10.4

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	514	514	0	0	0	0	690	690	605	605
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	499	499	609	609	539	539	0	335	0	265

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	499	499	609	609	539	539	0	335	0	265
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	-18	18	1.8	*	3.2
2. Recpt 2	*	-20	20	1.8	*	3.0
3. Recpt 3	*	-21	21	1.8	*	2.9
4. Recpt 4	*	24	24	1.8	*	2.8
5. Recpt 5	*	26	26	1.8	*	2.7
6. Recpt 6	*	27	27	1.8	*	2.7

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Noble and Road 156 Future No 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Rd 156 SB In	*	-2	750	-2	150	* AG	463	24.1	.0	10.4
B. Rd 156 SB In	*	-2	150	-2	0	* AG	463	24.1	.0	10.4
C. Rd 156 SB Ou	*	-2	0	-2	-150	* AG	811	24.1	.0	10.4
D. Rd 156 SB Ou	*	-2	-150	-2	-750	* AG	811	24.1	.0	10.4
E. RD 156 NB In	*	2	-750	2	-150	* AG	895	24.1	.0	10.4
F. Rd 156 NB In	*	2	-150	2	0	* AG	895	24.1	.0	10.4
G. Rd 156 NB Ou	*	2	0	2	150	* AG	703	24.1	.0	10.4
H. Rd 156 NB Ou	*	2	150	2	750	* AG	703	24.1	.0	10.4
I. Nobl WB In	*	750	2	150	2	* AG	221	24.1	.0	10.4
J. Nobl WB In	*	150	2	0	2	* AG	221	24.1	.0	10.4
K. Nobl WB Out	*	0	2	-150	2	* AG	498	24.1	.0	10.4
L. Nobl WB Out	*	-150	2	-750	2	* AG	498	24.1	.0	10.4
M. Nobl EB In	*	-750	-2	-150	-2	* AG	679	24.1	.0	10.4
N. Nobl EB In	*	-150	-2	0	-2	* AG	679	24.1	.0	10.4
O. Nobl EB Out	*	0	-2	150	-2	* AG	246	24.1	.0	10.4
P. Nobl EB Out	*	150	-2	750	-2	* AG	246	24.1	.0	10.4
Q. Nobl WB L	*	150	1	0	0	* AG	56	24.1	.0	10.4
R. Nobl EB L	*	0	0	-150	-1	* AG	169	24.1	.0	10.4
S. Rd 156 NB L	*	1	-150	0	0	* AG	308	24.1	.0	10.4
T. Rd 156 SB L	*	0	0	-1	150	* AG	31	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Noble and Road 156 Future No 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	14	-14	1.8
2. Recpt 2	*	16	-16	1.8
3. Recpt 3	*	17	-17	1.8

4. Recpt 4	*	-24	-24	1.8
5. Recpt 5	*	-26	-26	1.8
6. Recpt 6	*	-27	-27	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	275.	8.2	.0	.0	.8	.0	.0	1.0	.0	.0
2. Recpt 2	275.	7.9	.0	.0	.8	.0	.0	.9	.0	.0
3. Recpt 3	275.	7.5	.0	.0	.7	.0	.0	.9	.0	.0
4. Recpt 4	6.	5.9	.7	.3	.0	.0	.0	.0	.2	1.1
5. Recpt 5	6.	5.8	.8	.2	.0	.0	.0	.0	.2	1.1
6. Recpt 6	6.	5.6	.8	.2	.0	.0	.0	.0	.1	1.1

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.5	.8	.9	1.2	.0	.0	.0	.3	.3	.0
2. Recpt 2	.0	.0	.4	.8	.9	1.0	.0	.0	.0	.3	.3	.0
3. Recpt 3	.0	.0	.3	.9	1.0	.8	.0	.0	.0	.2	.3	.0
4. Recpt 4	.0	.0	.4	.0	.0	.6	.0	.0	.0	.2	.0	.0
5. Recpt 5	.0	.0	.4	.0	.0	.6	.0	.0	.0	.1	.0	.0
6. Recpt 6	.0	.0	.4	.0	.0	.5	.0	.0	.0	.1	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Noble and Road 156 Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Noble and Road 156 Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. Rd 156 SB In	-2	750	-2	150	AG	.0	10.4
B. Rd 156 SB In	-2	150	-2	0	AG	.0	10.4
C. Rd 156 SB Ou	-2	0	-2	-150	AG	.0	10.4
D. Rd 156 SB Ou	-2	-150	-2	-750	AG	.0	10.4
E. RD 156 NB In	2	-750	2	-150	AG	.0	10.4
F. Rd 156 NB In	2	-150	2	0	AG	.0	10.4
G. Rd 156 NB Ou	2	0	2	150	AG	.0	10.4
H. Rd 156 NB Ou	2	150	2	750	AG	.0	10.4
I. Nobl WB In	750	2	150	2	AG	.0	10.4
J. Nobl WB In	150	2	0	2	AG	.0	10.4
K. Nobl WB Out	0	2	-150	2	AG	.0	10.4
L. Nobl WB Out	-150	2	-750	2	AG	.0	10.4
M. Nobl EB In	-750	-2	-150	-2	AG	.0	10.4
N. Nobl EB In	-150	-2	0	-2	AG	.0	10.4
O. Nobl EB Out	0	-2	150	-2	AG	.0	10.4
P. Nobl EB Out	150	-2	750	-2	AG	.0	10.4
Q. Nobl WB L	150	1	0	0	AG	.0	10.4
R. Nobl EB L	0	0	-150	-1	AG	.0	10.4

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S. Rd 156 NB L  *    1  -150     0     0 *  AG    .0  10.4
T. Rd 156 SB L  *    0     0    -1   150 *  AG    .0  10.4
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CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 3

JOB: ESRP Noble and Road 156 Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	463	463	811	811	895	895	703	703	221	221
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 4

JOB: ESRP Noble and Road 156 Future No 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	498	498	679	679	246	246	56	169	308	31

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	498	498	679	679	246	246	56	169	308	31
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	14	-14	1.8	*	4.3
2. Recpt 2	*	16	-16	1.8	*	4.0
3. Recpt 3	*	17	-17	1.8	*	3.8
4. Recpt 4	*	-24	-24	1.8	*	3.9
5. Recpt 5	*	-26	-26	1.8	*	3.8
6. Recpt 6	*	-27	-27	1.8	*	3.7

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Noble and Road 156 Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

U= .5 M/S Z0= 100. CM ALT= 101. (M)
BRG= WORST CASE VD= .0 CM/S
CLAS= 7 (G) VS= .0 CM/S
MIXH= 500. M AMB= 2.4 PPM
SIGTH= 5. DEGREES TEMP= 4.4 DEGREE (C)

II. LINK VARIABLES

LINK DESCRIPTION	*	LINK COORDINATES (M) X1	Y1	X2	Y2	* TYPE	VPH	EF (G/MI)	H (M)	W (M)
A. Rd 156 SB In	*	-2	750	-2	150	* AG	487	24.1	.0	10.4
B. Rd 156 SB In	*	-2	150	-2	0	* AG	487	24.1	.0	10.4
C. Rd 156 SB Ou	*	-2	0	-2	-150	* AG	813	24.1	.0	10.4
D. Rd 156 SB Ou	*	-2	-150	-2	-750	* AG	813	24.1	.0	10.4
E. RD 156 NB In	*	2	-750	2	-150	* AG	899	24.1	.0	10.4
F. Rd 156 NB In	*	2	-150	2	0	* AG	899	24.1	.0	10.4
G. Rd 156 NB Ou	*	2	0	2	150	* AG	721	24.1	.0	10.4
H. Rd 156 NB Ou	*	2	150	2	750	* AG	721	24.1	.0	10.4
I. Nobl WB In	*	750	2	150	2	* AG	235	24.1	.0	10.4
J. Nobl WB In	*	150	2	0	2	* AG	235	24.1	.0	10.4
K. Nobl WB Out	*	0	2	-150	2	* AG	511	24.1	.0	10.4
L. Nobl WB Out	*	-150	2	-750	2	* AG	511	24.1	.0	10.4
M. Nobl EB In	*	-750	-2	-150	-2	* AG	679	24.1	.0	10.4
N. Nobl EB In	*	-150	-2	0	-2	* AG	679	24.1	.0	10.4
O. Nobl EB Out	*	0	-2	150	-2	* AG	255	24.1	.0	10.4
P. Nobl EB Out	*	150	-2	750	-2	* AG	255	24.1	.0	10.4
Q. Nobl WB L	*	150	1	0	0	* AG	56	24.1	.0	10.4
R. Nobl EB L	*	0	0	-150	-1	* AG	169	24.1	.0	10.4
S. Rd 156 NB L	*	1	-150	0	0	* AG	308	24.1	.0	10.4
T. Rd 156 SB L	*	0	0	-1	150	* AG	40	24.1	.0	10.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Noble and Road 156 Future Plus 1 HR
RUN: Hour 1 (WORST CASE ANGLE)
POLLUTANT: Carbon Monoxide

III. RECEPTOR LOCATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z
1. Recpt 1	*	14	-14	1.8
2. Recpt 2	*	16	-16	1.8
3. Recpt 3	*	17	-17	1.8

4. Recpt 4	* -24	-24	1.8
5. Recpt 5	* -26	-26	1.8
6. Recpt 6	* -27	-27	1.8

IV. MODEL RESULTS (WORST CASE WIND ANGLE)

RECEPTOR	BRG (DEG)	PRED CONC (PPM)	CONC/LINK (PPM) A	B	C	D	E	F	G	H
1. Recpt 1	275.	8.3	.0	.0	.8	.0	.0	1.0	.0	.0
2. Recpt 2	275.	7.9	.0	.0	.8	.0	.0	.9	.0	.0
3. Recpt 3	275.	7.5	.0	.0	.7	.0	.0	.9	.0	.0
4. Recpt 4	6.	6.0	.8	.3	.0	.0	.0	.0	.2	1.1
5. Recpt 5	6.	5.8	.8	.2	.0	.0	.0	.0	.2	1.1
6. Recpt 6	6.	5.7	.8	.2	.0	.0	.0	.0	.1	1.1

RECEPTOR	CONC/LINK (PPM) I	J	K	L	M	N	O	P	Q	R	S	T
1. Recpt 1	.0	.0	.6	.8	.9	1.2	.0	.0	.0	.3	.3	.0
2. Recpt 2	.0	.0	.4	.9	.9	1.0	.0	.0	.0	.3	.3	.0
3. Recpt 3	.0	.0	.3	.9	1.0	.8	.0	.0	.0	.2	.3	.0
4. Recpt 4	.0	.0	.4	.0	.0	.6	.0	.0	.0	.2	.0	.0
5. Recpt 5	.0	.0	.4	.0	.0	.6	.0	.0	.0	.1	.0	.0
6. Recpt 6	.0	.0	.4	.0	.0	.5	.0	.0	.0	.1	.0	.0

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: ESRP Noble and Road 156 Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

I. SITE VARIABLES

VD= .0 CM/S Z0= 100. CM ALT= 101. (M)
VS= .0 CM/S

II. METEOROLOGICAL CONDITIONS

RUN	U (M/S)	BRG (DEG)	CLASS	AMB (PPM)	MIXH (M)	SIGTH (DEG)	TEMP (C)
1. Hour 1	.5	0.	7 (G)	2.2	500.	5.00	4.4
2. Hour 2	.5	0.	7 (G)	2.2	500.	5.00	4.4
3. Hour 3	.5	0.	7 (G)	2.2	500.	5.00	4.4
4. Hour 4	.5	0.	7 (G)	2.2	500.	5.00	4.4
5. Hour 5	.5	0.	7 (G)	2.2	500.	5.00	4.4
6. Hour 6	.5	0.	7 (G)	2.2	500.	5.00	4.4
7. Hour 7	.5	0.	7 (G)	2.2	500.	5.00	4.4
8. Hour 8	.5	0.	7 (G)	2.2	500.	5.00	4.4

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 2

JOB: ESRP Noble and Road 156 Future Plus 8 HR
RUN: (MULTI-RUN)
POLLUTANT: Carbon Monoxide

III. LINK GEOMETRY

LINK DESCRIPTION	LINK COORDINATES (M) X1	Y1	X2	Y2	TYPE	H (M)	W (M)
A. Rd 156 SB In	-2	750	-2	150	AG	.0	10.4
B. Rd 156 SB In	-2	150	-2	0	AG	.0	10.4
C. Rd 156 SB Ou	-2	0	-2	-150	AG	.0	10.4
D. Rd 156 SB Ou	-2	-150	-2	-750	AG	.0	10.4
E. RD 156 NB In	2	-750	2	-150	AG	.0	10.4
F. Rd 156 NB In	2	-150	2	0	AG	.0	10.4
G. Rd 156 NB Ou	2	0	2	150	AG	.0	10.4
H. Rd 156 NB Ou	2	150	2	750	AG	.0	10.4
I. Nobl WB In	750	2	150	2	AG	.0	10.4
J. Nobl WB In	150	2	0	2	AG	.0	10.4
K. Nobl WB Out	0	2	-150	2	AG	.0	10.4
L. Nobl WB Out	-150	2	-750	2	AG	.0	10.4
M. Nobl EB In	-750	-2	-150	-2	AG	.0	10.4
N. Nobl EB In	-150	-2	0	-2	AG	.0	10.4
O. Nobl EB Out	0	-2	150	-2	AG	.0	10.4
P. Nobl EB Out	150	-2	750	-2	AG	.0	10.4
Q. Nobl WB L	150	1	0	0	AG	.0	10.4
R. Nobl EB L	0	0	-150	-1	AG	.0	10.4

```
S. Rd 156 NB L  *    1  -150     0     0 *  AG    .0  10.4
T. Rd 156 SB L  *    0     0    -1   150 *  AG    .0  10.4
```



```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   3

                JOB: ESRP Noble and Road 156 Future Plus 8 HR
                RUN: (MULTI-RUN)
         POLLUTANT: Carbon Monoxide
```

IV. EMISSIONS AND VEHICLE VOLUMES

RUN		LINK A	B	C	D	E	F	G	H	I	J
1	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
2	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
3	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
4	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
5	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
6	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
7	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
8	VPH	487	487	813	813	899	899	721	721	235	235
	EF	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.


```
           CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
                    JUNE 1989 VERSION
                    PAGE   4

                JOB: ESRP Noble and Road 156 Future Plus 8 HR
                RUN: (MULTI-RUN)
         POLLUTANT: Carbon Monoxide
```

IV. EMISSIONS AND VEHICLE VOLUMES (CONT.)

RUN		LINK K	L	M	N	O	P	Q	R	S	T
1	VPH	511	511	679	679	255	255	56	169	308	40

	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
2	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
3	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
4	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
5	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
6	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
7	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.
		*										
8	VPH	*	511	511	679	679	255	255	56	169	308	40
	EF	*	24.	24.	24.	24.	24.	24.	24.	24.	24.	24.

V. RECEPTOR LOCATIONS AND MULTI-RUN AVERAGE CONCENTRATIONS

RECEPTOR	*	COORDINATES (M) X	Y	Z	*	AVG (PPM)
1. Recpt 1	*	14	-14	1.8	*	4.4
2. Recpt 2	*	16	-16	1.8	*	4.1
3. Recpt 3	*	17	-17	1.8	*	3.9
4. Recpt 4	*	-24	-24	1.8	*	3.9
5. Recpt 5	*	-26	-26	1.8	*	3.8
6. Recpt 6	*	-27	-27	1.8	*	3.8

APPENDIX E
ISR Fee Estimator Worksheets

Off-site Emissions Estimator Worksheet

2/21/2019

Applicant/Business Name:	City of Visalia
Project Name:	East Side Regional Park
Project Location:	City of Visalia
District Project ID No.:	

Project Construction Emissions

			NOx				PM10			
Project Phase Name	ISR Phase	Construction Start Date	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)
ESRP	1	1/1/2017	7.4385	7.4385	0.0000	1.4877	0.3422	0.3422	0.0000	0.1540
	2				0.0000	0.0000			0.0000	0.0000
	3				0.0000	0.0000			0.0000	0.0000
	4				0.0000	0.0000			0.0000	0.0000
	5				0.0000	0.0000			0.0000	0.0000
	6				0.0000	0.0000			0.0000	0.0000
	7				0.0000	0.0000			0.0000	0.0000
	8				0.0000	0.0000			0.0000	0.0000
	9				0.0000	0.0000			0.0000	0.0000
	10				0.0000	0.0000			0.0000	0.0000
		Total	**7.4385**	**7.4385**	**0.0000**	**1.4877**	**0.3422**	**0.3422**	**0.0000**	**0.1540**

Total Achieved On-Site Reductions (tons)

ISR Phase	NOx	PM10
1	0.0000	0.0000
2	0.0000	0.0000
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	**0.0000**	**0.0000**

Project Operations Emissions (Area + Mobile)

			NOx				PM10			
Project Phase Name	ISR Phase	Operation Start Date	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)	Unmitigated Baseline (TPY)	Mitigated Baseline (TPY)	Achieved Onsite Reductions (tons)	Required Offsite Reductions (tons)
ESRP	1	1/1/2019	5.5648	5.5648	0.0000	13.9120	0.0209	0.0209	0.0000	0.1045
	2				0.0000	0.0000			0.0000	0.0000
	3				0.0000	0.0000			0.0000	0.0000
	4				0.0000	0.0000			0.0000	0.0000
	5				0.0000	0.0000			0.0000	0.0000
	6				0.0000	0.0000			0.0000	0.0000
	7				0.0000	0.0000			0.0000	0.0000
	8				0.0000	0.0000			0.0000	0.0000
	9				0.0000	0.0000			0.0000	0.0000
	10				0.0000	0.0000			0.0000	0.0000
		Total	**5.5648**	**5.5648**	**0.0000**	**13.9120**	**0.0209**	**0.0209**	**0.0000**	**0.1045**

Total Required Off-Site Reductions (tons)

ISR Phase	NOx	PM10
1	15.3997	0.2585
2	0.0000	0.0000
3	0.0000	0.0000
4	0.0000	0.0000
5	0.0000	0.0000
6	0.0000	0.0000
7	0.0000	0.0000
8	0.0000	0.0000
9	0.0000	0.0000
10	0.0000	0.0000
Total	**15.3997**	**0.2585**

Note: TPY = Tons Per Year

Fee Estimator Worksheet

2/21/2019

Applicant/Business Name:	City of Visalia
Project Name:	East Side Regional Park
Project Location:	City of Visalia
District Project ID No.:	

NOTES:

(1) The start date for each ISR phase is shown in TABLE 1.

(2) If you have chosen a **ONE-TIME** payment for the project, then the total amount due for ALL PHASES is shown under TABLE 2.

(3) If you have chosen a **DEFERRED** payment schedule for the project, then the total amount due for a specific year is shown in TABLE 3 according to the schedule in TABLE 1.

* If you have not provided a proposed payment date, the District sets a default invoice date of 60 days prior to start of the ISR phase.

TABLE 1 - PROJECT INFORMATION

Project Phase name	ISR Phase	Start Date per Phase	Scheduled Payment Date*	Pollutant	Required Reductions (tons)	Project Reductions (tons)
0	1	1/1/17		NOx	15.3997	15.3997
				PM10	0.2585	0.2585
	2			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	3			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	4			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	5			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	6			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	7			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	8			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	9			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
	10			NOx	0.0000	0.0000
				PM10	0.0000	0.0000
TOTAL (tons)				NOx	15.3997	15.3997
				PM10	0.2585	0.2585

TABLE 2 - NO FDS

2015
15.3997
0.2585
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
0.0000
15.3997
0.2585

TABLE 3 - APPROVED FEE DEFERRAL SCHEDULE (FDS) BY PAYMENT YEAR

2014	2015	2016	2017	2018	2019	2020	2021	2022
				15.3997				
				0.2585				
0.0000	0.0000	0.0000	0.0000	15.3997	0.0000	0.0000	0.0000	0.0000
0.0000	0.0000	0.0000	0.0000	0.2585	0.0000	0.0000	0.0000	0.0000

Rule 9510 Fee Schedule ($/ton)

Year	NOx	PM10
2015 and beyond	$9,350	$9,011

Offsite Fee by Pollutant by Year ($)	NOx	$143,987
	PM10	$2,329
Administrative Fee by Year ($)		$5,852.64
Offsite Mitigation Fee by Year ($)		$152,168.64
Total Project Offsite Fee ($)		$152,168.64

$0	$0	$0	$0	$143,987	$0	$0	$0	$0
$0	$0	$0	$0	$2,329	$0	$0	$0	$0
$0.00	$0.00	$0.00	$0.00	$5,852.64	$0.00	$0.00	$0.00	$0.00
$0.00	$0.00	$0.00	$0.00	$152,168.64	$0.00	$0.00	$0.00	$0.00
$152,168.64								

Appendix D. Biological Evaluation

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

BIOLOGICAL EVALUATION
EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT
VISALIA, TULARE COUNTY, CALIFORNIA

Prepared by

LIVE OAK ASSOCIATES, INC.

Austin Pearson, Director of Ecological Services
Wendy Fisher, Senior Project Manager and Staff Ecologist
Rebekah Jensen, Project Manager and Staff Ecologist

Prepared for

Rick Darnley
Provost & Pritchard Consulting Group
130 N. Garden Street
Visalia, CA 93291

June 6, 2019 PN 1911-02

Oakhurst: P.O. Box 2697 • 39930 Sierra Way, Suite B • Oakhurst, CA 93644 • Phone: (559) 642-4880 • (559) 642-4883
San Jose: 6840 Via Del Oro, Suite 220 • San Jose, CA 95119 • Phone: (408) 224-8300 • Fax: (408) 224-1411
Truckee: 11050 Pioneer Trail, Suite 203 • Truckee, CA 96161 • Phone: (530) 214-8947
www.loainc.com

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted an investigation of the biological resources of a 290 acre site proposed for a regional park and a groundwater recharge basin project in Visalia, Tulare County, California, and evaluated likely impacts to such resources resulting from site improvements. The following report is an analysis of impacts to the biological resources on or within the vicinity of the project sites. On December 29 and 30, 2014, LOA biologists Wendy Fisher and Rebekah Jensen surveyed the site for biotic habitats, the plants and animals occurring in those habitats, and significant habitat values that may be protected by state and federal law.

Two seasonal channels pass through the project site: Mill Creek, and Packwood Creek. Biotic habitats/land uses identified within the boundaries of the project site include pecan/walnut orchard, ruderal (disturbed), seasonal channel, irrigation ditch (Oakes Ditch, Fleming Ditch and unnamed ditch), agricultural basin, and vineyard. A mix of urban and rural lands consisting of agricultural, commercial, and residential surrounds the site, within a region dominated by similar lands.

The project site does not provide suitable habitat for locally occurring special status plant species; hence, the proposed project will not impact special status plants. Project impacts will also be less than significant for wildlife movement corridors, and many special status animal species that may regularly or occasionally forage or nest on the study area.

The burrowing owl, San Joaquin kit fox, American badger, roosting bats, white-tailed kite and other raptors, loggerhead shrike and other migratory birds, may occur onsite and have the potential to suffer construction related mortality, which would be considered a significant impact. Project avoidance of native oak trees, active nests, dens, and roost sites identified during preconstruction surveys, and implementation of avoidance, minimization, and mitigation measures will ensure that potential impacts to all special status animal species and native oaks are reduced to a less than significant level. Furthermore, impacts to jurisdictional waters are considered potentially significant. Acquistion of applicable permits and compliance with permit conditions would reduce potentially significant impacts to waters of the U.S. and State to a less than significant level. Impacts to water quality will be reduced to a less than significant level through development and implementation of a Storm Water Pollution Prevention Plan.

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2.4.2 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened 29
2.4.3 Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern 30
2.4.4 American Badger (*Taxidea taxus).* Federal Listing Status: None; State Listing Status: Species of Special Concern 31

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1.0 INTRODUCTION

The technical report that follows describes the biotic resources of the approximately 290-acre site proposed for a regional park and groundwater recharge facilities, and evaluates possible impacts to those resources that could result from project implementation. The site is located north of State Route 198, east of Southern California Edison (SCE) powerlines, south of Houston Avenue (State Route 216), and west of Road 152 in Visalia, Tulare County (Figure 1). The southern half of the site lies within the City limits of Visalia and the northern half currently lies within County jurisdiction. The project site may be found on the *Exeter* quadrangle in the western half of Section 26 of Township 18 south, Range 25 east, Mount Diablo Base and Meridian (Figure 2).

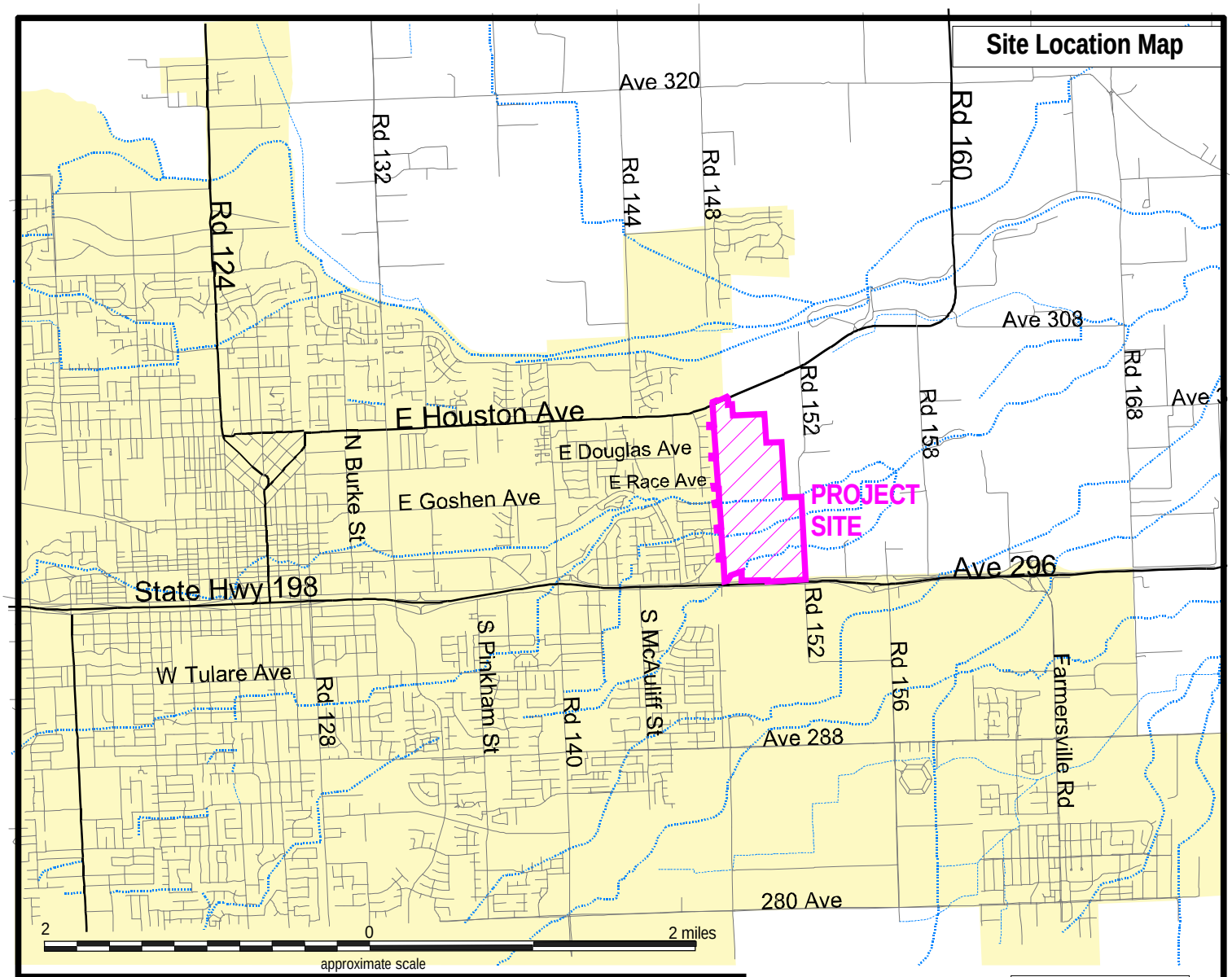
Two seasonal channels traverse the property: Mill Creek and Packwood Creek. Three irrigation ditches traverse a portion of and terminate on the property: Fleming, Oakes and unnamed. The unnamed ditch originates on the property as a bifurcation of Oakes Ditch.

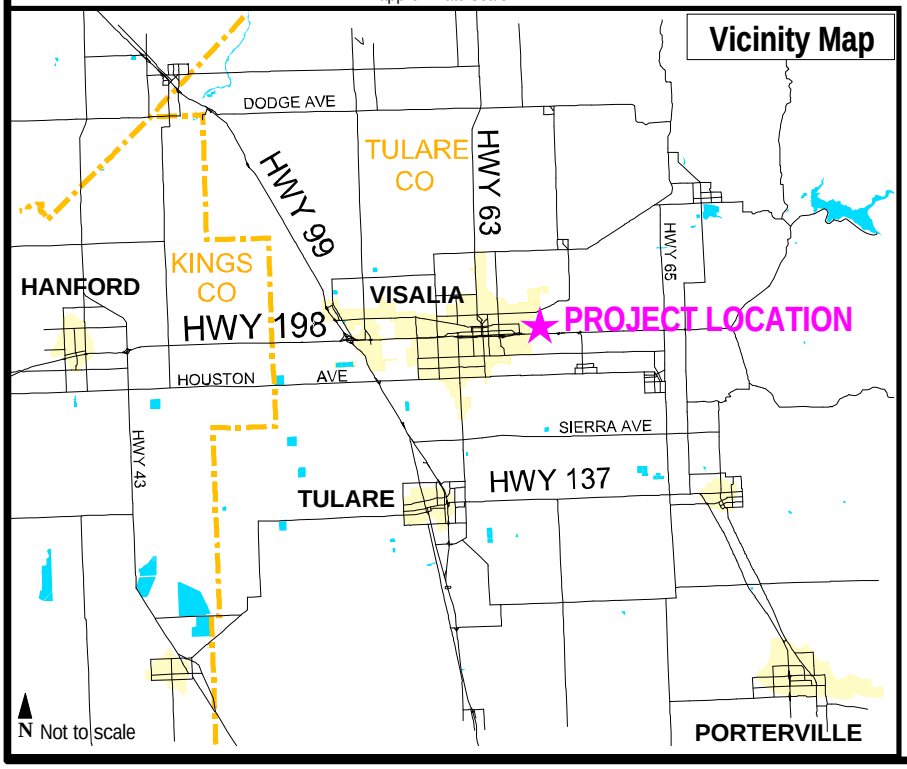
Presently, the vast majority of the site consists of walnut and pecan orchards.

1.1 PROJECT DESCRIPTION

The City of Visalia proposes to design and construct the East Side Regional Park and Groundwater Recharge Project in two phases. The ultimate intent of the project is to co-locate regional park amenities amongst functional recharge basins. The site is the optimal location for development of both groundwater recharge and stormwater layoff basins as it is upstream of the City in terms of both groundwater and surface-water flow. Figure 3a depicts the locations for the groundwater recharge and stormwater layoff basins, which is Phase 1 of the project. Figure 3b depicts the conceptual master plan at final buildout (Phase II).

Phase 1 design will include new control structures to divert water from Mill and Packwood Creeks into the basins under gravity flow. Typical irrigation flows in Mill Creek are 75 to 130 cubic feet per second (CFS) and flood flows are up to 300 CFS. Typical irrigation flows in Packwood Creek are 150 CFS with flood flows up to 350 CFS. It is anticipated that water will be available for recharge on average one out of every three years. During these years, there may be



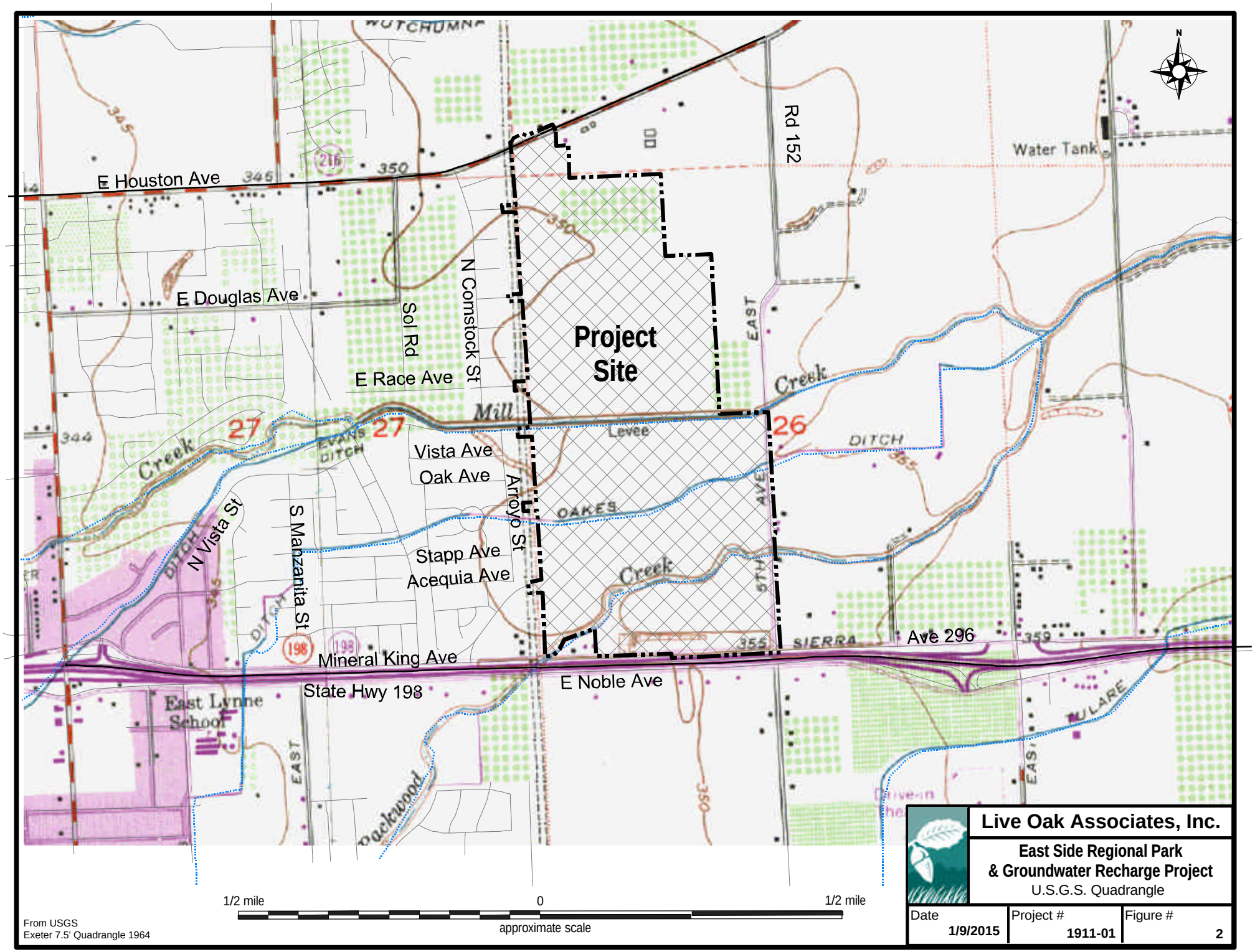


Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

Site / Vicinity Map

Date	Project #	Figure #
1/9/2015	1911-01	1



Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

U.S.G.S. Quadrangle

Date	Project #	Figure #
1/9/2015	1911-01	2

water in one or both creeks through September. June and July have had the highest historical flow rates.

During Phase II, the City intends to integrate the groundwater recharge basins into the park master plan as aesthetic features. The basins will be designed for multiple uses including stormwater layoff and active and passive recreational uses, to the extent practicable. The master plan allocates 148 acres for the regional park and 104 acres for recharge area. The park design will incorporate the two seasonal channels flowing through the site and the recharge basins as aesthetic amenities, with irregular shapes and 6:1 sidewall slopes. The recharge basins will be integrated into the park design with multiple uses, including at least some with recreational play, to the extent practical, while retaining their principal purpose as recharge and layoff basins. Build-out of Tower Road (148 alignment) as a new arterial roadway, just east of the SCE power lines, is also proposed during Phase II.

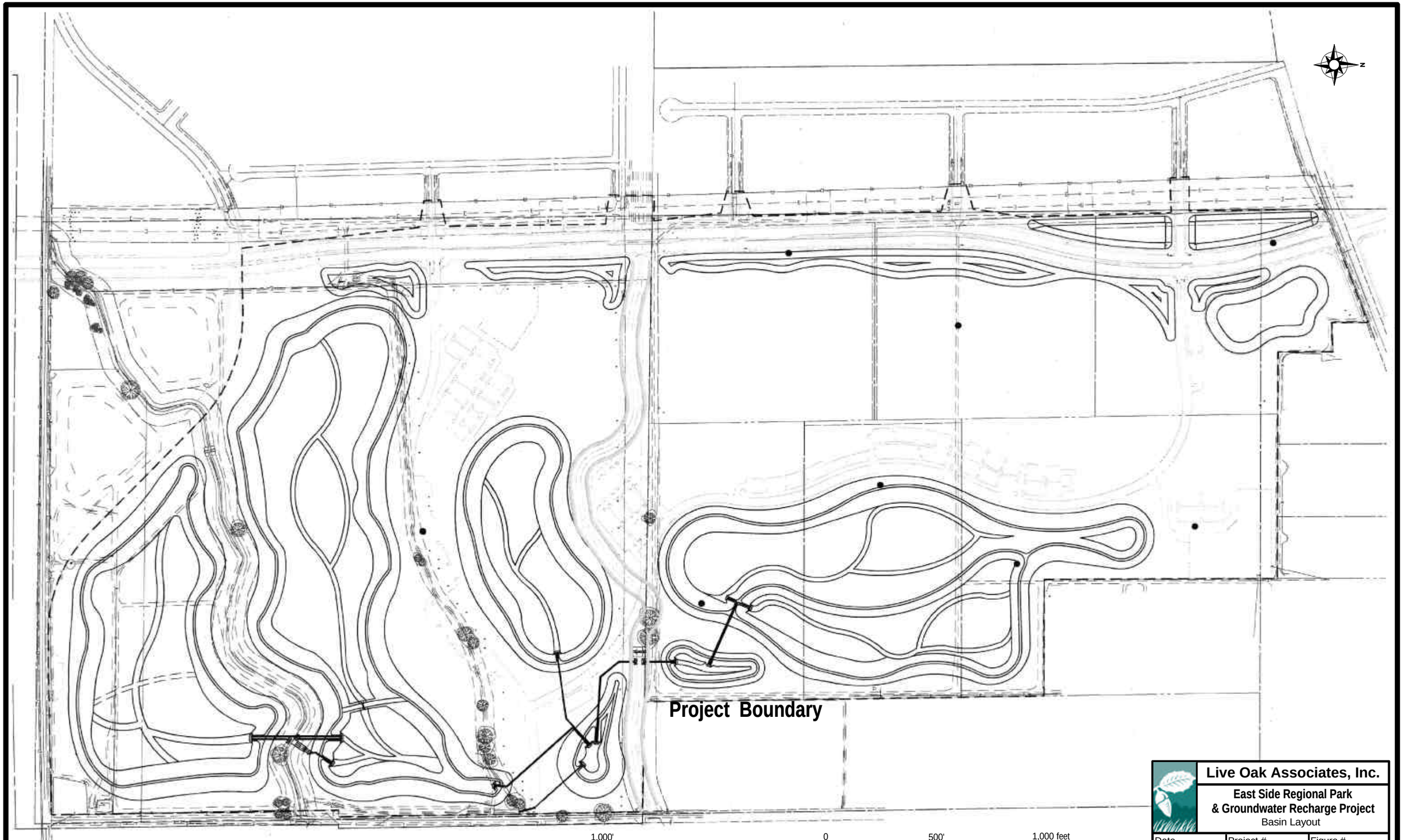
1.2 REPORT OBJECTIVES

Construction of a regional park and groundwater recharge facilities may modify biotic habitats used by sensitive plant and wildlife species. In such cases, site development may be regulated by state or federal agencies, subject to provisions of the California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA), and/or covered by policies and ordinances of Tulare County. This report addresses issues related to: 1) sensitive biotic resources occurring on the project sites; 2) the federal, state, and local laws regulating such resources; and 3) mitigation measures that may be required to reduce the magnitude of anticipated impacts and/or comply with permit requirements of state and federal resource agencies. As such, the objectives of this report are to:

- Summarize all site-specific information related to existing biological resources.
- Make reasonable inferences about the biological resources that could occur onsite based on habitat suitability and the proximity of the sites to a species' known range.
- Summarize all state and federal natural resource protection laws that may be relevant to possible future site development.

- Identify and discuss project impacts to biological resources likely to occur on the sites within the context of CEQA, NEPA, or any state or federal laws.

- Identify avoidance and mitigation measures that would reduce the magnitude of project impacts in a manner consistent with the requirements of CEQA and NEPA and that are



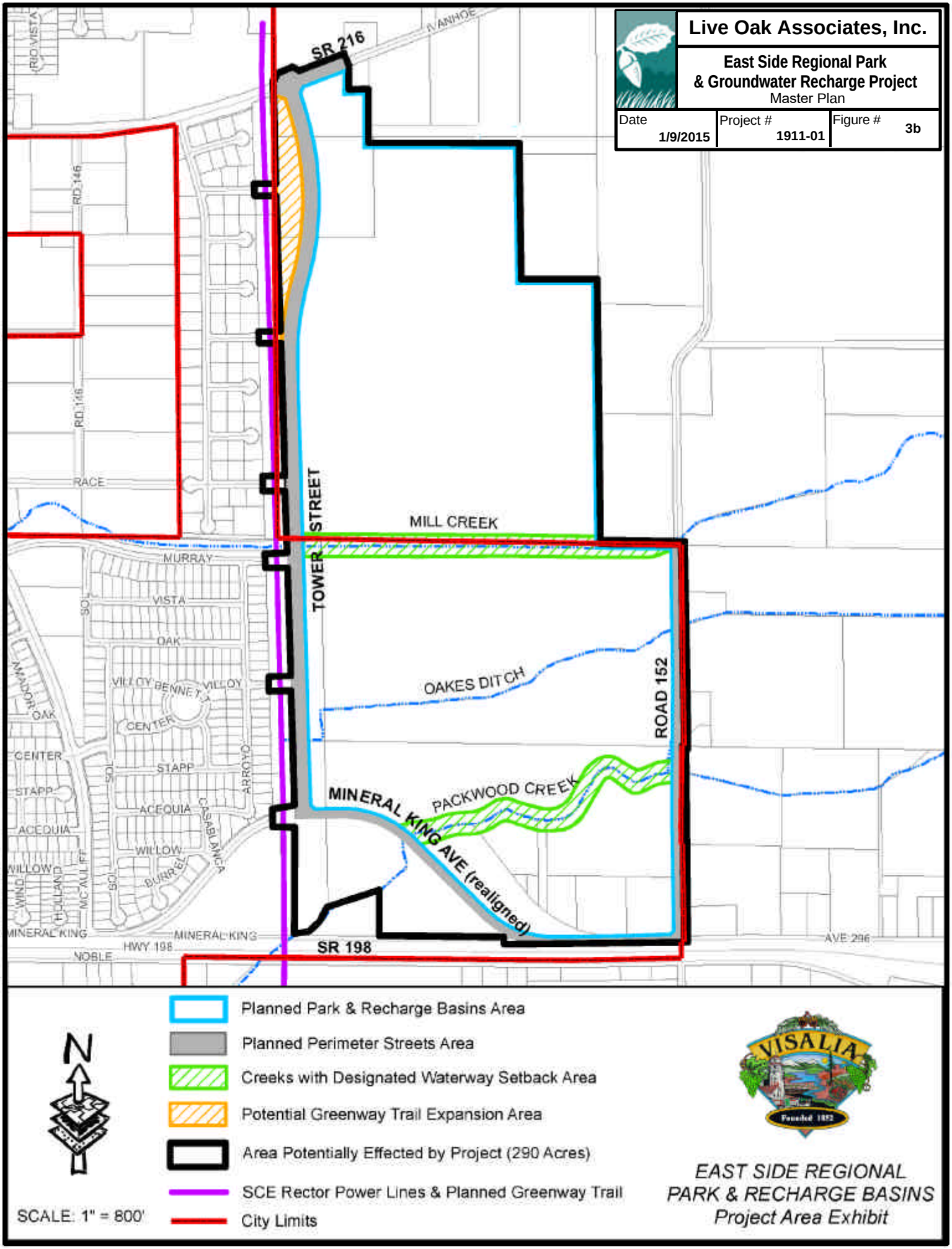
Map Source: Provost & Pritchard

Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

Basin Layout

Date	Project #	Figure #
6/07/2016	**1911-01**	**3a**


Live Oak Associates, Inc.
East Side Regional Park
& Groundwater Recharge Project
Master Plan
Date 1/9/2015
Project # 1911-01
Figure # 3b
SR 216
IVANHOE
RIO VISTA
RD 146
RACE
MILL CREEK
TOWER STREET
MURRAY
VISTA
OAK
VILLOY
BENNETT
CENTER
STAPP
ACEQUIA
WILLOW
BURREL
CASABLANCA
ARROYO
SOL
AMADOR
MC AULIFF
HOLLAND
WIND
MINERAL KING
HWY 198
NOBLE
SR 198
OAKES DITCH
ROAD 152
PACKWOOD CREEK
MINERAL KING AVE (realigned)
AVE 296
Planned Park & Recharge Basins Area
Planned Perimeter Streets Area
Creeks with Designated Waterway Setback Area
Potential Greenway Trail Expansion Area
Area Potentially Effected by Project (290 Acres)
SCE Rector Power Lines & Planned Greenway Trail
City Limits
N
SCALE: 1" = 800'
VISALIA
Founded 1852
EAST SIDE REGIONAL
PARK & RECHARGE BASINS
Project Area Exhibit

generally consistent with recommendations of the resource agencies regulating affected biological resources.

1.3 STUDY METHODOLOGY

The analysis of impacts, as discussed in Section 3.0 of this report, is based on the known and potential biotic resources of the project sites discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) the *California Natural Diversity Data Base* (CDFW 2016), (2) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2016), and (3) manuals, reports, and references related to plants and animals of the San Joaquin Valley region. Field surveys of the project site were conducted on December 29 and 30, 2014 by LOA ecologists Wendy Fisher and Rebekah Jensen. This survey consisted of walking or driving through accessible portions of the project site, scanning non-accessible areas and surrounding lands with binoculars, identifying the principal land uses, identifying constituent plants and animals of each land use type, and mapping habitat suitable for special status species and other sensitive biological resources.

Comprehensive surveys for sensitive biological resources were not conducted for this study. Field surveys conducted for this study were sufficient to assess the significance of possible biological impacts associated with the development of the project site with water storage, regulation facilities and irrigation infrastructure, and to assess the need for more detailed studies that could be warranted if potentially sensitive biotic resources were identified in this initial survey.

2.0 EXISTING CONDITIONS

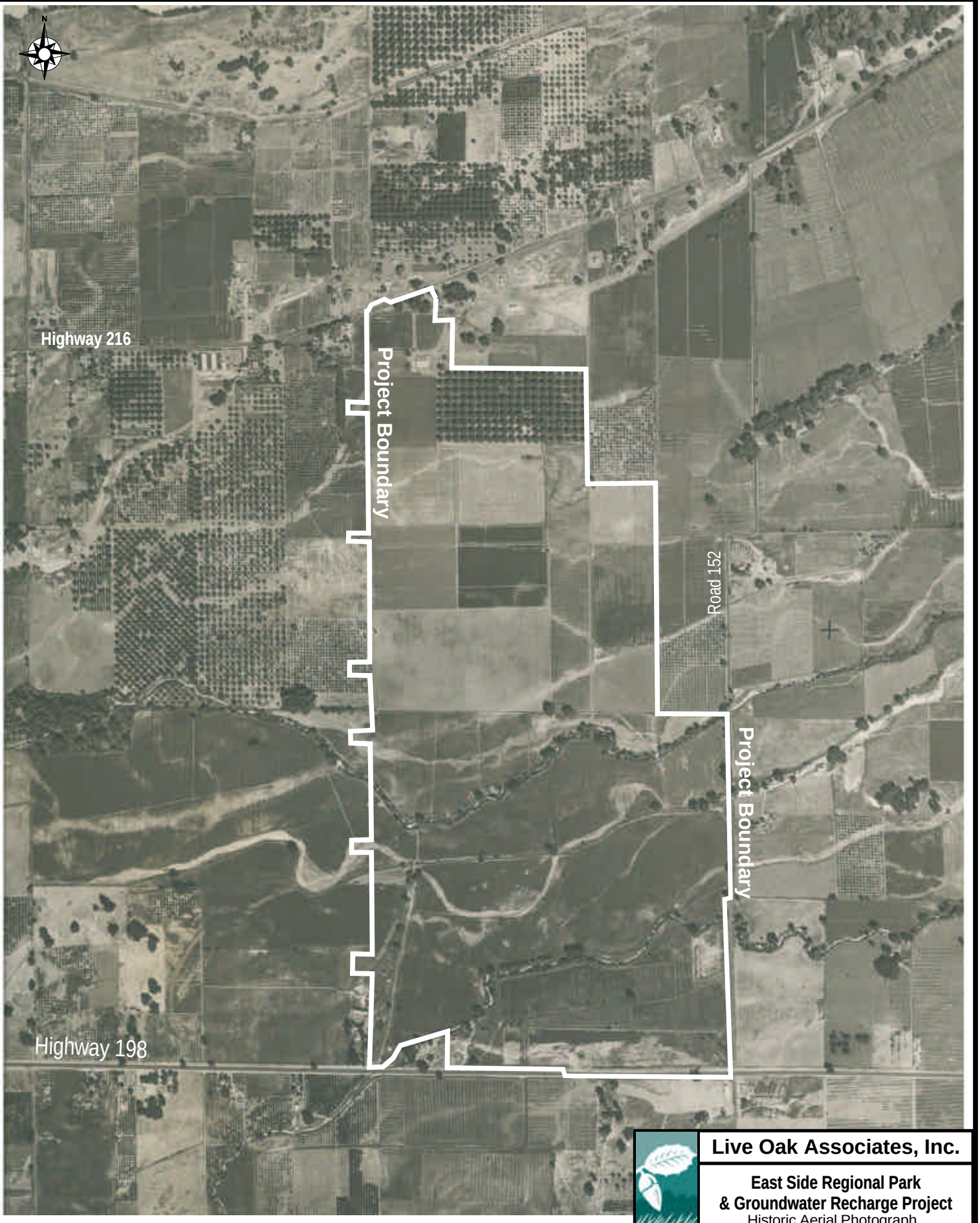
2.1 REGIONAL SETTING

The study area is located in a portion of the central San Joaquin Valley that has, for decades, experienced intensive agricultural and urban disturbances. Current agricultural endeavors in the region include orchards, row crops, and dairies. The project area lies east and north of the City itself, and is surrounded by agricultural lands, rangeland, residential and commercial areas.

Like most of California, the central San Joaquin Valley has a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely rise much above 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the project site is about 6-8 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Stormwater readily infiltrates the soils of and surrounding the project site.

The two seasonal channels traversing the site are located south of the Kings River and north of the Tule River. The Kings and Tule Rivers, along with these two waterways (Mill Creek and Packwood Creek), historically drained into the Tulare Lake. These waterways contained large areas of riparian, wetland, and aquatic ecosystems that supported large populations of diverse native plants and animals. An historic aerial photo from 1937 is presented as Figure 4. Presently, these waterways support only a fraction of the riparian habitats that once were supported, and aquatic habitat has been greatly degraded from agricultural runoff and controlled flows. In essence, these waterways have been reduced to a series of distributary channels supplying water to farmland in the region. Tulare Lake has long been drained and converted to farmland and urban uses.

Native plant and animal species once abundant in the region have become locally extirpated or have experienced large reductions in their populations due to conversion of upland, riparian, and aquatic habitats to agricultural and urban uses. Remaining native habitats are particularly valuable to native wildlife species including special status species that still persist in the region.



Source:
Agriculture Adjustment Admisinstation
Photo Date 09/11/1937

1,000' 0 1,000 feet
approximate scale

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East Side Regional Park & Groundwater Recharge Project
Historic Aerial Photograph

Date	Project #	Figure #
6/6/2019	1911-02	4

As previously noted, the study area is relatively level, with the exception of the few agricultural basins on the site. Soils of the study area include two soil types from two soil series (Table 1). These soils have been significantly disturbed by years of agricultural practices, road building, and the leveeing of the three on-site channels. As a result, the soils of the site have no particular significance to biological resources potentially occurring on the site.

TABLE 1. SOILS OF THE STUDY AREA.

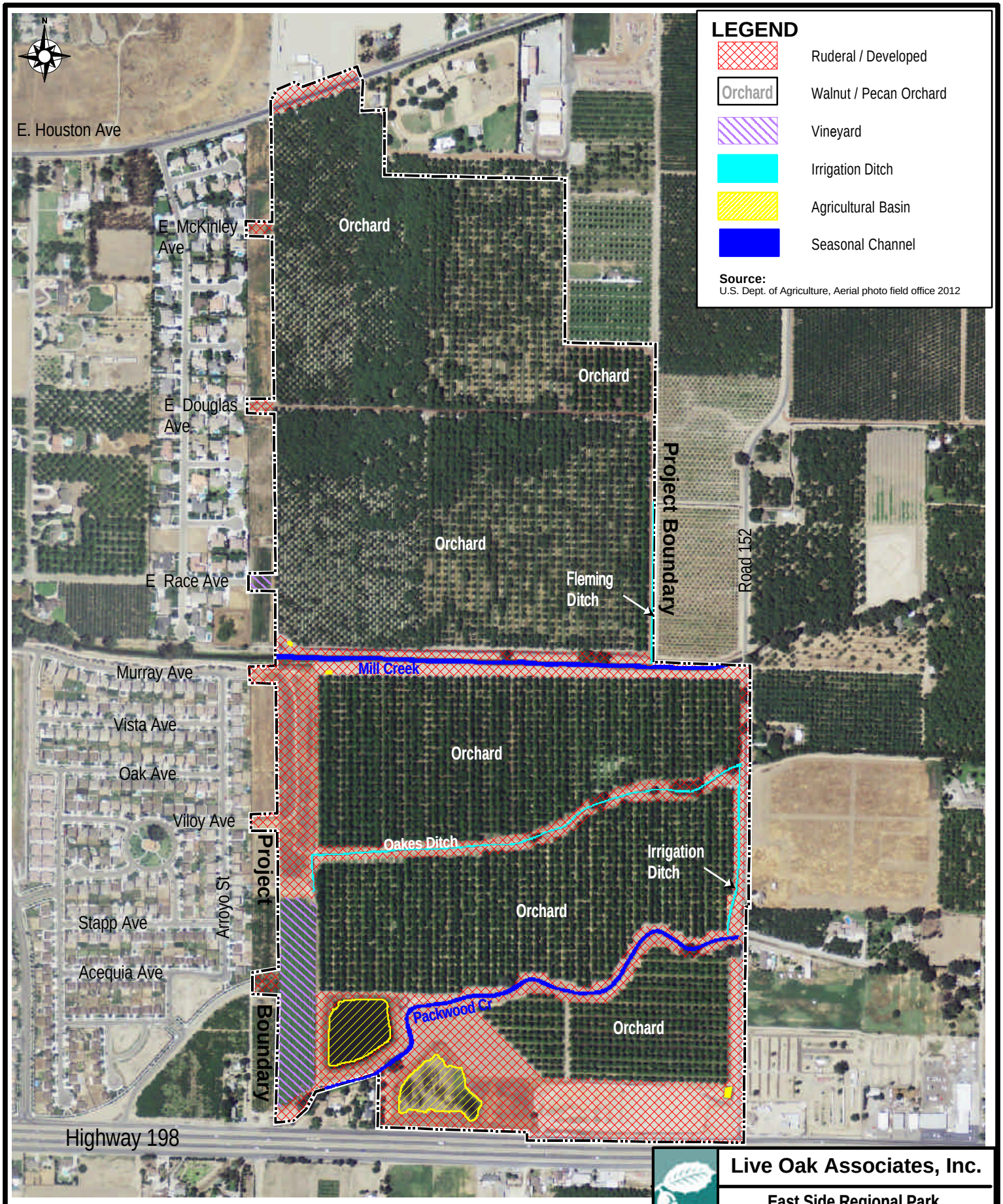
Soil Series	Parent Material	Drainage	Hydric?
Grangeville sandy loam, drained, 0-2% slopes	Alluvium derived from Granite	Somewhat poorly drained	Yes, in depressions
Nord fine sandy loam, 0-2% slopes	Alluvium derived from Granite and sedimentary rocks	Well drained	Yes, in depressions

2.2 LAND USES/BIOTIC HABITATS

Six land uses/biotic habitats have been identified on the project site, including walnut/pecan orchard, vineyard, ruderal/developed, irrigation ditch, agricultural basin, and seasonal channel (Mill Creek and Packwood Creek). A list of the vascular plant species observed within the project site and the terrestrial vertebrates using, or potentially using, the site is provided in Appendices A and B, respectively. Selected photographs of the project site are presented in Appendix C. Land uses/biotic habitats of the project site are displayed in Figure 5.

2.2.1 Pecan/Walnut Orchard

The orchard north of Mill Creek is comprised of mature English walnut (*Juglans regia*) and south of Mill Creek is comprised of mature pecan (*Carya illinoinensis*). The orchards are highly maintained and at the time of the site surveys were being harvested. The understory of the orchards was dominated by weeds common to the vicinity including common chickweed (*Stellaria media*), shepherds purse (*Capsella bursa-pastoris*),



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East Side Regional Park & Groundwater Recharge Project

Biotic Habitats

Date	Project #	Figure #
6/04/2019	1911-02	5

prickly lettuce (*Lactuca serriola*), annual bluegrass (*Poa annua*) and toothed medic (*Medicago polymorpha*).

Due to intensive agricultural disturbance and the lack of aquatic habitat within the orchards of the project site, the orchards provide marginal habitat for amphibians; however, Pacific tree frogs (*Pseudacris regilla*) and western toads (*Bufo boreas*) may disperse through this habitat during the winter and spring. A limited number of reptile species would be expected to forage in the orchards due to the lack of sun required by these species for thermal regulation. The western fence lizard (*Sceloporus occidentalis*), Pacific gopher snake (*Pituophis catenifer catenifer*), and common kingsnake (*Lampropeltis getula*) may occasionally occur here.

Orchards provide foraging habitat and cover for a number of avian species, and mature orchards may also be used for nesting. Resident birds that may be expected to forage and possibly nest in the orchards include the mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), and western scrub jay (*Aphelocoma californica*), all observed during the field survey. Winter migrants such as the white-crowned sparrow (*Zonotrichia leucorphrys*) and yellow-rumped warbler (*Setophaga coronata*) may also occur in this habitat, and were also observed during the field survey. The western kingbird (*Tyrannis verticalis*) is a common summer migrant that may nest in mature orchard trees adjacent to open habitat.

A few small mammal species would be expected to occur within the orchards of the project site. These include deer mice (*Peromyscus maniculatus*), California voles (*Microtus californicus*), house mice (*Mus musculus*), Botta's pocket gophers (*Thomomys bottae*), and Audubon cottontail rabbits (*Sylvilagus audubonii*). Various species of bat may forage over orchard habitat for flying insects or glean insects from the leaves of orchard trees.

Foraging raptors and mammalian predators may occur in on-site orchards from time to time. Raptors adapted to hunt within the tree canopy such as Cooper's hawks (*Accipiter cooperii*) and sharp-shinned hawks (*Accipiter striatus*) may forage for small birds in mature orchards of the site; a sharp-shinned hawk was observed during the field survey. Mammalian predators

potentially occurring in orchards of the project site include the raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*) and red fox (*Vulpes vulpes*).

2.2.2 Ruderal/Developed

Ruderal (disturbed) areas were identified along the agricultural/levee roads lining the channels, orchards, and basins, and constituted the entirety of the swap meet parking area along the southern boundary of the site, the transmission line corridor along the western boundary of the site, and the large vacant lot immediately east of the power lines between Mill Creek and Oakes Ditch. These ruderal areas were often completely barren of vegetation due to the high level of disturbance. Portions of ruderal areas of the site that were somewhat vegetated included the power line corridor, the adjacent vacant lot, and areas surrounding the basins. These areas were dominated by ripgut (*Bromus diandrus*), black medic (*Medicago lipulina*), fiddleneck (*Amsinckia* sp.), broad leaved filaree (*Erodium botrys*), and annual sunflower (*Helianthus annuus*).

Although the wildlife habitat value of ruderal lands within the project site is relatively low, these lands can support some wildlife species. Amphibians such as the Pacific tree frog and western toad may disperse through ruderal lands during the winter and spring. Common reptiles such as the western fence lizard and Pacific gopher snake could potentially use ruderal habitats of the project site. Mourning doves, northern mockingbirds (*Mimus polyglottos*), and house finches (*Carpodacus mexicanus*) could be expected to occur on these ruderal lands, as could the disturbance-tolerant killdeer (*Charadrius vociferous*), which often nests on gravel or bare ground; all except the mockingbird were observed during the field survey. Raptors such as the red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*) commonly forage over open areas, and could be expected to hunt in ruderal areas of the site. Both of these raptors were observed during the field survey.

Small mammals that would be expected to occur on ruderal lands of the project site include California ground squirrels (*Otospermophilus beecheyi*), Botta's pocket gophers, California voles, and deer mice. At the time of the field survey, California ground squirrel burrows were largely absent from ruderal areas of the project site, but did occur on several of the levee roads.

Gopher burrows were commonly observed within the power line corridor and adjacent vacant lot, and were sporadically observed in other ruderal portions of the site. Mammalian predators with the potential to occur on ruderal lands of the site include disturbance-tolerant species such as the raccoon, Virginia opossum (*Didelphis virginiana*), and coyote (*Canis latrans*).

2.2.3 Seasonal Channel

Two seasonal channels traverse the project site from east to west: 1) Mill Creek near the center of the site and 2) Packwood Creek near the southern boundary of the site. Mill Creek has been channelized and reformed into a trapezoidal channel while Packwood Creek retains somewhat of a meandering, more natural condition. Both channels were dry during the December 2014 field surveys. The dominant vegetation within the sparsely vegetated Mill Creek consisted of bearded sprangletop (*Leptochloa fusca* ssp. *univerva*) and rough cocklebur (*Xanthium strumarium*). Packwood Creek was more vegetated and was dominated by bearded sprangletop. Several mature valley oak (*Quercus lobata*) trees occurred on the bank tops of both channels.

Reptiles and amphibians expected to use the seasonal channels of the project site would include those discussed for other land use types, with reptilian use limited to periods when the channels are dry. Birds expected to utilize the seasonal channels of the site would include, at a minimum, the species discussed for other land use types. The valley oak trees lining the channels could be used for nesting by large raptors such as the red-tailed hawk and great-horned owl (*Bubo virginianus*), as well as by songbirds such as the Bullock's oriole (*Icterus bullockii*) and tree swallow (*Tachycineta bicolor*). A number of woodpecker species have the potential to forage or nest in the oak trees; acorn woodpeckers (*Melanerpes formicivorus*), Nuttall's woodpeckers (*Picoides nuttallii*), and northern flickers (*Colaptes auratus*) were all observed during the field survey.

Small mammal and mammalian predator species likely to forage or seek cover in the seasonal channels during dry periods would be similar to those discussed for other land use types. California ground squirrel burrows were frequently observed in the banks of Mill Creek, and sporadically observed in the banks of Packwood Creek. A large burrow in the north bank of Mill Creek near the eastern boundary of the project site may have previously been used by an

American badger (*Taxidea taxus*), based on the presence of claw marks on the side walls in a characteristic digging pattern.

2.2.4 Irrigation Ditch

Three manmade trapezoidal irrigation ditches traverse the site, the most prominent being Oakes Ditch (see Figure 5). Vegetation in these ditches was generally sparse but included bearded sprangletop, smartweed (*Polygonum* sp.), rough cocklebur, and Johnson grass (*Sorghum halepense*). Mature valley oak trees occurred along the bank tops of Oakes Ditch in the eastern portion of the project site.

The lack of vegetation and rodent burrows in the irrigation ditches of the project site suggest an intensive maintenance regime generally unfavorable to native wildlife. However, most of the wildlife species discussed for other land use types would have the potential to occasionally use or pass through the irrigation ditches of the site. All of the avian species discussed as having the potential to nest or forage in the valley oaks lining Mill Creek and Packwood Creek would also have the potential to use the valley oaks on the bank tops of Oakes Ditch (see Section 2.2.3).

2.2.5 Agricultural Basins

Five agricultural basins of various sizes were identified on the project site (see Figure 5). All five basins appear to be fed by irrigation tailwater. These basins vary in size from a hundred square feet to several acres. All five of these basins were vegetated with a mix of wetland and upland species. Drier portions of the basins were dominated by Bermuda grass (*Cynodon dactylon*), Johnson grass, whitestem filaree (*Erodium moschatum*), toothed medic, prickly lettuce, and curly dock (*Rumex crispus*). The wetter portions of the agricultural basins contained tall flatsedge (*Cyperus eragrostis*), Canada horseweed (*Erigeron canadensis*), Pacific rush (*Juncus effusus* ssp. *pacificus*), creeping spikerush (*Eleocharis macrostachya*), and hairy waterleaf (*Marsilea vestita*).

Wildlife use of irrigation basins would vary depending on the timing and degree to which the basins are inundated or saturated. During periods of inundation, Pacific tree frogs and western toads could opportunistically breed in the basins and subsequently disperse through surrounding

lands. During dry periods, reptile use of the basins would be similar to that described for other land use types of the project site.

Birds expected to use the basins during periods of inundation may include the great blue heron (*Ardea herodias*) and great egret (*Ardea alba*), assuming amphibian and/or invertebrate prey is present. Black phoebes (*Sayornis nigricans*) may glean insects from the surface of the water, or extract mud from the banks for nest-building. When the basins are saturated but not inundated, avian use may include those species that feed on mudflats, such as the killdeer. When the basins are dry, avian use would be similar to that described for ruderal habitats of the project site.

Periodic inundation likely precludes occupation of the basin floors by burrowing rodents; however, Botta's pocket gophers and California ground squirrels could burrow on the banks. Deer mice and western harvest mice (*Reithrodontomys megalotis*) could also inhabit the margins of the basins and could forage for insects, seeds, and plant parts in the basins when the basins are dry. Mammalian predator and raptor use of the basins would be similar to that described for other habitats of the project site.

2.2.6 Vineyard

Vineyard lines portions of the western boundary of the project area. These mature vineyards were highly maintained and contained a similar sparse understory as the orchards on the site.

Reptile, amphibian, and small mammal use of the vineyards of the site would be similar to that described in Section 2.2.1 for orchard habitat. Vineyards provide foraging habitat for several avian species, but are not generally suitable for nesting. Winter migrants such as the white-crowned sparrow may forage on dormant buds in the site's vineyards, and resident birds such as the European starling (*Sturnus vulgaris*) and house finch would be expected to forage on ripening fruit. All three of these species were observed during the field survey.

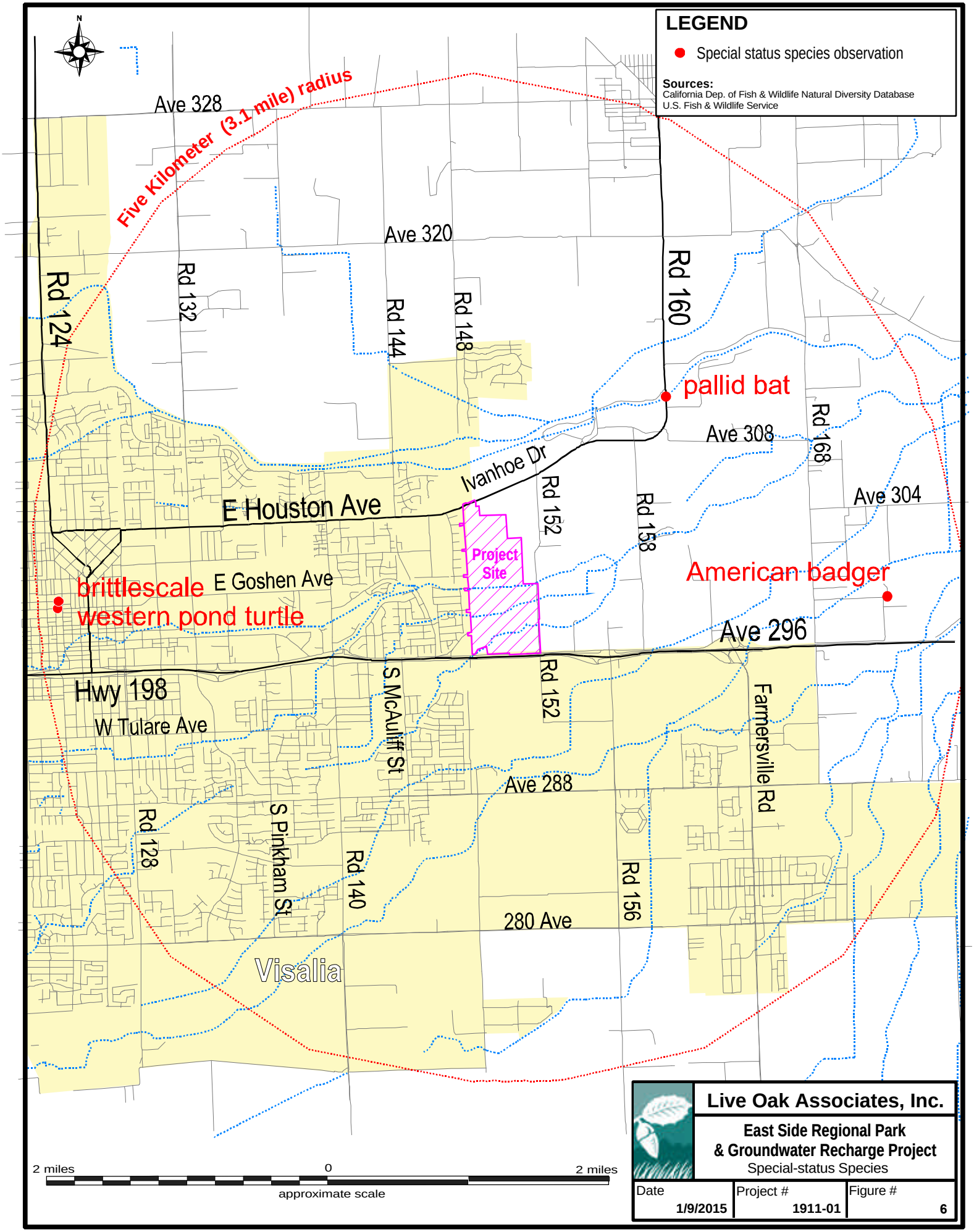
Foraging raptors and mammalian predators may occur in the vineyards of the site from time to time. Raptors such as red-tailed hawks and American kestrels may forage over the vineyards, while mammalian predators such as raccoons, striped skunks, and coyotes may occasionally hunt between the rows.

2.3 SPECIAL STATUS PLANTS AND ANIMALS

Several species of plants and animals within the state of California have low populations and/or limited distributions. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.2, state and federal laws have provided the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as "threatened" or "endangered" under state and federal endangered species legislation. Others have been designated as candidates for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists of native plants considered rare, threatened, or endangered (CNPS 2016). Collectively, these plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CDFW 2016) was queried for special status species occurrences in the nine USGS 7.5 minute quadrangles containing and immediately surrounding the project site (*Exeter, Visalia, Monson, Ivanhoe, Woodlake, Rocky Hill, Lindsay, Cairns Corner,* and *Tulare*). An official species list was obtained using the USFWS Information for Planning and Conservation (IPac) system for federally listed species with the potential to be affected by the project (USFWS 2016). These species, and their potential to occur on the project site, are listed in Table 1 on the following pages. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *California Natural Diversity Data Base* (CDFW 2016), *Endangered and Threatened Wildlife and Plants* (USFWS 2013), *The Recovery Plan for Upland Species of the San Joaquin Valley, California* (USFWS 1998), *Amphibian and Reptile Species of Special Concern in California* (CDFG 1994), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), and *The California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2016).

Special status species occurrences within 3.1 miles (5 kilometers) of the project site are depicted in Figure 6 and San Joaquin kit fox (*Vulpes macrotis mutica*) occurrences within 10 miles of the project site are depicted in Figure 7.


LEGEND
Special status species observation
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
U.S. Fish & Wildlife Service
Five Kilometer (3.1 mile) radius
Ave 328
Ave 320
Ave 308
Ave 304
Ave 296
Ave 288
280 Ave
Rd 124
Rd 132
Rd 144
Rd 148
Rd 160
Rd 168
Rd 152
Rd 153
Rd 128
Rd 140
Rd 156
S McAuliff St
S Pinkham St
Farmersville Rd
Ivanhoe Dr
E Houston Ave
E Goshen Ave
W Tulare Ave
Hwy 198
Project Site
pallid bat
American badger
brittlescale
western pond turtle
Visalia
2 miles
0
2 miles
approximate scale
Live Oak Associates, Inc.
East Side Regional Park
& Groundwater Recharge Project
Special-status Species
Date
1/9/2015
Project #
1911-01
Figure #
6

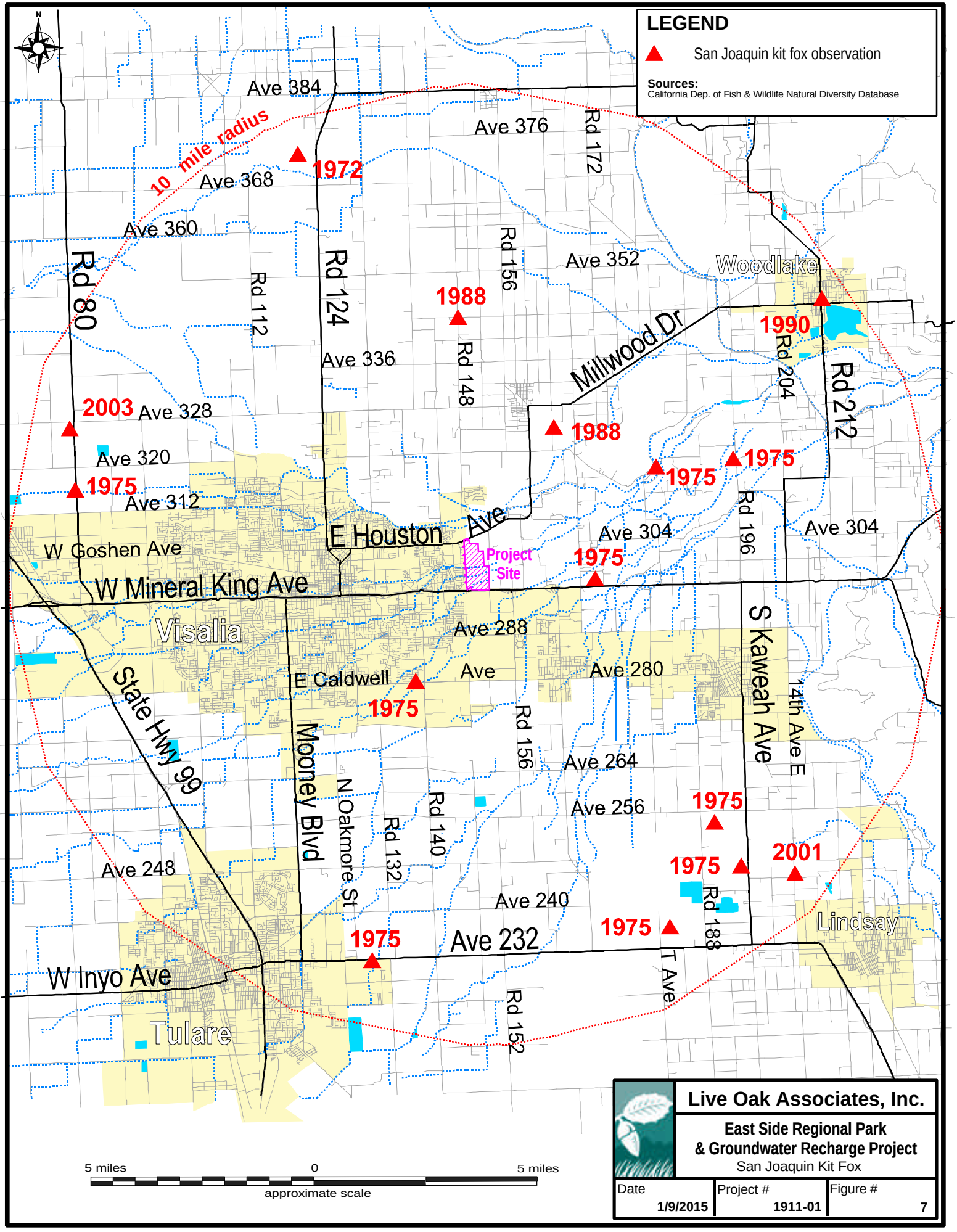

LEGEND
San Joaquin kit fox observation
Sources:
California Dep. of Fish & Wildlife Natural Diversity Database
10 mile radius
Project Site
1972
1988
1990
2003
1975
2001
Ave 384
Ave 376
Ave 368
Ave 360
Ave 352
Ave 336
Ave 328
Ave 320
Ave 312
Ave 304
Ave 288
Ave 280
Ave 264
Ave 256
Ave 248
Ave 240
Ave 232
Rd 80
Rd 112
Rd 124
Rd 148
Rd 156
Rd 172
Rd 196
Rd 204
Rd 212
Rd 132
Rd 140
Rd 152
Rd 188
Millwood Dr
E Houston Ave
W Goshen Ave
W Mineral King Ave
E Caldwell Ave
T Ave
Woodlake
Visalia
Tulare
Lindsay
Mooney Blvd
N Oakmore St
State Hwy 99
S Kaweah Ave
14th Ave E
5 miles
0
5 miles
approximate scale
Live Oak Associates, Inc.
East Side Regional Park
& Groundwater Recharge Project
San Joaquin Kit Fox
Date 1/9/2015
Project # 1911-01
Figure # 7

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (adapted from CDFW 2016 and CNPS 2016)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence in the Project Site
California Jewel-flower (*Caulanthus californicus*)	FE, CE, CNPS 1B	Occurs in chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland; blooms February–May; elevation 250-3,300 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
Hoover's Spurge (*Euphorbia hooveri*)	FT CNPS 1B	Occurs in vernal pools of California's Central Valley; blooms July-September; elevation 80-820 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the study area.
Striped Adobe-lily (*Fritillaria striata*)	CT CNPS 1B	Occurs in cismontane woodland and valley and foothill grassland, primarily in clay soils; blooms February-April; elevation 460-4,750 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
Kaweah Brodiaea (*Brodiaea insignis*)	CE CNPS 1B	Occurs in cismontane woodlands and foothill grasslands in granitic soils. Blooms April-June; elevation 500-4,600 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
San JoaquinValley Orcutt Grass (*Orcuttia inaequalis*)	FT, CE CNPS 1B	Occurs in vernal pools of the Central Valley; requires deep pools with prolonged periods of inundation; blooms April-September; elevation 100-2,480 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the study area.
San Joaquin Adobe Sunburst (*Pseudobahia peirsonii*)	FT, CE CNPS 1B	Occurs in grasslands of the Sierra Nevada foothills in heavy clay soils of the Porterville and Centerville series. Blooms March-April; elevation 300-2,625 ft.	**Absent.** Porterville and Centerville soils are absent from the study area.
Greene's Tuctoria (*Tuctoria greenei*)	FE, CR CNPS 1B	Occurs in vernal pools of the Central Valley; blooms May- September; elevation 100-3,510 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the study area.

CNPS-Listed Plants

Earlimart Orache (*Atriplex cordulata* var. *erecticaulis*)	CNPS 1B	Occurs in valley and foothill grasslands between 130 and 330 ft. in elevation; blooms August-September.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
Brittlescale (*Atriplex depressa*)	CNPS 1B	Occurs in chenopod scrub, valley and foothill grassland, and wetland habitats; blooms April-October; elevations below 1,050 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use. The CNDDB lists an 1881 occurrence approx. 3 miles west of the site (see Figure 6).
Lesser Saltscale (*Atriplex minuscula*)	CNPS 1B	Occurs in cismontane woodland and valley and foothill grasslands of the San Joaquin Valley; alkaline/sandy soils; blooms May-October; elevation 50-660 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

PLANTS (cont'd)

CNPS-Listed Plants

Species	Status	Habitat	Occurrence in the Project Site
Vernal Pool Smallscale (*Atriplex persistens*)	CNPS 1B	Occurs in alkaline vernal pools; blooms July-October; elevations below 400 ft.	**Absent.** Suitable habitat in the form of vernal pools does not exist on the project site.
Subtle Orache (*Atriplex subtilis*)	CNPS 1B	Occurs in valley and foothill grasslands of the San Joaquin Valley; blooms August-October; elevation 130-330 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
Recurved Larkspur (*Delphinium recurvatum*)	CNPS 1B	Occurs in cismontane woodland and valley and foothill grass-lands; blooms March-June; alkaline soils; elevations below 2,500 ft.	**Absent.** Suitable habitat for this species is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
Spiny-Sepaled Button Celery (*Eryngium spinosepalum)*	CNPS 1B	Occurs in vernal pools and valley and foothill grasslands of the San Joaquin Valley and the Tulare Basin; blooms April-May; elevation 330-840 ft.	**Absent.** Suitable habitat in the form of vernal pool wetlands is absent from the study area. Ruderal areas are too disturbed to provide suitable habitat for this species.
Calico Monkeyflower (*Mimulus pictus*)	CNPS 1B	Occurs in broadleaved upland forest and cismontane woodland in granitic soils; may occur in disturbed areas. Blooms March-May; elevation 330-4,270 ft.	**Absent.** Suitable woodland habitat is absent from the study area. Any suitable habitat that may have once been present has been modified by intensive human use.
California Alkali-Grass (*Puccinellia simplex*)	CNPS 1B	Occurs in saline flats and mineral springs less than 900 m. in elevation in the Central valley, San Francisco Bay area and western Mojave Desert.	**Absent.** Suitable habitat in the form of saline flats and mineral springs does not exist on the project site.

ANIMALS (adapted from CDFW 2016 and USFWS 2016)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	FT	Occurs in vernal pools, clear to tea-colored water in grass or mud-bottomed swales, and basalt depression pools.	**Absent.** Suitable habitat in the form of vernal pools is absent from the study area.
Vernal Pool Tadpole Shrimp (*Lepidurus packardi*)	FE	Primarily found in vernal pools, but may use other seasonal wetlands in mesic valley and foothill grasslands.	**Absent.** Suitable habitat in the form of vernal pools is absent from the study area.
Valley Elderberry Longhorn Beetle (VELB) (*Desmocerus californicus dimorphus*)	FT	Lives in mature elderberry shrubs of California's Central Valley and Sierra Foothills.	**Absent.** The USFWS recently determined that the range of this species does not include Tulare County. Moreover, elderberry shrubs are absent from the site.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Species	Status	Habitat	Occurrence in the Project Site
California Tiger Salamander (*Ambystoma californiense*)	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. Although most CTS aestivate within 0.4 mile of their breeding pond, outliers may aestivate up to 1.3 miles away (Orloff 2011).	**Absent.** Vernal pool or seasonal wetland habitat suitable for breeding by the CTS does not exist on or within a 1.3 mile radius of the project site. The site is situated in a matrix of residential, commercial, and intensive agricultural uses generally not suitable for CTS. The closest known breeding occurrences of CTS are approximately 7 miles north of the study area at the CDFW's Stone Corral Ecological Reserve.
California Red-Legged Frog (*Rana draytonii*)	FT	Occurs in permanent aquatic habitats such as creeks and ponds with emergent vegetation. Has been extirpated from drainages of the Sierra foothills south of Tuolumne County as a result of habitat loss, pollution, and the proliferation of exotic predators.	**Absent.** The study area lies well outside of the current known distribution of this species. There are no documented observations, historical or otherwise, within 10 miles of the study area.
Blunt-Nosed Leopard Lizard (*Gambelia sila*)	FE, CE, CFP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to Merced County.	**Absent.** This species is not known to occur in Tulare County east of Hwy. 99; the closest CNDDB occurrence is nearly 15 miles southwest of the study area. Furthermore, the site is situated in a matrix of residential, commercial, and intensive agricultural uses generally not suitable for this species.
Giant Garter Snake (*Thamnophis gigas*)	FT	Occurs in marshes, sloughs, drainage canals, irrigation ditches, rice fields, and adjacent uplands. Prefers locations with emergent vegetation for cover and open areas for basking. Has been extirpated from the southern San Joaquin valley.	**Absent.** The study area lies well outside of the current known distribution of this species. The nearest extant population of giant garter snake recognized by the USFWS occurs in the Mendota area, more than 60 miles to the northwest.
Swainson's Hawk (*Buteo swainsoni*)	CT	This breeding-season migrant to California nests in stands with few trees in riparian areas and juniper-sage flats, and in oak savannah. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Possible.** The majority of the project site is orchard and vineyard habitat incompatible with Swainson's hawk foraging and nesting strategies. Although the mature valley oak trees of the site are structurally suitable for nesting by Swainson's hawks, the trees are unlikely to be used because they are all either surrounded by orchard or located adjacent to residences and busy roads. Swainson's hawks could theoretically forage in ruderal areas of the site. An active Swainson's hawk nest was observed approximately 3 miles east of the site in 2009 (Hansen 2009), and the CNDDB lists 3 other nesting occurrences within 10 miles of the study area.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

Species Listed as Threatened or Endangered under the State and/or Federal Endangered Species Act, and/or as California Fully Protected

Species	Status	Habitat	Occurrence in the Project Site
White-Tailed Kite (*Elanus leucurus*)	CFP	Occurs in savanna, open woodlands, marshes, desert grassland, and cultivated fields. Prefer lightly grazed or ungrazed fields for foraging.	**Possible.** The project site is not typical of open habitats used by kites; however, kites could occasionally forage in ruderal areas of the site, and could theoretically nest in the site's mature valley oak trees.
Golden Eagle (*Aquila chrysaetos*)	CFP	Typically frequents rolling foothills, mountain areas, sage-juniper flats and desert.	**Unlikely.** The project site is not typical of habitats used by golden eagles; however, individuals may pass over the site from time to time. Breeding habitat is absent.
Western Yellow-Billed Cuckoo (*Coccyzus americanus occidentalis*)	FT, CE	Occurs in valley foothill and desert riparian habitats in scattered locations in California Requires extensive gallery riparian forests for nesting.	**Absent.** The scattered valley oak trees of the project site are not extensive enough to fulfill nesting requirements of this species. The only known occurrence in the project vicinity was mapped generally to Visalia in 1919.
Tricolored Blackbird (*Agelaius tricolor*)	CC	Breeds near fresh water, primarily emergent wetlands, with tall thickets. Forages in grassland and cropland habitats.	**Possible.** Tricolored blackbirds could forage in the site's ruderal areas or agricultural basins from time to time, but breeding habitat is absent. The closest known occurrence of a breeding colony was documented approximately 9 miles east of the site in 2000.
Tipton Kangaroo Rat (*Dipodomys nitratoides nitratoides*)	FE, CE	Occurs in chenopod scrub and alkali grasslands in isolated portions of Kings, Tulare, and Kern Counties.	**Absent.** Habitats of the study area are unsuitable for Tipton kangaroo rat due to their disturbed nature and ongoing intensive human use. The closest known occurrence of this species was documented approximately 14 miles south of the study area in 1943.
San Joaquin Kit Fox (*Vulpes macrotis mutica*)	FE, CT	Found in desert alkali scrub and annual grasslands; may forage in adjacent agricultural habitats. Use underground dens for thermoregulation, cover, and reproduction. Dens are either self-dug or modified rodent burrows.	**Unlikely.** Although ground squirrel burrows present along the seasonal channel banks and levee roads represent potential denning and foraging habitat for kit fox, these habitats are fragmented and disturbed and would, at best, be considered marginal due to intensive surrounding agricultural and residential uses. Kit foxes are not expected to breed or regularly forage on the site, but may pass through during dispersal movements. There have been fifteen documented occurrences of kit fox within 10 miles of the project site; the most recent of these was documented approximately 9 miles west of the site in 2003 (see Figure 7).

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

State Species of Special Concern

Species	Status	Habitat	Occurrence in the Project Site
Western Spadefoot (*Spea hammondii*)	CSC	Mainly occurs in grasslands of San Joaquin Valley. Vernal pools or other temporary wetlands are required for breeding. Aestivates in underground refugia such as rodent burrows, typically within 1,200 ft. of aquatic habitat.	**Absent.** Suitable breeding habitat for western spadefoot does not exist on the site. The closest documented occurrence is located approximately 7 miles north of the site at CDFW's Stone Corral Ecological Reserve.
Western Pond Turtle (*Emys marmorata*)	CSC	Occurs in open slow-moving water or ponds with rocks and logs for basking. Nesting occurs in open areas, on a variety of soil types, and up to ¼ mile away from water. This species is almost extinct in the southern San Joaquin Valley.	**Unlikely.** The engineered channels and agricultural basins of the site provide only marginal habitat for western pond turtles through most of the study area due to lack of emergent vegetation and basking structures, and intermittent inundation. Moreover, the only documented occurrence of this species within a 10-mile radius of the study area was recorded in 1879.
Northern Harrier (*Circus cyaneus*)	CSC	Frequents meadows, grasslands, open rangelands, freshwater emergent wetlands. Nests on ground, generally in wet areas, although grassland, pasture, and cultivated fields may be used.	**Possible.** The project site is not typical of open habitats used by harriers; however, individuals could pass over the site and occasionally forage in the site's ruderal areas or basins. Nesting habitat is absent.
Burrowing Owl (*Athene cunicularia*)	CSC	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Possible**. Burrowing owls could potentially roost or nest in burrows found in the banks and levee roads of Mill Creek and Packwood Creek, and could forage in ruderal areas of the site. There are six CNDDB occurrences of this species within a 10-mile radius of the project site, the closest of which are located approximately 7 miles to the north at CDFW's Stone Corral Ecological Reserve.
Loggerhead Shrike (*Lanius ludovicianus*)	CSC	Frequents open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low herbaceous cover. Can often be found in cropland.	**Possible.** Shrikes could nest in trees and shrubs of the site and could forage in ruderal areas.
Pallid Bat (*Antrozous pallidus*)	CSC	Found in grasslands, chaparral, and woodlands, where it feeds on ground- and vegetation-dwelling arthropods. Prefers to roost in rock crevices, but may also use tree cavities, caves, bridges, and buildings.	**Possible.** Potential foraging habitat occurs in ruderal areas of the site; potential roosting habitat occurs in mature trees. There is a documented occurrence approx. 1 mi northeast of the site (see Figure 6).
Western Mastiff Bat (*Eumops perotis californicus*)	CSC	Found in open, arid to semi-arid habitats, where it feeds on insects in flight. Roosts most commonly in crevices in cliff faces, but may also use high buildings, trees, and tunnels.	**Possible.** Potential foraging habitat occurs in ruderal areas of the site; potential roosting habitat occurs in mature trees.

TABLE 2. LIST OF SPECIAL STATUS SPECIES THAT COULD OCCUR IN THE PROJECT VICINITY

ANIMALS (cont'd)

State Species of Special Concern

Species	Status	Habitat	Occurrence in the Project Site
American Badger (*Taxidea taxus*)	CSC	Uncommon resident statewide; most abundant in drier open stages of most shrub, forest, and herbaceous habitats.	**Possible.** Although the majority of the study area offers only marginal habitat for this species due to past and ongoing disturbance, badgers could conceivably den or forage on site. A single burrow with evidence of possible badger use (claw marks on the side walls) was observed along Mill Creek. The CNDDB lists a 1994 occurrence of this species approx. 2.5 mi east of the site (see Figure 6).

OCCURRENCE TERMINOLOGY

Present:	Species observed on the site at time of field surveys or during recent past.
Likely:	Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible:	Species not observed on the site, but it could occur there from time to time.
Unlikely:	Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent:	Species not observed on the site, and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FPE	Federally Endangered (Proposed)	CFP	California Fully Protected
FPT	Federally Threatened (Proposed)	CSC	California Species of Special Concern
FC	Federal Candidate	CC	California Candidate

STATUS CODES (CONT'D)

CNPS	California Native Plant Society Listing		
1A	Plants Presumed Extinct in California	2	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

2.4 ENDANGERED, THREATENED, OR SPECIAL STATUS PLANT AND ANIMAL SPECIES MERITING FURTHER DISCUSSION

2.4.1 Swainson's Hawk (*Buteo swainsoni*). Federal Listing Status: None; State Listing Status: Threatened.

Ecology of the species. Swainson's hawks are large, long-winged, broad-tailed hawks with a high degree of mate and territorial fidelity. They are breeding season migrants to California, arriving at their nesting sites in March or April. The young hatch sometime between March and July and fledge 4 to 6 weeks later. By October, most birds have left for wintering grounds in South America. In the Central Valley, Swainson's hawks typically nest in large trees along riparian systems, but may also nest in oak groves, or lone, mature trees in agricultural fields or along roadsides. Nest sites are typically located adjacent to suitable foraging habitat. Swainson's hawks forage in large, open fields with abundant prey, including grasslands or lightly grazed pastures, alfalfa and other hay crops, and certain grain and row croplands. Their designation as a California Threatened species is based on population decline due in part to loss of foraging habitat to urban development (CDFG 1994).

Potential to occur onsite. The project site provides marginal foraging and nesting habitat for Swainson's hawk. Although the mature valley oak trees of the site are structurally suitable for nesting by Swainson's hawks, all such trees are situated within habitats not typically used by this species. The trees lining Mill Creek, Packwood Creek, and Oakes Ditch are all surrounded by orchard, while the remaining oak trees of the site are located adjacent to busy roads and/or residences. Although burrowing rodent activity was observed in ruderal portions of the project site, these habitats are highly fragmented, limited to narrow strips of land bordered by orchards and residences, and experience regular disturbance from agricultural and commercial operations. As such, ruderal areas of the project site are expected to be used only occasionally by foraging Swainson's hawks, if at all.

Local ornithologist Rob Hansen observed an active Swainson's hawk nest in the Kaweah Oaks Preserve, approximately 3 miles east of the project site, in 2009. The CNDDB lists 3 additional nesting occurrences of this species within 10 miles of the project site. Two were recorded approximately 8 miles south of the site, both north and south of Highway 137, in 2000 and 2008,

respectively. The third was recorded approximately 10 miles northwest of the site near Cottonwood Creek in 2008.

2.4.2 San Joaquin Kit Fox (*Vulpes macrotus mutica*). Federal Listing Status: Endangered; State Listing Status: Threatened

Ecology of the species. By the time the San Joaquin kit fox (SJKF) was listed as federally endangered in 1967 and California threatened in 1971, it had been extirpated from much of its historic range. The smallest North American member of the dog family (Canidae), the kit fox historically occupied the dry plains of the San Joaquin Valley, from San Joaquin County to southern Kern County (Grinnell et al. 1937). Local surveys, research projects, and incidental sightings indicate that kit fox currently occupy available habitat on the San Joaquin Valley floor and in the surrounding foothills. Core SJKF populations are located in the natural lands of western Kern County, the Carrizo Plain Natural Area in San Luis Obispo County, and the Ciervo-Panoche Natural Area in western Fresno and eastern San Benito Counties (USFWS 1998).

The SJKF prefers habitats of open or low vegetation with loose soils. In the southern and central portion of the Central Valley, kit fox are found in valley sink scrub, valley saltbrush scrub, upper Sonoran subshrub scrub, and annual grassland (USFWS 1998). Kit fox may also be found in grazed grasslands, urban settings, and in areas adjacent to tilled or fallow fields (USFWS 1998). They require underground dens to raise pups, regulate body temperature, and avoid predators and other adverse environmental conditions (Golightly and Ohmart 1984). In the central portion of their range, they usually occupy burrows excavated by small mammals such as California ground squirrels. The SJKF is primarily carnivorous, feeding on black-tailed hares, desert cottontails, rodents, insects, reptiles, and some birds.

Potential to occur onsite. Burrowing rodent activity was observed in the project site's ruderal areas and along the banks of its seasonal channels, suggesting possible foraging and denning opportunities for the SJKF. Burrows of suitable size for secondary occupation by the SJKF were observed in the banks of Mill Creek. However, potentially suitable habitats of the site are highly fragmented, surrounded as they are by orchards, busy roads, and residences. The project site itself is bordered by six lanes of high-volume traffic (Mineral King Avenue and Highway 198)

on the south, a high-density residential subdivision on the west, and intensive agricultural uses, roads, and rural residences on the north and east. So, while the site itself could theoretically be used by kit foxes, high levels of surrounding human disturbance would likely prevent kit foxes from accessing the site.

Of primary interest for this assessment are kit fox records in the project vicinity. There have been five documented occurrences of SJKF within a five-mile radius of the project site. Three of these were recorded in 1975, and two were made in 1988. Three of these occurrences were dead kit foxes (two roadkills and one unknown cause), suggesting that habitats in the project vicinity may function as a "sink" for this species. That is to say, although foxes may occasionally move into the project vicinity from "source" populations, conditions (in this case, highly-modified habitats and ongoing human disturbance) are unfavorable for long-term survival.

For several reasons, the SJKF is unlikely to occur within the project site. First, the project site consists of marginal to unsuitable habitats surrounded by and subjected to intensive human disturbance. Second, kit foxes have not been observed in the project vicinity for over 25 years. Finally, the study area is situated approximately 65 miles away from the nearest kit fox core population in the natural lands of western Kern County, and approximately 75 miles away from the Ciervo-Panoche Natural Area.

2.4.3 Burrowing Owl (*Athene cunicularia*). Federal Listing Status: None; State Listing Status: Species of Special Concern

Ecology of the species. Long-term population decline, primarily due to loss of habitat to development and agricultural practices, led to the burrowing owl's designation as a California Species of Special Concern in 1978. Burrowing owls in the Central Valley occur in grasslands, open shrub lands, grazed pastures, and occasionally agricultural lands, utilizing the burrows of California ground squirrels and other small mammals for shelter and nesting.

Potential to occur onsite. Although Botta's pocket gopher burrows were sporadically observed throughout ruderal areas of the project site, California ground squirrel burrows of suitable size for roosting and nesting by the burrowing owl were limited to the banks of Mill Creek and Packwood Creek. Ruderal areas and seasonal channels of the project site would be considered

marginal, at best, for foraging and nesting by the burrowing owl because these habitats are highly fragmented and subjected to regular human disturbance. However, it is theoretically possible that burrowing owls utilize the site from time to time.

There are six documented occurrences of burrowing owl within a ten-mile radius of the study area, recorded between 1990 and 2007. All six observations were made in relatively large blocks of grassland habitat interspersed with vernal pools.

2.4.4 American Badger (*Taxidea taxus*). Federal Listing Status: None; State Listing Status: Species of Special Concern

Ecology of the species. The American badger is a burrowing member of the mink family that resides in grasslands, savannahs and prairies throughout much of the western United States. Badgers prey primarily on small mammals including ground squirrels, pocket gophers, and mice, which they capture by digging out the animals' burrows. Adult badgers are primarily nocturnal, foraging at night and remaining underground in sleeping dens during the day. Badgers may reuse sleeping dens, or dig a new sleeping den each day. Badgers mate in late summer to early fall, and the young are born in natal dens in March and April. Both sleeping dens and natal dens are dug in dry, friable soils with sparse overstory cover. While badgers rarely remain in a sleeping den for more than a day, natal dens may be used for a period of 4-8 weeks as the female gives birth to and raises her young.

Potential to occur onsite. Marginally suitable habitat for the American badger occurs in ruderal areas and seasonal channels of the project site, where rodent burrows indicate the presence of a sufficient prey base, and the soil appears suitable for digging. A large burrow along the north banks of Mill Creek may have been used by a badger at some time in the past, based on the size of the burrow and presence of claw marks on the side walls. Although the project site is surrounded by busy roads, residential development, and intensive agricultural uses, American badgers may occasionally pass through the site, and could forage or den in the site's ruderal habitats and seasonal channels.

The CNDDB lists one occurrence of the American badger in the project vicinity, recorded approximately 2.5 miles west of the project site in 1994 (see Figure 6). The observation was

made on fallow land with nearby residential development and walnut orchard; this mosaic would be functionally similar to the land use types of the project site and surrounding lands.

2.5 JURISDICTIONAL WATERS

Jurisdictional waters include rivers, creeks, and drainages that have a defined bed and bank and which, at the very least, carry ephemeral flows. Jurisdictional waters also include lakes, ponds, reservoirs, and wetlands. Such waters may be subject to the regulatory authority of the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the California Regional Water Quality Control Board (RWQCB). See Section 3.2.4 of this report for additional information. A delineation of potential waters of the U.S. has been prepared for the project by LOA, and will be submitted to the USACE for review and verification.

The project site contains segments of Packwood and Mill Creeks, which are historic tributaries to Tulare Lake. Because precedents have been set where the USACE has claimed all tributaries of historic Tulare Lake, these onsite tributary waters have long been considered waters of the USACE and may continue to be considered waters of the U.S. upon future USACE review.

Three onsite irrigation ditches (Oakes, Fleming, and unnamed) serve to transport irrigation water received from the Kaweah River (Oakes and unnamed) or Mill Creek (Fleming). The most prominent of the irrigation ditches is Oakes Ditch, which traverses the site from east to west. Oakes Ditch originates at the terminus of the Lower Kaweah River approximately 0.65 miles east of the site. Downstream, the open ditch enters an underground pipe that flows south and is gate controlled to direct excess irrigation water either into a tailwater basin immediately north of Packwood Creek or into Packwood Creek. The tailwater basin is the primary operational route so that excess irrigation water is captured for groundwater recharge. The secondary route to Packwood Creek is only used as a safety overflow if the tailwater basin becomes full. This has never occurred since the basin was constructed in 2005. The two other on-site irrigation ditches traverse the eastern boundaries of the site from north to south. The northern ditch (Fleming Ditch) receives water from the Kaweah River and terminates into a pipeline that directly flows into Mill Creek, which is a bifurcation of the Kaweah River. The southern ditch, which is a bifurcation of the Oakes Ditch, flows into a control structure with two outflow pipelines. One

outflow pipeline siphons under Packwood Creek and delivers irrigation water to the pecan orchard south of Packwood Creek. The other outflow pipe serves as a safety overflow of irrigation water to Packwood Creek in case there is an operational problem with the pipeline siphon under Packwood Creek. From a standard operations regime, only the Fleming Ditch directly transports excess irrigation water back to a tributary water that could be considered a waters of the U.S. (Mill Creek).

Based on the 2015 Clean Water Rule (CWR), all three irrigation ditches appear to qualify for an exclusion from USACE jurisdiction. These artificial ditches were created by excavating or diking dry land to collect and retain water which is used exclusively for irrigation purposes. They are seasonal and not an excavated or relocated tributary. They were built on dry land and, most importantly, do not change the aquatic character of any streams. As such they appear to meet the CWR category of excluded waters identified as (b)(3) Waters.

According to the CWR, the onsite agricultural basins also appear to be excluded waters, as they are artificially constructed irrigation/farm ponds created in dry land that would fall into the category of excluded waters identified as (b)(4) Waters.

2.6 NATURAL COMMUNITIES OF SPECIAL CONCERN

Natural communities of special concern are those that are of limited distribution, distinguished by significant biological diversity, home to special status plant and animal species, of importance in maintaining water quality or sustaining flows, etc. Examples of natural communities of special concern in the eastern San Joaquin Valley in the vicinity of the project would include vernal pools and various types of riparian forest (Sawyer, Keeler-Wolf and Evens 2012).

Natural communities of special concern are limited to sporadic riparian habitat associated within Packwood Creek and Mill Creek. The value of this riparian habitat as a natural community of special concern has been diminished due to the fragmented nature of the woodland and close proximity of urban and suburban developments. Orchard, vineyard, ruderal, irrigation ditches, and agricultural basins are regionally abundant and/or a result of human manipulation and would not be considered natural communities of special concern.

2.7 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. Certain features of the study area have the potential to function as movement corridors for resident and migratory fish and wildlife species. The largely engineered channels of Oakes Ditch, Mill Creek and Packwood Creek would likely not serve as important travel routes for terrestrial wildlife, but could aid passage by aquatic species when inundated. The top of the banks along each of these waterways may facilitate home range and/or dispersal movements of some locally occurring terrestrial wildlife, but the waterways likely do not represent regionally important movement corridors for these species. The Pacific flyway, one of four major bird migration routes in North America, passes over the study area and much of the rest of California. The relatively small project area and nature of the project site has minimal potential as a wildlife movement corridor.

2.8 DESIGNATED CRITICAL HABITAT

The USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and surrounding lands.

3.0 IMPACTS AND MITIGATIONS

3.1 SIGNIFICANCE CRITERIA

NEPA

Federal projects are subject to the provisions of NEPA. The purpose of NEPA is to assess the effects of a proposed action on the human environment, assess the significance of those effects, and recommend measures that if implemented would mitigate those effects. As used in NEPA, a determination that certain effects on the human environment are "significant" requires considerations of both context and intensity (see 40 CFR 1508.27).

Context means that significance must be analyzed in terms of the affected environment in which a proposed action would occur ("action area"). For the purposes of assessing effects of an action on biological resources, the relevant context is often local. The analysis requires a comparison of the action area's biological resources to the biological resources of the local area within which the action area is located. The analysis may, however, require a comparison of the action area's biological resources with the biological resources of an entire region.

Intensity refers to the severity of impact. In considering the intensity of impact to biological resources, it is necessary to address the unique qualities of wetlands and ecologically critical areas that may be affected by the action, the degree to which the action will be controversial, the degree to which the effects of the action will be uncertain, the degree to which the action will establish a precedent for future actions that may result in significant effects, and the potential for the action to result in cumulatively significant effects.

The effects of an action on some biological resources are generally considered to be "significant." Actions that adversely affect federally listed threatened and endangered species and Waters of the U.S. are two examples. Other examples include actions that impede the migratory movements of fish and wildlife, and actions that substantially reduce the areal extent of fish and wildlife habitat, especially if habitat loss occurs in areas identified by state and federal governments as ecologically sensitive or of great scenic value.

NEPA requires that feasible mitigation measures be disclosed for the effects of an action on the environment. Suitable measures include the following:

(a) Avoiding the impact altogether by not taking a certain action or parts of an action.

(b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation.

(c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.

(d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project.

(e) Compensating for the impact by replacing or providing substitute resources or environments.

This report identifies likely project impacts, identifies those that may be considered "significant" per the provisions of NEPA, and recommends mitigation measures that would avoid significant impact to biological resources.

CEQA

Approval of general plans, area plans, and specific projects is subject to the provisions of CEQA. The purpose of CEQA is to assess the impacts of proposed projects on the environment before they are carried out. CEQA is concerned with the significance of a proposed project's impacts. For example, a proposed development project may require the removal of some or all of a site's existing vegetation. Animals associated with this vegetation could be destroyed or displaced. Animals adapted to humans, roads, buildings, pets, etc., may replace those species formerly occurring on the site. Plants and animals that are state and/or federally listed as threatened or endangered may be destroyed or displaced. Sensitive habitats such as wetlands and riparian woodlands may be altered or destroyed.

Whenever possible, public agencies are required to avoid or minimize environmental impacts by implementing practical alternatives or mitigation measures. According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the

project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest."

Specific project impacts to biological resources may be considered "significant" if they would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.

- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) states that a project may trigger the requirement to make "mandatory findings of significance" if the project has the potential to:

> "Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare or threatened species, or eliminate important examples of the major periods of California history or prehistory."

3.2 RELEVANT GOALS, POLICIES, AND LAWS

3.2.1 General Plan Policies of County of Tulare and City of Visalia

In compliance with CEQA, the lead agency considers conformance with applicable goals and policies of the General Plans of the County of Tulare and the City of Visalia. The Tulare County General Plan released an update in 2003 that is valid through 2030. Implementation of goals in the Tulare County General Plan is accomplished via a set of policies specific to each goal.

Relevant biological resource goals can be found in Appendix D of the Tulare County General Plan include:

- protecting rare and endangered species;
- limiting development in environmentally sensitive areas;
- encouraging cluster development in areas with moderate to high potential for sensitive habitat;
- protecting riparian areas though habitat preservation, designation as open space or recreational land uses, bank stabilization and development controls;
- requiring mining reclamation plans and other management plans to include measures to protect, maintain and restore riparian resources and habitats;
- supporting the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats;
- encouraging the planting of native trees, shrubs, and grasslands preserve;
- requiring open space buffers between development projects and significant watercourse, riparian vegetation, wetlands, and other sensitive habitats and natural communities;
- coordinating with other government land management agencies to preserve and protect biological resources;
- encouraging appropriate access to resource-managed lands;
- providing opportunities for hunting and fishing activities;
- supporting the conservation and management of oak woodland communities and their habitats;

- implementing pesticide controls to limit effects on natural resources; and
- supporting the establishment and administration of a mitigation banking program.

Additionally, Chapter 6.4 of the City of Visalia General Plan outlines objectives to protect biological resources within the City limits by establishing best management practices, a no-net-loss standard, and habitat management to enhance resource conservation (Appendix E).

Finally, the City of Visalia has an oak tree protection ordinance that was developed pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110 (Appendix F). That portion of the project site south of the Avenue 300 alignment lies within Visalia city limits and is subject to this policy. Removal of any oak trees requires in-kind mitigation of $120 multiplied by the diameter (in inches) at breast height for each oak tree. Currently, the portion of the project site north of the Avenue 300 alignment is outside of city limits and is not subject to the City's oak tree policy. However, the project will require annexation before going forward with construction, so the whole project will be subject to the City's oak tree protection ordinance.

No habitat conservation plans (HCPs) occur in this part of Tulare County.

3.2.2 Threatened and Endangered Species

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3).

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the

environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Similarly, NEPA projects that may impact federally listed species must include the USFWS in the environmental review process. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.2.3 Migratory Birds

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs. Additionally, California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800).

3.2.4 Birds of Prey

Birds of prey are also protected in California under provisions of the State Fish and Wildlife Code, Section 3503.5, which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.2.5 Wetlands and Other Jurisdictional Waters

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the

United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not, however, supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

In 2015, the EPA and USACE jointly issued the Clean Water Rule (CWR), providing a synthesized definition of waters of the U.S. based on statute, science, and federal court decisions to date. Subsequent litigation delayed implementation of the CWR. However, in August 2018, the CWR was enjoined in 22 states including California.

The CWR defines waters of the U.S. to include the following:

> **(a)(1) Waters:** All waters used in interstate or foreign commerce (also known as traditional navigable waters), including all waters subject to the ebb and flow of the tide;
>
> **(a)(2) Waters:** All interstate waters including interstate wetlands;
>
> **(a)(3) Waters:** The territorial seas;
>
> **(a)(4) Waters:** All impoundments of Waters of the U.S.;
>
> **(a)(5) Waters:** All tributaries of (a)(1)-(a)(4) waters, where "tributary" refers to a water (natural or constructed) that contributes flow to another water and is characterized by the physical indicators of a bed and bank and an ordinary high water (OHW) mark;
>
> **(a)(6) Waters:** Adjacent waters, defined as either (a) located in whole or in part within 100 feet of the OHW mark of (a)(1)-(a)(5) waters, or (b) located in whole or in part within the 100-year floodplain and within 1,500 feet of the OHW mark of (a)(1)-(a)(5) waters;

(a)(7) Waters: Western vernal pools, prairie potholes, Carolina bays and Delmarva bays, pocosins, and Texas coastal prairie wetlands, if determined on a case-specific basis to have a significant nexus to (a)(1)-(a)(3) waters;

(a)(8) Waters: Waters that do not meet the definition of adjacency, but are determined on a case-specific basis to have a significant nexus to (a)(1)-(a)(3) waters, and are either located in whole or in part within the 100-year floodplain of (a)(1)-(a)(3) waters, or located within 4,000 feet of the OHW mark of (a)(1)-(a)(5) waters.

The CWR also redefines exclusions from jurisdiction, which include:

(b)(1) Waters: Waste treatment systems;

(b)(2) Waters: Prior converted cropland;

(b)(3) Waters: Three types of ditches. A ditch may be a water of the U.S. only it if meets the definition of "tributary" and is not otherwise excluded under the provisions below.

(i) Ditches with ephemeral flow that are not a relocated or excavated tributary;

(ii) Ditches with intermittent flow that are not a relocated or excavated tributary or that do not drain wetlands;

(iii) Ditches that do not flow, either directly or through another water, to an (a)(1)-(a)(3) water.

(b)(4) Waters: Other aquatic features:

- Artificially irrigated areas that would revert to dry land should application of irrigation water to that area cease.
- Artificially constructed lakes or ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, log cleaning ponds, cooling ponds, or fields flooded for rice growing.
- Artificial reflecting pools or swimming pools created in dry land.
- Small ornamental waters created in dry land for primarily aesthetic reasons.

- Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand or gravel that fill with water.
- Erosional features, including gullies, rills and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways.
- Puddles.

(b)(5) Waters: Groundwater and artificially constructed subsurface drainage systems in dry land;

(b)(6) Waters: Stormwater control features constructed to convey, treat, or store stormwater created in dry land; does not include features that possess perennial flow, even if constructed in dry land.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to Section 404 permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the RWQCB issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("Waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB. The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES)

program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

3.3 POTENTIALLY SIGNIFICANT PROJECT IMPACTS/MITIGATION

As discussed, the project is the construction of regional park amenities, recharge basins, and a new arterial roadway on an approximate 290-acre site in the eastern outskirts of Visalia. The following subsections assume that the entirety of the project site will be impacted by proposed developments. Potentially significant project impacts to biological resources and mitigations are discussed below.

3.3.1 Project Impacts to Swainson's Hawk

Potential Impacts. While the project site contains isolated patches of marginally suitable foraging and nesting habitat for the Swainson's hawk in its ruderal areas and mature valley oaks, respectively, individuals of this species are unlikely to use these habitats because they are surrounded by incompatible land uses including orchards and a residential subdivision. Nevertheless, it is theoretically possible that Swainson's hawks could nest on the project site or forage over the site from time to time. If Swainson's hawks are nesting on or adjacent to the project site at the time of construction, individual hawks could be injured, killed, or disturbed such that they would abandon their nest(s). Project activities that adversely affect the nesting

success or result in mortality of Swainson's hawks would violate state and federal laws (see Sections 3.2.2 to 3.2.4) and would be considered a significant impact under CEQA and NEPA.

The project will convert habitats that are marginal to unsuitable for the Swainson's hawk under existing conditions to a regional park and groundwater recharge facility. It is expected that portions of the project site will remain marginally suitable for the Swainson's hawk after site development. For example, Swainson's hawks could potentially forage in the recharge basins during dry periods, and could nest in the valley oak trees that remain after construction. Loss of habitat for the Swainson's hawk is not considered a significant impact of the project under CEQA or NEPA because habitats of the project site are marginal to unsuitable for this species under existing conditions, portions of the site will remain marginally suitable for the Swainson's hawk following construction, and habitats of similar or higher quality are regionally abundant.

Implementation of the following mitigations will reduce impacts to nesting Swainson's hawks to a less than significant level.

Mitigation. Prior to the construction of the project the applicant will implement the following measure(s) to avoid and minimize the potential for project-related mortality of Swainson's hawk, as necessary.

> ***Mitigation 3.3.1a* (*Avoidance*).** If feasible, the project will be constructed outside the Swainson's hawk nesting season, typically defined as March 1-September 15.
>
> ***Mitigation 3.3.1b* (*Pre-construction Surveys*).** If the project must be constructed between March 1 and September 15, a qualified biologist will conduct pre-construction surveys for Swainson's hawk nests on and within ½ mile of the project site within 30 days of the onset of these activities.
>
> ***Mitigation 3.3.1c* (*Establish Buffers*).** Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.

Implementation of these measures would reduce impacts to Swainson's hawks to a less then significant level under CEQA and NEPA, and ensure compliance with state and federal law.

3.3.2 Project Impacts to Burrowing Owls

Potential Impacts. The site provides marginal nesting and roosting habitat for the burrowing owl along the banks of Packwood Creek and Mill Creek, where California ground squirrel burrows were relatively plentiful at the time of the December 2014 field survey. Burrowing owls could also potentially forage in the site's isolated ruderal areas. In the unlikely event that burrowing owls are occupying burrows of the project site at the time of construction, they could be injured or killed by construction activities, or could be disturbed such that they would abandon active nests. These small raptors are protected under the federal Migratory Bird Treaty Act and California Fish and Game Code (see Sections 3.2.3 and 3.2.4). Mortality of individual birds would violate state and federal law, and are considered a potentially significant impact under CEQA and NEPA.

The project will convert habitats that are marginal to unsuitable for the burrowing owl under existing conditions to a regional park and groundwater recharge facility. Following project implementation, it is expected that all habitats of the site will be unsuitable for the burrowing owl owing due to intensive maintenance practices and ongoing human disturbance at the park/facility. The loss of a small amount (a few acres) of marginal nesting and foraging habitat for the burrowing owl is considered a less than significant impact under CEQA and NEPA because habitats of similar or higher quality are regionally abundant.

Mitigation. Prior to ground disturbance activities, the following measure(s) will be implemented to avoid and minimize the potential for project-related mortality of burrowing owls, as necessary:

> ***Mitigation Measure 3.3.2a (Take Avoidance Survey).*** A take avoidance survey will be conducted by a qualified biologist for burrowing owls no less than 14 days prior to initiating ground disturbance activities. This survey will be conducted according to methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012). All suitable habitats of the site will be covered during this survey.
>
> ***Mitigation Measure 3.3.2b (Avoidance of Active Nests).*** If a take avoidance survey is undertaken during the breeding season (February 1 through August 31) and active nest burrows are located within or near construction zones, a construction-free buffer of 250 feet shall be established around all active owl nests. The buffer areas shall be enclosed with temporary fencing, and construction equipment and workers shall not enter the enclosed setback areas. Buffers shall remain in place for the duration of the breeding

season. After the breeding season (i.e. once all young have left the nest), passive relocation of any remaining owls may take place as described below.

Mitigation Measure 3.3.2c (Passive Relocation of Resident Owls). During the non-breeding season (September 1 through January 31), resident owls occupying burrows in areas proposed for development may be passively relocated to alternative habitat. The relocation of resident owls must be conducted according to a relocation plan prepared by a qualified biologist.

Compliance with the above mitigation measures would reduce impacts to burrowing owls to a less than significant level under CEQA and NEPA, and ensure compliance with state and federal law.

3.3.3 Project Impacts to Nesting Raptors and Migratory Birds, Including the White-Tailed Kite and Loggerhead Shrike

Potential Impacts. The project site contains suitable nesting habitat for a number of avian species protected under the federal Migratory Bird Treaty Act and related state laws. Raptors such as the red-tailed hawk and American kestrel could potentially nest in the site's mature valley oak trees. Although unlikely, these trees could also be used by the white-tailed kite (*Elanus leucurus*), a Fully Protected species in California, as well as by a variety of songbirds including the loggerhead shrike (*Lanius ludovicianus*), a California Species of Special Concern. The orchards of the site could be used for nesting by the American robin, house finch, western scrub jay, and a variety of other migratory birds. Even the most disturbed habitats of the project site could be used by the killdeer (*Charadrius vociferous*), mourning dove, and other disturbance-tolerant birds. If birds were to be nesting on or adjacent to the project site at the time of construction, project-related activities could result in the abandonment of active nests or direct mortality to these birds. Construction activities that adversely affect the nesting success of raptors or result in mortality of individual birds constitute a violation of state and federal laws (see Sections 3.2.3 and 3.2.4) and would be considered a significant impact under CEQA.

Mitigation. In order to minimize construction disturbance to active raptor and other bird nests, the applicant will implement the following measure(s), as necessary, prior to project construction:

***Mitigation 3.3.3a* (*Avoidance*).** In order to avoid impacts to nesting raptors and migratory birds, construction will occur, where possible, outside the nesting season, or between September 1st and January 31st.

***Mitigation 3.3.3b* (*Pre-construction Surveys*).** If construction must occur during the nesting season (February 1-August 31), a qualified biologist will conduct pre-construction surveys for active raptor and migratory bird nests within 30 days of the onset of these activities. Nest surveys will include all areas on and within 500 feet of the site. If no active nests are found within the survey area, no further mitigation is required.

***Mitigation 3.3.3c* (*Establish Buffers*).** Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. This buffer will be identified on the ground with flagging or fencing, and will be maintained until the biologist has determined that the young have fledged.

Compliance with the above mitigation measures would reduce impacts to nesting raptors and migratory birds, including the white-tailed kite and loggerhead shrike, to a less than significant level under CEQA and NEPA, and ensure compliance with state and federal law.

3.3.4 Potential Project Impacts to American Badger

Potential Impacts. The American badger is uncommon in the region, but individuals may occasionally pass through the project site or den/forage in its ruderal areas or seasonal channels. If one or more badgers were denning on the site at the time of construction, then these individuals would be at risk of project-related injury or mortality. Construction mortality of American badgers is considered a potentially significant impact of the project.

The project will convert habitats that are marginal to unsuitable for the American badger under existing conditions to a regional park and groundwater recharge facility. Following project implementation, it is expected that all habitats of the site will be unsuitable for the badger owing to intensive maintenance practices and ongoing human disturbance at the park/facility. The loss of a small amount (a few acres) of marginal denning and foraging habitat for the badger is considered a less than significant impact under CEQA and NEPA since habitats of similar or higher quality are regionally abundant.

Mitigation. The following measures will be implemented to avoid and minimize the potential for project-related mortality of American badgers.

Mitigation Measure 3.3.4a: Preconstruction Surveys. A preconstruction survey for American badgers will be conducted by a qualified biologist within 30 days of the start of construction. Preconstruction surveys will be conducted in all suitable denning habitat of the project site.

Mitigation Measure 3.3.4b: Avoidance. Should an active natal den be identified during the preconstruction surveys, a suitable disturbance-free buffer will be established around the den and maintained until a qualified biologist has determined that the cubs have dispersed or the den has been abandoned.

Implementation of the above measures will reduce potential project impacts to the American badger to a less than significant level under CEQA and NEPA and ensure compliance with state laws protecting this species.

3.3.5 Project Impacts to Roosting Bats

Potential Impact. The project site's mature valley oak trees provide potential habitat for roosting bats, including the pallid bat (*Antrozous pallidus*) and western mastiff bat (*Eumops perotis*), both California Species of Special Concern. If trees removed by the project contain maternity colonies, many individual bats could be killed. Such a mortality event would be considered a potentially significant impact of the project under CEQA and NEPA.

Mitigation. In order to minimize construction disturbance to roosting bats, the applicant will implement the following measures:

Mitigation Measure 3.3.5a (Temporal Avoidance). To avoid potential impacts to maternity bat roosts, removal of the site's mature valley oaks should occur outside of the period between April 1 and September 30, the time frame within which colony-nesting bats generally assemble, give birth, nurse their young, and ultimately disperse.

Mitigation Measure 3.3.5b (Pre-construction Surveys). If any of the site's mature valley oak trees are to be removed between April 1 and September 30 (general maternity bat roost season), then within 30 days prior to tree removal, a qualified biologist will survey these trees for the presence of bats. The biologist will look for individuals, guano, and staining, and will listen for bat vocalizations. If necessary, the biologist will wait for nighttime emergence of bats from roost sites. If no bats are observed to be roosting or breeding, then no further action would be required, and construction could proceed.

Mitigation Measure 3.3.5c (Minimization). If a non-breeding bat colony is found in trees proposed for removal, the individuals will be humanely evicted via two-stage tree removal, under the direction of a qualified biologist, to ensure that no harm or "take" of any bats occurs as a result of construction activities.

Mitigation Measure 3.3.5d (Avoidance of Maternity Roosts). If a maternity colony is detected during pre-construction surveys, a disturbance-free buffer will be established around the colony and remain in place until a qualified biologist determines that the nursery is no longer active. The disturbance-free buffer will range from 50 to 100 feet as determined by the biologist.

Implementation of the above measures will reduce potential project impacts to roosting bats to a less than significant level under CEQA an NEPA.

3.3.6 Disturbance to Waters of the United States and States

Impact. A preliminary delineation of potential waters of the U.S. has been prepared by LOA concurrently for the project, and will be submitted to the USACE for review and verification. A total of approximately 2.17 acres of possible waters of the U.S. and waters of the State in the form of Mill Creek and Packwood Creek have been identified on the site (LOA 2016).

As discussed in Section 2.5, hydrologic features on the site also include three ditches and five basins that appear to fall into categories of waters that are considered exempt according to the CWR. These features are also expected to be exempt from CDFW jurisdiction.

The project will result in potentially significant impacts to potential jurisdictional waters. The anticipated level and duration of impact will vary depending on the phasing and ultimate buildout of the project. Very minor direct, permanent impacts are anticipated with Phase I of the project, which will entail tying into Mill Creek and Packwood Creek for the installation of the stormwater basins. During this initial phase, it is anticipated that a few hundred square feet will be affected in each channel from installation of control structures to divert water from Mill and Packwood Creeks into the basins under gravity flow at specific locations (see Figure 3a). Any fill, placement of control structures, placement of rip-rap or other permanent erosion control measures within jurisdictional waters would be considered direct, permanent impact.

In Phase II, the project proposes to realign the entire onsite stretch of Mill Creek to its more natural historic meandering channel (see Figure 3b). No additional impacts are proposed to Packwood Creek. While considered excluded waters; Fleming Ditch will remain in-place untouched, the unnamed ditch will be eliminated, and Oakes Ditch will be reconfigured and will

terminate into a new pipeline on the east side of the project near Road 152. This pipeline will deliver irrigation tailwater into the recharge basin located north of Packwood Creek.

Estimated impacts to waters of the U.S. after full project buildout (including Phase II) are presented in Table 2.

Table 2. Potential Impacts to Waters of the U.S., East Side Regional Park and Groundwater Recharge Project.

Type of Water	Acres (ac)	Square Feet (sf)	Linear Feet (lf)	Approx. Impacts (ac)	Approx. Impacts (lf)
Mill Creek	1.18	51,398	2,490	1.18	2,490
Packwood Creek	0.99	43,095	2,847	0.007	50
TOTAL	**2.17**	**94,493**	**5,337**	**1.2**	**2,540**

Impacts to waters of the U.S. are also subject to the permit requirements of Section 404 and 401 of the Clean Water Act. The placement of fill within a water of the U.S. will require 1) a Clean Water Act permit from the USACE, and 2) a Water Quality Certification from the RWQCB. These permits cannot be issued without an accepted preliminary jurisdictional determination or a verified wetland delineation by the USACE. Additionally, impacts to the seasonal channels as proposed will require a Streambed Alteration Agreement (SAA) from CDFW. Given the extent of impacts to potential waters of the U.S., these impacts are considered potentially significant under CEQA and NEPA.

Mitigation. The following mitigations will reduce impacts to waters of the U.S. and State to a less than significant level.

> ***Mitigation Measure 3.3.6a (Agency Permit Apprehension and Compliance).*** The City will apprehend a Section 404 Clean Water Act Permit from the USACE, a Section 401 Water Quality Certificate from the RWQCB, and a Stream Alteration Agreement from CDFW. The City will comply with all conditions of these permits.

Actual permitting requirements for impacts to potentially jurisdictional waters will vary depending on timing of project phasing and the extent of ultimate project build-out. Discussion of the nationwide permits below is based on current regulatory guidance, and is subject to change once the revised permits are released.

Based on the current permits, the nationwide permit that Phase 1 (construction of stormwater basins) would likely qualify for would be Nationwide (NW) 43, Stormwater Management. It is not anticipated that impacts from Phase 1 would exceed the threshold for this nationwide (300 linear feet (lf) and/or ½ acre of channel). However, the USACE typically will not permit a single phase of a project; they typically permit a project based on total buildout (i.e. all phases).

Eventual realignment of Mill Creek in its entirety (as proposed during Phase II) would likely trigger the need for an individual permit rather than a nationwide permit, primarily due to the fact that final build-out of the project would far exceed the impact threshold for most of the nationwide permits (including NW 43). Acquisition of an individual permit requires informal consultation with USFWS through preparation of a Section 7 Biological Assessment, preparation of an alternatives analysis, Section 106 consultation, and a 15-day public noticing period.

Conditions of the 404 and 401 permits will likely require some form of onsite and/or offsite replacement of jurisdictional waters, and/or payment into an in lieu fund, for permanent impacts to jurisdictional waters. The following measures are typical conditions of 404 and 401 permits; however, the final mitigations required for the project will be determined by the total amount of impact, and the permitting agencies requirements.

> ***(Minimization).*** Minimize impacts to Waters of the U.S. to the maximum extent practicable while still achieving its goal of flood control. Relocation of the stream to its original stream course and the resulting control of water flows would restore historical functions and values of the channel and adjacent lands.
>
> ***(Preservation).*** Compensate for the loss of waters of the U.S. associated with onsite tributary waters through the preservation of waters at a 1.1:1 ratio by purchasing in-kind credits at an approved mitigation bank, payment into an established in lieu fund, or through the preservation of onsite or offsite lands with similar hydrologic features. Preservation lands would have to be placed under conservation easement held by a third party and managed in perpetuity with an agency approved endowment fund.

(Creation). Compensate for the loss of waters of the U.S. through the creation of in-kind waters at a 1:1 ratio on preserved lands, onsite or offsite, with the capacity to create similar hydrologic features. Creation lands will have to be placed under conservation easement held by a third party and managed in perpetuity with an agency approved endowment fund.

(Employee Education Program). During each of the construction phases of the project, a qualified biologist will conduct an environmental awareness program for all construction and on-site personnel prior to impacting any jurisdictional waters. Training will include a discussion of avoidance and minimization measures being implemented to protect biological resources (including wetlands) as well as terms and conditions of the permits.

Implementation of *Mitigation Measure 3.3.6a* would reduce potential impacts to waters of the U.S. and waters of the state to a less-than-significant level under CEQA and NEPA, and ensure that the project is in compliance with state and federal laws protecting this resource.

3.3.7 Degradation of Water Quality in Seasonal Drainages, Stock Ponds, and Downstream Waters

Potential Impacts. Sedimentation and transport of polluted runoff into seasonal drainages has the potential to occur as a result of project activities. Impacts can be reduced to a less than significant level through implementation of measures to protect water quality during construction, as described below.

Mitigation. The following measures will be implemented as necessary for the project.

Mitigation Measure 3.3.7a (Preparation of a Storm Water Pollution Prevention Plan). The Applicant will have a certified contractor prepare a Storm Water Pollution Prevention Plan (SWPPP) consistent with the requirements of a grading permit and a General Construction Permit (an NPDES permit issued by the Regional Water Quality Control Board). Typically, specified erosion control measures must be implemented prior to the onset of the rainy season. The Site must then be monitored periodically throughout the rainy season to ensure that the erosion control measures are successfully preventing on-Site erosion and the concomitant deposition of sediment into downstream waters. Elements of this plan would address both the potential for soil erosion and non-point source pollution. At a minimum, elements of an erosion control plan typically include the following:

- Protection of exposed graded slopes from sheet, rill and gully erosion. Such protection could be in the form of erosion control fabric, hydromulch containing the seed of native soil-binding plants, straw mechanically imbedded in exposed soils, or some combination of the three.

- Use of best management practices (BMPs) to control soil erosion and non-point source pollution. BMPs may include measures any number of measures appropriate for this particular Project Site and this particular Project, including landscape management practices to reduce the use of pesticides and herbicides, the discharge of stormwater runoff from "hardscapes" into grassy swales, regular Site inspections for pollutants that could be carried by runoff into natural drainages, etc.

Mitigation Measure 3.3.7b (Spill Containment and Material Storage). The Applicant shall store fuel used for contractor equipment and hazardous materials away from the project site. When possible, the applicant shall not refuel construction equipment when working adjacent to the seasonal channels of the project site. If refueling is necessary near these features, the applicant shall use portable spill containment equipment or maintain a spill containment kit during construction.

Implementation of the above measures will reduce potential project impacts to water quality to a less than significant level under CEQA and NEPA, and ensure that the project is in compliance with state and federal laws protecting this resource.

3.3.8 Local Policies or Habitat Conservation Plans

Potential Impacts. Twenty-six valley oaks were identified on the site along Mill Creek, Oakes Ditch, Packwood Creek and a few along Road 152. Twenty of the 26 valley oak trees were greater than 24 inches in diameter at breast height. These trees are protected by City of Visalia's Oak Tree Protection Ordinance (2007) which was developed pursuant to Visalia Municipal Code.

With the exception of potential removal of valley oaks on site, the project appears to be in compliance with all other provisions of County of Tulare General Plan polices. See Appendix E for the County of Tulare General Plan policies pertaining to biological resources and Appendix F for the City Oak Tree Protection Ordinance (2007). No known Habitat Conservation Plans are in effect for the area.

Mitigation. The applicant will implement the following measures:

Mitigation Measure 3.3.8a (Mitigation Fees or Replacement Planting). Should avoidance of oak trees not be possible, the applicant will provide compensation. Based on the City's tree mitigation policy, either payment of a mitigation fee ($120 multiplied by diameter at breast height (DBH) for each tree removed) or replacement planting at a ratio

of one new oak tree for every inch of DBH of the tree removed. Species chosen for the plant pallet will include native riparian trees such as valley oaks, Oregon ash and Fremont's cottonwoods. Seed and cuttings will be gathered from its lands fronting the Packwood Creek watershed, if possible. These trees will be planted as container plants and cuttings. All planting material will be installed in the late fall or early winter.

Implementation of these measures will reduce potentially significant project impacts to oak trees to a "less than significant" level under CEQA and NEPA.

3.4 LESS THAN SIGNIFICANT PROJECT IMPACTS

3.4.1 Loss of Habitat for Special Status Plants

Potential Impacts. Sixteen special status vascular plant species are known to occur in the vicinity of the project site: California jewelflower (*Caulanthus californicus*), Hoover's spurge (*Euphorbia hooveri*), striped adobe lily (*Fritillaria striata*), Kaweah brodiaea (*Brodiaea insignis*), San Joaquin Valley orcutt grass (*Orcuttia inaequalis*), San Joaquin adobe sunburst (*Pseudobahia peirsonii*), Greene's tuctoria (*Tuctoria greenei*), brittlescale (*Atriplex depressa*), Earlimart orache (*Atriplex cordulata* ssp. *erecticaulis*), lesser saltscale (*Atriplex minuscula*), vernal pool smallscale (*Atriplex persistens*), subtle orache (*Atriplex subtilis*), recurved larkspur (*Delphinium recurvatum*), spiny-sepaled button celery (*Eryngium spinosepalum*), calico monkeyflower (*Mimulus pictus*), and California alkali-grass (*Puccinellia simplex*) (see Table 1). Because of the many decades of agricultural disturbance and yearly discing of the study area, habitat for these sixteen plant species is absent from the project site. Therefore, the proposed project would not affect regional populations of these species and impacts would be less than significant.

Mitigation. Mitigation measures are not warranted.

3.4.2 Project Impacts to Special Status Animal Species Absent from, or Unlikely to Occur on, the Project Site

Potential Impacts. Of the 22 special status animal species that potentially occur in the project vicinity, 13 are considered absent or unlikely to occur on the project site due to past and ongoing disturbance of the site and surrounding lands, the absence of suitable habitat, and/or the site's being situated outside of the species' known distribution. These species include the vernal pool

fairy shrimp, vernal pool tadpole shrimp, valley elderberry longhorn beetle, California tiger salamander, California red-legged frog, blunt-nosed leopard lizard, giant garter snake, golden eagle, western yellow-billed cuckoo, Tipton kangaroo rat, San Joaquin kit fox, western spadefoot, and western pond turtle (see Table 1). The project does not have the potential to significantly impact these species through construction mortality or loss of habitat because there is little or no likelihood that they are present.

Mitigation. Project impacts to special status animals considered absent or unlikely to occur on the site are less than significant under CEQA and NEPA. Mitigation is not warranted.

3.4.3 Project Impacts to Special Status Animal Species that May Occur on the Project Site as Occasional or Regular Foragers but Breed Elsewhere

Potential Impacts. Two special status animals, the tricolored blackbird and northern harrier, have the potential to forage over the site's ruderal areas and agricultural basins from time to time, but would not breed on-site (see Table 1). Potential foraging habitat on the project site is marginal, at best, for these species, and similar or higher quality foraging habitat is relatively abundant in the region. Moreover, the site is situated in a matrix of orchards, vineyards, and residential development not typical of these species' use patterns. For these reasons, loss of foraging habitat for the tricolored blackbird and northern harrier is not a significant impact of the project under CEQA and NEPA. The project does not have the potential to result in the mortality of individual tricolored blackbirds or northern harriers because both species are highly mobile while foraging and would be expected to fly away from construction disturbance.

Mitigation. Project impacts to special status animals that would use the site for foraging only are less than significant under CEQA and NEPA. Mitigation is not warranted.

3.4.4 Project Impacts to Wildlife Movement Corridors

Potential Impacts. The site does not contain important movement corridors for native wildlife. Furthermore, the site will function in much the same manner as it does now, after the project is complete. Birds using the Pacific flyway will continue to do so following project development. Therefore, the project will result in a less than significant effect on regional wildlife movements.

Mitigation. No mitigation is warranted.

3.4.5 Disturbance to Riparian Habitat or other Sensitive Habitats

Potential Impacts. Agricultural and disturbed lands occupy the majority of the site and are not considered sensitive habitats. These habitats of the site are not of significant importance to regional wildlife populations. Twenty-six valley oaks were identified on the site along Mill Creek, Oakes Ditch, Packwood Creek and a few along Road 152. Although valley oaks are typically considered a riparian species, the sporadic, fragmented nature of these isolated trees has created habitat conditions unlike typical dense riparian habitat with multiple canopy layers. The value of this habitat for wildlife is low. Tree impacts and mitigations are described in Section 3.3.8. Onsite agricultural basins and irrigation ditches would not be considered sensitive habitat.

Because riparian habitat on site is extremely marginal and fragmented, and other habitats are not considered sensitive, future project construction will have a less than significant impact on these habitats.

Mitigation. Mitigations are not warranted.

3.4.6 Project Impacts to Designated Critical Habitat

Potential Impacts. As discussed, designated critical habitat is absent from the project site and immediate vicinity. Therefore, the project does not have the potential to impact critical habitat.

Mitigation. No mitigation is warranted.

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APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The vascular plant species listed below were observed on the project site during a site survey conducted by Live Oak Associates, Inc. on December 29 and 30, 2014. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
NR - No review
NA - No agreement
NI - No investigation

ASTERACEAE – Sunflower Family		
Amaranthus albus	Tumbleweed	FACU
Amaranthus palmeri	Careless Weed	FACU
Amaranthus retroflexus	Red-root Amaranth	FACU
Ambrosia psilostachya	Ragweed	FACU
Erigeron bonariensis	Asthmaweed	FACU
Erigeron canadensis	Canada Horseweed	FACU
Gnaphalium sp.	Cudweed	-
Helianthus annuus	Common Sunflower	FACU
Heterotheca grandiflora	Telegraph Weed	UPL
Hypochaeris glabra	Smooth Cat's Ear	UPL
Lactuca serriola	Prickly Lettuce	FACU
Helminthotheca echioides	Bristly Ox-tongue	FACU
Senecio vulgaris	Common Groundsel	FACU
Silybum marianum	Milk Thistle	UPL
Sonchus oleraceus	Sow Thistle	UPL
Taraxacum officinale	Common Dandelion	FACU
Xanthium strumarium	Rough Cocklebur	FAC
BORAGINACEAE – Borage Family		
Amsinckia sp.	Fiddleneck	UPL
Plagiobothrys sp.	Popcornflower	UPL
BRASSICACEAE – Mustard Family		
Brassica nigra	Black Mustard	UPL
Capsella bursa-pastoris	Shepherd's Purse	FACU
Descurainia incana	Tansy Mustard	FACU
Raphanus sativa	Wild Radish	UPL
Sisymbrium altissimum	Tumbling Mustard	FACU
CARYOPHYLLACEAE – Carnation Family		
Stellaria media	Common Chickweed	FACU

CHENOPODIACEAE – Goosefoot Family		
Chenopodium album	Common Lambsquarters	FACU
Salsola tragus	Russian Thistle	FACU
CYPERACEAE –Umbrella Sedge Family		
Cyperus eragrostis	Umbrella Sedge	FACW
Eleocharis macrostachya	Creeping Spikerush	FACW
FABACEAE – Legume Family		
Albizia julibrissin	Silk Tree	UPL
Medicago lipulina	Black Medic	FAC
Medicago polymorpha	Toothed Medic	FACU
Medicago sativa	Alfalfa	UPL
GERANIACEAE – Geranium Family		
Erodium botrys	Broad Leaf Filaree	FACU
Erodium cicutarium	Redstem Filaree	UPL
Erodium moschatum	Whitestem Filaree	UPL
Geranium molle	Geranium	UPL
JUGLANDACEAE – Walnut Family		
Carya illinoinensis	Pecan	UPL
Juglans regia	English Walnut	UPL
JUNCACEAE – Rush Family		
Juncus effusus pacificus	Pacific Rush	FACW
MALVACEAE – Mallow Family		
Malva sp.	Mallow	-
MARSILEACEAE – Waterleaf Family		
Marsilia vestita	Hairy Waterleaf	OBL
MONTIACEAE – Miners Lettuce Family		
Claytonia perfoliata	Miners Lettuce	UPL
ONAGRACEAE – Fuschia Family		
Epilobium brachycarpum	Willow Herb	UPL
PLANTAGINACEAE – Figwort Family		
Veronica anagallis-aquatica	Blue Water Speedwell	OBL
POACEAE – Grass Family		
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermuda Grass	FAC
Dactylis glomerata	Orchard Grass	FACU
Digitaria sanguinalis	Hairy Crab Grass	FACU
Echinochloa crus-galli	Barnyard Grass	FACW
Hordeum murinum ssp. *leporinum*	Barnyard Barley	FACU
Leptochloa fusca ssp. *univerva*	Bearded Sprangletop	FACW
Poa annua	Annual Bluegrass	FACU
Sorghum halepense	Johnson Grass	FACU
POLYGONACEAE – Smartweed Family		
Persicaria sp.	Water Smartweed	FACW or OBL
Polygonum aviculare	Prostrate Knotweed	FACW
Rumex crispus	Curly Dock	FAC

ROSACEAE - Rose Family		
Rubus armeniacus	Himalayan Blackberry	FACU
SOLONACEAE - Nightshade Family		
Datura stramineum	Jimson Weed	UPL
Nicotiana glauca	Tree Tobacco	FAC
Physalis acutifolia	Ground Cherry	

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may reasonably be expected to use the habitats of the project site routinely from time to time. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed in or adjacent to the project sites during the survey conducted by Live Oak Associates, Inc. on December 29 and 30, 2014 have been noted with an asterisk.

CLASS: AMPHIBIA (Amphibians)
ORDER: SALIENTIA (Frogs and Toads)
FAMILY: BUFONIDAE (True Toads)
Western Toad (*Bufo boreas*)
FAMILY: HYLIDAE (Treefrogs and relatives)
Pacific Chorus Frog (*Pseudacris regilla*)

CLASS: REPTILIA (Reptiles)
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Western Fence Lizard (*Sceloporus occidentalis*)
Side-blotched Lizard (*Uta stansburiana*)
FAMILY: TEIIDAE (Whiptails and relatives)
Western Whiptail (*Cnemidophorus tigris*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Glossy Snake (*Arizona elegans*)
Gopher Snake (*Pituophis melanoleucus*)
Common Kingsnake (*Lampropeltis getulus*)
Long-nosed Snake (*Rhinocheilus lecontei*)
Common Garter Snake (*Thamnophis sirtalis*)
FAMILY: VIPERIDAE (Vipers)
Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES (Birds)
ORDER: CICONIIFORMES (Herons, Storks, Ibises and Relatives)
FAMILY: ARDEIDAE (Herons and Bitterns)
Great Blue Heron (*Ardea herodias*)
Great Egret (*Ardea alba*)
Snowy Egret (*Egretta thula*)
Cattle Egret (*Bubulcus ibis*)
FAMILY: CATHARTIDAE (American Vultures)
Turkey Vulture (*Cathartes aura*)
ORDER: ANSERIFORMES (Screamers, Ducks and Relatives)

FAMILY: ANATIDAE (Swans, Geese and Ducks)
Canada Goose (*Branta canadensis*)
Mallard (*Anas platyrhynchos*)

ORDER: FALCONIFORMES (Vultures, Hawks, and Falcons)
FAMILY: ACCIPITRIDAE (Hawks, Old World Vultures, and Harriers)
*Red-tailed Hawk (*Buteo jamaicensis*)
Ferruginous Hawk (*Buteo regalis*)
*Sharp-Shinned Hawk (*Accipiter striatus*)
Cooper's Hawk (*Accipiter cooperii*)
*Red-Shouldered Hawk (*Buteo lineatus*)
FAMILY: FALCONIDAE (Caracaras and Falcons)
*American Kestrel (*Falco sparverius*)

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)
FAMILY: CHARADRIIDAE (Plovers and relatives)
*Killdeer (*Charadrius vociferus*)
FAMILY: COLOPACIDAE (Sandpipers and Relatives)
Greater Yellowlegs (*Tringa melanoleuca*)
Least Sandpiper (*Calidris minutilla*)
FAMILY: LARIDAE (Skuas, Gulls, Terns and Skimmers)
Ring-billed Gull (*Larus delawarensis*)
California Gull (*Larus californicus*)
Herring Gull (*Larus argentatus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)
FAMILY: COLUMBIDAE (Pigeons and Doves)
Rock Dove (*Columba livia*)
*Eurasian Collared Dove (*Streptopelia decaocto*)
*Mourning Dove (*Zenaida macroura*)

ORDER: STRIGIFORMES (Owls)
FAMILY: TYTONIDAE (Barn Owls)
Common Barn Owl (*Tyto alba*)
FAMILY: STRIGIDAE (Typical Owls)
Great Horned Owl (*Bubo virginianus*)

ORDER: APODIFORMES (Swifts and Hummingbirds)
FAMILY: TROCHILIDAE (Hummingbirds)
*Anna's Hummingbird (*Calypte anna*)
Rufous Hummingbird (*Selasphorus rufus*)

ORDER: PICIFORMES (Woodpeckers and relatives)
FAMILY: PICIDAE (Woodpecker and Wrynecks)
*Northern Flicker (*Colaptes chrysoides*)
Downy Woodpecker (*Picoides pubescens*)
*Nuttall's Woodpecker (*Picoides nuttallii*)
*Acorn Woodpecker (*Melanerpes formicivorus*)

ORDER: PASSERIFORMES (Perching Birds)
FAMILY: TYRANNIDAE (Tyrant Flycatchers)
*Black Phoebe (*Sayornis nigricans*)

*Say's Phoebe (*Sayornis saya*)
Western Kingbird (*Tyrannus verticalis*)
FAMILY: LANIIDAE (Shrikes)
Loggerhead Shrike (*Lanius ludovicianus*)
FAMILY: CORVIDAE (Jays, Magpies, and Crows)
*Western Scrub Jay (*Aphelocoma coerulescens*)
*American Crow (*Corvus brachyrhynchos*)
*Common Raven (*Corvus corax*)
FAMILY: ALAUDIDAE (Larks)
Horned Lark (*Eremophila alpestris*)
FAMILY: HIRUNDINIDAE (Swallows)
Cliff Swallow (*Hirundo pyrrhonota*)
Barn Swallow (*Hirundo rustica*)
FAMILY: PARIDAE (Titmice and Relatives)
*Oak Titmouse (*Baeolophus inornatus*)
FAMILY: AEGITHALIDAE (Bushtit)
Bushtit (*Psaltriparus minimus*)
FAMILY: TROGLODYTIDAE (Wrens)
House Wren (*Troglodytes aedon*)
FAMILY: REGULIDAE (Kinglets)
Ruby-Crowned Kinglet (*Regulus calendula*)
FAMILY: TURDIDAE (Thrushes)
*Western Bluebird (*Sialia mexicana*)
*American Robin (*Turdus migratorius*)
FAMILY: MIMIDAE (Mockingbirds and Thrashers)
Northern Mockingbird (*Mimus polyglottos*)
FAMILY: STURNIDAE (Starlings)
*European Starling (*Sturnus vulgaris*)
FAMILY: MOTACILLIDAE (Wagtails and Pipits)
American Pipit (*Anthus rubescens*)
FAMILY: BOMBYCILLIDAE (Waxwings)
*Cedar Waxwing (*Bombycilla cedrorum*)
FAMILY: PARULIDAE (Wood Warblers and Relatives)
*Yellow-rumped Warbler (*Dendroica coronata*)
FAMILY: EMBERIZIDAE (Sparrows)
Lark Sparrow (*Chondestes grammacus*)
Savannah Sparrow (*Passerculus sandwichensis*)
*Golden-crowned Sparrow (*Zonotrichia atricapilla*)
*White-crowned Sparrow (*Zonotrichia leucophrys*)
*Dark-Eyed Junco (*Junco hyemalis*)
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)
Red-winged Blackbird (*Agelaius phoeniceus*)
Western Meadowlark (*Sturnella neglecta*)
Brewer's Blackbird (*Euphagus cyanocephalus*)
Brown-headed Cowbird (*Molothrus ater*)

FAMILY: FRINGILLIDAE (Finches)
*House Finch (*Carpodacus mexicanus*)
Pine Siskin (*Carduelis pinus*)
Lesser Goldfinch (*Carduelis psaltria*)
Lawrence's Goldfinch (*Spinus lawrencei*)
American Goldfinch (*Spinus tristis*)
FAMILY: PASSERIDAE (Old World Sparrows)
*House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA (Mammals)
ORDER: DIDELPHIMORPHIA (Marsupials)
FAMILY: DIDELPHIDAE (Opossums)
Virginia Opossum (*Didelphis virginiana*)
ORDER: INSECTIVORA (Insectivores)
Ornate Shrew (*Sorex ornatus*)
ORDER: CHIROPTERA (Bats)
FAMILY: PHYLLOSTOMIDAE (Leaf-nosed Bats)
Southern Long-nosed Bat (*Leptonycteris curasoae*)
FAMILY: VESPERTILIONIDAE (Evening Bats)
Yuma Myotis (*Myotis yumanensis*)
California Myotis (*Myotis californicus*)
Western Pipistrelle (*Pipistrellus hesperus*)
Big Brown Bat (*Eptesicus fuscus*)
Hoary Bat (*Lasiurus cinereus*)
FAMILY: MOLOSSIDAE (Free-tailed Bat)
Brazilian Free-tailed Bat (*Tadarida brasiliensis*)
ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)
FAMILY: LEPORIDAE (Rabbits and Hares)
Audubon Cottontail Rabbit (*Sylvilagus audubonii*)
Black-tailed (Hare) Jackrabbit (*Lepus californicus*)
ORDER: RODENTIA (Rodents)
FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)
*California Ground Squirrel (*Otospermophilus beecheyi*)
FAMILY: GEOMYIDAE (Pocket Gophers)
*Botta's Pocket Gopher (*Thomomys bottae*)
FAMILY: HETEROMYIDAE (Pocket Mice and Kangaroo Rats)
San Joaquin Pocket Mouse (*Perognathus inornatus*)
FAMILY: MURIDAE (Old World Rats and Mice)
Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)
ORDER: CARNIVORA (Carnivores)
FAMILY: CANIDAE (Foxes, Wolves, and relatives)

Coyote (*Canis latrans*)
Feral Dog (*Canis lupus familiaris*)
Red Fox (*Vulpes vulpes*)

FAMILY: PROCYONIDAE (Raccoons and relatives)

Raccoon (*Procyon lotor*)

FAMILY: MEPHITIDAE (Skunks)

Striped Skunk (*Mephitis mephitis*)

FAMILY: FELIDAE (Cats)

Feral Cat (*Felis domesticus*)
Bobcat (*Lynx rufus*)

APPENDIX C: SELECTED PHOTOGRAPHS OF THE PROJECT SITE

Photograph #1 (above). Pecan orchards comprise the majority of the project site. Photograph #2 (below). Transmission lines and ruderal habitat along the western boundary of the site.

Photograph #3 (above). Burrows of various shapes and sizes line Mill Creek Ditch. Photograph #4 (below). One of the five agricultural/stormwater basins currently present on the site.

Photograph #5 (above). An irrigation ditch connects with Mill Creek Ditch.

Photograph #6 (below). Isolated valley oak tree along Oakes Ditch.

APPENDIX D: TULARE COUNTY GENERAL PLAN RESOURCE BIOLOGICAL RESOURCES ELEMENT

the assurance of rail transport for commodities such as grain, row crops, and fruit, a number of farming colonies soon appeared throughout the region.

The colonies grew to become cities such as Tulare, Visalia, Porterville, and Hanford. Visalia, the County seat, became the service, processing, and distribution center for the growing number of farms, dairies, and cattle ranches. By 1900, Tulare County boasted a population of about 18,000. New transportation links such as SR 99 (completed during the 1950s), affordable housing, light industry, and agricultural commerce brought steady growth to the valley. The U.S. Census Bureau estimated the 2003 Tulare County population to be 390,791.

8.1 Biological Resources

ERM-1 To preserve and protect sensitive significant habitats, enhance biodiversity, and promote healthy ecosystems throughout the County. [*New Goal]*

ERM-1.1 Protection of Rare and Endangered Species

The County shall ensure the protection of environmentally sensitive wildlife and plant life, including those species designated as rare, threatened, and/or endangered by State and/or federal government, through compatible land use development. [*New Policy based on ERME IV-C; Biological Resources; Issue 12, and ERME; Pg 32*]

ERM-1.2 Development in Environmentally Sensitive Areas

The County shall limit or modify proposed development within areas that contain sensitive habitat for special status species and direct development into less significant habitat areas. Development in natural habitats shall be controlled so as to minimize erosion and maximize beneficial vegetative growth. [*New Policy based on EMRE; Water; Issue 3; Recommendation 3, ERME; Pg 28]*

ERM-1.3 Encourage Cluster Development

When reviewing development proposals, the County shall encourage cluster development in areas with moderate to high potential for sensitive habitat. [*New Policy*]

ERM-1.4 Protect Riparian Areas

The County shall protect riparian areas through habitat preservation, designation as open space or recreational land uses, bank stabilization, and development controls. [*New Policy*]

ERM-1.5 Riparian Management Plans and Mining Reclamation Plans

The County shall require mining reclamation plans and other management plans include measures to protect, maintain and restore riparian resources and habitats. [*New Policy*]

ERM-1.6 Management of Wetlands

The County shall support the preservation and management of wetland and riparian plant communities for passive recreation, groundwater recharge, and wildlife habitats. [*New Policy*]

ERM-1.7 Planting of Native Vegetation

The County shall encourage the planting of native trees, shrubs, and grasslands in order to preserve the visual integrity of the landscape, provide habitat conditions suitable for native vegetation and wildlife, and ensure that a maximum number and variety of well-adapted plants are maintained. [*New Policy*]

ERM-1.8 Open Space Buffers

The County shall require buffer areas between development projects and significant watercourses, riparian vegetation, wetlands, and other sensitive habitats and natural communities. These buffers should be sufficient to assure the continued existence of the waterways and riparian habitat in their natural state. [*New Policy based on EMRE policies*]

ERM-1.9 Coordination of Management on Adjacent Lands

The County shall work with other government land management agencies (such as the Bureau of Land Management, US Forest Service, National Park Service) to preserve and protect biological resources while maintaining the ability to utilize and enjoy the natural resources in the County. [*New Policy*]

ERM-1.10 Appropriate Access for Recreation
The County shall encourage appropriate access to resource-managed lands. [*New Policy*]

ERM-1.11 Hunting and Fishing
The County shall provide opportunities for hunting and fishing activities within the County pursuant to appropriate regulations of the California Fish & Game Code. [*New Policy*]

ERM-1.12 Management of Oak Woodland Communities
The County shall support the conservation and management of oak woodland communities and their habitats. [*New Policy*]

ERM-1.13 Pesticides
The Tulare County Agricultural Commissioner/Sealer will cooperate with State and federal agencies in evaluating the side effects of new materials and techniques in pesticide controls to limit effects on natural resources. *[ERME IV-C; Pesticides; Recommandation 1] [ERME; Pg 131, Modified*]

ERM-1.14, Mitigation and Conservation Banking Program
The County shall support the establishment and administration of a mitigation banking program, including working cooperatively with TCAG, federal, State, not-for-profit and other agencies and groups to evaluate and identify appropriate lands for protection and recovery of threatened and endangered species impacted during the land development process. [*New Policy*]

8.2 Mineral Resources - Surface Mining

ERM-2	To conserve protect and encourage the development of areas containing mineral deposits while considering values relating to water resources, air quality, agriculture, traffic, biotic, recreation, aesthetic enjoyment, and other public interest values. [*New Goal based on MRPAC June 28, 2006*]

ERM-2.1 Conserve Mineral Deposits
Emphasize the conservation of identified and/or potential mineral deposits, recognizing the need for identifying, permitting, and maintaining a 50 year supply of locally available PCC grade aggregate. [*MRPAC June 28, 2006*]

ERM-2.2 Recognize Mineral Deposits
Recognize as a part of the General Plan those areas which have identified and/or potential mineral deposits. [*MRPAC June 28, 2006*]

ERM-2.3 Future Resource Development
Provide for the conservation of identified and/or potential mineral deposits within Tulare County as areas for future resource development. Recognize that mineral deposits are significantly limited within Tulare County and that they play an important role in support of the economy of the County. [*MRPAC June 28, 2006*]

ERM-2.4 Identify New Resources
Encourage exploration, evaluation, identification, and development of previously unrecognized but potentially significant hard rock resources for production of crushed stone aggregate. [*MRPAC June 28, 2006*]

ERM-2.5 Resources Development
The County will promote the responsible development of identified and/or potential mineral deposits. [*MRPAC June 28, 2006*]

ERM-2.6 Streamline Process
Create a streamlined and timely permitting process for the mining industry, which will help encourage long-range planning and the reasonable amortization of investments. [*MRPAC June 28, 2006*]

ERM-2.8 Minimize Adverse Impacts
Minimize the adverse effects on environmental features such as water quality and quantity, air quality, flood plains, geophysical characteristics, biotic, archaeological and aesthetic factors. [*MRPAC June 28, 2006*]

ERM-2.9 Minimize Hazards and Nuisances
Minimize the hazards and nuisances to persons and properties in the area during extraction, processing and reclamation operations. [*MRPAC June 28, 2006*]

ERM-2.10 Compatibility
Develop mineral deposits in a manner compatible with surrounding land uses. [*MRPAC June 28, 2006*]

ERM-2.11 Incompatible Development
Proposed incompatible land uses shall not be on lands containing, or adjacent to identified mineral deposits, or along key access roads, unless adequate mitigation measures are adopted or a statement of overriding considerations stating public benefits and overriding reasons for permitting the proposed use are adopted. [*MRPAC June 28, 2006*]

ERM-2.12 Conditions of Approval
Procedures shall be established to ensure compliance with conditions of approval on all active and idle mines. [*MRPAC June 28, 2006*]

ERM-2.13 Approved Limits
Procedures shall be established to ensure that vested interest mining operations remain within their approved area and/or production limits. [*MRPAC June 28, 2006*]

ERM-2.14 SMARA Requirements
All surface mines, unless otherwise exempted, shall be subject to reclamation plans that meet SMARA requirements. Reclamation procedures shall restore the site for future beneficial use of the land. Mine reclamation costs shall be borne by the mine operator, and guaranteed by financial assurances set aside for restoration procedures. [*MRPAC June 28, 2006*]

8.3 Mineral Resources

ERM-3 To protect the current and future extraction of mineral resources that are important to the County's economy while minimizing impacts of this use on the public and the environment. [*ERME IV-B; Land; Issue 8*] [ERME; Pg 30, *Modified*]

ERM-3.1 Environmental Contamination
All mining operations shall be required to take precautions to avoid contamination from wastes or incidents related to the storage and disposal of hazardous materials, or general operating activity at the site. [*New Policy*]

ERM-3.2 Limited In-City Mining
Within UDBs, new commercial mining operations should be limited due to environmental and compatibility concerns. [*New Policy*]

ERM-3.3 Small-Scale Oil and Gas Extraction
The County shall permit by special use permit small-scale oil and gas extraction activities and facilities that can be demonstrated to not have a significant adverse effect on surrounding or adjacent land and are within an established oil and gas field outside of a UDB. [*New Policy*]

ERM-3.4 Oil and Gas Extraction
Facilities related to oil and gas extraction and processing may be allowed in identified oil and gas fields subject to a special use permit. The extraction shall demonstrate that it will be compatible with surrounding land uses and land use designations. [*New Policy*]

ERM-3.5 Reclamation of Oil and Gas Sites
The County shall require the timely reclamation of oil and gas development sites upon termination of such activities to facilitate the conversion of the land to its primary land use as designated by the General Plan. Reclamation costs shall be born by the mine operator, and guaranteed by financial assurances set aside for restoration procedures. [*New Policy, MRPAC Goals, Policies, Implementation Measures, and Development Standards, Goal F and associated policies*]

8.4 Energy Resources

ERM-4 To encourage energy conservation in new and existing developments throughout the County. [*New Goal*]

ERM-4.1 Energy Conservation and Efficiency Measures
The County shall encourage the use of solar energy, solar hot water panels, and other energy conservation and efficiency features in new

APPENDIX E: CITY OF VISALIA'S GENERAL PLAN POLICIES WITH REGARDS TO BIOLOGICAL RESOURCES (CHAPTER 6.4)

Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover for wildlife, including special-status species.

6.4 BIOLOGICAL RESOURCES

The Visalia Planning Area is located in the center of the Central Valley in the western part of Tulare County. Agricultural lands form a perimeter around the City, which is mostly urbanized. Scattered Valley oaks exist in and around the City and along watercourses creating riparian corridors, along with areas of pristine Valley oak woodland and Valley oak riparian woodland. Various special status species occur in the Planning Area. These species are designated by federal or state agencies as needing protection due to rarity or threats to their existence. Land cover types and special status species are shown on **Figure 6-6**.

Flora

The San Joaquin Valley eco-region includes large agricultural areas, croplands, orchards, and vineyard habitat types, typical in much of the Planning Area. While the quality of habitat for wildlife is greatly diminished when the land is converted to agricultural uses, crops and fields can provide habitat for wildlife, particularly for foraging. The urbanized portion of the Planning Area also provides limited support for native plant species, as horticultural plants and disturbed annual grassland areas are most common.

Valley Oak trees occur in the Planning Area at various locations, most notably at Mooney Grove Park. Oak woodlands are important habitats because of their high value to wildlife in the form of nesting sites, cover, and food. The City has made efforts to restore oak woodland by creating an urban forestry program that has planted over 5,000 trees. In addition, Visalia's Valley Oak Ordinance regulates pruning and removal of Valley oak trees within the city limits.

Valley oak riparian woodland occurs along the St. Johns River, Mill Creek, Packwood Creek, Cameron Creek, and some smaller ditches. Riparian forest habitat provides food, water, and migration and dispersal corridors, as well as escape, nesting, and thermal cover for wildlife, including several special-status species. Valley oak riparian habitats are considered sensitive natural communities by the Department of Fish and Game (DFG) because they provide several important ecological functions, including water quality maintenance and habitat for wildlife. The waterways themselves also provide habitat for a variety of wildlife. Some of Visalia's waterways are waters of the United States and are regulated by the U.S. Army Corps of Engineers, the DFG, and the U.S. Fish and Wildlife Service.

The Planning Area contains several areas considered wetlands. For the most part these are detention or retention basins or agricultural ponds, with smaller areas of freshwater marsh along some drainages. Wetlands are considered sensitive natural communities by several resource agencies and are given special consideration. The Planning Area features one known vernal pool, northwest of Goshen Avenue and Road 80 (Plaza Drive). Vernal pools are depressions in the landscape that pond water intermittently during the rainy season and are completely dry during late spring and summer. Because of their unique hydrologic regime, they support a highly specialized flora adapted to prolonged inundation and subsequent dry periods. Vernal pools also provide habitat for many aquatic invertebrates and others, as described under "Fauna" below.

Special Status Plant Species

Special-status species are plants and animals that, because of their documented rarity or vulnerability to various causes of habitat loss or population decline, are recognized by federal, state, or other agencies. Some of these species receive specific protection that is defined by federal or state endangered species legislation. Others have been designated as "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, or policies adopted by local government agencies to meet local conservation objectives.

As illustrated in **Figure 6-6**, some special status plant species are known to occur or have moderate potential habitat in the Planning Area. These include California satintail *(Imperata brevifolia)*, heartscale *(Atriplex cordulata)*, and lesser saltscale *(Atriplex minuscule)*.

Fauna

The Planning Area provides appropriate habitats for a variety of wildlife species including but not limited to mule deer, coyotes, grey fox, cottontails, kangaroo rats, scrub jays, herons, falcons, finches, and sparrows.

Special Status Animal Species

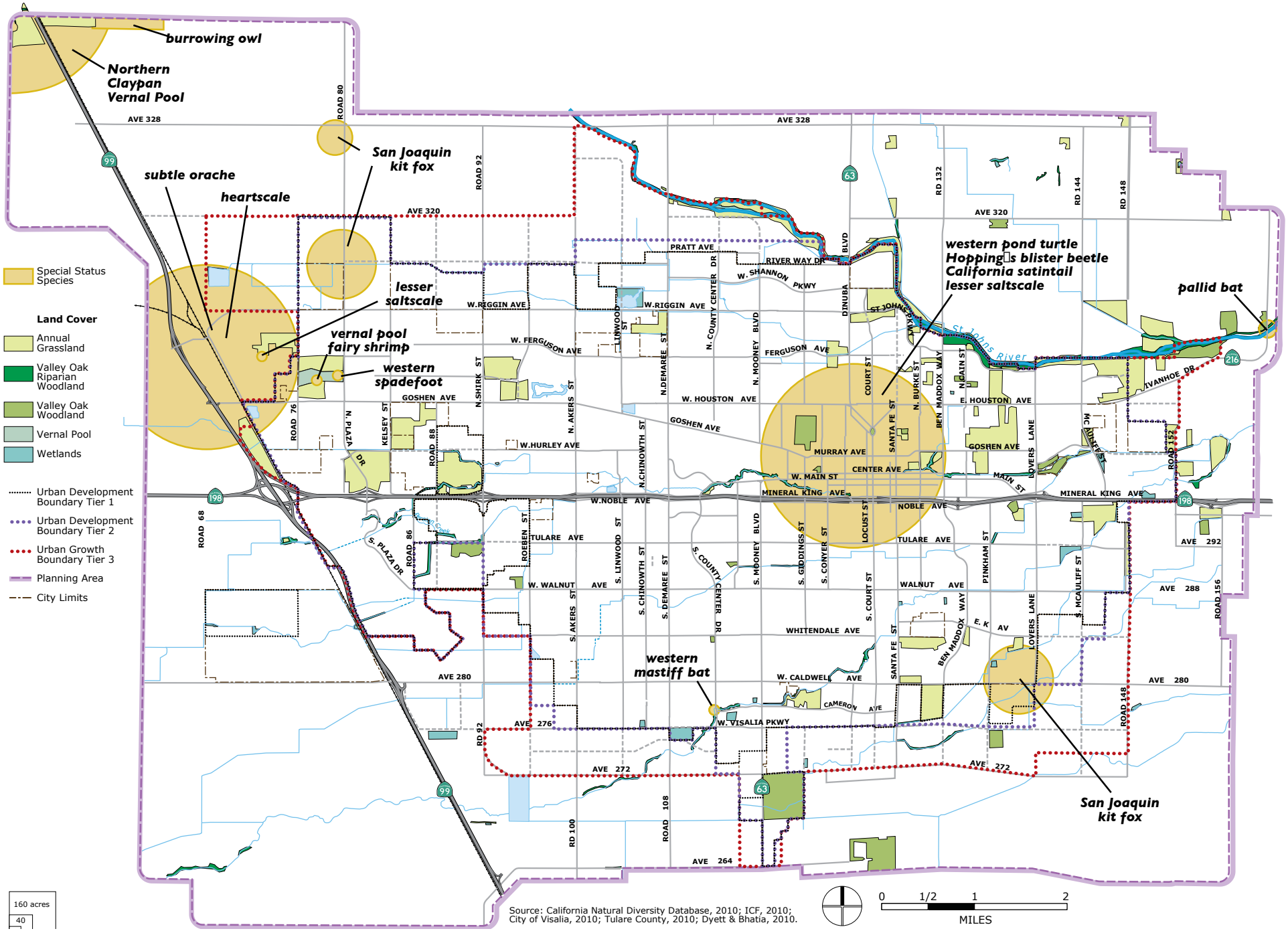
According to the California Natural Diversity Database (CNDDB) and a list obtained from the USFWS, six special-status animal species have been known to occur within the Planning Area, as shown on **Figure 6-6.** These species are the San Joaquin kit fox (*Vulpes macrotis mutica*); Vernal pool fairy shrimp (*Branchinecta lynchi*); Western spadefoot (*Spea hammondii*); Western pond turtle (*Actinemys marmorata*); Western burrowing owl (*Athene cunicularia*); and Hopping's blister beetle (*Lytta hoppingi*).

San Joaquin kit fox is a federally-listed Endangered species and is listed as Threatened in the State of California. It principally occurs in the San Joaquin Valley and adjacent open foothills to the west, in annual grassland or grassy open stages with shrubby vegetation. There have been known occurrences in the Planning Area, and there is potential for the species to occur in grassland habitats in the Planning Area. Vernal pool fairy shrimp is an invertebrate found in vernal pools in the Central Valley, central and south Coast Ranges, and is federally-listed as Threatened. The species has known occurrence at the vernal pool in the northwestern portion of the Planning Area. Western spadefoot, Western pond turtle, and Western burrowing owl, are not State- or federally-listed but are identified by the DFG as Species of Special Concern. Hopping's blister beetle is a California species of Special Concern.Other special status species may occur but are not known to occur within the Planning Area. A full list of special status species with potential to occur in the Planning Area is included in the EIR accompanying the General Plan Update.

Development Affecting Biological Resources

Under General Plan policies, any new development would have to ensure minimal disruption/loss of habitat that could support special status animal species. Natural Communities Conservation Plans (NCCP) will be required for development that would potentially affect sensitive habitat. The Natural Communities Conservation Planning Act allows a process for developing NCCPs under DFG direction. NCCPs provide regional protection of wildlife diversity, while allowing compatible development.

Figure 6-6: Biological Resources



Objectives

OSC-O-10 Protect and enhance natural vegetation throughout the Planning Area, especially types that are considered sensitive natural communities by the Department of Fish and Game.

Policies

OSC-P-26 Establish Best Management Practices (BMPs) for control of invasive plant species where such plants could adversely impact wildlife habitat.

Invasive plants displace native plants and wildlife, increase wildfire and flood danger, consume valuable water, degrade recreational opportunities, and destroy productive range and timber lands. The California Invasive Plant Council has information the City can use to develop appropriate guidance about BMPs that work.

OSC-P-27 Establish a "no net loss" standard for sensitive habitat acreage, including wetlands and vernal pools potentially affected by development.

OSC-P-28 Protect significant stands of Valley Oak woodlands from further development by designating them for Conservation, creating habitat management plans, where needed, and undertaking restoration activities as appropriate.

OSC-P-29 Update the Zoning Ordinance to implement the Conservation land use designation on the Land Use Diagram.

This designation is intended to preserve areas with high value as natural areas, including riparian woodlands and wetlands, and provide adequate buffer area between habitat and other high-value resources and development. It is applied to riparian woodlands along waterways; Valley Oak woodlands at Mill Creek and Evans Ditch, south of Cameron Creek, and elsewhere.

OSC-P-30 Require assessments of biological resources prior to approval of any discretionary development projects involving riparian habitat, wetlands, or special status species habitat. Early in the development review process, consult with California Department of Fish and Game, U.S. Fish and Wildlife Service, and other agencies.

A list of known natural communities and special status species in the Planning Area will be included in the General Plan.

OSC-P-31 Protect and enhance habitat for special status species, designated under state and federal law. Require protection of sensitive habitat areas and special status species in new development in the following order: (1) avoidance; (2) onsite mitigation, and (3) offsite mitigation.

These priorities are consistent with the California Department of Fish and Game guidelines and represent "best practices."

Develop riparian planting and maintenance standards, and incorporate these standards into conservation area management plans. (Top)

Use native trees in street and public landscaping designs, where appropriate, to preserve Visalia's character. (Bottom)

OSC-P-32 Develop riparian planting and maintenance standards, and incorporate these standards into conservation area management plans.

OSC-P-33 Develop a list of recommended native plants and landscaping guidelines. Make this list and guidance accessible through the Community Development Department, the public library, and the City website.

OSC-P-34 Enhance views and public access to Planning Area waterways and other significant features such as Valley Oak groves consistent with flood protection, irrigation water conveyance, habitat preservation and recreation planning policies.

OSC-P-35 Use native trees in street and public landscaping designs, where appropriate, to preserve Visalia's character.

OSC-P-36 Prepare a comprehensive habitat management plan for areas designated as Conservation in order to take advantage of opportunities for habitat enhancement, restoration, and urban forest development and resource conservation.

Conservation areas are along the St. Johns River and other community waterways.

OSC-P-37 Design selected storm water ponds and retention basins to serve a dual role as wildlife habitat by planting species appropriate for food and cover needs. Work with a trained professional in design, selection, and management of each site.

OSC-P-38 Revise the City's Valley Oak Ordinance to include cottonwood groves and other mature native trees, and update the map of landmark trees and distinctive biotic areas.

Coordinate with Tulare County, U.S. Fish and Wildlife Service, California Department of Fish and Game, and other state agencies to acquire and manage land preserves that protect valuable habitat.

6.5 CULTURAL RESOURCES

One of the General Plan initiatives is to protect community assets, including sites with historic, archeological or paleontological significance. Archeological evidence of pre-historic cultures has been documented. A large inventory of historic homes and buildings provide a visual history of the development of the City from its first modern settlement to today. The existence of both archaeologically sensitive areas and historic buildings in Visalia underscores the need for policies that preserve such aspects of the City's heritage.

Several State laws, most notably the California Environmental Quality Act (CEQA), protect archaeological and historical resources. To preserve historic resources, the State has formed the State Historical Resources Committee that conducts the State Historic Resource Inventory and maintains the California Register of Historic Resources, which identifies historic landmarks and points of interest. The Committee also provides recommendations for the National Register of Historic Places. Meanwhile, Government Code Sections 65351 and 65352 establish a procedure to help tribes and jurisdictions define tribal cultural resources and sacred areas more clearly and incorporate protection of these places earlier into the General Plan process.

APPENDIX F: CITY OF VISALIA'S OAK TREE ORDINANCE AND MITIGATION POLICY

City of Visalia
Oak Tree Mitigation Policy

February 1, 2007

I. Authority and Adoption

This Oak Tree Mitigation Policy has been developed pursuant to Visalia Municipal Code sections 12.24.037 and 12.24.110. This Policy shall be approved by resolution of the City Council and shall become effective immediately upon such approval. A copy of the resolution approving this policy shall be attached hereto.

II. Mitigation

It is the policy of the City of Visalia that property owners who are granted a permit to remove an oak tree be required to mitigate for the loss of the oak tree by paying a mitigation fee, or by performing in-kind mitigation, or by a combination of payment of mitigation fee and in-kind mitigation, according to the following formulas:

A. Mitigation Fee: The mitigation fee to be paid shall be determined by the following formula

   $120 multiplied times DBH

   DBH = diameter, in inches, at breast height of the tree to be removed.

B. In Kind Mitigation: The property owner may elect to satisfy some or all of the mitigation requirement by planting new oak trees on his or her property or on public property with the approval of the urban forestry division of the City. If in-kind mitigation is elected, the property owner must plant one new oak tree for every inch of DBH of the existing tree. It is anticipated that for larger trees it will not be feasible to satisfy all of the mitigation requirement through in-kind mitigation on the subject property because the property will not reasonably sustain the number of oak trees required. The City Manager, or designee, shall determine the amount of in-kind mitigation that is appropriate in any particular case. Each tree allowed to be planted as in-kind mitigation will reduce the mitigation fee that is payable by $120 per tree. Where a property owner elects to satisfy some or all of the mitigation requirement through in-kind mitigation, the property owner shall do so with the understanding that the property owner will be responsible for protecting the health of the replacement trees (including the obligation to provide irrigation), that purposeful damaging or neglect of the replacement trees will be subject to prosecution pursuant to the Visalia Municipal Code, and that any pruning or removal of the trees must be accomplished in compliance with the Visalia Municipal Code.

Note: The mitigation fee formula provided above is intended to represent the reasonable estimate of the cost to replace the tree with new trees on the basis of one new tree per inch of the existing tree's diameter.

Example: Property Owner A proposes to remove an oak tree with a DBH of 20 inches in order to accommodate a garage reconstruction. Citing the particular location of the tree, and the lack of any reasonable alternative to removal, the City Manager has determined that the tree may be removed. The owner proposes to mitigate by planting three replacement trees on the property and paying $2,040 in mitigation fees ($120 x 20 = $2,400, less $360 (or $120 x 3) to recognize the in-kind mitigation). The mitigation proposal is acceptable because the property can reasonably accommodate three replacement oak trees. The fee is appropriate because the three replacement trees have the result of reducing the mitigation fee by the equivalent of $120 per in-kind tree.

Mitigation is shall not be required for trees that are approved for removal pursuant to section Subsections (A) or (C) of Visalia Municipal Code section 12.24.035 (removal warranted because of the health of the tree or because removal furthers urban forestry or land management practices).

II. Oak Tree Maintenance Fund

A. This policy shall apply to the Oak Tree Maintenance Fund created by operation of ordinance, Visalia Municipal Code section 12.24.110.
B. Funds from the Oak Tree Maintenance Fund shall be expended only for the purposes enumerated below:
    1. In support of planting oak trees on public and private property within the City of Visalia. Such expenditures may include the cost of purchasing and planting trees, and preparing the land for planting, including the cost of installing irrigation improvements. Any private property owner may apply to have an oak tree planted on his or her property at public expense, provided such expense does not exceed $120.
    2. In support of the care and preservation of existing oak trees on public property, and on private property but only where the private property owner has demonstrated an inability to pay for such care and preservation.
    3. To offset the expense to a private property owner in making improvements on private property that are necessary to create a reasonable alternative to removing an existing oak tree. It is intended that expenditures under this category only be made where, if not for the use of funds from the Oak Tree Mitigation Fund, there would be no reasonable alternative to removing the tree. It is not intended to be used where normal repairs to improvements to private property, though necessitated by the existence of an oak tree, constitute an ordinary and reasonable burden on the property owner.

Example 1: Property Owner A has an oak tree that is lifting the foundation of a garage. Requiring the property owner to reconstruct the garage at

his cost is not reasonable, and therefore a removal permit may be granted; however, with the contribution of $500 from the Oak Tree Maintenance Fund, the property owner agrees to reconstruct a portion of the garage and thereby save the tree. Because it would create a reasonable alternative to removing the tree, an expenditure from the Oak Tree Maintenance Fund is appropriate.

C. The Parks and Recreation Director shall prepare an annual report accounting for the balance in the Oak Tree Mitigation Fund and summarizing the use to which such fund was put during the preceding year.

Appendix E. Jurisdictional Delineation

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

DELINEATION OF AQUATIC RESOURCES
EAST SIDE REGIONAL PARK
GROUNDWATER RECHARGE PROJECT
TULARE COUNTY, CALIFORNIA

Live Oak Associates, Inc.

Austin Pearson, Director of Ecological Services
Wendy Fisher, Plant/Wetland Ecologist, Senior Project Manager
Rebekah Jensen, Staff Ecologist

Prepared for:

Rick Darnley
Provost & Pritchard Consulting Group
130 N. Garden Street
Visalia, CA 93291

June 7, 2019 PN 1911-02

Oakhurst: P.O. Box 2697 • 39930 Sierra Way, Suite B • Oakhurst, CA 93644 • Phone: (559) 642-4880 • Fax: (559) 642-4883
San Jose: 6840 Via Del Oro, Suite 220 • San Jose, CA 95119 • Phone: (408) 224-8300 • Fax: (408) 224-2411
Truckee: P.O. Box 8810 • Truckee, CA 96161 • Phone: (530) 214-8947

www.loainc.com

EXECUTIVE SUMMARY

Live Oak Associates, Inc. (LOA) conducted an investigation of the aquatic resources of an approximately 290-acre site proposed for a regional park and a groundwater recharge basin in Visalia, Tulare County, California.

LOA plant/wetland ecologist Wendy Fisher and LOA staff ecologist Rebekah Jensen examined the entire study area for possible waters of the United States and gathered vegetation, soils and hydrology data at seven sampling locations within and adjacent to such waters on December 29 and 30, 2014. Two seasonal channels pass through the study area: Mill Creek, and Packwood Creek. Three irrigation ditches are located on site, including Oakes Ditch, Fleming Ditch, and an unnamed irrigation ditch. These aquatic resources identified on the site were mapped to the extent of ordinary high water. A total of approximately 7.26 acres (9,925 linear feet) of aquatic resources were identified within the study area. Seasonal wetland channel accounted for approximately 2.17 acres (5,337 linear feet) of the total, and irrigation ditch the remaining 0.37 acre (4,588 linear feet).

Aquatic resources were absent from all other portions of the study area. The highly maintained upper channel banks generally supported ruderal upland vegetation. The vast majority of the site consists of mature walnut and pecan orchards.

The information gathered in LOA's aquatic resources delineation and review of the Clean Water Rule definitions of jurisdictional and excluded waters suggest that none of the aquatic features on the site would meet the USACE definition of a water of the U.S.

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1.0 INTRODUCTION

Live Oak Associates, Inc. (LOA) conducted an investigation of the aquatic resources of an approximately 290-acre (hereafter referred to as the study area) near Visalia, Tulare County for Waters of the United States (hereafter referred to as jurisdictional waters) in December of 2014 (Figure 1). The study area included portions of three separate channels, Mill Creek, Oakes Ditch, and Packwood Creek.

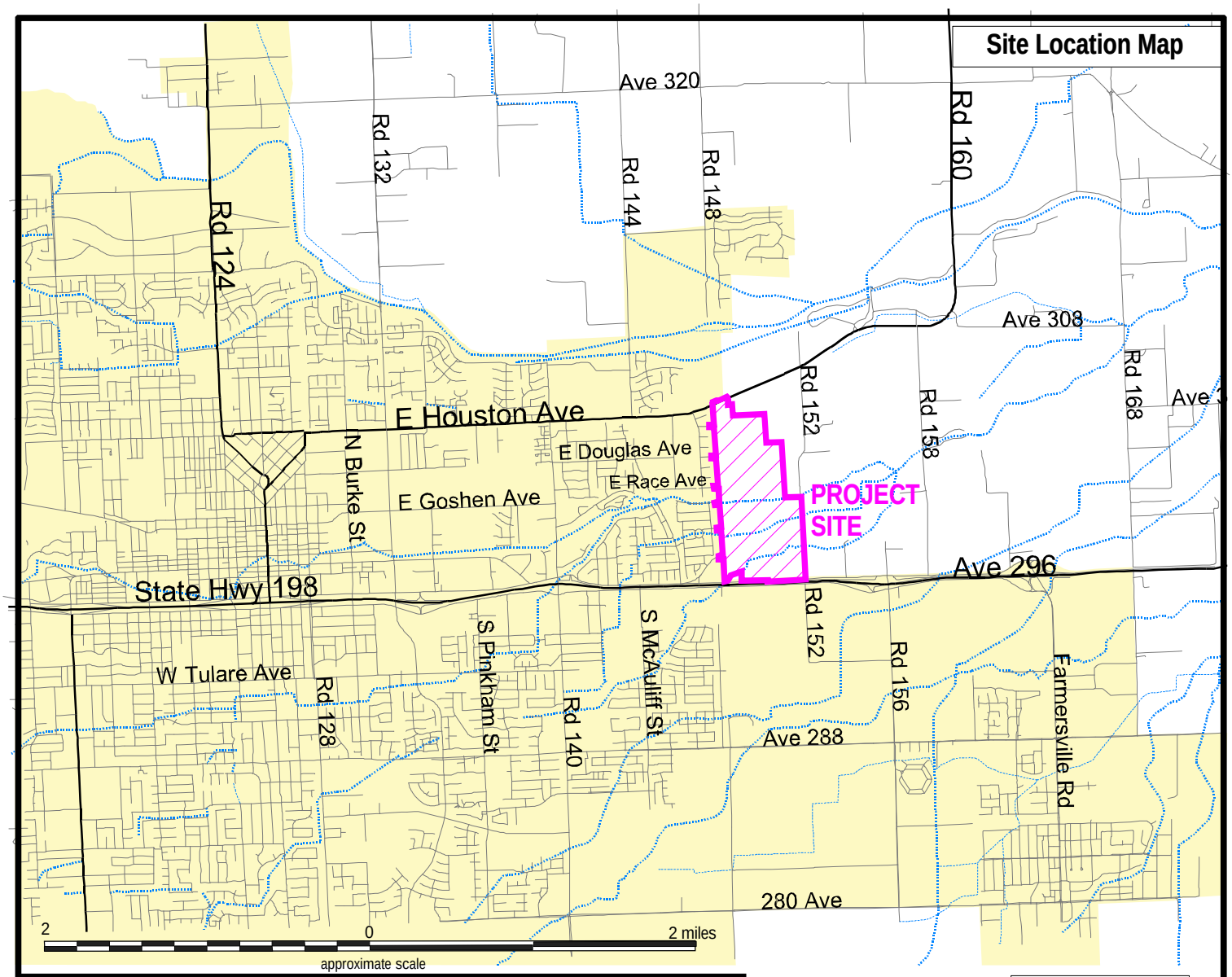
The site is located north of State Route 198, east of Road 148 extension, south of Houston Avenue, and west of Road 152 in Visalia, Tulare County (Figure 1). The southern half of the site lies within the City limits of Visalia and the northern half currently lies within County jurisdiction. The study area may be found on the *Exeter* quadrangle in the western half of Section 26 of Township 18 south, Range 25 east, Mount Diablo Base and Meridian (Figure 2). An historic aerial photograph obtained from the Agricultural Adjustment Administration dated 9.11.1937 has been provided as Figure 3.

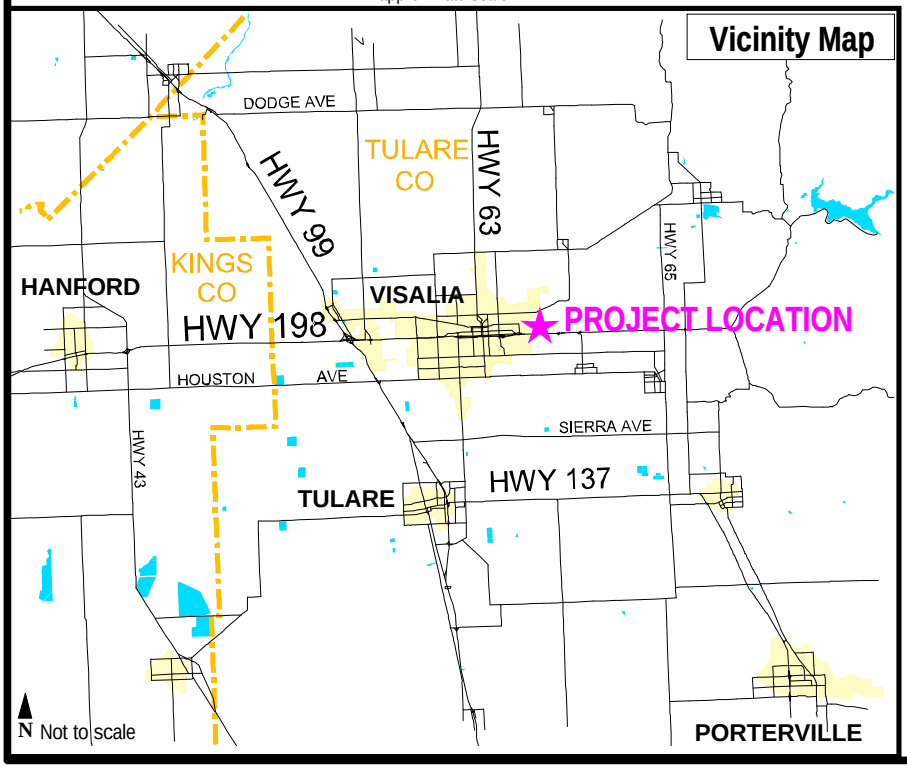
The site is accessible from State Route 198, by exiting the highway at Lovers Lane in Visalia, crossing over the highway to the north, then following the frontage road (East Mineral King) to the east until reaching Road 152 at the southeast corner of the site.

1.1 REGULATORY DEFINITION OF WATERS OF THE U.S.

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not provide a definition for waters of the U.S., and that has been the subject of considerable debate since the Act's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

In 2015, the EPA and USACE jointly issued the Clean Water Rule (CWR), providing a synthesized definition of waters of the U.S. based on statute, science, and federal court decisions to date.



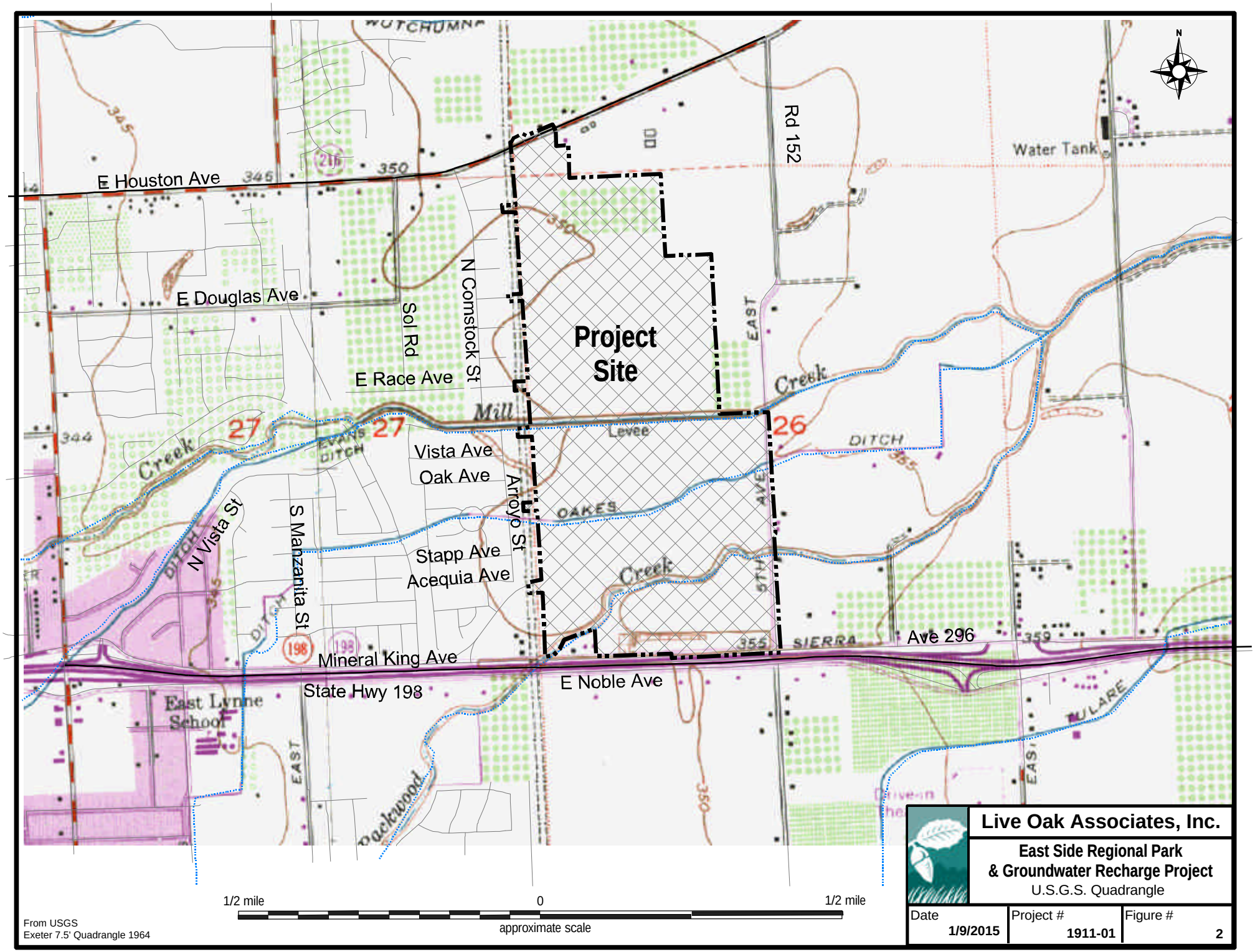


Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

Site / Vicinity Map

Date	Project #	Figure #
1/9/2015	1911-01	1

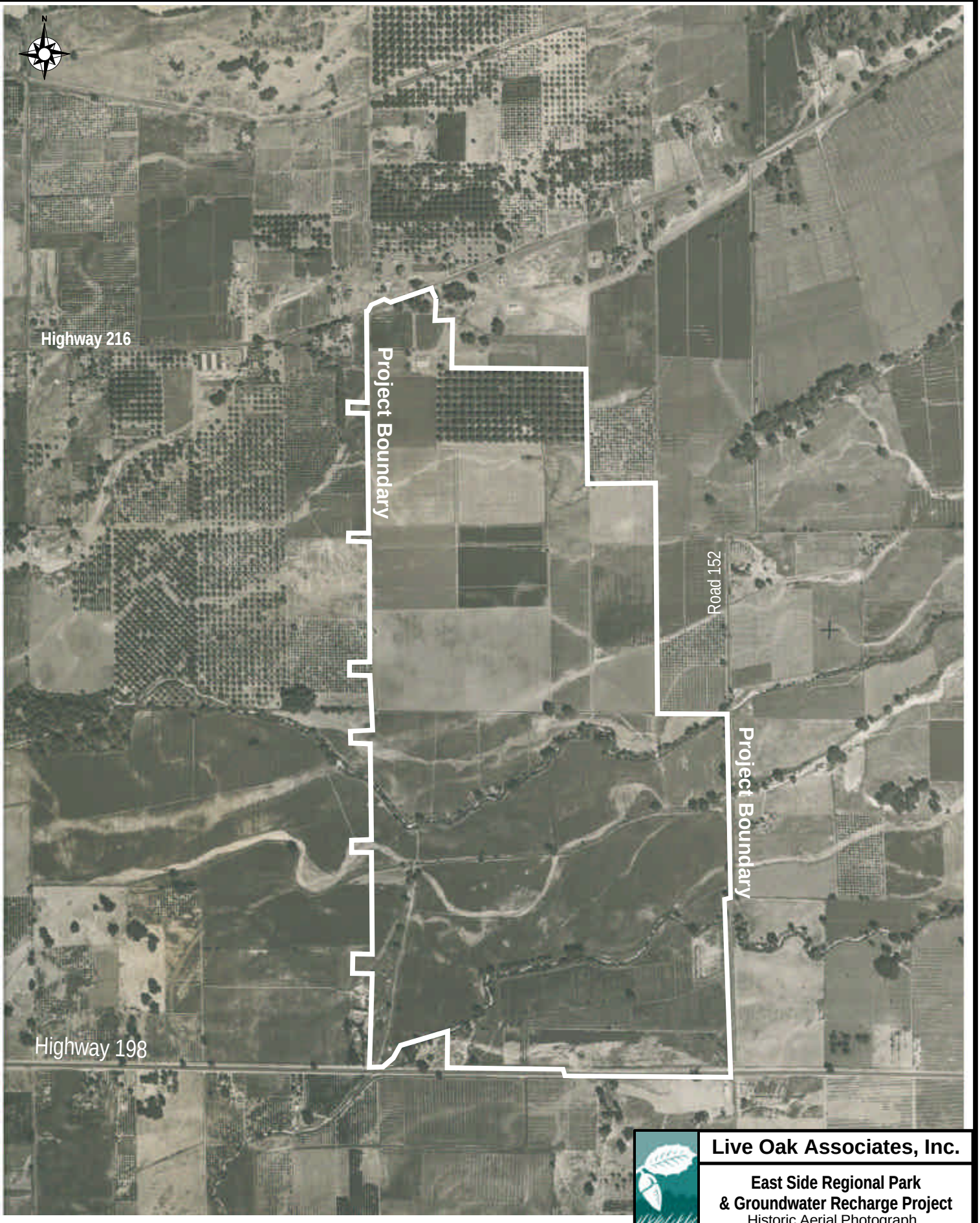


Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

U.S.G.S. Quadrangle

Date	Project #	Figure #
1/9/2015	1911-01	2



Source:
Agriculture Adjustment Admisinstation
Photo Date 09/11/1937

1,000' 0 1,000 feet
approximate scale

Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project
Historic Aerial Photograph

Date	Project #	Figure #
6/6/2019	1911-02	3

Subsequent litigation delayed implementation of the CWR. However, in August 2018, the CWR was enjoined in 22 states including California.

The CWR defines waters of the U.S. to include the following:

> **(a)(1) Waters:** All waters used in interstate or foreign commerce (also known as traditional navigable waters), including all waters subject to the ebb and flow of the tide;
>
> **(a)(2) Waters:** All interstate waters including interstate wetlands;
>
> **(a)(3) Waters:** The territorial seas;
>
> **(a)(4) Waters:** All impoundments of Waters of the U.S.;
>
> **(a)(5) Waters:** All tributaries of (a)(1)-(a)(4) waters, where "tributary" refers to a water (natural or constructed) that contributes flow to another water and is characterized by the physical indicators of a bed and bank and an ordinary high water (OHW) mark;
>
> **(a)(6) Waters:** Adjacent waters, defined as either (a) located in whole or in part within 100 feet of the OHW mark of (a)(1)-(a)(5) waters, or (b) located in whole or in part within the 100-year floodplain and within 1,500 feet of the OHW mark of (a)(1)-(a)(5) waters;
>
> **(a)(7) Waters:** Western vernal pools, prairie potholes, Carolina bays and Delmarva bays, pocosins, and Texas coastal prairie wetlands, if determined on a case-specific basis to have a significant nexus to (a)(1)-(a)(3) waters;
>
> **(a)(8) Waters:** Waters that do not meet the definition of adjacency, but are determined on a case-specific basis to have a significant nexus to (a)(1)-(a)(3) waters, and are either located in whole or in part within the 100-year floodplain of (a)(1)-(a)(3) waters, or located within 4,000 feet of the OHW mark of (a)(1)-(a)(5) waters.

The CWR also redefines exclusions from jurisdiction, which include:

> **(b)(1) Waters:** Waste treatment systems;
>
> **(b)(2) Waters:** Prior converted cropland;
>
> **(b)(3) Waters:** Three types of ditches. A ditch may be a water of the U.S. only it if meets the definition of "tributary" and is not otherwise excluded under the provisions below.
>
> **(i)** Ditches with ephemeral flow that are not a relocated or excavated tributary;
>
> **(ii)** Ditches with intermittent flow that are not a relocated or excavated tributary or that do not drain wetlands;

(iii) Ditches that do not flow, either directly or through another water, to an (a)(1)-(a)(3) water.

(b)(4) Waters: Other aquatic features:

- Artificially irrigated areas that would revert to dry land should application of irrigation water to that area cease.
- Artificially constructed lakes or ponds created in dry land such as farm and stock watering ponds, irrigation ponds, settling basins, log cleaning ponds, cooling ponds, or fields flooded for rice growing.
- Artificial reflecting pools or swimming pools created in dry land.
- Small ornamental waters created in dry land for primarily aesthetic reasons.
- Water-filled depressions created in dry land incidental to mining or construction activity, including pits excavated for obtaining fill, sand or gravel that fill with water.
- Erosional features, including gullies, rills and other ephemeral features that do not meet the definition of a tributary, non-wetland swales, and lawfully constructed grassed waterways.
- Puddles.

(b)(5) Waters: Groundwater and artificially constructed subsurface drainage systems in dry land;

(b)(6) Waters: Stormwater control features constructed to convey, treat, or store stormwater created in dry land. Does not include features that possess perennial flow, even if constructed in dry land.

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to Section 404 permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values. No permit can be issued until the Regional Water Quality Control Board (RWQCB) issues a Section 401 Water Quality Certification (or waiver of such certification) verifying that the proposed activity will meet state water quality standards.

1.2 STATE OF CALIFORNIA JURISDICTION OVER AQUATIC FEATURES

The State of California also asserts jurisdiction over drainages and wetlands. The limits of jurisdiction vary slightly from those of the USACE. The California Department of Fish and

Wildlife (CDFW) and the State Water Resources Control Board (SWRCB) are the two state regulatory agencies responsible for implementing state regulations that identify and protect waters of the state.

According to Section 1602 of the California Fish and Game Code, public and private entities may not substantially divert or obstruct the natural flow of any river, stream, or lake within the state. This section of Fish and Game Code establishes the State's interest in regulating construction activities in the "bed, channel, or bank" of a natural drainage or stream. A "stream" subject to the jurisdiction of the CDFW has been defined as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life" (California Code of Regulations, Title 14).

Under the Porter-Cologne Water Quality Control Act of 1969, the SWRCB and nine local RWQCBs have regulatory authority over activities affecting water quality in all surface waters of the State, consisting of rivers, streams, lakes, and wetlands of the State.

Shortly after the U.S. Supreme Court rendered its SWANCC Decision, the SWRCB notified the Regional Boards that isolated waters, including wetlands, were subject to the jurisdiction of the State of California per provisions of the Porter-Cologne Water Quality Control Act. The Regional Boards, therefore, now assert jurisdiction over isolated wetlands disclaimed as jurisdictional by the USACE.

The RWQCB for a given region regulates discharges of fill or pollutants into Waters of the State through the issuance of various permits and orders. Discharges into Waters of the State that are also Waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining certain federal permits, such as a Section 404 Clean Water Act permit. Discharges into all Waters of the State, even those that are not also Waters of the U.S., require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The RWQCB also administers the Construction Storm Water Program and the federal National Pollution Discharge Elimination System (NPDES) program. Projects that disturb one or more acres of soil must obtain a Construction General Permit under the Construction Storm Water Program. A prerequisite for this permit is the development of a Storm Water Pollution Prevention Plan

(SWPPP) by a certified Qualified SWPPP Developer. Projects that discharge wastewater, storm water, or other pollutants into a Water of the U.S. may require a NPDES permit.

2.0 METHODS

Two LOA biologists conducted surveys for jurisdictional waters on December 29 and 30, 2014 on foot in order to maximize visual coverage of the entire project area. The field investigators used aerial photography and a United States Geologic Survey (USGS) topographic map to guide the survey efforts. The boundaries of likely jurisdictional waters were measured using a Trimble Geo XT GPS unit to map hydrologic features. LOA prepared the maps depicting likely jurisdictional waters using information collected in the field overlaid on a recent aerial photograph from Google Earth.

The surveys were consistent with guidelines found in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), *Minimum Standards for Acceptance of Preliminary Wetland Delineations* (USACE 2001), and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). These surveys have been described in more detail below.

2.1 SURVEY METHODS FOR AREAS WITH POTENTIAL TO MEET THE TECHNICAL CRITERIA OF WETLANDS

The USACE defines "wetlands" as "those areas that are inundated or saturated by surface or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas" 33 U.S.C. § 328.3(b). The diagnostic environmental characteristics of wetlands include hydrophytic vegetation, hydric soils and a hydrology characterized by an aquic or peraquic moisture regime. Accordingly, LOA surveyed the site for wetland indicator plants, positive indicators of hydric soils and wetland hydrology.

Seven sampling locations were selected within the study area to assess and collect vegetation, hydrology and soils information associated with hydrologic features and adjacent upland areas. The location of the sample point within each hydrologic feature was selected to best represent the predominant characteristics of the entire feature. This information was used to assess the type of wetland feature observed and to determine the jurisdictional boundaries of these features. Data collected was entered onto standard data sheets patterned after those used by the USACE for the Arid West Region. The data sheet for each numbered sampling location can be found in Appendix

A. The numbered sampling locations have been identified on the map depicting the study area's aquatic resources. Color photographs, presented in Appendix B, were taken at sampling locations of the study area.

Plants observed within a 5-10 foot radius of each sampling location were identified to species using *The Jepson Manual: Vascular Higher Plants of California, Second Edition* (Baldwin et al, 2012). The wetland indicator status of each species was obtained from the *2014 Wetland Plant List, California* (Lichvar et al. 2014). A plant's wetland indicator species is so designated according to its frequency of occurrence in wetlands, as follows.

OBLIGATE (OBL)	Probability to occur in wetland is >99%
FACULTATIVE WETLAND (FACW)	Probability to occur in wetland is between 67-99%
FACULTATIVE (FAC)	Probability to occur in wetland is between 33 to 67%
FACULTATIVE UPLAND (FACU)	Probability to occur in wetland is between 1 to <33%.
UPLAND (UPL)	Probability to occur in wetland is <1%

Hydrophytic vegetation is considered present when more than 50% of the dominant species at a given location are composed of obligate, facultative wetland and facultative plant species. However, the Arid West Supplemental Guidelines also incorporates an alternate prevalence index to be calculated in determining the presence of wetland vegetation if the dominance test is not met. A complete list of vascular plants identified on the study area in 2014 can be found in Appendix C.

Each sampling location was also examined for positive indicators of wetland hydrology and hydric soils. Evidence of wetland hydrology consisted of primary indicators such as surface water, watermarks, drift lines, sediment deposits, etc. Secondary indicators of wetland hydrology include drainage patterns in wetlands, watermarks (Riverine), drift lines (Riverine), sediment deposits (Riverine), etc. In accordance with USACE guidelines, a soil pit 10" to 12" in depth was dug at all sampling locations. The soils excavated from each pit were also examined for low chromas, gleying, mottling, concretions, sulfidic odors, etc.

2.2 SURVEY METHODS FOR TRIBUTARY WATERS

In the absence of adjacent wetlands, the limit of jurisdiction in navigable rivers and their tributaries, whether inter- or intrastate, extends to ordinary high water. OHW refers to "that line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear natural line impressed on the bank, shelving, changes in the character of the soil, destruction of

terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" 33 CFR § 328.3(e).

The term "channel" as used in this report refers to a drainage feature with a bed and defined bank. Where drainage channels are present on a given site, it is customary to walk the channel and take width measurements at a standard interval. Width measurements represent the channel width between OHW marks on opposing banks.

The field investigators visually inspected the site for physical characteristics of OHW in order to determine the extent of possible jurisdiction. Accumulation of leaf litter, debris, water marks, and sediment along the banks of the drainages provided evidence of OHW.

3.0 RESULTS

3.1 SETTING

Climatic and topographic features of the study area are typical of those found in California's San Joaquin Valley. The study area is relatively level, with the elevation ranging from 260 to 270 feet National Geodetic Vertical Datum.

Like most of California, the San Joaquin Valley experiences a Mediterranean climate. Warm, dry summers are followed by cool, moist winters. Summer temperatures commonly exceed 90 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures rarely exceed 70 degrees Fahrenheit, with daytime highs often below 60 degrees Fahrenheit. Annual precipitation within the study areas is about 6-8 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain. Stormwater readily infiltrates the soils of and surrounding the study area.

Table 1 provides a summary of soil mapping units located within the study area. All soils of the study area have been significantly altered through years of agricultural practices, road building, and the leveeing of the three on-site channels. As a result, the soils of the study area have no particular significance to biological resources potentially occurring on the site. Detailed information pertaining to these soils can be found in Figure 4 and Appendix C.

TABLE 1. SOILS OF THE STUDY AREA.

Soil Series	Parent Material	Drainage	Hydric?
Grangeville sandy loam, drained, 0-2% slopes	Alluvium derived from Granite	Somewhat poorly drained	Yes, in depressions
Nord fine sandy loam, 0-2% slopes	Alluvium derived from Granite and sedimentary rocks	Well drained	Yes, in depressions

Figure 4. Soils

3.2 AQUATIC RESOURCES

Aquatic resources identified within the study area included two seasonal channels and three irrigation ditches. The remainder of the site consisted of upland habitats of cultivated orchard lands or disturbed areas supporting ruderal vegetation. Five agricultural basins also occur on the study area, but they do not receive or discharge water into any drainage or channel that could be considered a water of the U.S.

Together, these hydrologic features encompass approximately 316,246 square feet (7.26 acre). Table 2 and Figure 5 portray the linear feet, square feet and acreage of aquatic resources located within the study area.

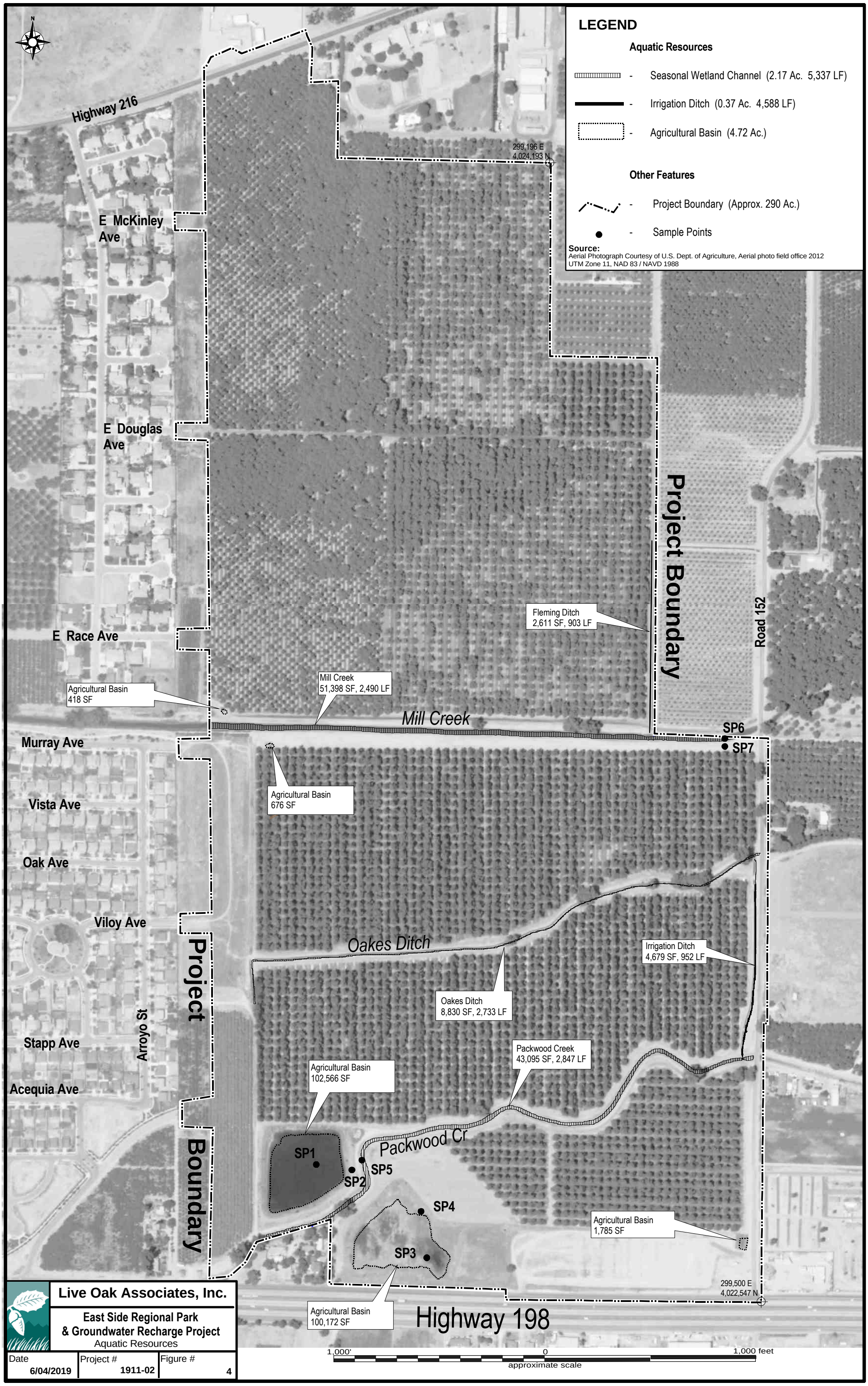
TABLE 2. AQUATIC RESOURCES, EAST SIDE REGIONAL PARK AND GROWNDWATER RECHARGE PROJECT.

Type	Acres	Square Feet	Linear Feet
Mill Creek	1.18	51,398	2,490
Packwood Creek	0.99	43,095	2,847
Oakes Ditch	0.2	8,830	2,733
Fleming Ditch	0.06	2,611	903
Irrigation Ditch	0.11	4,679	952
Agricultural Basins (5)	4.72	205,603	n/a
TOTAL	**7.26**	**316,246**	**9,925**

Aquatic features of the site are described below:

3.2.1 Mill Creek

Mill Creek passes through a bridge beneath Road 152 prior to entering the site from the east. Sample Point #6 was taken in the channel. The bottom and lower sides of the channel below ordinary high water mark were vegetated primarily with the non-native grass bearded sprangletop (*Leptochloa fusca* ssp. *univerva*) (FACW) and rough cocklebur (*Xanthium strumarium*) (FAC). A few upland species were observed in the lower banks of the channel including common chickweed (*Stellaria media*) (FACU) and whitestem filaree (*Erodium moschatum*) (UPL). The vegetation was dominated by wetland species, and therefore the technical criterion for hydrophytic vegetation was met.



Live Oak Associates, Inc.

East Side Regional Park & Groundwater Recharge Project

Aquatic Resources

Date	Project #	Figure #
6/04/2019	1911-02	4

The bed and lower banks of Mill Creek were comprised of an unconsolidated sandy soil material. Munsell soil colors were typically 7.5 YR2.5/1, exhibiting a low chroma throughout the soils layer. The bed of the channel was not inundated during the site survey. Indicators of hydric soils were present within Mill Creek. Soils in depressions of the study area are considered to be hydric soils by the local Natural Resource Conservation Service.

Mill Creek carries intermittent water flows most years from January through May when the local irrigation district allows water to flow. The channel showed evidence of wetland hydrology by having a defined bed and bank, water marks along the banks, obvious flow patterns, and a clear linear channel as indicated on aerial imagery.

3.2.2 Oakes Ditch

Oakes Ditch passed through the site from east to west and goes underground at its terminus near the site's western boundary. Like Mill Creek and Packwood Creek, several large valley oaks (*Quercus lobata*) (FACU) line the trapezoidal channel of Oakes Ditch. Much of the channel is barren of vegetation, although bearded sprangletop was occasionally encountered within the bed of the channel. Like Mill Creek, Oakes Ditch had low chromas, lacked inundation, and had a defined bed and bank along its reach within the study area. Hyrologic indicators were similar to those found in Mill Creek.

3.2.3 Packwood Creek

Packwood Creek meandered through the southern portion of the site from east to west in a more natural pattern than the other channels on the site. Packwood Creek was generally more vegetated than Mill Creek or Oakes Ditch. Where vegetation was present, it also was dominated by bearded sprangletop. The creek exhibited the same evidence of hydric soils, wetland vegetation and wetland hydrology as what was described for Mill Creek and Oakes Ditch along its length within the study area.

3.2.4 Irrigation Ditches

Two irrigation ditches were present within the study area, traversing in a north to south pattern and connecting with the seasonal channels. The northerly ditch is known as Fleming Ditch. Both of

these highly maintained trapezoidal ditches contained sparsely distributed bearded sprangletop, smartweed (*Polygonum* sp.) (FACW or OBL), and other hydrophytic vegetation. Soils of the ditches had low chromas indicating that they were hydric, and wetland hydrology was observed in the form of water stained leaves and water lines on opposing banks.

3.3.5 Agricultural Basins

Five agricultural basins are located within the study area. Sample Points #1 and #3 were taken in two of the basins. All five basins appear to be fed by irrigation tailwater as evidenced by the presence of underground culverts feeding them. Water is either pumped into the holding ponds from wells and then distributed on the orchards for irrigation or is captured and re-circulated. These basins vary in size from a hundred square feet to several acres. During the site survey, all five of these basins were vegetated with a mix of wetland and upland species. Drier portions of the basins were dominated by Bermuda grass (*Cynodon dactylon*) (FAC), Johnson grass (*Sorghum halepense*) (FACU), whitestem filaree (*Erodium moschatum*) (UPL), toothed medic (*Medicago polymorpha*) (FACU), prickly lettuce (*Lactuca serriola*) (FACU), and curly dock (*Rumex crispus*) (FAC). The wetter portions of the agricultural basins contained tall flatsedge (*Cyperus eragrostis*) (FACW), Canada horseweed (*Erigeron canadensis*) (FACU), Pacific rush (*Juncus effusus* ssp. *pacificus*) (FACW), creeping spikerush (*Eleocharis macrostachya*) (FACW), and hairy waterleaf (*Marsilea vestita*) (OBL). Redoximorphic features were evident in these sandy hydric soils. Surface soil cracks and oxidized root channels were evidence of wetland hydrology in the wettest portions of these basins. The boundaries of the basins were mapped using indicators of hydrophytic vegetation, hydric soils and wetland hydrology.

3.3 UPLAND AREAS

The remainder of the study area comprised orchard/vineyard and ruderal habitats that did not contain any potential wetland or aquatic features.

3.3.1 Orchards/Vineyards

Upland portions of the site were mostly in cultivation of mature pecan or walnut orchard. Vineyard lines portions of the western boundary of the study area. More highly maintained portions of these cultivated orchards/vineyards were virtually barren of vegetation in the understory. Areas not

recently maintained contained an understory of agricultural weeds typical of this part of the San Joaquin Valley, including common chickweed, shepherd's purse (*Capsella bursa-pastoris*) (FACU) and prickly lettuce. Soils did not exhibit low chromas or other indicators of hydric soils. Orchard areas were virtually flat and did not exhibit any other characteristics of wetland hydrology.

3.3.2 Ruderal Areas

The remaining portions of the study area would be considered ruderal (disturbed). These areas included upper channel banks, dirt roads, areas beneath the transmission lines along the site's eastern boundary, and the large vacant lot at the site's southeastern corner. Sample Points #2, #4, and #7 were taken in ruderal areas of the study area. Ruderal areas did not meet the technical criteria of jurisdictional wetlands. Weedy alien plants were the dominant species of these ruderal areas including ripgut (*Bromus diandrus*) (UPL), broad-leaved filaree (*Erodium botrys*) (UPL), and black medic (*Medicago lipulina*) (FAC).

No indicators of wetland hydrology or hydric soils were observed in ruderal areas. Munsell soil color notations were generally 10YR 4/4. No redoximorphic features, such as mottles or oxidized root channels, were observed in these upland soils. Evidence of wetland hydrology, such as water-stained leaves, saturated or inundated soils, and a drainage pattern in wetlands, was lacking in ruderal areas of the site.

4.0 DISCUSSION

Traditionally, the Kaweah River and its distributary channels have been considered jurisdictional by the USACE due to their historic connection to Tulare Lake. However, the newly adopted Clean Water Rule (CWR) requires an (a)(5) tributary water to contribute flow to (a)(1)-(a)(3) waters. Packwood Creek and Mill Creek currently have no downstream connection to an (a)(1)-(a)(3) water.

The three onsite irrigation ditches (Oakes, Fleming, and unnamed) serve to seasonally transport irrigation water received from the Kaweah River (Oakes and unnamed) or Mill Creek (Fleming). During much of the year these ditches are dry. The most prominent of the irrigation ditches is Oakes Ditch, which traverses the site from east to west. Oakes Ditch originates at the terminus of the Kaweah River approximately 0.6 miles east of the site. Downstream, the open ditch enters an underground pipe that flows south and is gate controlled to direct excess irrigation water either into a tailwater basin immediately north of Packwood Creek or into Packwood Creek. The tailwater basin is the primary operational route so that excess irrigation water is captured for groundwater recharge. The secondary route to Packwood Creek is only used as a safety overflow if the tailwater basin becomes full. This has never occurred since the basin was constructed in 2005. The two other on-site irrigation ditches traverse the eastern boundaries of the study area from north to south. The northern ditch (Fleming Ditch) receives water from the Kaweah River and terminates into a pipeline that directly flows into Mill Creek, which is a bifurcation of the Kaweah River. The southern ditch, which is a bifurcation of the Oakes Ditch, flows into a control structure with two outflow pipelines. One outflow pipeline siphons under Packwood Creek and delivers irrigation water to the pecan orchard south of Packwood Creek. The other outflow pipe serves as a safety overflow of irrigation water to Packwood Creek in case there is an operational problem with the pipeline siphon under Packwood Creek. From a standard operations regime, only the Fleming Ditch directly transports excess irrigation water back to a tributary water (Mill Creek).

Based on the CWR, all three irrigation ditches appear to qualify for an exclusion from USACE jurisdiction. These intermittent artificial ditches were created by excavating or diking dry land to collect and retain water which is used exclusively for irrigation purposes. They are seasonal and not an excavated or relocated tributary. They were built on dry land and, most importantly, do not

change the aquatic character of any streams. As such they appear to meet the CWR category of excluded waters identified as (b)(3) Waters.

The onsite agricultural basins were constructed in dry land and function as farm/irrigation ponds. As such, these basins would fall into the category of (b)(4) Waters, which are excluded waters.

The information gathered in LOA's aquatic resources delineation and review of the CWR's definitions of jurisdictional and excluded waters suggest that none of the aquatic features on the site would meet the USACE definition of a water of the U.S.

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APPENDIX A: WETLAND DATA SHEETS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP / GW Basin City/County: Visalia, Tulare Sampling Date: 12/29

Applicant/Owner: City of Visalia State: CA Sampling Point: 1

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26, T18S, R25E

Landform (hillslope, terrace, etc.): Basin 2 Local relief (concave, convex, none): Concave Slope (%): <1

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Grangeville Sandy loam, 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: Manmade Basin adjacent to Packwood Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Hypochoeris glabra	35	✓	UPL
2. Plagiobothrys sp.	25	✓	?
3. Marsilea vestita	20	✓	OBL
4. Eleocharis microstachya	20	✓	FACW
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	20	x 2 =	40
FAC species		x 3 =	
FACU species		x 4 =	
UPL species	35	x 5 =	175
Column Totals:	75 (A)		235 (B)

Prevalence Index = B/A = 3.13

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Most likely the Plagiobothrys sp. is a wetland species.

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
	~~10YR 3/4~~							
0-8	7.5YR 3/2		7.5YR 5/6	3	CS	2	loamy sand	
8-12	7.5YR 3/2		Ø					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Redox obvious for this especially sandy soil

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): ___

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP / GW Basin City/County: Visalia, Tulare Co Sampling Date: 12/29

Applicant/Owner: City of Visalia State: CA Sampling Point: 2

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26, T18S, R25E

Landform (hillslope, terrace, etc.): Sideslope of Basin Local relief (concave, convex, none): Slope Slope (%): 5

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Grangeville sandy loam, 0-2 % slope NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✓

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks: Mid-slope of Basin 2

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Erodium moschatum	5	no	UPL
2. Conyza canadensis	10	no	FACU
3. Dactylis glomerata	20	yes	FACU
4. Bromus diandrus	30	yes	UPL
5. Cyperus eragrostis	<1	no	FACW
6. Epilobium brachycarpum	7	no	UPL
7. Erodium botrys	20	yes	FACU
8. Lactuca serriola	7	no	FACU
	99 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____
FACW species	<1	x 2 =	2
FAC species	_____	x 3 =	_____
FACU species	57	x 4 =	228
UPL species	42	x 5 =	210
Column Totals:	100 (A)		440 (B)

Prevalence Index = B/A = 4.4

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 3/3	100	none					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP / GW Basin City/County: Visalia, Tulare Sampling Date: 12/29

Applicant/Owner: City of Visalia State: CA Sampling Point: 3

Investigator(s): W Fisher Section, Township, Range: Sec 26, T18S, R25E

Landform (hillslope, terrace, etc.): Basin Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Grangeville Sandy loam, 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ✓ No ____

Hydric Soil Present? Yes ✓ No ____

Wetland Hydrology Present? Yes ✓ No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

Wettest portion of Basin 1

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Cyperus eragrostis	30	yes	FACW
2. Cynodon dactylon	35	yes	FAC
3. Medicago polymorpha	15	no	FACU
4. Medicago sp.	2	no	FAC
5. Erodium botrys	15	no	FACU
6. Marsilia vestita	1	no	OBL
7. Rumex crispus	1	no	FAC
8. Plagiobothrys sp.	1	no	–
	100 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 2/1		7.5YR 5/8	23	CS	M	loamy sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ✓ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ___ Depth (inches): _____

Water Table Present? Yes ___ No ___ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ___ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Soil is moist at 4" depth

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP/ GW Basin City/County: Visalia, Tulare Sampling Date: 12/29/14

Applicant/Owner: City State: CA Sampling Point: 4

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26, T18S R25E

Landform (hillslope, terrace, etc.): Basin | Local relief (concave, convex, none): convex Slope (%): <1

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Edge of Basin | - above culvert feeding basin

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Bromus diandrus	80	yes	UPL
2. Datura wrightii	10	no	UPL
3. Ambrosia psilostachya	10	no	UPL
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species 100	x 5 = 500
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/3		—					

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP / GW Basin City/County: Visalia, Tulare Sampling Date: 12/29/14

Applicant/Owner: City of Visalia State: CA Sampling Point: 5

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26 T18S R25E

Landform (hillslope, terrace, etc.): Creek Local relief (concave, convex, none): concave Slope (%): <1

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Granyville Sandy loam, 0-2% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✓ (If no, explain in Remarks.) Dry

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ____ No ✓

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ____	No ____	

Remarks:
Packwood Creek bed

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
	____ = Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ = Total Cover		
Herb Stratum (Plot size: ____)			
1. Leptochloa fusca ssp. uniflora	100	✓	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	____ = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	2.5YR 3/1	100	none				Sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

Sandy - No redox apparent

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ✓ Water Marks (B1) (**Nonriverine**)
- ✓ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ✓ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ✓ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia RP / GW City/County: Visalia, Tulare Sampling Date: 12/30/14

Applicant/Owner: City of Visalia State: CA Sampling Point: 6

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26 T18S R25E

Landform (hillslope, terrace, etc.): Mill Creek Local relief (concave, convex, none): Concave Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: Grangeville Sandy loam, 0-2 % slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✓ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

GPS Garmin 316 - Mill Creek Ditch

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. Leptochloa fusca ssp. uniflora	60	yes	FACW
2. Polygonum sp	20	yes	-
3. Stellaria media	10	no	FACU
4. Erodium moschatum	10	no	UPL
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 2.5/1	100	none				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✓ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: n/a

Depth (inches): _____

Hydric Soil Present? Yes ✓ No _____

Remarks:

Sand doesnt show redox, l

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ✓ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✓ Water Marks (B1) (**Riverine**)
- ✓ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✓ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Visalia BP / GW City/County: Visalia, Tulare Sampling Date: 12/30/14

Applicant/Owner: City of Visalia State: CA Sampling Point: 7

Investigator(s): Wendy Fisher Section, Township, Range: Sec 26 T18S R25E

Landform (hillslope, terrace, etc.): Side slope Mill Creek Local relief (concave, convex, none): sloped bank Slope (%): 3

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: Cajon sandy loam, 0-2 % slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No ✓

Are Vegetation , Soil , or Hydrology ✓ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No ✓	**Is the Sampled Area within a Wetland?** Yes No ✓
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks:

Midway up slope of Mill Creek

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size:)			
1. Erodium moschatum	50	Yes	UPL
2. Bromus diandrus	50	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species 100	x 5 = 500
Column Totals:	(A) (B)

Prevalence Index = B/A = 5.0

Hydrophytic Vegetation Indicators:

__ Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No ✓

Remarks:

SOIL

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/3	100	ø				sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No indicators present - unconsolidated sand

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators present

APPENDIX B: SELECTED PHOTOGRAPHS OF THE STUDY AREA

Photograph #1 (above). Sample Point #6 was taken at this location in Mill Creek Ditch.

Photograph #2 (below). Oakes Ditch goes underground at this location along the site's western boundary.

Photograph #3. Looking north where Irrigation Ditch #2 connects with Packwood Creek along the eastern boundary of the study area.

Photograph #4. Looking south where Irrigation Ditch #1 flows into Mill Creek Ditch through this culvert along the site's eastern boundary.

Photograph #5 (above). Mill Creek Ditch is a narrow straight trapezoidal ditch mostly barren of vegetation. Photograph #6 (below). Several remnant valley oak trees occur along Packwood Creek within the study area.

APPENDIX C: VASCULAR PLANTS OF THE STUDY AREA

APPENDIX A: VASCULAR PLANTS OF THE STUDY AREA

The vascular plant species listed below were observed on the study area during a site survey conducted by Live Oak Associates, Inc. on December 29 and 30, 2014. The U.S. Fish and Wildlife Service wetland indicator status of each plant has been shown following its common name.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
NR - No review
NA - No agreement
NI - No investigation

ASTERACEAE – Sunflower Family		
Amaranthus albus	Tumbleweed	FACU
Amaranthus palmeri	Careless Weed	FACU
Amaranthus retroflexus	Red-root Amaranth	FACU
Ambrosia psilostachya	Ragweed	FACU
Erigeron bonariensis	Asthmaweed	FACU
Erigeron canadensis	Canada Horseweed	FACU
Gnaphalium sp.	Cudweed	-
Helianthus annuus	Common Sunflower	FACU
Heterotheca grandiflora	Telegraph Weed	UPL
Hypochaeris glabra	Smooth Cat's Ear	UPL
Lactuca serriola	Prickly Lettuce	FACU
Helminthotheca echioides	Bristly Ox-tongue	FACU
Senecio vulgaris	Common Groundsel	FACU
Silybum marianum	Milk Thistle	UPL
Sonchus oleraceus	Sow Thistle	UPL
Taraxacum officinale	Common Dandelion	FACU
Xanthium strumarium	Rough Cocklebur	FAC
BORAGINACEAE – Borage Family		
Amsinckia sp.	Fiddleneck	UPL
Plagiobothrys sp.	Popcornflower	UPL
BRASSICACEAE – Mustard Family		
Brassica nigra	Black Mustard	UPL
Capsella bursa-pastoris	Shepherd's Purse	FACU
Descurainia incana	Tansy Mustard	FACU
Raphanus sativa	Wild Radish	UPL
Sisymbrium altissimum	Tumbling Mustard	FACU
CARYOPHYLLACEAE – Carnation Family		
Stellaria media	Common Chickweed	FACU
CHENOPODIACEAE – Goosefoot Family		

Chenopodium album	Common Lambsquarters	FACU
Salsola tragus	Russian Thistle	FACU
CYPERACEAE –Umbrella Sedge Family		
Cyperus eragrostis	Umbrella Sedge	FACW
Eleocharis macrostachya	Creeping Spikerush	FACW
FABACEAE – Legume Family		
Albizia julibrissin	Silk Tree	UPL
Medicago lipulina	Black Medic	FAC
Medicago polymorpha	Toothed Medic	FACU
Medicago sativa	Alfalfa	UPL
FAGACEAE – Oak Family		
Quercus lobata	Valley Oak	FACU
GERANIACEAE – Geranium Family		
Erodium botrys	Broad Leaf Filaree	FACU
Erodium cicutarium	Redstem Filaree	UPL
Erodium moschatum	Whitestem Filaree	UPL
Geranium molle	Geranium	UPL
JUGLANDACEAE – Walnut Family		
Carya illinoinensis	Pecan	UPL
Juglans regia	English Walnut	UPL
JUNCACEAE – Rush Family		
Juncus effusus pacificus	Pacific Rush	FACW
MALVACEAE – Mallow Family		
Malva sp.	Mallow	-
MARSILEACEAE – Waterleaf Family		
Marsilia vestita	Hairy Waterleaf	OBL
MONTIACEAE – Miners Lettuce Family		
Claytonia perfoliata	Miners Lettuce	UPL
ONAGRACEAE – Fuschia Family		
Epilobium brachycarpum	Willow Herb	UPL
PLANTAGINACEAE – Figwort Family		
Veronica anagallis-aquatica	Blue Water Speedwell	OBL
POACEAE – Grass Family		
Bromus diandrus	Ripgut Brome	UPL
Cynodon dactylon	Bermuda Grass	FAC
Dactylis glomerata	Orchard Grass	FACU
Digitaria sanguinalis	Hairy Crab Grass	FACU
Echinochloa crus-galli	Barnyard Grass	FACW
Hordeum murinum ssp. *leporinum*	Barnyard Barley	FACU
Leptochloa fusca ssp. *univerva*	Bearded Sprangletop	FACW
Poa annua	Annual Bluegrass	FACU
Sorghum halepense	Johnson Grass	FACU
POLYGONACEAE – Smartweed Family		
Persicaria sp.	Water Smartweed	FACW or OBL
Polygonum aviculare	Prostrate Knotweed	FACW
Rumex crispus	Curly Dock	FAC

ROSACEAE - Rose Family		
Rubus armeniacus	Himalayan Blackberry	FACU
SOLONACEAE - Nightshade Family		
Datura stramineum	Jimson Weed	UPL
Nicotiana glauca	Tree Tobacco	FAC
Physalis acutifolia	Ground Cherry	UPL

APPENDIX D: SOILS INFORMATION

LOCATION GRANGEVILLE CA
Established Series
Rev. LCL-ARW-CAF
10/1999

GRANGEVILLE SERIES

The Grangeville series consists of very deep, somewhat poorly drained soils that formed in moderate coarse textured alluvium dominantly from granitic rock sources. Grangeville soils are on alluvial fans and floodplains and have slopes ranging from 0 to 2 percent. The mean annual precipitation is about 12 inches and the mean annual temperature is about 63 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, thermic Fluvaquentic Haploxerolls

TYPICAL PEDON: Grangeville fine sandy loam - cultivated. (Colors are for dry soil unless otherwise noted.)

Ap--0 to 11 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common roots; slightly alkaline (pH 7.8); clear smooth boundary. (10 to 20 inches thick)

Bg--11 to 20 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; common roots; few fine prominent and distinct yellowish brown 10YR 5/4 to 10YR 5/8 dry redoximorphic masses of iron accumulation, strong brown 7.5YR 5/7 and 7.5YR 5/8 moist; slightly effervescent, carbonates disseminated; moderately alkaline (pH 8.0); clear smooth boundary. (0 to 12 inches thick)

2C--20 to 60 inches; pale brown (10YR 6/3) stratified fine sandy loam, loamy fine sand and loam, dark brown (10YR 4/3) moist; soft, very friable, nonsticky and nonplastic; common fine prominent and distinct yellowish brown 10YR 5/4 and 10YR 5/8 dry redoximorphic masses of iron accumulation that are strong brown 7.5YR 5/6 and 7.5YR 5/8 moist; slightly effervescent, carbonates disseminated and decreasing with increasing depth; strongly alkaline (pH 9.0).

TYPE LOCATION: Madera County, California; SW1/4, SW1/4, Sec. 24, T. 11 S., R 16 E.

RANGE IN CHARACTERISTICS: The mean annual soil temperature at a depth of 20 inches is 59 degrees to 65 degrees F., and the soil temperature usually is not below 47 degrees F. at any time. Soil between the depths of about 8 and 24 inches is continuously dry from May or early June until November or early December. In most years under natural conditions, the soils are saturated within 25 to 40 inches of the surface for several months or more, usually about January to April. Additional effective moisture is added through dense ground fog in the San Joaquin Valley. The 10 to 40 inch control section is stratified and averages less than 18 percent clay by weight and has more than 15 percent sand coarser than very fine sand. Rock fragments range from 0 to 5 percent. Organic matter is 1.5 to 6 percent in the upper 10 inches and averages less

than 1 percent at a depth of 20 inches. The organic matter decreases irregularly with increasing depth.

The A horizon has dry color of 10YR 4/1, 4/2, 4/3, 5/1, 5/2, 5/3, 6/2; 2.5Y 5/2, 4/2; 5Y 4/1 or 4/2 and moist color of 10YR 2/1, 2/2, 3/1, 3/2, 3/3; 2.5Y 3/2, 3/3; 5Y 3/1 or 3/2. It is sandy loam, very fine sandy loam, fine sandy loam, light loam, silt loam, or clay loam. The A horizon is slightly acid to moderately alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. Some pedons are effervescent at the surface. In saline-sodic phases the sodium adsorption ratio is always less than 13 in this horizon.

The B horizon has dry color of 10YR 5/2, 6/2, 6/3, 7/2, 7/3; 2.5Y 6/2, 5/2; 5Y 5/1, 5/2, 6/2 or 6/3. Faint to prominent redoximorphic masses of iron are present. This horizon is sandy loam, fine sandy loam, light loam or light silt loam. It has weak structure or is massive. It is neutral to moderately alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. In most pedons, some or all of this horizon is calcareous with carbonates mostly disseminated, but in some pedons fine carbonate segregations are present. Carbonates range from 0 to 5 percent. In some pedons the B horizon is absent.

The C horizon is similar to the B horizon in most features but includes dry color of 10YR 8/1, 7/2, 6/2, 5/4, 5/3, or 5/2; 2.5Y 7/2; 5Y 5/1, or 6/1 and moist color of 5Y 4/1, 4/2, 5/1, 5/2; 2.5Y 4/2, 5/2; 10YR 3/2, 3/3, 4/2, 4/3, 5/2, 5/3 or 7/1. It is stratified loamy sand to silt loam, clay content is 8 to 18 percent, and colors are very variable. It is neutral to strongly alkaline and slightly alkaline to very strongly alkaline in saline-sodic phases. Carbonates usually decrease from the B horizon but always by less than 5 percent.

COMPETING SERIES: There are no other soils in this family.

GEOGRAPHIC SETTING: Grangeville soils are on alluvial fans and floodplains at elevations of 0 to 1800 feet. Slopes range from 0 to 2 percent. The soils formed in moderately coarse textured alluvium dominantly derived from granitic rock sources. Some areas are saline and saline-sodic affected. Many areas have been reclaimed. The climate is dry subhumid with hot dry summer and cool moist winters. The mean annual precipitation, all in the form of rain, is 7 to 16 inches. Mean annual temperature is 60 degrees to 64 degrees F., mean January temperature is 45 degrees to 50 degrees F., mean July temperature is 72 degrees to 80 degrees F. The frost-free season is 200 to 300 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Borden, Dello, Dinuba and Traver soils and the competing Foster and Hanford soils. Borden and Dinuba soils have an argillic horizon and lack a mollic epipedon. Dello soils have sandy particle size families. Traver soils have an argillic horizon.

DRAINAGE AND PERMEABILITY: Somewhat poorly drained; this soil has altered drainage because of the dams and reservoirs in the Sierra Nevada, pumping from the water table, tile and interceptor drains, and filling and leveling of sloughs in the vicinity. negligible to very low runoff; moderately rapid permeability and moderate permeability in saline-sodic phases. Formerly most areas of Grangeville soils were occasionally flooded, but now stream flow is

controlled by large flood control structures to the extent that most areas are not flooded more than once in about 25 to 75 years. The water table is at depths of 24 to 48 inches unless drained. If drained, the water table is at depths of 48 to greater than 60 inches. (See Remarks)

USE AND VEGETATION: Used intensively for growing alfalfa, grapes, cotton, truck crops and irrigated pasture. Some areas are being urbanized. Vegetation in uncultivated areas is annual grasses and forbs with native (sodic) alkali-tolerant plants and a few scattered oak and cottonwood trees.

DISTRIBUTION AND EXTENT: East side of the San Joaquin Valley and intermountain valleys in the western part of southern California. The series is extensive in MLRA-17, 19. (See Remarks)

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Kings County, California, 1938.

REMARKS: The description of the Foster series has not been recently revised and differentiation of the two soils is not clearly defined. Foster soils are assumed to have a regular decrease in organic matter. Pumping of ground water and changes in season and volume of stream flow has greatly changed the moisture regime of many areas classified as Grangeville soil in the past. It is doubtful that many areas are any longer saturated within 40 inches of the surface. The Bg horizon is considered by some observers to be a C horizon.

Diagnostic horizons and features recognized in this pedon are:

Mollic epipedon - the zone from the surface to a depth of 11 inches (Ap).

Fluvaquentic subgroup - organic carbon decreases irregularly with increasing depth.

LOCATION NORD CA
Established Series
Rev. KDA/ARW/CAF
10/1999

NORD SERIES

The Nord series consists of very deep, well drained soils that formed in mixed alluvium dominantly from granitic and sedimentary rocks. Nord soils occur on alluvial fans and flood plains. Slopes are 0 to 2 percent. The mean annual precipitation is about 8 inches and the mean annual temperature is about 62 degrees F.

TAXONOMIC CLASS: Coarse-loamy, mixed, superactive, thermic Cumulic Haploxerolls

TYPICAL PEDON: Nord fine sandy loam, walnuts and permanent cover on a slope of less than 1 percent at an elevation of 280 feet. (Colors are for dry soil unless otherwise stated. When described on 11/19/74 the soil was moist throughout.)

A1--0 to 9 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial and common very fine tubular pores; neutral (pH 7.2); abrupt smooth boundary. (1 to 12 inches thick)

A2--9 to 18 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial and few very fine tubular pores; slightly effervescent, carbonates disseminated and segregated as few fine filaments; slightly alkaline (pH 7.5); abrupt smooth boundary. (4 to 12 inches thick)

C1--18 to 34 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many very fine interstitial and common very fine and fine tubular pores; strongly effervescent, carbonates disseminated and segregated as few fine filaments; slightly alkaline (pH 7.5); abrupt wavy boundary. (12 to 25 inches thick)

C2--34 to 52 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial and many very fine and fine tubular pores; strongly effervescent, carbonates disseminated and segregated as few fine filaments; slightly alkaline (pH 7.5); abrupt wavy boundary. (15 to 33 inches thick)

Ab1--52 to 57 inches; dark grayish brown (10YR 4/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial and tubular pores; slightly alkaline (pH 7.5); abrupt wavy boundary. (0 to 6 inches thick)

Ab2--57 to 72 inches; grayish brown (2.5Y 5/2) fine sandy loam, very dark grayish brown (2.5Y 3/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine interstitial and common very fine tubular pores; slightly alkaline (pH 7.5); abrupt wavy boundary.

TYPE LOCATION: Kings County, California; about 200 feet west of 11th Avenue and 500 feet south of Excelsior Avenue; about 200 feet west and 500 feet south of the northeast corner of section 2, T.18 S., R.21 E., MDB&M; Latitude 36 degrees, 24 minutes, 00 seconds north and Longitude 119 degrees, 39 minutes, 18 seconds west; USGS Laton Quadrangle;.

RANGE IN CHARACTERISTICS: The moisture control section of 8 to 24 inches is moist in all parts from about December 15 to April 15. It is dry in all parts from July 15 to November. Mean annual soil temperature is 59 degrees to 64 degrees F. The organic matter is more than 1 percent at a depth of 20 inches and decreases irregularly with increasing depth. Carbonates range from noneffervescent to violently effervescent, and few fine to common medium filaments and threads. Some part of the particle-size control section always contains some carbonates. Many areas have had the amount and distribution of carbonates altered by farming activities.

The A horizon has dry color of 10YR 4/3, 5/1, 5/2, 5/3; 7.5YR 4/2; 2.5Y 4/2 or 5/2 and moist color of 3/1, 3/2 or 3/3. It is loam or fine sandy loam. Reaction is neutral to moderately alkaline.

The C horizon has dry color of 10YR 5/2, 5/3, 5/4, 6/3, 6/4; 7.5YR 5/4, 5/2; or 2.5Y 5/2 or 6/2 and moist color of 10YR 3/1, 3/2, 3/3, 4/2, 4/3, 4/4, 5/2, 5/3; 2.5Y 3/1, 3/2, 3/3, or 4/2; 7.5YR 4/4. Dry values of 5 and moist values of 3 occur in the upper C horizon. Redoximorphic concentrations of iron occur below a depth of 4 feet in some pedons. These iron concentrations are not the result of the present day water table. The iron concentrations increase in number near old slough areas. Textures are loam, sandy loam, very fine sandy loam or fine sandy loam. Clay content is 10 to 18 percent. Some pedons have strata of loamy coarse sand to coarse sandy loam. Some pedons have silt loam and clay loam strata below a depth of 40 inches, which are unrelated to the soil horizons above. Reaction is usually neutral to moderately alkaline, but may be strongly alkaline if saline-sodic affected.

The buried A horizon is not present in all pedons. Some pedons have buried Bt horizons that are the same as the C horizons except that they have few to common, thin to moderately thick clay films on ped faces, lining pores, or bridging sand grains.

COMPETING SERIES: These are the Elder, Russian (T) and Vina series. Elder, Russian and Vina soils are not calcareous in the control section.

GEOGRAPHIC SETTING: Nord soils are on flood plains and alluvial fans. Slopes are 0 to 2 percent. Elevations are 50 to 600 feet. The climate is semiarid and has hot dry summers and cool moist winters. The mean annual precipitation ranges from 8 to 12 inches. The mean January temperature is about 45 degrees F. and the mean July temperature is about 81 degrees F. The mean annual temperature is 60 degrees to 64 degrees F. The frost-free period is 250 to 275 days.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Grangeville, Hanford, Foster, Kimberlina and Wasco soils. Foster soils have a mollic epipedon that is less than 20 inches thick and have a regular decrease in organic-carbon with increasing depth. Grangeville soils have redox depletions and aquic conditions in most years or are artificially drained. Hanford, Kimberlina and Wasco soils lack mollic epipedons.

DRAINAGE AND PERMEABILITY: Well drained; negligible to low runoff; moderate permeability, but is moderately slow in saline-sodic phases.

USE AND VEGETATION: Nord soils are under cultivation. The vegetation was annual grasses, forbs and California white oak (*Quercus lobata*). Oaks are still growing in many fields with the crops. Nord soils are used for such crops as irrigated alfalfa, cotton, corn, milo, barley, wheat, sugar beets, tomatoes, grapes, walnuts, peaches and other fruit and nut trees.

DISTRIBUTION AND EXTENT: San Joaquin Valley. Series is moderately extensive in MLRA-17.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Davis, California

SERIES ESTABLISHED: Chico Area, Butte County, California, 1925.

REMARKS: Type location moved from E. Fresno Area to Kings County.

Diagnostic horizons and features recognized in this pedon are:
Mollic epipedon - the zone from the surface to a depth of 20 inches (A1, A2, upper part of C1)

Appendix F. Valley Oak Memo

286 W. Cromwell Avenue
Fresno, CA 93711-6162
Tel: (559) 449-2700
Fax: (559) 449-2715
www.ppeng.com

September 13, 2018

Doug Damko
City of Visalia
315 East Acequia Avenue
Visalia, CA 93291

RE: Results of supplementary limited survey of valley oaks (*Quercus lobata*) within East Side Regional Park and Groundwater Recharge Project site boundaries

Dear Mr. Damko:

Provost & Pritchard Consulting Group (P&P)'s biologist, Brooke Fletcher, conducted a supplementary limited survey of the valley oaks (*Quercus lobata*) present within the Project site boundaries in response to comments received about a discrepancy in the quantity and/or the breadth of several of the oaks depicted in Figure 3-1 of the Admin Draft Environmental Impact Report (DEIR). The first phase of the Project includes development of several water storage basins and interconnection of the basins to existing Mill Creek, Packwood Creek, and Oakes Ditch for the purpose of containing stormwater and recharging groundwater. Later phases of the Project include development of a regional park with numerous amenities such as softball, baseball, and soccer fields, picnic areas, basketball courts, community center, and a dog park. The Project also includes the realignment of Mill Creek, widening of existing roads, development of a new arterial roadway, and parking lots.

On December 29 and 30, 2014, Live Oak Associates (LOA) performed a biological reconnaissance survey and investigation of the biological resources of the Project site. The results were published in a report dated June 8, 2016, in which LOA reported 26 valley oaks (*Quercus lobata*) within the Project area. Of those 26 trees, 20 were reported with a diameter at breast height (DBH) greater than 24 inches. Valley oak (*Quercus lobata*) trees are protected pursuant to the City of Visalia's Oak Tree Mitigation Policy.

From the data provided by LOA, Provost & Pritchard's GIS staff created Figure 3-1, which was subsequently included in the Admin DEIR and submitted to the City of Visalia for comments prior to distribution. Figure 3-1 of the Admin DEIR depicts valley oak (*Quercus lobata*) trees with a DBH greater than 24 inches as a red dot and valley oak (Quercus lobata) trees with a DBH of 24 inches or less as a yellow dot. Comments received on this figure included five questionable areas within the site where the commenter describes a discrepancy in the quantity and or/breadth of valley oaks (*Quercus lobata*) depicted (see Figure 1).

Methods

On September 11, 2018, Provost & Pritchard's biologist/arborist, Brooke Fletcher re-surveyed the areas in question for the presence of valley oaks (*Quercus lobata*). In addition, each valley oak (*Quercus lobata*) was photographed (see attached selected site photographs); the location of each tree was recorded using a handheld Garmin global positioning system (GPS) unit to an accuracy of three meters, and the DBH of each tree was measured and recorded using a standard diameter tape in English scale. All trees were measured according to International Society of Arboriculture (ISA) guidelines. Furthermore, pursuant to ISA guidelines, co-dominant stems arising from a single root system were considered a single tree and the resulting DBH was calculated utilizing ISA's accepted equation: $DBH_{(stem\ 1)}^2 + DBH_{(stem\ 2)}^2 = DBH_{(total)}^2$.

As mentioned above, the survey performed by Mrs. Fletcher on September 11, 2018 was limited to the five areas with discrepancies as depicted on Figure 1 attached to this memo. The entire site was not re-surveyed and therefore an overall count of valley oak (*Quercus lobata*) trees within the Project site boundaries was not conducted.

The surveyed areas are labeled Site #1 through Site #5 on the attached Figure 1. The results of the survey are organized in the same manner below.

Results

Site #1

This site contained two large valley oaks (*Quercus lobata*), one of which is co-dominant at the base, and one small valley oak (*Quercus lobata*). Discussion of the trees at this location will be in order of east to west.

Tree 1: valley oak (*Quercus lobata*); DBH 58 inches.

Tree 2: valley oak (*Quercus lobata*); Co-dominant; DBH 44 inches.

Tree 3: valley oak (*Quercus lobata*); DBH 16.5 inches.

Figure 3-1 depicts two red dots and one yellow dot at this location. Comments received state, "Eliminate yellow dot, keep red dot." In this instance, the commenter is incorrect. This location is depicted correctly on Figure 3-1 of the DEIR.

Site #2

This site contained one large valley oak (*Quercus lobata*).

Tree 1: valley oak (*Quercus lobata*); DBH 40 inches.

Figure 3-1 of the Admin DEIR does not depict a red or yellow dot at this location. Comments received state, "Add red or yellow dot." The commenter is correct. This location should portray a red dot, indicating the presence of a valley oak (*Quercus lobata*) with a DBH greater than 24 inches.

Site #3

This site contained two large valley oaks (*Quercus lobata*). Discussion of the trees at this location will be in order of east to west.

Tree 1: valley oak (*Quercus lobata*); DBH 49 inches.

Tree 2: valley oak (*Quercus lobata*); DBH 47 inches.

Figure 3-1 of the Admin DEIR depicts one red dot at this location. Comments received state, "Add red or yellow dot." The commenter is correct. This location should portray a second red dot, indicating the presence of two valley oaks (*Quercus lobata*), both with a DBH greater than 24 inches.

Site #4

This site contains two large valley oaks (*Quercus lobata*), one of which is co-dominant at the base. Discussion of trees at this location will be in order of northeast to southwest.

Tree #1: valley oak (*Quercus lobata*); Co-dominant; DBH 63.5 inches

Tree #2: valley oak (*Quercus lobata*); DBH 28.5 inches

Figure 3-1 of the Admin DEIR does not depict a red or yellow dot at this location. Comments received state, "Add two red or yellow dots." The commenter is correct. This location should portray two red dots, indicating the presence of two valley oaks (*Quercus lobata*), both with a DBH greater than 24 inches.

Site #5

Figure 3-1 of the Admin DEIR depicts one yellow dot at this location; however, it is clearly not within the Project site boundaries. Comments received state, "Eliminate yellow dot." The commenter is correct. Survey of this location revealed that a valley oak (*Quercus lobata*) is present at this location, but it is outside of the site boundaries and therefore should not be included in Figure 3-1 of the Admin DEIR.

Summary:

According to the outcome of the limited survey, Provost & Pritchard will revise Figure 3-1 of the DEIR, including the following changes:

Site#1: No change.

Site #2: Add one red dot

Site #3: Add one red dot

Site #4: Add two red dots

Site #5: Remove yellow dot

As mentioned above, the survey performed by Mrs. Fletcher on September 11, 2018 was limited to the five areas with discrepancies as depicted on Figure 1 attached to this memo. The entire site was not re-surveyed and therefore an overall count of valley oak (*Quercus lobata*) trees within the Project site boundaries was not conducted. If you would like to request a complete re-survey of the Project site and assessment of all oaks within, please contact me by phone at (559) 449-2700 or by email at bfletcher@ppeng.com.

Respectfully,

Brooke Fletcher
Biologist / Arborist

Enclosures:
Figure 1- Comments and Areas in Question on Figure 3-1 of the Admin DEIR (Areas of Survey)
Selected Photographs of the Project Site

Figure 1- Comments and Areas in Question on Figure 3-1 of the Admin DEIR (Areas of Survey)

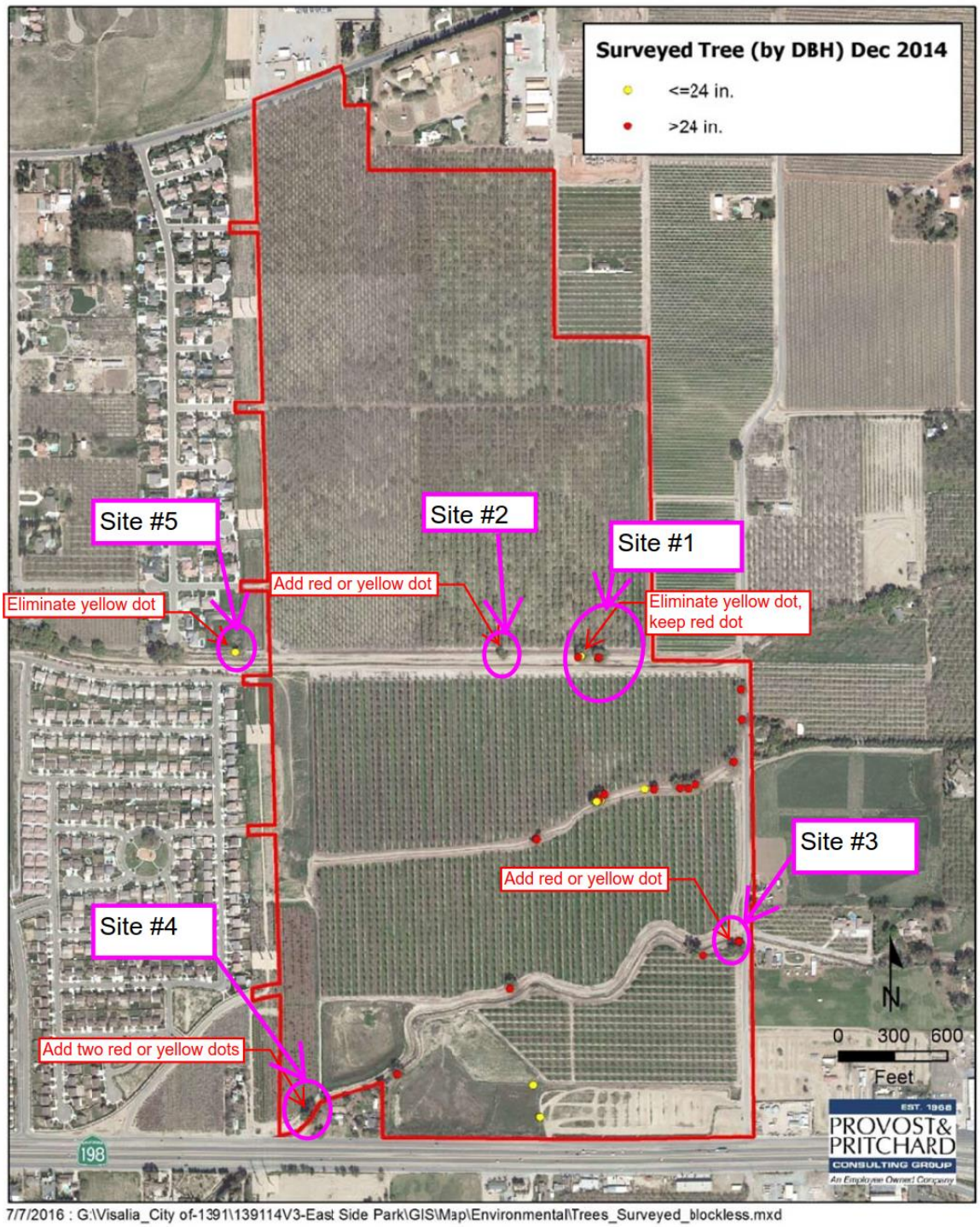

Figure 3-1. Valley Oak Trees On Site

Selected Photographs of Survey Sites:

Site #1: Tree 1 and Tree 2 (Co-dominant).

Site #1: Tree 2 (Co-dominant) and Tree 3.

S
180
210
SW
240
W
270
300
NW
330
262°W (T)
36.334572°, -119.238251° ±52.5ft
337ft
11 Sep 2018, 13:20

Site #2: Tree 1.

Site #3: Tree 1 and Tree 2.

Site #4: Tree 1 (Co-dominant) and Tree 2.

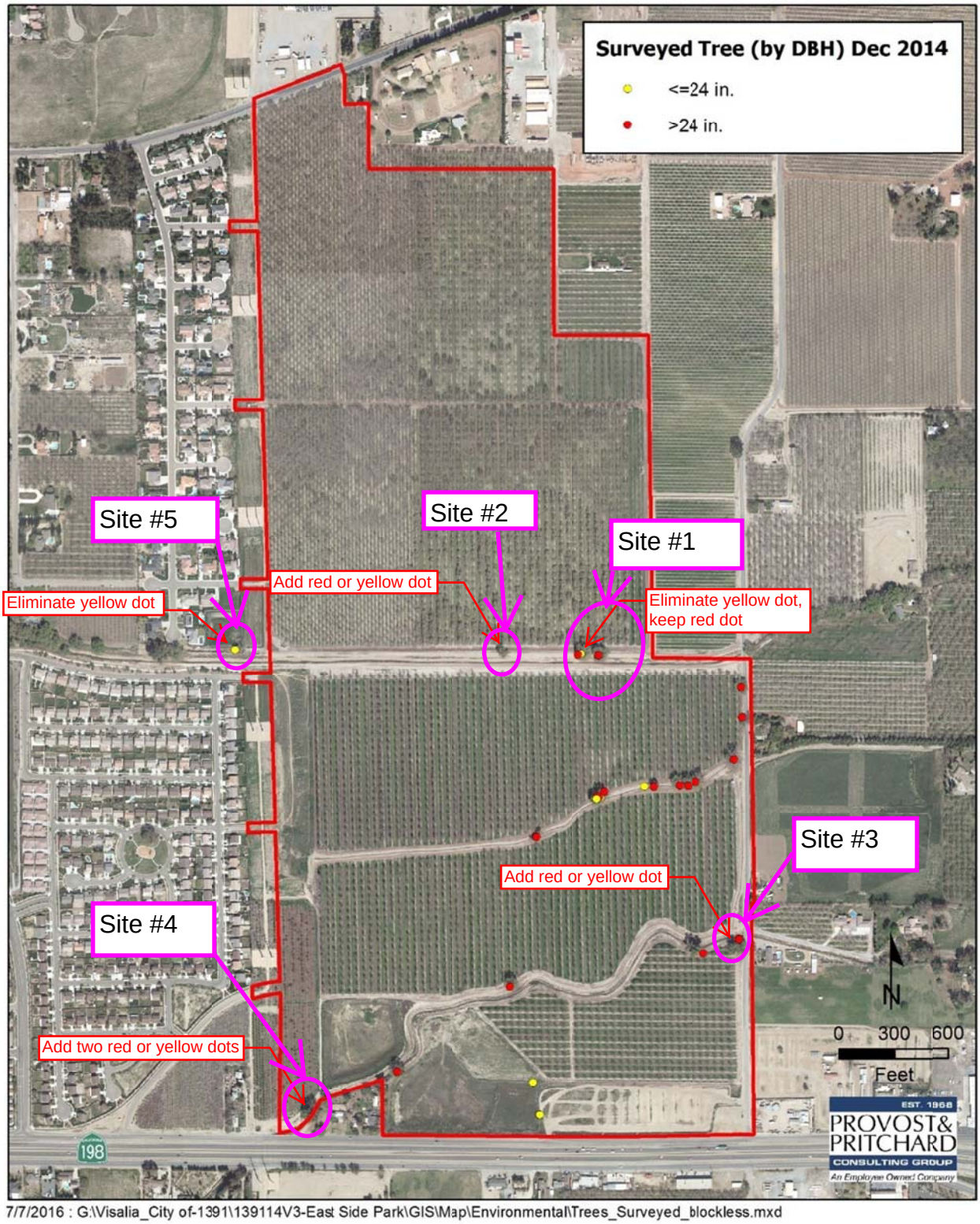

Figure 3-1. Valley Oak Trees On Site

Appendix G. Cultural Resources Information

Cultural Resource Evaluations for the East Side Regional Park and Groundwater Recharge Project, City of Visalia, Tulare County, California

Randy Baloian and Jay B. Lloyd

Prepared By

Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

Prepared For

Provost and Pritchard Consulting Group
130 N. Garden Street
Visalia, CA 93291

June 2019

MANAGEMENT SUMMARY

The City of Visalia (City) owns 280 acres of land and proposes to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, a new extension of Tower Street and interchange at State Route 198, pedestrian paths, and modifications along existing waterways. The East Side Regional Park and Groundwater Recharge Project will require compliance with the California Environmental Quality Act (CEQA), which requires that impacts to cultural resources are considered in project planning and analysis. Additionally, because the City is seeking federal funding for the project, the project constitutes an undertaking under the National Historic Preservation Act (NHPA), as amended, which requires compliance with Section 106 of the NHPA.

To meet state and federal requirements, on behalf of the City and under subcontract to Provost and Pritchard Consulting Group, Applied EarthWorks, Inc. (*Æ*) identified two historic water conveyances, the Mill Creek Levee/Evans Ditch (P-54-002179/CA-TUL-3053H) and the Oakes Ditch (P-54-005290/CA-TUL-3101H) within the Area of Potential Effects, that cannot be avoided by the proposed project. *Æ* evaluated the significance of both resources based on archival research and concluded that the Mill Creek Levees (as a recorded element of the Evans Ditch) and the Oakes Ditch are considered significant under both the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) Criterion A/1 because of their association with the Kaweah and Mill Creek Water Company (KMCWC). Despite the significance of the resources as part of the KMCWC system, the recorded segments do not possess sufficient integrity to convey such significance. Based on this evaluation, the proposed project will not have an adverse effect on historical resources eligible for inclusion in the NRHP or CRHR.

A copy of this report and the associated cultural resource records will be transmitted to the Southern San Joaquin Valley Information Center at California State University, Bakersfield for inclusion in the California Historical Resources Information System. Field notes and photographs are on file at *Æ*'s office in Fresno, California.

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1
INTRODUCTION

The City of Visalia (City) owns 280 acres of land on which it proposes to develop the East Side Regional Park and Groundwater Recharge Project within the city limits in Tulare County, California (Figure 1-1). The project lies within Township 18 South, Range 25 East, Sections 23, 26, and 27 of the Mt. Diablo Base Meridian as depicted on the U.S. Geological Survey (USGS) Exeter, California, 7.5-minute quadrangle (Figure 1-2). The project Area of Potential Effects (APE) covers 286 acres and is generally bounded by East Mineral King Avenue on the south, County Road 152/5th Avenue on the east, East Houston Avenue on the north, and the Big Creek Transmission Lines (which run parallel to a residential neighborhood) on the west (Figure 1-3). The City plans to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, a new extension of Tower Street, an interchange at State Route 198, and trails along existing waterways, as well as modify the existing waterways.

The City is held accountable by the California Environmental Quality Act (CEQA) (Title 14 California Public Resources Code [PRC] 21000[g]), which mandates that government agencies must consider the effects of their discretionary actions on important cultural resources. Additionally, because the City is seeking federal funding for the project, the project constitutes an undertaking under the National Historic Preservation Act (NHPA), as amended (U.S. Code [USC] Title 54), which requires compliance with Section 106 of the NHPA (36 Code of Federal Regulations [CFR] 800).

For the purposes of this investigation, a cultural resource is defined as a prehistoric or historical archaeological site or a historical building, structure, or object that is 50 years or older. The importance or significance of a cultural resource depends on whether it qualifies for inclusion in the National Register of Historic Places (NRHP) and/or the California Register of Historical Resources (CRHR). Cultural resources determined eligible for the NRHP are termed “historic properties” (54 USC 300308), while those eligible for the CRHR are termed “historical resources” (California Code of Regulations [CCR] 15064.5[a]). In order to be considered a historic property or historical resource, a cultural resource must possess both historical significance and integrity, according to criteria defined in the federal guidelines (National Park Service 2002:45–49) and implementing regulations of CEQA (PRC 5024.1) and.

An adverse effect to a historic property, as defined in 36 CFR 800.5, is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Similarly, per CEQA regulations, a substantial adverse change in the significance of a historical resource caused by a project constitutes a significant effect and may require mitigation as part of the project (CCR 15064.5[b]; CCR 15370). Cultural resources that are not considered historic properties or historical resources (i.e., not eligible for the NRHP or CRHR) require no further regulatory or project consideration.

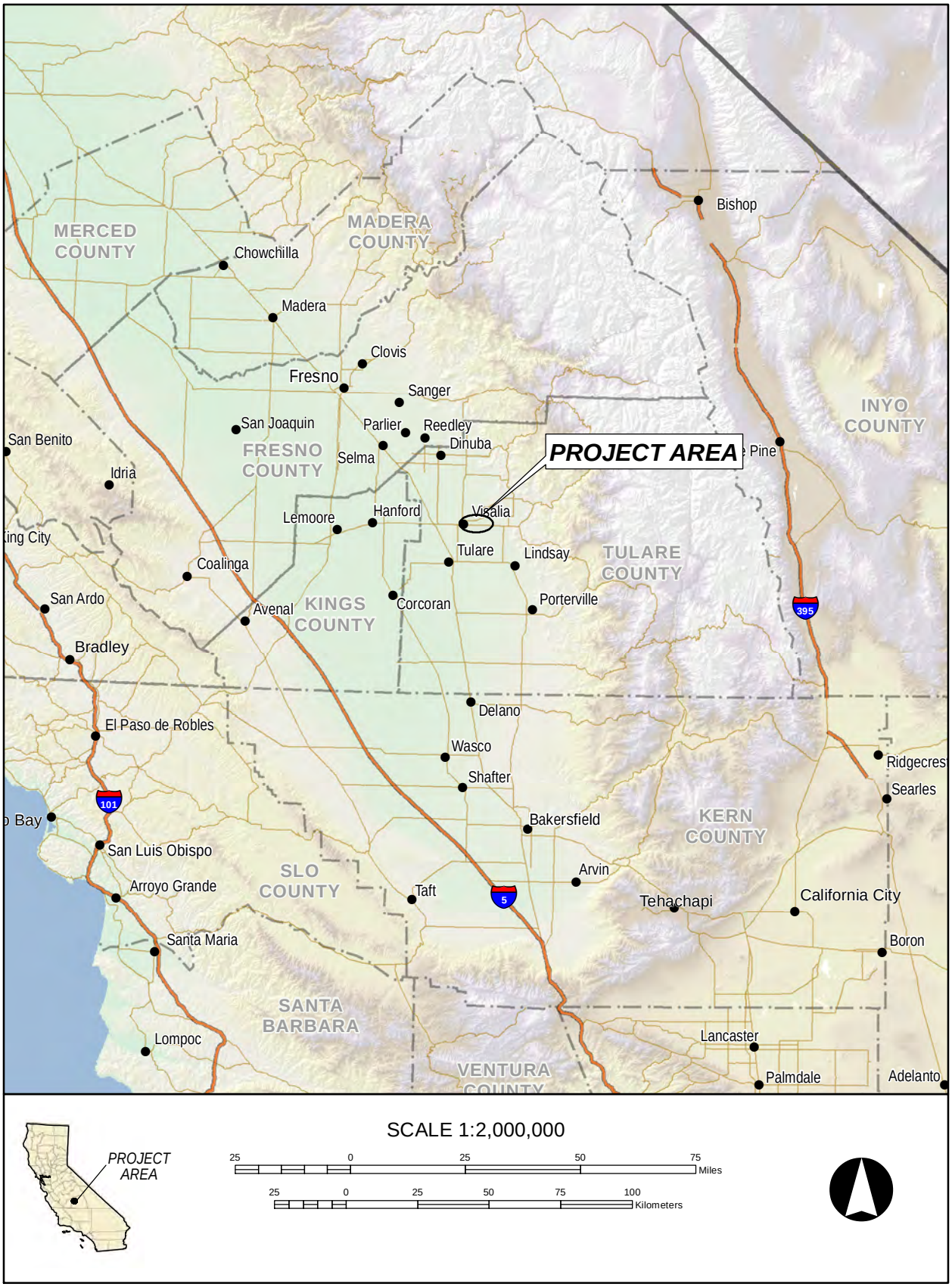

Figure 1-1 Project vicinity in Tulare County, California.

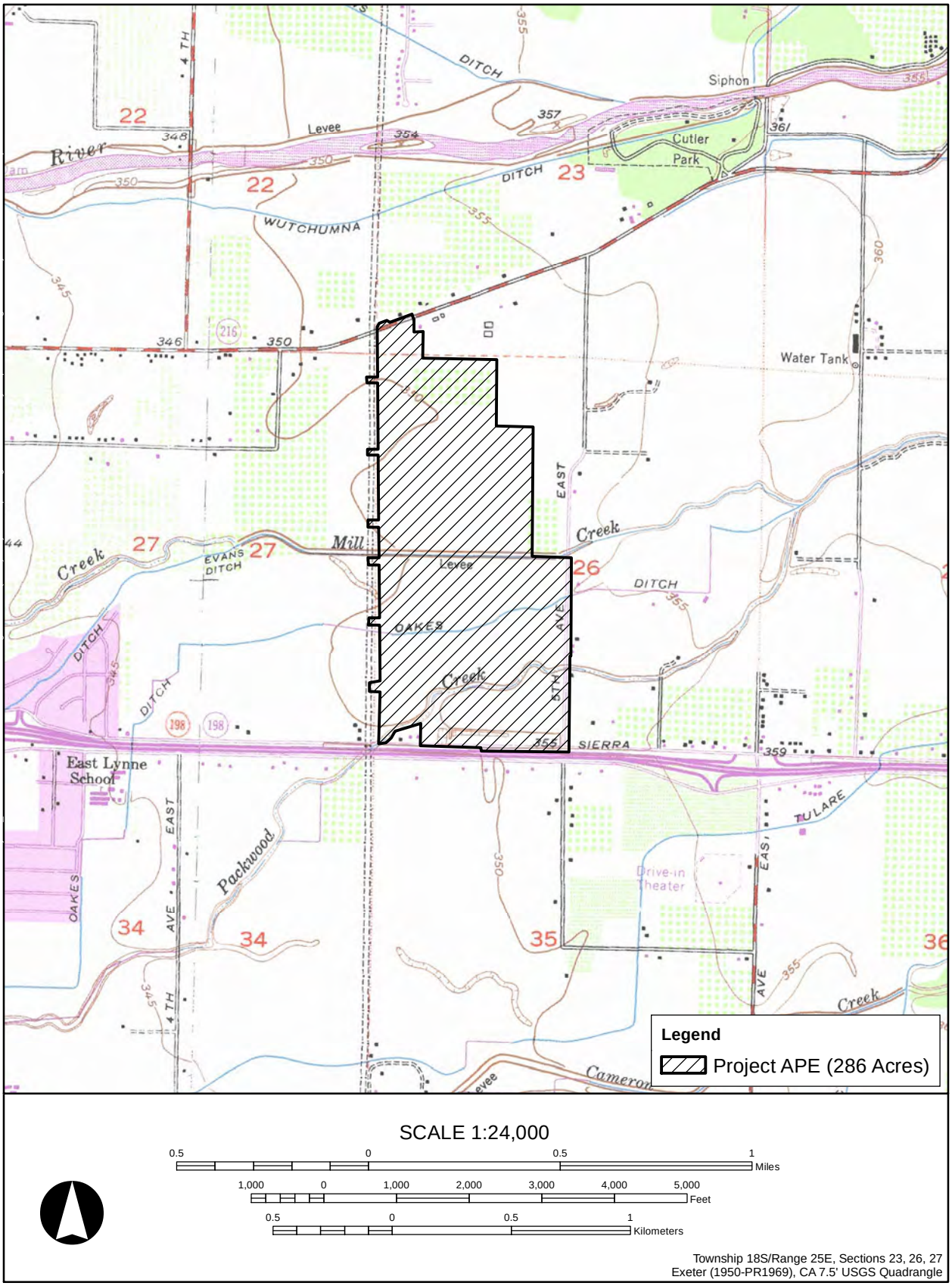

Figure 1-2 Project location on the U.S. Geological Survey Exeter 7.5-minute quadrangle.

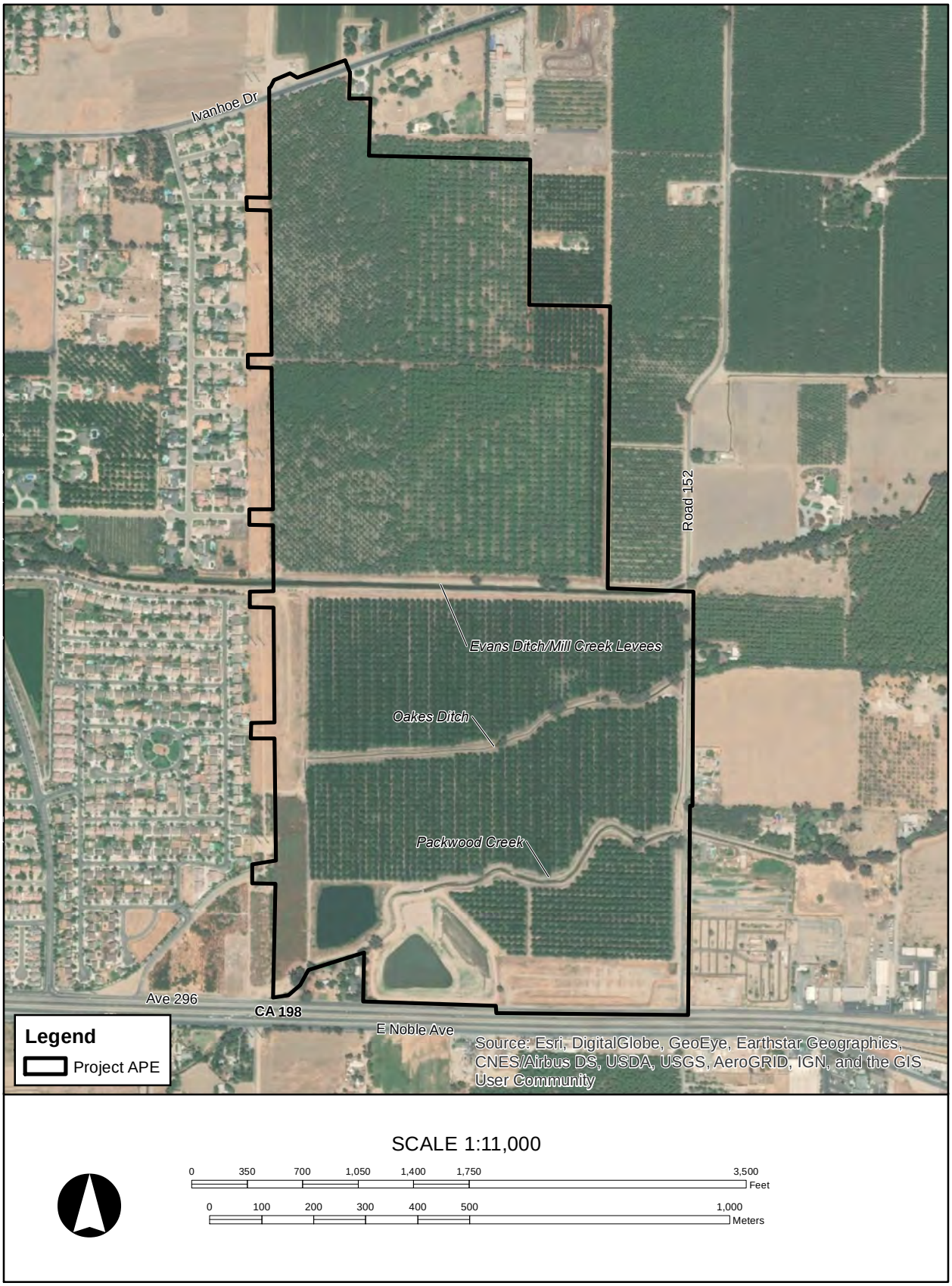

Figure 1-3 Aerial view of project APE.

The first step in the NHPA Section 106 and CEQA processes is a cultural resource inventory, which was carried out by Applied EarthWorks, Inc. (Æ) on behalf of the City and under a subcontract with the Provost and Pritchard Consulting Group. The inventory revealed a total of five cultural resources in the project area (Lloyd and Asselin 2015). Three of these—an isolated prehistoric artifact and two bridges—are considered not eligible for inclusion in the NRHP/CRHR based on an absence of historical association and by prior determination. The remaining resources—the Mill Creek Levee and Evans Ditch (P-54-002179/CA-TUL-3053H) and the Oakes Ditch (P-54-005290/CA-TUL-3101H) had not been evaluated previously. Thus, the next steps are to evaluate the historical significance of the two ditches under the NRHP/CRHR eligibility criteria, and, if either is significant, to assess whether the project will adversely affect the resources.

Æ Senior Archaeologist Jay Lloyd (M.A.), a Registered Professional Archaeologist (RPA), served as project manager, providing technical and administrative oversight for all aspects of the project and contributed to the report. Æ Historian Randy Baloian (M.A.) conducted research, wrote the historic context, completed resource evaluations, and is the primary report author. Graphic and GIS Specialist Jessica Jones assisted with report preparation. Résumés for supervisory personnel are provided in Appendix A.

2
RESEARCH AND EVALUATION METHODS

2.1 RESEARCH GOALS AND SOURCES

Research for this investigation served two purposes: the preparation of the historic context necessary for evaluation and the collection of property-specific data about the Mill Creek Levee/ Evans Ditch and the Oakes Ditch. The *History of Tulare and Kings Counties, California*, by Eugene Menefee and Fred Dodge (1913) provided much of the information for the historical narrative in Chapter 3. Although the local historians cover only the first 60 years of Tulare County history, their work was very appropriate for identifying the events and trends that led to the construction of the subject resources. Data about the ditches themselves largely came from county and irrigation maps, the accounts of court cases involving the ditches, and contemporary government reports on irrigation. The primary goals of property-specific research are to determine (1) the date or chronology of construction of the resource, (2) its builder(s), and (3) the reasons for its construction.

Many of the sources used in this investigation are contained in *Æ*'s in-house library, in both hard copy and electronic form. Over the past 10 years, *Æ* has performed numerous evaluations on agricultural properties, particularly irrigation conveyances, in the San Joaquin Valley. Along with gathering historical maps and text from reliable Internet sources—including such sites as the USGS website (usgs.gov), Ancestry.com, the David Rumsey Historical Map Collection (www.davidrumsey.com), and Google Books—*Æ* Historian Randy Baloian makes regular visits to the valley's repositories to gather relevant information on valley agriculture. On March 1, 2017, he visited the subject ditches to assess their integrity as well as the Main Branch of the Tulare County Library in Visalia to obtain additional materials for this particular study. References to the *Visalia Daily Times* are found in the vertical files and digitized newspaper files of the library's Annie R. Mitchell History Room.

2.2 EVALUATION AND ASSESSMENT OF EFFECTS

The purpose of evaluating the NRHP/CRHR eligibility of cultural resources identified in the project APE and, if necessary, assessing impacts to NRHP/CRHR-eligible resources is to determine if project "resolution" per 36 CFR 800.6 and considerations (i.e., "mitigation" per CCR 15371) are necessary within the scope of the project. Cultural resources eligible for the NRHP and/or CRHR require assessment of Project effects/impacts and may be subject to mitigation, whereas resources that are not eligible do not require such consideration.

In this regard, the National Park Service (NPS) has established a process for identifying, evaluating, and assessing effects to cultural resources. The NPS guidelines provide a general and useful approach in both the Section 106 and CEQA regulatory settings. Practically speaking, determinations made within a federal regulatory context are almost always universally accepted for purposes of CEQA.

The first threshold in this process is to ascertain whether a site or built environment property within the project APE is old enough to be considered a cultural resource and, accordingly, eligible for state and/or federal registers. Consistent with 36 CFR 60.4, to be eligible for the NRHP, an archaeological or built environment resource must be 50 years old or older. Except under exceptional circumstances (National Park Service [NPS] 2002:25–43), sites and properties less than 50 years old are dismissed from further consideration. If a cultural resource is found to meet this age criterion, the following sequential steps apply:

- Classifying the resource as a district, archaeological site, building, structure, or object;
- Determining the theme, context, and relevant thematic period of significance to which the resource is associated;
- Determining whether the resource is historically important under a set of significance criteria; and
- If significant, determining whether the resource retains integrity.

In California, cultural resources are usually classified according to *Instructions for Recording Historical Resources*, published by the California Office of Historic Preservation in 1995. This handbook contains listings of resource categories for historical and prehistoric sites as well as standing structures. For built environment resources, it is additionally helpful to define a property along its economic dimensions (e.g., commercial vs. residential, urban vs. rural, agricultural vs. industrial). In this regard, *Historical Context and Archaeological Research Design for Agricultural Properties* (California Department of Transportation 2007) is a useful guide for categorizing rural resources.

The historic context establishes the framework within which decisions about significance are based (NPS 2002:9). The evaluation process essentially weighs the relative importance of events, people, and places against the larger backdrop of history. Within this process, the context provides the comparative standards and/or examples as well as the theme(s) necessary for this assessment. According to the NPS (2002:9), a theme is a pattern or trend that has influenced the history of an area for a certain period. A theme is typically couched in geographic (i.e., local, state, or national) and temporal terms to focus and facilitate the evaluation process.

Significance is based on how well a subject resource represents one or more themes through its associations with important events or people and/or through its inherent qualities. A resource must demonstrate more than just association with a theme; it must be a good representative of the theme, capable of illustrating the various thematic elements of a particular time and place in history. In order to be included in the NRHP and thus be considered a historic property per 36 CFR 800.16(l), 36 CFR 60.4 stipulates that:

> The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

(a) It is associated with events that have made a significant contribution to the broad patterns of our history; or

(b) It is associated with the lives of persons significant in our past; or

(c) It embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or

(d) It has yielded, or may be likely to yield, information important in prehistory or history.

Similarly, according to the CEQA Guidelines (CCR 15000 et seq.), in order for a resource to be eligible for the CRHR, it must meet at least one of the criteria defined in PRC 5024.1:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in history or prehistory.

To be included in the NRHP and CRHR, a resource must not only possess historical significance but also the physical means to convey such significance—that is, it must possess integrity. Integrity refers to the degree to which a resource retains its original character. Assessing the integrity of a significant resource depends on an understanding of the components or features that give it significance. For this reason, the issue of integrity is addressed only after significance has been established. Moreover, cultural resources that are not significant per NRHP and CRHR criteria are by definition not eligible for the register and do not require an integrity assessment.

To facilitate this assessment, the NPS has identified seven aspects of integrity.

Location is the place where the historic property was constructed or the place where the historic event occurred. . . .

Design is the combination of elements that create the form, plan, space, structure, and style of a property. . . .

Setting is the physical environment of a historic property. . . .

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . .

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. . . .

Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. . . .

> *Association* is the direct link between an important historic event or person and a historic property. . . [NPS 2002:44–45; *emphasis added*].

Assessing the integrity of linear resources (e.g., canals, railroads, transmission lines, etc.) in particular often presents some unique challenges, mainly because it is usually not feasible to examine their full extent. Moreover, it is possible in some cases that the level of integrity varies over the course of a canal or other linear resource. In previous canal evaluations, *Æ* has approached these matters by: (1) evaluating the significance of the entire linear resource and (2) restricting conclusions regarding integrity to only the segments of the resources that have been examined and recorded by the current investigation.

If a significant resource demonstrates integrity and is therefore considered to be NRHP and CRHR eligible, it is then necessary to assess whether or not a project will cause an adverse impact. In this regard, CFR 800.5 and the CEQA Guidelines, respectively, offer fairly detailed standards for assessing effects/impacts. While somewhat different in terminology, the CEQA standards closely parallel the Criteria of Adverse Effect for NHPA Section 106 at 36 CFR 800.5[a][1] and [a][2].

3
GENERAL HISTORIC CONTEXT AND PROPERTY-SPECIFIC HISTORIES

3.1 EARLY DAYS IN THE SAN JOAQUIN VALLEY AND TULARE COUNTY

The Spanish and later Mexican explorers who entered the San Joaquin Valley in the first decades of the nineteenth century saw a raw and varied hinterland that differed greatly from today's agricultural landscape. As the chronicler for Lieutenant Gabriel Moraga's 1806 trek into the valley, Father Pedro Muñoz observed well-wooded places near present-day Sanger, Visalia, and Porterville that would have made suitable mission sites (Cook 1960:251–252, 284). By contrast, much of the area surrounding Tulare Lake was marshland. Notwithstanding their (at times) serious intentions, neither the Franciscans nor the Spanish and Mexican provincial governments were able to establish a presence within the San Joaquin Valley. Yet it was through their continual excursions to recover runaway neophytes and stolen livestock that the padres and military became acquainted with the valley and its people (see Cook 1960).

According Menefee's spirited account, the first Euro-Americans to set foot in what became Tulare County were both named Smith (Menefee and Dodge 1913:1–2).[1] Both also anticipated, in different ways, the potential for ranching in the San Joaquin Valley. In the account of his 1826–1827 travels, Jedediah Smith, who entered the valley mainly to trap beavers, noted herds of elk and antelope while remarking favorably about the region's plentiful grasses as possible pastureland (Clough and Secrest 1984:27). Sharply contrasting with the moral-minded and disciplined character of Jedediah Smith was the infamous "Pegleg" Smith, a teacher turned horse thief, who arrived in the lawless San Joaquin Valley in 1830 to practice his newly found profession. Pegleg took up with the native bandits as they pilfered horses and other livestock from the Mexican rancheros. So rampant was the extent of equine larceny in the valley that ranching operations on the two Mexican land grants along the Kings and San Joaquin rivers—Rancho Laguna de Tache and Rancho del San Joaquin Rancho, respectively—could not be established in the 1840s, despite the Mexican military's efforts to curb the outlaws (Clough and Secrest 1984:32–36; Cook 1962). Mexico lost its Alta California province altogether in February 1848 when it agreed to cede the territory to the United States under the terms of the Treaty of Guadalupe Hidalgo, which formally ended the Mexican-American War (1846–1848).

Although only a few people knew at the time of the treaty's signing, gold had been discovered in the hills of northern California. By the summer and fall of 1848, the news had reached the corners of the world, setting off a pandemic rush to the Sierra Nevada in search of the precious ore. The early years of the gold rush were a watershed time in California's history that included, among other events, the ratification of the California Constitution in 1849; the admission of California as the thirty-first state in the Union in 1850; and the creation of Tulare County with Visalia as its seat of government in 1853. It was during this period that cattle and sheep ranching

[1]Menefee used the contemporary expression "white leaders" to refer to the county's first Euro-Americans.

finally took hold in the San Joaquin Valley. The ever-growing horde of gold seekers created demand a not only for food but for other livestock products like leather and wool.

Founded in 1852 (Menefee and Dodge 1913:34–40), Visalia's influence as a pioneer town went beyond its political and economic importance to Tulare County. For its first three decades, the town was the commercial hub of the central and southern San Joaquin Valley. It served as a primary transportation node for the valley and contained the regional branch of the General Land Office that issued federal land patents to early settlers. Similar to the scenario played out in Fresno County, economic and infrastructural development in Tulare County occurred initially along the valley's eastern border, where, as noted by the Franciscans more than a half-century earlier, the land offered more resources (oak groves, pasture, flowing creeks) and fewer obstacles (less marshland) to settlement than the valley's west side. An 1867 county map shows quite vividly that property ownership, along with roads and telegraph lines, was concentrated in the Visalia-Woodlake area and, to a lesser extent, around Porterville (Chapman and Gordon 1867). At times, less than 10 pioneer families had purchased land or taken residence around the future site of Tulare (also see Menefee and Dodge 1913:80–81); even fewer resided along the entire eastern shoreline of Tulare Lake.

Like other parts of the valley, the impact of agriculture on the early economy of Tulare County was negligible, yet the beginnings of numerous developments are traced to this period. Several varieties of fruit—including oranges, apricots, and grapes—that would later become important commodities were initially grown, albeit in small scale, during the 1850s and 1860s (Menefee and Dodge 1913:41–42, 139). Similarly, the adaptability of alfalfa as a livestock feed was recognized as early as 1860, even though its potential was not realized until much later in the century (Menefee and Dodge 1913:137).

The first ditches in the Visalia area were also constructed in the 1850s. About 1854, Wiley Watson built a ditch from Mill Creek to water his race track; a few years later, the conveyance was enlarged to carry 27 cubic feet of water per second (*Pacific Reporter* 1897:564). Despite the ditch's modest capacity and length, Watson's early claim on the creek's waters would later prove to be invaluable for subsequent owners of the ditch. Significantly for this study, Menefee and Dodge (1913:132) briefly note that the Evans Ditch dates to 1858. Perhaps the most ambitious of these early projects was the Peoples Ditch, which headed on the Kaweah River about 10 miles above Visalia (Grunsky 1898:22–25). While the names of these conveyances survive to the present day, it is emphasized that the heads and alignments of these ditches were continually in flux until the mid-twentieth century, owing to natural, commercial, and logistical factors. For instance, the builders of the Peoples Ditch (later the Consolidate Peoples Ditch) initially completed work on the canal in 1864 only to see their head gate washed out by the historic floods of 1867–1868.

Not long after the deluge, the arrival of the Central Pacific Railroad (later Southern Pacific Railroad) prompted the county's population and economy to expand westward. Similar to other valley counties, the railroad chose a route that ran though the sparsely settled central portion of Tulare County rather than its more established east side. In 1872, Tulare, along with towns like Goshen and Tipton, was founded along the railroad's valley main line (Menefee and Dodge 1913:52, 55, 75, 80–84). By connecting the county with the markets of the San Francisco Bay area, the railway created considerable agricultural and business opportunity for the new towns as

well as the older eastern communities of Visalia and Porterville, which were linked to the rail network in 1874 and 1888, respectively.

3.2 BEGINNINGS OF COMMERCIAL AGRICULTURE

The railroad's effect on the development of agriculture and particularly irrigation in Tulare County was immediate, although the specific reasons that initiated such development apparently related more to real estate and politics than farming per se. As early as the late 1860s, anticipation of the valley railroad ignited a land-buying spree along the new line. Thus, even though the new railway ran along the thinly populated (northwest-southeast) axis of the San Joaquin Valley, by the early and mid-1870s there was plenty of interest in improving and specifically irrigating these lands. That is, the same infrastructures that increased agricultural productivity, more importantly perhaps, also enhanced marketability and property value. A major proponent of land development was the Central Pacific Railroad itself, which, as Ludeke (1980:111) points out, "stood to gain greater profits from productive farms and prosperous towns than from any scanty business derived from the open range cattle business." Moreover, the railroad had been granted vast acreage along its tracks by the federal government and sought to dispose of them at lucrative prices. Such interests essentially underlay the "No Fence" Law, approved by the California Legislature in 1874. Although the statute did not explicitly require ranchers to fence in their herds, which had freely grazed and trampled on any (domestic or wild) vegetation that came in their path, it did compel them to do so by holding the cattlemen monetarily responsible for damages caused by livestock. The new law thus removed a major obstacle for crop cultivation in California.

Similar to the case for other rail towns, farmers around Tulare quickly took advantage of the favorable conditions presented by the railroad and legislature. By pooling their resources to create canal companies, they constructed irrigation systems that greatly surpassed—in length, capacity, complexity, and cost—the county's earlier ditches. As one of many local examples from the decade, the Tulare Canal was constructed in 1873 by area landowners, who, in the following year, incorporated as the Tulare Irrigation Company (Grunsky 1898:28–29; Hall 1885a, 1885b; Figure 3-1). Flowing southwesterly for 15 miles from its head on the Kaweah River, the canal was the source of water for a network of ditches irrigating the lands north and west of Tulare. With $40,000 in capital, the company primarily served its stockholders, who were apportioned water according to their relative interest in the company.

Certainly, the combined effect of the railroad and No Fence Law was the chief impetus for the proliferation of irrigation companies and heightened real estate activity in the San Joaquin Valley. In other economic respects, however, that effect took far more time to reach fruition, particularly in terms of land-use patterns and economic structure. And while the new infrastructures and pro-agricultural laws of the 1870s did indeed serve to marginalize ranching, livestock-based products in no way subsided from the valley economy.[2] The personal

[2]The exceptions to this generalization were cattlemen Henry Miller and Charles Lux, whose immense land holdings covered much of western Merced, Fresno, and Kern counties. Far from being an adversary, the railroad facilitated the rise of the Miller & Lux Company as the dominant corporation in the San Joaquin Valley. Additionally, Clough and Secrest (1984:120) comment that passage of the No Fence Law actually benefited the Miller & Lux Company because its vast herds no longer became mixed up with those of other ranchers.

biographies found in Menefee and Dodge's (1913) history make clear that even after the advent of intensive irrigation systems, late nineteenth century property owners in Tulare County essentially remained agrarian generalists. So-called "farmers" commonly maintained livestock just as so-called "ranchers" often cultivated orchards and grain. In this regard, modern historians often distinguish between subsistence and commercial activities, wherein the former produces goods for domestic consumption or barter whereas the latter yields commodities produced for sale to a broader market. For nineteenth century homesteaders, subsistence, by necessity, held priority over commerce. At the time, commercial farming was at best in its nascent state—that is, while the land yielded an impressive output, there was still little diversity and structure in the overall economy.

To illustrate, thanks to the railroad and Californian lawmakers, grain farming replaced cattle ranching as the valley's dominant enterprise in the 1870s. As discussed above, farmland in general carries greater value than pastureland, yet in their operation, grain cultivation and cattle rearing share some of the same basic characteristics. Both require a large tract of land (a section or more) to be profitable. Neither are particularly labor-intensive pursuits, except at specific and limited times of the year (i.e., roundup and harvest). Irrigation generally increases productivity of both pastureland and grain fields but, depending on annual rain and runoff, is not always essential. Thus, even though the shift from cattle ranching to grain farming obviously changed the landscape and the type of agrarian goods yielded by the land, it appears to have had only moderate impact on the structure of the valley's economy, which remained focused on a limited range of commodities and services.

Grain farming eventually gave way to more lucrative crops like grapes, citrus, and tree fruit, but the change was by no means hasty or abrupt, as wheat and other cereals continued to be cultivated in the valley in large tracts until the early twentieth century. In Tulare County, for instance, the trend toward deciduous fruit did not begin in earnest until 1890 (Menefee and Dodge 1913:139–140). Compared to grain farming, the cultivation of commercial premium crops (or commercial horticulture) requires a whole host of attendant sectors, which, during the late nineteenth century, created various niches in the overall economy. Along with irrigation, these included: banking and lending institutions to finance yearly crops; hardware businesses to provide the machinery and supplies to sort and dry the fruit; and shippers to box the products and facilitate their sale and transportation. Perhaps the most important of these was the labor sector. Throughout his well-researched narrative, *Beasts of the Field*, Richard Street (2004) illustrates with numerous examples how the shortage of semi-skilled farmworkers was the limiting factor for commercial farming in California during the latter half of the nineteenth century. Once established, commercial horticulture greatly reconfigured the structure of both land use and the economy. The same sections of land that previously supported unbroken expanses of wheat were transformed into patchworks of 10- or 20-acre parcels, which collectively surpassed the property value and output of the former grain fields. In a similar way, by producing a variety of crops, the agricultural market became more diversified and, to some extent, more stable. That is, although the valley economy was still prone to the vagaries of agriculture in general, it was less tied to the success or failure or any one crop.

Dairying, which became of major importance to Tulare County, mirrored commercial horticulture in these respects. It, too, is a relatively intensive enterprise that combines elements of both farming and animal husbandry, including of alfalfa cultivation, the care and housing of

dairying stock, milk storage, and the production of milk-based products. Moreover, like vineyards and orchards, alfalfa can only be successfully grown over the long term with irrigation. According to Menefee and Dodge (1913:136–138), dairying in Tulare County took even longer to gain traction. After meeting initial failure in 1893, the dairying industry finally gained its footing in the first years of the twentieth century and has been a major player in the county economy ever since.

3.3 PROPERTY-SPECIFIC HISTORY OF THE EVANS AND OAKES DITCHES

The histories of the two subject ditches provide some detail and variation to the basic themes discussed in the general context above. Conveniently, both are part of the same irrigation network and thus share the same historical attributes and associations. The Evans Ditch and possibly the Oakes Ditch predate the proliferation of canals that followed the arrival of the railroad in 1872. They are modest conveyances, localized to the Visalia area.

3.3.1 Challenges of Irrigation in the Visalia Area

Aside from Menefee and Dodge's (1913:132) all too brief mention of the Evans Ditch's existence in 1858, research found only circumstantial information about the two ditches prior to 1877.[3] Because it depends on the flow of the Kaweah River via Mill Creek, the Evans Ditch was no doubt affected by the historic floods of the 1860s. Prior to that decade, the Kaweah River fanned out into four tributaries as it descended from the foothills: (from north to south) Elbow Creek, Mill Creek, Packwood Creek, and Deep Creek (Grunsky 1898:12–13). Water entering Mill Creek from the river's main channel was sufficient to serve the Mill, Jennings, Persian, Birch (or Burch), and Fleming ditches, in addition to the Evans Ditch (Menefee and Dodge 1913:132.) When the 1861–1862 flood struck, it cleaved a new northern branch of the Kaweah River, known as the St. Johns Channel and later the St. Johns River. Moreover, because drift and silt carried by the torrent obstructed the upper reaches of the Kaweah River, much of the runoff during the years following the flood began to course down the St. Johns River, leaving much less for the main channel of the Kaweah River and its other three tributaries.

Thus, along with outlasting the caprices of nature, the primary and somewhat peculiar challenge for nineteenth century irrigators in the Visalia area lay in returning the distribution of water in the Kaweah Delta to its preflood state. In the mid-1860s, they constructed several conveyances and structures for this purpose, but as with the head of the People Ditch described above, most were destroyed by the ensuing 1867–1868 deluge. Considerable progress was eventually made in the 10 years following this flood. Taking advantage of the numerous sloughs that ran between the main channels of the Kaweah Delta, the irrigators constructed several short but strategically placed ditches or cuts in order to create cross-channels between the St. Johns River and the Kaweah River and thus convey water from the former into the latter (Grunsky 1898:11–34; Hall 1885a; Figure 3-1).

[3]Neither ditch appears on the 1867 Tulare County Map, although the mapper may have omitted them due to their relatively small dimensions.

This was the intent of the owners of the Evans, Oaks, Burch, Watson, and possibly other ditches, who in 1876 or 1877 reopened the Bostwick Cut (originally constructed in 1863 or 1864), a short (0.75-mile-long) ditch between the St. Johns River and Lane Slough (Grunsky 1898:31–33; Pomeroy 1911:119–135). They also installed a wing dam across the St. Johns River as well as a head gate within the cut, which together proved to be quite effective in diverting nearly 100 cubic feet per second (cfs) from the St. Johns River (Pomeroy 1911:122, 126). Once through the head gate, the water then travelled a convoluted path through the Kaweah Delta: from the Bostwick Cut, it was dropped into Lane Slough, flowing southwestward until it reached the Kaweah River; joining the river's westward course, it continued to where the river branched into Mill and Packwood creeks; from this point, the water was either diverted into Oakes Ditch or continued westward through Mill Creek to the heads of the Evans, Burch, and Watson ditches (Hall 1885a; Figure 3-1). In 1877, the owners of these and other ditches organized the Kaweah and Mill Creek Water Company (KMCWC) "to keep water in the Kaweah and Mill creek channel" (Pomeroy 1911:131). With $10,000 in capital, the company purchased an 80-acre parcel encompassing the headworks of the Bostwick Cut.

Needless to say, the use of natural streams in tandem with man-made conveyance stretches calls into question conventional criteria for distinguishing these two categories of water courses. Moreover, the character of irrigation in the Visalia area demonstrated by the KMCWC sets it apart from the valley's larger, more prominent systems.[4] That is, by making the best of its limited financial resources and manpower as well as the natural hydrology of the Kaweah Delta, the KMCWC created a network, which, although relatively diminutive in its capacity and geographical scope, is still impressive for its effective if not astute design.

3.3.2 Namesakes, Early Alignments, and Comparisons with Other Contemporary Irrigation Systems

From the various persons with the surname "Evans" found in Menefee and Dodge's (1913) county history, the Evans clan of Visalia appear to have been the builders and namesake of the Evans Ditch. Hailing from Wales, patriarch Samuel Evans and his family were among the first settlers in the town during the early 1850s (Menefee and Dodge 1913:105,132 865, 875, 887–888). The county history makes mention of the members of the Evans family in several places (including the brief note about the ditch's construction in 1858) but not in any coherent, biographical form. The most complete account refers to a heroic episode during the 1867–1868 flood when sons Samuel Jr. and James saved their neighbors from the onrush of icy waters in the early hours of one wintery morning; in all, 25 people took refuge at the Evans' manor, located on high ground in what was then the southeastern outskirts of town.

From the late 1870s to the early 1890s, James Evans took an active role in managing not only the Evans Ditch but the KMCWC system in general (Pomeroy 1911:127–128). His duties included operating the head gate at the Bostwick Cut and ensuring that the flow of KMCWC water remained intact at this all-important point along the St. John's Channel. Farther downstream where the company's ditches drew water from Mill Creek, the KMCWC realigned the Watson

[4]The Fresno Canal and Irrigation Company and the Kings River & Fresno Canal Company of Fresno County also took advantage of natural sloughs in constructing their canals during the 1870s, although perhaps not to the same extent as the irrigators of the Visalia area (Lloyd et al. 2016).

seen on Hall's (1885a, 1885b; Figure 3-1) Tulare County irrigation maps. Heading on the south bank of Mill Creek in the northwest quarter of Section 27 (T18S, R25E), the Evans Ditch flowed in a southerly direction for 0.5 mile to the head of the Watson Ditch, which, in turn, provided water for the Burch Ditch; the Evans Ditch continued its south-southwesterly course for 5 miles. Together, the three canals, along with the Oakes Ditch (described below), irrigated the rural lands southeast, south, and southwest of Visalia.

Government reports estimated that the Evans Ditch irrigated 289 acres in 1885, increasing to 500 acres by the end of the century (Grunsky 1898:32; U.S. Senate 1890:219). The 1892 Tulare County atlas illustrates that much of this acreage was cultivated with vineyards and/or orchards (Thompson 1892:66). Among these properties was the Evansdale Fruit Company, which at the time covered about 100 acres within the Evans estate. The atlas plots a building identified as a "drier," indicating that the fruit was processed/dried on site. The ditch also served the Oakview Colony, one of few agricultural subdivisions in the Visalia area.[5] Management of the Evans Ditch and Evansdale Fruit Company eventually passed into the hands of individuals outside the family circle. James Evans' interest in the ditch apparently ended in 1891, and Visalia businessman Ben Maddox and farmer John Davidson, who do not appear to have been related to the Evans clan, supervised the fruit company's operation in the first decades of the twentieth century (Menefee and Dodge 1913:363, 674; Pomeroy 1911:127–128).

The Oakes Ditch similarly derives from one of Visalia's pioneers, namely James W. Oakes, a native Canadian whose travels throughout the United States landed him in Tulare County in 1868 (Menefee and Dodge 1913:853–854). He married Margaret (Houston) Allen, widow of W. B. Allen, and this union apparently provided the impetus for the Oakes Ditch, which was built by Oakes and others to irrigate his new wife's lands between Mill and Packwood creeks. According to Grunsky (1898:32–33), the ditch was in use prior to the organization of the KMCWC, placing its construction between 1868 and 1877. It headed on the south bank of Mill Creek about 30 feet downstream from the head of the Bacon & Crossmore Cut (Grunsky 1898:31–32; Hall 1885a; Figure 3-2). A downstream brush dam ensured sufficient flow into both conveyances. From this point, the ditch flowed generally west-southwest for no more than 3 miles, where it terminated at the Evans & Turner Ditch. According to Hall's (1885a: Figure 3-1) map, the Oakes and Evans ditches intersected in the northeast quarter of Section 36 (T18S, R25E).[6] During the 1880s and 1890s, acreage irrigated by the Oakes Ditch was even less than that of the Evans Ditch: 150 acres in 1885 and for "seven or eight small farms" by the end of the century (Grunksy 1898:32; U.S. Senate 1890:219). Compared to the Evans Ditch, contemporary sources are less specific about what kinds of crops were irrigated by the Oakes Ditch. Menefee and Dodge (1913:854) state that the Oakes' lands between Mill and Packwood were cultivated with alfalfa and used for dairy purposes. The 1892 Tulare County atlas additionally plots a vineyard or orchard of more than 40 acres within the Oakes' estate (Thompson 1892:62). The Oakes family maintained interest in the ditch at least until the early twentieth century (*Visalia Daily Times* 1904).

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[5]Comparisons of the Thompson's (1891, 1892) Fresno County and Tulare County atlases indicate that the colony system, which was a phenomenon of late nineteenth century valley agriculture, was far less prevalent in the Visalia area than in the rural lands around the town of Fresno.

[6]No references to this intersection could be found in the textual sources. It is possible that a flume carried the flow of one ditch over that of the other.

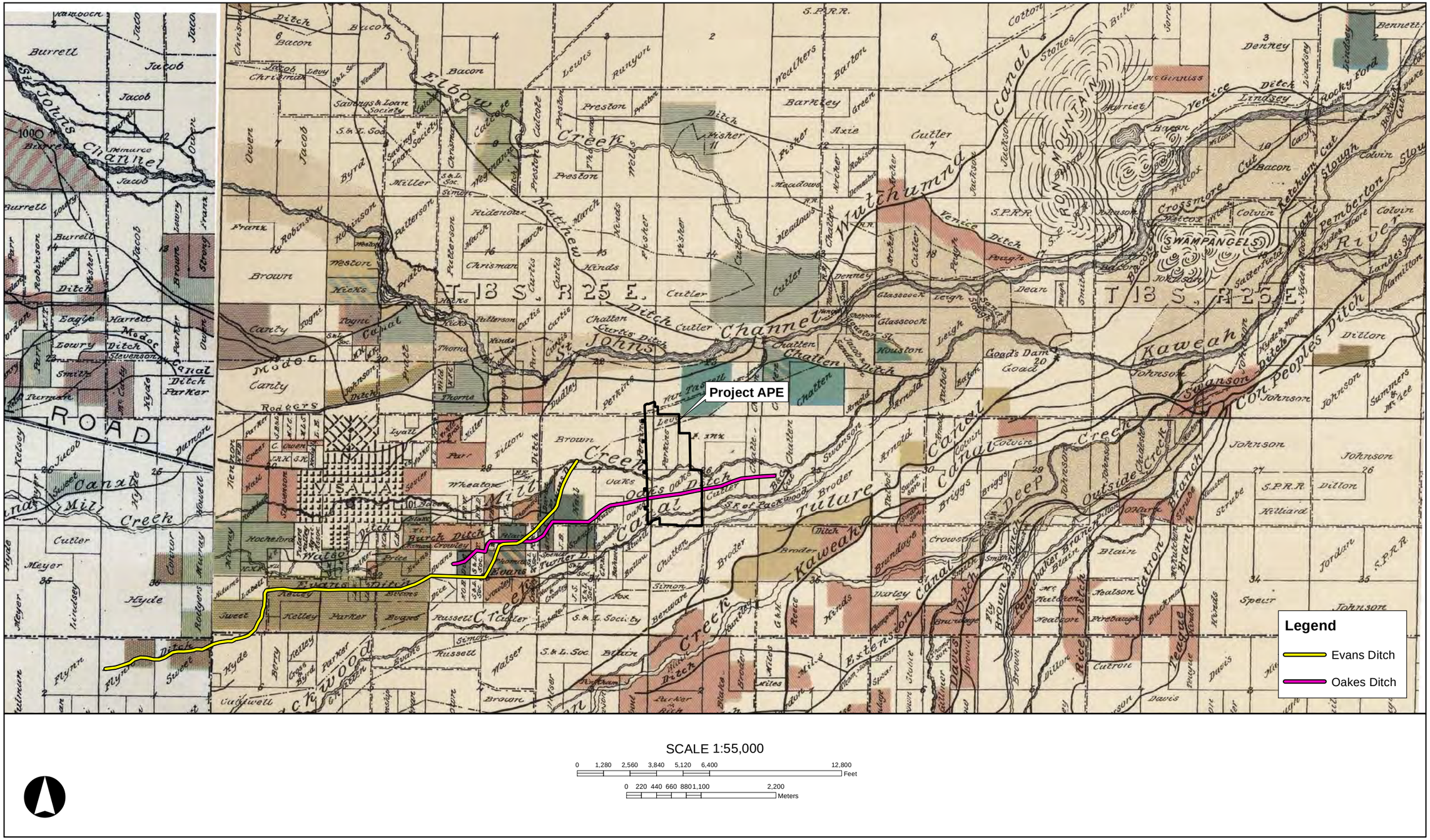

Figure 3-1 Evans Ditch and Oakes Ditch shown on the Visalia and Traver/Tulare irrigation maps; other relevant water courses highlighted in orange (Hall 1885a, 1885b).

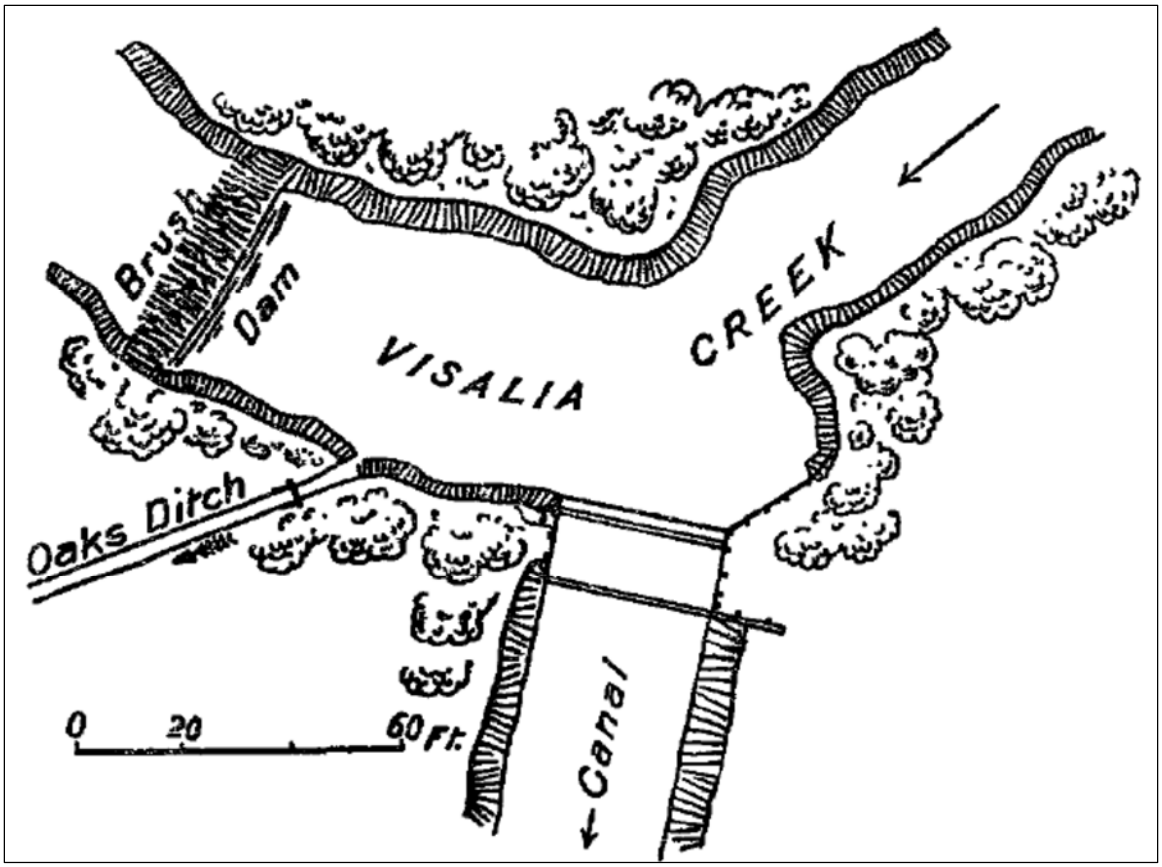

Figure 3-2 **A diagram of the head of the Oakes Ditch and Bacon & Crossmore Cut (labeled "Canal") from Grunsky (1898:30 [Figure 8]). Sources from the late nineteenth century alternatively refer to Mill Creek as "Visalia Creek."**

As mentioned above, the Evans and Oakes ditches served more than their namesakes. Like other county canals, they were owned and operated by their respective ditch companies—namely, the Evans Ditch Company and the Oakes Ditch Company; stockholders were apportioned water in proportion with the number of shares in the company.[7] Stockholders appear to have been levied an annual assessment to pay for the company's maintenance expenses (*Visalia Daily Times* 1908). Each ditch thus appears to have been managed through a two-tiered organization: the Evans and Oakes companies held title to their respective ditches and determined how water would be distributed to its stockholders, whereas the KMCWC acted in the broader interests of all irrigators under its company umbrella by protecting their common sources of water.

A few contextual points regarding the two subject ditches are worth discussing, particularly as they relate to the evaluation in Chapter 5. Neither the Evans nor the Oakes Ditch could be considered anything but diminutive conveyances. For that matter, the sum acreage irrigated by all KMCWC ditches in 1885 amounted to 1,014 acres or only 3 percent of the 33,371 acres irrigated by the Kaweah Delta (U.S. Senate 1890:218–219). In these terms, the Kaweah Delta

[7] Current research unfortunately could not determine the founding dates of these companies or whether their organization occurred before or after that of the KMCWC.

itself ranked well behind the Kings and Kern rivers, which irrigated 99,551 and 63,365 acres in that same year, respectively.

Perhaps more interesting than such quantitative differences were the structural differences among the various irrigation markets associated with the four major rivers of the central and southern San Joaquin Valley—the San Joaquin, Kings, Kaweah, and Kern rivers (U.S. Senate 1890:218–220). To illustrate, the Miller & Lux Company maintained a virtual monopoly on the San Joaquin River—98 percent of the 31,795 acres irrigated by the river's waters in 1885 were owned outright by the cattle company or were within its sphere of influence.[8] To a somewhat lesser extent, the Fresno Canal and Irrigation Company (FCIC) enjoyed a similar dominance along the upper Kings River, as did the Kern River capitalists who eventually formed the Kern County Land Company (KCLC). Both served areas of 30,000 acres or more in 1885, corresponding to roughly 50 percent (or more) of their local markets. Unlike Miller & Lux, which in the late nineteenth century used its water for primarily internal purposes, the FCIC and KCLC sold their water to agricultural colonies around Fresno and Bakersfield, respectively.

By contrast, the collective structure of irrigation companies drawing water from the Kaweah Delta was decentralized and lacked a dominant player of the magnitude of Miller & Lux, FCIC, or KCLC. According to 1885 statistics, 27 canals drew water from the Kaweah River and its tributaries (U.S. Senate 1890:219). The most prominent of these was the Lakeside Ditch, which irrigated 9,167 acre or about 27 percent of the Kaweah Delta irrigation market. The decided majority (19 ditches) irrigated less than 1,000 acres.

Identifying the reasons for this variability in market structure exceeds the scope of this investigation, although they very likely are related to the challenges of canal construction and the local geography associated with each irrigation market. Moreover, it is difficult to ascertain whether the economics of scale afforded by the larger irrigation companies resulted in a more efficient and cost-effective delivery of water, particularly given the haphazard if not anarchic nature of water distribution in the San Joaquin Valley in the late nineteenth and early twentieth centuries. In handing down his decision for a specific court case between two Tulare County irrigation companies, Judge Burnett sums up the muddled state of affairs of irrigation in general:

> The actions of the plaintiffs and defendants resulted in producing nothing more than a scrambling possession which fluctuated from day to day during the irrigation season and was not limited to any particular time, except that some of the witnesses testified that when there was plenty of water for everybody they did not interfere with the running of the water [Pomeroy 1911:123].

Until the second decade of the twentieth century, oversight of water appropriated for irrigation purposes was the jurisdiction of the county governments, which lacked the means to effectively administer water distribution. The legality of water rights was, for the most part, left to the courts. A valley irrigator whose water supply had been compromised by another—a common occurrence during times of drought—had two options. He could appeal to the courts, which was

[8]Mainly because of its longstanding riparian water rights on the San Joaquin and its financial strength, the Miller & Lux Company effectively excluded most irrigators from appropriating water from the San Joaquin River. Its monopoly voluntarily ended in 1939 when the company agreed to receive federal water as part of the Central Valley Project.

often a lengthy and thus costly process, or he could take matters into his own hands by physically removing the structures that obstructed the flow of water into his gate and risking whatever consequences came later. It was under such circumstances that the differences between smaller and larger irrigators become more apparent.

Small companies like the KMCWC and larger ones like the FCIC and KCLC operated with the same nominal goal in mind—to promote the interests of their shareholders. They differed in the economic profiles of their investors and how irrigation was used to advance such interests. For the principals of the FCIC and KCLC, who were influential Bay Area businessmen, irrigation water was a means to improve their land holdings and/or was a commodity that could be acquired and sold for profit. Their deep pockets gave them considerable leverage in surviving protracted litigation and at times expanding their water rights through the purchase of other irrigation entities. For example, the FCIC weathered numerous courts battles during the late nineteenth century to emerge as the dominant irrigation company of the Fresno area. When in 1885 two of its competitors were shut off from the Kings River, the FCIC seized the opportunity by acquiring both systems and greatly enlarging its service area.

By contrast, the irrigators of the Visalia area were local farmers and/or dairymen who used the water to grow grain, fruit, and alfalfa. For ditch owners with modest financial wherewithal, there was strength in numbers and cooperation—as clearly demonstrated by the formation of the KMCWC. In such cases, the benefits of organization lay in coordinating irrigation schedules and protecting their water claims rather than in expanding their share of the local irrigation market. In this sense, the smaller irrigation companies of the Kaweah Delta as well as those of the lower Kings River, although clearly not commercially prominent even in a local context, anticipated the coming of the irrigation district as one of the pillars of valley agriculture in the twentieth century.

Research for this investigation found that the KMCWC ditch companies engaged in at least two legal trials during the late nineteenth and early twentieth centuries: a California Supreme Court case in 1882 involving the owners of the Watson Ditch and a state appellant case in 1910 involving the Evans Ditch Company (*Pacific Reporter* 1897:563–566; Pomeroy 1911:119–135). In both instances, the courts ruled in favor of the KMCWC plaintiffs, based in part on their early and continually maintained use of Mill Creek and the St. Johns River. In jargon of California water law, the irrigators had established an appropriative and longstanding water right by prescription.[9] Specifically, the judges' decisions determined that in the case of the Watson Ditch, water rights pass with title from ditch owner to ditch owner and that, in the case of the Evans Ditch, the company's appropriate right to a specific flow (60 cfs) of the St. Johns River could not be impeded by the defendant's structures. Despite the primacy of the water rights of the Evans Ditch, which was established by the courts decades before its effective start date in 1877, its owners apparently did not regard legal recourse as the first choice of action. In his testimony at

[9]A discussion of the evolution of water rights in California is a complex topic that, even in summary form, exceeds the scope of this context. Generally speaking, the rights of riparianists (i.e., landowners whose property includes a natural water course) held legal priority over the rights of appropriators—i.e., irrigators or miners who conveyed water from natural steams across multiple properties for agricultural or mining purposes. In legal battles, priority of use was also given to those riparianists or appropriators who had established their rights before those of their court adversaries.

the 1910 trial, Jim Evans stated—seemingly matter-of-factly—that when faced with a shortage of water caused by the dam another irrigator erected in 1885, he and his brother Sam wasted little time in pulling the dam out to resume their diversion on the St. Johns River. Interestingly, Evans admitted that he had knowledge of and implicitly consented to the competitor's dam prior to its construction, implying that he objected to its presence only when it compromised the flow of his (KMCWC) water. For the Evans family and other valley farmers of the day, water rights were a kind of individual property that required constant protection in and out of the courtroom. At the same time, however, Evans' discretion in this matter (i.e., by not immediately opposing the construction of another's dam) suggests an underlying civil-minded belief that water needed to be shared in an equitable manner and should not be monopolized by any one entity.

3.3.3 Irrigation Districts, Water Projects of the Twentieth Century, and Changes to the Evans and Oakes Ditches

Approved in 1887 by the California Legislature, the Wright Act provided for the creation of public irrigation districts. Among the central and southern counties of the San Joaquin Valley, the transition from private to public water began relatively early in Tulare County with the organization of the Tulare Irrigation District (TID) in 1889 (Grunsky 1898:34–36; Menefee and Dodge 1913:134–136). Using funds obtained from the sale of bonds, the new district bought up many of the area's existing canals. In 1891, it began construction of its bulk conveyance, the TID Main Canal, which heads at the St. Johns River. As was the case with most (if not all) of California irrigation districts, however, the TID was initially beset with obstacles. Local historians Menefee and Dodge (1913:135) go as far as to lament that the district was "a disheartening failure" in its early years. It was not until 1903 when the TID was able to settle its financial woes and viably serve its members.

The early 1910s brought some much needed oversight and coordination to the haphazard manner of water distribution of the previous century. In 1913, the State Railroad Commission assumed regulation of the business transactions and rates charged by utilities (including irrigation entities). In the following year, California voters approved the Water Commission Act, which empowered the California Water Commission with similar regulatory authority to regulate the appropriation of water (California State Water Commission 1917:7, 147).

Notwithstanding the improved condition of the TID, the county's irrigation market still comprised numerous privately owned small and medium-sized ditch companies that served the irrigation needs of their stockholders. In a report on California irrigation by the U.S. Department of Agriculture (USDA), Adams at al. (1912:117) remarked that "practically all" of the 62 canals drawing water from the Kaweah Delta were managed, like the Evans and Oakes ditches, through a canal or ditch company. The USDA additionally reported that the region's canal companies had further organized into two "associations": one serving the interests of irrigators of the St. Johns River and the other for those of the Kaweah River and its other tributaries. The two associations (later identified as the Kaweah River Association and the St. Johns River Association) operated under an agreement whereby the delta's waters were divided equally when flow exceed 80 cfs. When it dipped below this threshold, however, runoff passed entirely to the Kaweah River Association. Although not stated by Adams, the latter condition appears to have reflected the legal primacy of water rights held by irrigators of the Visalia area (see Section 3.3.2). Because it diverted water from the St. Johns River and conveyed such water through the

Kaweah River and its branches, the KMCWC was member to both associations (California Department of Public Works 1950:13).

The trend of Tulare County irrigators toward coalescing into organizations with greater and more inclusive membership eventually culminated in the creation of one of the valley's larger water districts. Even so, the road to this ultimate end was far from easy, and the process was filled with contention. Much of that strife revolved around the county's underground water resources. With its relatively high and ample aquifer, the Tulare Lake Basin is particularly well suited for irrigation by well water. Hall's (1885a, 1885b) irrigation maps depict numerous "artesian wells," mostly in and west of the town of Tulare. With the advent of electrical pumps in the 1890s, citrus farmers along the valley's east side began taking advantage of this new technology to great effect. By the 1910s, the falling underground water table caused by the growing number of wells had become a concern for valley growers. In Tulare County, the issue came to a head in 1916 when the newly established Lindsay-Strathmore Irrigation District struck a deal with a Visalia land owner to drill water wells on his property for district use (*Visalia Daily Times* 1916). Members of the Kaweah River and St. Johns associations clearly saw this agreement as an incursion into their territory and immediately filed suit against the east side district. For the next 10 years, the district responded by actively purchasing stock from the various ditch companies of the Visalia area, thus establishing water rights within the Kaweah Delta (*Visalia Daily Times* 1926a, 1926b). For the delta ditch owners, who watched helplessly as stock from their companies was acquired by the rival district, the private canal company, as the commercial and legal entity through which irrigation water was distributed, had plainly grown obsolete. To counter the district's stratagem, they formed the Delta Underground Water Protective Association in 1926; among the first to sign on with the new association were the Evans and Oakes ditch companies (*Visalia Daily Times* 1926c). Still, it became apparent that the only way to protect delta water was through public incorporation. Speaking at a Tulare Chamber of Commerce meeting in February 1926, district advocate Calvin Russell expressed this sentiment.

> The only way this particular program can be solved . . . is to form one great irrigation district comprising not only the Tulare Irrigation District, but all its associates in this 10-year old suit. Tulare Irrigation district members can not now sell stock. Were all the associated interests in this fight joined under one such association, this critical matter of sales and purchases of stock would be permanently solved [*Visalia Daily Times* 1926a].

Russell's proposed solution was soon realized. In 1927, the Kaweah River Association and the St. Johns River Association, along with the Delta Underground Water Protective Association, formed the Kaweah Delta Water Conservation District (KDWCD), which was among the first conservation districts to be organized in California (Adams 1929:387–388). As members of KMCWC as well as the three delta associations, the owners of the Evans and Oakes ditches now became part of a multitiered federation of irrigation entities that was headed by the KDWCD. After this initial row, the KDWCD (2017) has since functioned to coordinate the operation of traditional aboveground conveyances and, in years of sufficient runoff, release of water into natural channels to replenish the aquifer. By managing the supply of water over the long haul, such irrigation and conservation districts reduced much of the friction associated with water use in prior decades.

In the meantime, along with these legal and jurisdictional changes, the physical aspects of the ditches as well as the course of Mill Creek itself changed during this period. From the time of

Hall's (1885a) irrigation map of the Visalia area to the 1926 USGS Exeter quadrangle (surveyed in 1924–1925), the creek's path through Sections 25–27 (T18S, R25E) was rechannelized, becoming less sinuous with far fewer turns and bends (Figure 5-1). As a result, the head of Evans Ditch, formerly in the northwest quarter of Section 27, moved upstream to the northeast quarter of the same section. The head of Oakes Ditch, formerly located at the east-west centerline of Section 25, shifted northwestward to correspond with the creek's new channel—a change that correspondingly required a realignment of the ditch through Section 26. Curiously, the 1.5-mile section of Oakes Ditch west of Section 26, as seen on the 1885 map, does not appear on the 1926 map, suggesting that its lower reaches may have been abandoned. On the other hand, the Evans Ditch, which measured about 5.5 miles long in 1885, had been greatly lengthened by the time of the 1926 map; the expanded alignment extended from the ditch's head east of Visalia and flowed in a west-southwesterly direction for about 11–12 miles. The 1926 quadrangle additionally shows that levees had been placed along the banks of selected segments of Mill Creek and the Oakes Ditch. The financial and logistical scope of these improvements, which occurred before the creation of the KDWCD, suggests that they were undertaken by the KMCWC and/or Kaweah River Association. Once established, the irrigation and conservation districts of the twentieth century had an even greater ability to effect such improvements. As public entities with the authority to levy property assessments or issue bonds (subject to membership approval), districts had the financial tools at their disposal to raise the revenue and capital necessary to maintain and upgrade their systems.

While the KDWCD was formed and continues to conserve the waters of the Kaweah Delta within the subterranean aquifer for local use, many valley farmers during the 1920s were clamoring to the state government for an aboveground storage facility large enough to serve as a hedge against the inevitable periods of drought. This was one of the goals for members of the Kings River Water Conservation District, who envisioned a sprawling 650,000 acre-foot reservoir in the Sierra Nevada foothills at a site called Pine Flat (Adams 1929:386–387). The problem was that the costs involved with such projects exceeded not only the collective resources of the valley's irrigation districts but also the financial means of the State of California as well. Ironically perhaps, the long-sought vision of a valley impoundment facility finally began to move forward in the midst of the Great Depression.

Funded and administered through the Bureau of Reclamation (Reclamation), the Central Valley Project (CVP) was an archetypical New Deal undertaking that encompassed both the Sacramento and San Joaquin River valleys. Moreover, its functional scope addressed more than just water storage issues and entailed the redistribution of runoff in the northern part of the state to the San Joaquin Valley for irrigation purposes. Other objectives included general flood control and the desalinization of the San Joaquin–Sacramento Delta. Of the CVP's components, the Friant-Kern Division specifically serves Madera County, Tulare County, Kern County, and (to a lesser extent) Fresno County (Autobee 1994; Bailey 2007; Bureau of Reclamation 1958). Completed in 1944, Friant Dam impounds the waters of the San Joaquin River creating Millerton (Lake) Reservoir. From Millerton Lake, water is diverted north into the Madera Canal or south into the Friant-Kern Canal, which flows through the citrus growing areas of the valley's east side. Constructed from 1945 to 1951, the Friant-Kern Canal was, at the time, an unprecedented conveyance in terms of length (152 miles) and capacity (5,000 cfs at its head). Through a long-term contract with Reclamation, the Kahweah Delta Water Conservation District (2017) receives federal water, which augments its supply from the Kaweah Delta. The CVP was soon followed

by other federal and state-sponsored water projects, including the long-awaited Pine Flat Dam and Reservoir (completed in 1954) and the massive State Water Project (constructed during the 1960s and early 1970s). At the local level, in 1962 the U.S. Army Corps of Engineers completed construction of the Terminus Dam, which impounds the waters of the Kaweah River for irrigation, flood control, and recreational purposes.

It was also during this mid-century flurry of water projects that the two subject ditches and Mill Creek were once again subject to modification. The most prominent change seen on the 1950 Exeter quadrangle is the rigidly straightened course of the creek through the project area (i.e., the western half of Section 26). Like the 1926 version, the map shows that this segment of the creek was bounded by levees on either side. Modern aerials indicate that the creek's course has not changed since the time of this map. The 1950 quadrangle also shows that Oakes Ditch had been restored to its original length of approximately 3 miles, although the alignment of the ditch's lower reaches plainly differs from that shown on the 1885 map. The locations of the two ditch heads remain consistent with those shown on the 1926 quadrangle. Minor adjustments in alignments of the two ditches continued to be effected into the 1950s and 1960s, as highlighted on the subsequent 1969 (photorevised) Exeter and Visalia quadrangles (see Figure 5-1). Modern aerial photographs indicate that by this year, the aboveground sections of the two ditches had arrived generally at their current state, although as a result of the continuing expansion and urbanization of Visalia, the lower reaches of the two ditches have been piped underground in the past 45 years.

4
RESOURCE DESCRIPTIONS

4.1 EVANS DITCH AND MILL CREEK LEVEES (P-54-002179/CA-TUL-3053H)

The Evans Ditch heads on the south bank of Mill Creek, near the creek's intersection with McAuliff Street. The ditch then proceeds in a westerly-southwesterly direction for approximately 11–12 miles to where it terminates on the north bank of the Tulare Canal (approximately 2.5 miles west of the State Route 99/Union Pacific transportation corridor). While this course is apparent on the 1969 series of USGS 7.5-minute quadrangles (including Exeter, Visalia, and Goshen), modern aerial photographs indicate that the overwhelmingly majority of the ditch's present-day alignment has been piped underground due to the residential development of south Visalia in the past 45 years. The aboveground segments of the ditch appear to be earthen, based on the aerial photographs.

Separate segments of Evans Ditch have been variously recorded and the records have been submitted to the Southern San Joaquin Valley Information Center of the California Historical Resources Information System. Of these, Armstrong et al. (2007) recorded a segment of the Mill Creek Levees that lies within the project APE. Although the levees were located along the creek rather than the ditch, these structures were recorded as part of the Evans Ditch under P-54-004876. The Information Center recently reclassified the multiple site records for the ditch, subsuming them under P-54-002179/CA-TUL-3053H.

Æ recorded a 2,700-foot segment of the Mill Creek Levees, which included the section documented previously by Armstrong et al. (2007) (Figure 4-1). The levees are earthen berms that rise approximately 2–3 feet above the surface along Mill Creek (Figure 4-2). At the tops, they are 15–20 feet wide, large enough to accommodate a vehicle. The surface of the levees appears to have been oiled. As noted in Section 3.3.3, the levees are depicted and date (at least) to the 1950 Exeter quadrangle. Nut orchards lie north and south of the recorded segment. The updated California Department of Parks and Recreation (DPR) cultural resource record forms are provided in Appendix D.

4.2 OAKES DITCH (P-54-005290/CA-TUL-3101H)

The Oakes Ditch (P-54-005290/CA-TUL-3101H) heads along the south bank of Mill Creek near the point where the Kaweah River divides into Mill Creek and Packwood Creek. It then proceeds in a westerly-southwesterly direction, where it terminates in southeast Visalia. Modern aerials indicate that similar to the Evans Ditch, the lower reaches of the Oakes Ditch have been piped underground due to residential development in the past 45 years. The aboveground portions of the ditch are earthen.

Æ recorded a 2,700-foot segment of the Oakes Ditch within the project APE (Figure 4-1). The segment begins at Road 152 (5th Avenue) and proceeds in a westerly direction for 2,450 feet,

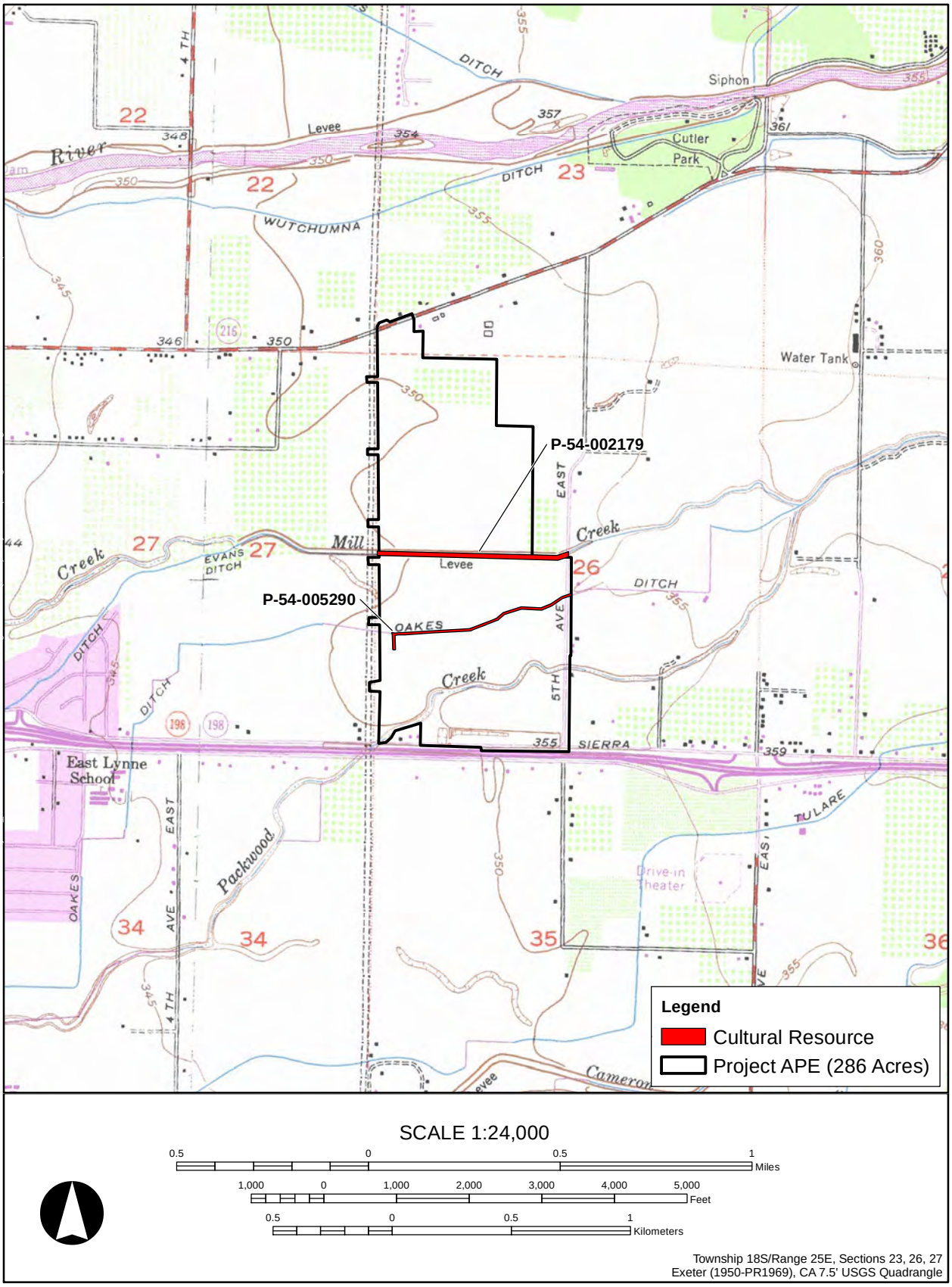

Figure 4-1 Recorded segments of evaluated resources within the project APE.

Figure 4-2 Mill Creek Levee from western edge of project boundary, facing east.

where it turns due south for the remaining 250 feet. Although not depicted on the 1969 Exeter quadrangle, the 250-foot section appears to be a historical portion of a private ditch. (A similar private ditch heads at the east end of the segment and parallels Road 152.) At the south end of this section, the ditch flows into an underground pipe. The recorded segment generally measures 24 feet wide (bank to bank) and 4.5 feet deep. The aboveground portion of the Oakes Ditch west of the project APE (and plotted on the 1969 quadrangle) is no longer visible, apparently having been abandoned or piped under. The recorded segment lies within a mature and apparently unproductive almond orchard.

Four sets of features were observed along the recorded segment. At the east end, water flows under Road 152 through a concrete culvert and immediately enters the bay of a concrete weir (Figure 4-3). The water proceeds westerly for 600 feet to another concrete weir, dated by inscription to 1969 (Figure 4-4). A vehicle bridge located at the point where the ditch turns south is constructed with concrete footings, iron rail cross ties, and a wood plank road surface. The recorded segment terminates at a former concrete weir that has been refashioned to serve as an abutment for the pipe entrance. An inscription indicates that the features was constructed in November 1990. California DPR forms documenting this resource are included in Appendix B.

Figure 4-3 Oakes Ditch at eastern project boundary/Road 152, facing east.

Figure 4-4 Concrete weir along Oakes Ditch, constructed (according to inscription) in 1969; view to the southeast.

5
NRHP/CRHR ELIGIBILITY EVALUATION OF THE EVANS DITCH/MILL CREEK LEVEES AND OAKES DITCH

The NRHP/CRHR evaluation of the two subject ditches follows the four-step NPS procedure discussed in Chapter 2.

5.1 CLASSIFICATION

The Evans Ditch and Oakes Ditch are irrigation conveyances that draw water from Mill Creek. Both are more than 50 years old and thus meet the conventional age criterion to be consider a historical resource eligible for the NRHP/CRHR. More specifically, they are linear structures under the guidelines of the Office of Historic Preservation (1995); this category includes transmission lines, roads, railroads, gas lines, and similar properties.

Given the relationship of the ditches to Mill Creek and to each other, a couple of points need to be made regarding the scope of the evaluation. When the Evans Ditch was documented in 2007, the existing Mill Creek levees were included in the same site record as the ditch. Technically speaking, this inclusion is somewhat problematic considering the ditch and the creek are separate water courses. For the purposes of this evaluation, however, the combination of ditch and creek levees on the same DPR form is practical and even appropriate. As recounted throughout Chapter 3, the creek has historically served and has been manipulated as a conveyance; construction of the levees as well as the rechannelization of the creek was carried out to maintain the integrity of its flow for irrigation and flood control. Although the particulars of ditch and levee construction differ, the levees were built under the same general set of historical circumstances discussed in Chapter 3. To an even greater extent, the two ditches share these same historical associations.

For these reasons, the evaluation of significance subsumes all of the subject structures—the Evans Ditch, the Oakes Ditch, and the Mill Creek Levees—under one rubric, loosely termed as the "Kaweah and Mill Creek Water Company system." The application of NRHP/CRHR criteria in Section 5.3 thus is equally relevant for evaluating the significance of other KMCWC structures discussed in Chapter 3, such as the Watson and Burch ditches and the Bostwick Cut. By contrast, because assessment of integrity compares the historical versus present-day physical conditions of each resource, it treats the subject structures as distinct parts of the larger system.

5.2 CONTEXT, THEME, AND THEMATIC/RESOURCE PERIOD OF SIGNIFICANCE

The KMCWC system lies wholly within Tulare County and specifically within the Visalia area. Aside from the two state court cases discussed in Section 3.3.2, its history occurs within these boundaries as well. Much like Chapter 3, the evaluation in the following section (particularly under Criterion 1) takes a comparative approach, relating the system's characteristics and history to those of other irrigation systems in the central and southern San Joaquin Valley. Its historical

significance is most fittingly interpreted within a local or (at most) within a regional (valley-wide) geographical context.

As an irrigation company, the KMCWC system is historically related to the theme of agriculture. Accordingly, Chapter 3 examined several subthemes under this general thematic category, including early ditch construction, irrigation companies, water rights litigation, irrigation districts, and the great water infrastructure projects of the mid-twentieth century. By far, the significance of the Evans and Oakes ditches as parts of the KMCWC system is most appropriately evaluated with reference to the first subtheme and to a lesser extent the second and third. For this reason, the evaluations defines the thematic period of significance as the period between 1854 and 1913, extending from the construction of the first ditches in the Visalia area to 1913 when the operational and legal aspects of irrigation began to change. Along with the scant textual references to the ditches, Hall's (1885a, 1885b) irrigation maps serve as the critical source in reconstructing their physical character during this period.

5.3 APPLICATION OF SIGNIFICANCE CRITERA

5.3.1 Criterion A/1

Built environment resources are often considered significant under Criterion A/1 if they are the first of their kind. The historical KMCWC system contains some of the oldest ditches in Tulare County (if not the San Joaquin Valley), including the Watson Ditch (1854), Persian Ditch (1854), Evans Ditch (1858), Fleming Ditch (1858), and the Burch Ditch (early 1860s) (Menefee and Dodge 1913:132; *Pacific Reporter* 1897:564). Built sometime between 1868 and 1877, the Oakes Ditch also belongs to this system. The age of the KMCWC ditches in fact afford them more than mere historical significance. Because they had established their diversions prior to most other local conveyances, the Watson and Evans ditches (as well as possibly other KMCWC ditches) were granted priority of use over their legal adversaries in court. That legal advantage no doubt accounts for their continuance to the present day. As emphasized in Section 3.3.2, neither the dimensions of the ditches nor the acreage irrigated by them could be considered substantial by contemporary standards. They were, and still are, small conveyances. Yet the manner by which water was brought to the system (as described in Pomeroy 1911:119–135) is an outstanding example of the practical nature of early canal construction and serves as an important historical contrast against the more intensive form of construction related to the county's larger canals. In a similar way, the KMCWC and its stockholders provide an apt historical example of a small irrigation company that distinctly differs from the larger, more corporate-type of irrigation concern exemplified by the FCIC, KCLC, and the irrigation subsidiaries of Miller & Lux. For these reasons, the KMCWC system—including the Evans Ditch and Oakes Ditch—is a good representative of early irrigation in Tulare County and the valley from the period of significance and is thus considered significant under Criterion A/1 under the theme of agriculture at (minimally) the local level.

5.3.2 Criterion A/2

In order to be considered significant under this criterion, a resource must be closely associated with a significant person within the relevant historic context. Section 3.3.2 confidently links the Evans and Oakes ditches to early pioneer families in the Visalia area. (The same intimate association exists for the Watson Ditch as well.) It is, however, arguably unwarranted to regard

James Oakes or anyone from the Evans clan as an "important person" per Criterion B/2. The biographical entries in Menefee and Dodge's (1913:ix–xiv) number about 600. Oakes is listed among these pioneers and the Evans clan is mentioned in particular passages. They were part of the hearty generation that settled the county in the middle and late nineteenth century but do not assume an exceptional or prominent place in the history of this time. The same can be said for other members of the KMCWC system. Due to its lack of association with important persons, the system is not considered significant under Criterion B/2.

5.3.3 Criterion C/3

For structures like irrigation canals and transmission lines, innovative or novel technological features garner significance under this criterion. This is often problematic because canals and transmission lines are continually subject to modernization, leading to the physical removal of such features. In these cases, significance can be established only through archival materials, especially photographs and diagrams. In Section 3.3.2, it was suggested that the KMCWC systems—which combines manmade cuts and ditches with natural courses to achieve conveyance for irrigation purposes—deserves some historical appreciation for its astute design. Although the account of 1910 court case involving the Evans Ditch (Pomeroy 1911:119–135) does give some interesting details about construction and operation of the system, in the opinion of the evaluator there is not enough material to substantiate significance under this criterion. Due to a lack of sufficient information, the KMCWC is not considered significant under Criterion C/3.

5.3.4 Criterion D/4

Although Criterion D/4 is most relevant for archaeological sites, it can be applied to intact structures in instances where examination of the structure's features would result in historical information that cannot be obtained from other sources. However, this is not the case for the KMCWC system. Further study of its elements would not yield more information about the history and engineering methods of canal construction and operation beyond what is already known from existing sources. It is thus not considered significant under Criterion D/4.

5.4 ASSESSMENT OF INTEGRITY

Application of the NRHP/CRHR significance criteria found that the KMCWC system is locally significant under Criterion A/1. The following discussion addresses whether the portions of the two ditches retain sufficient integrity to convey the significance of the system. Specifically, it addresses whether the Evans Ditch/Mill Creek Levees and Oakes Ditch *in their current state* still convey the significant characteristics of the KMCWC system as identified in Section 5.3.1.

5.4.1 Evans Ditch/Mill Creek Levees

As mentioned above, this resource includes two structures—the Evans Ditch proper and the levees along Mill Creek. Only the latter lie within the project APE and are treated by this assessment. Neither Hall's (1885a, 1885b) irrigation maps nor textual references from the late nineteenth century or early twentieth century indicate the presence of levees along Mill Creek within or near the project APE. Even if such structures were present during the period of significance (1854–1913), they would have been obliterated during the continual episodes of

creek rechannelization (Figure 5-1).[10] While the 1926 USGS Exeter quadrangle indicates that levee construction along the creek had begun by that time, the current structures date to the mid-twentieth century when the creek apparently arrived at its present-day course. Because they were constructed decades after the period of significance, the recorded levees are lacking in all seven aspects of integrity

5.4.2 Oakes Ditch

Except in some rare instances, integrity of location is a necessary (though not sufficient) condition for overall integrity. That is, if the original alignment of a canal is no longer present, it follows that its other original characteristics (dimensions, head gates, irrigation gates, etc.) are absent as well. Figure 5-1 shows that the recorded segment of the Oakes Ditch has undergone multiple realignments during its more than 140-year history. Even if its course had remained the same, it is still wanting in terms of the other aspects of integrity. The few regulatory features seen along the segment date to the 1960s and 1990s, indicating an absence of integrity of workmanship and materials. Intersecting the recorded segment, the Big Creek Transmission Lines, which themselves have been upgraded from their original early twentieth century form, compromise both the integrity of setting and feeling from the period of significance. And while the ditch still irrigates neighboring rural properties, the alfalfa fields of the Oakes estate have long since been replaced by other crops, thus compromising to some extent integrity of association. Due primarily to an absence of integrity of location, the recorded segment of the Oakes Ditch lacks overall integrity.

5.5 SUMMARY OF ELIGIBILITY EVALUATION

The Mill Creek Levees, as a recorded element of the Evans Ditch, and recorded segment of the Oakes Ditch lack integrity to convey the historical significance of the KMCWC system.

[10]Hall's (1885a, 1885b) irrigation maps (see Figure 5-1) show that the alignment of the Evans Ditch dating to the period of significance also has been continually altered and that it lacks integrity of location.

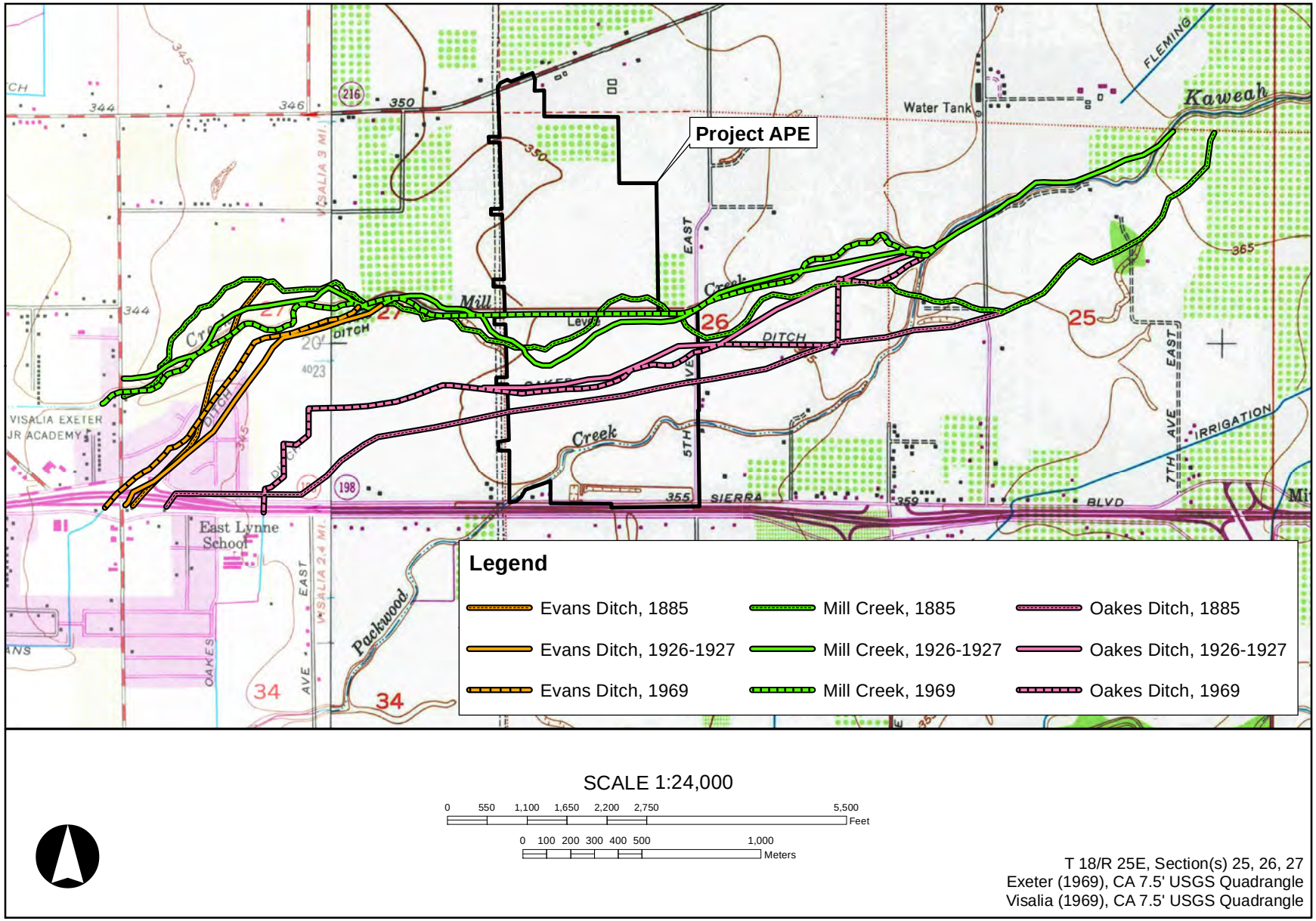

Figure 5-1 **Evans Ditch, Oakes Ditch, and Mill Creek alignments from 1885, 1926, 1927, and 1969 on the USGS Visalia and Exeter 1969 quadrangles, Sections 25, 26, and 27.**

6
SUMMARY AND RECOMMENDATIONS

The City proposes to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, a new extension of Tower Street, an interchange at State Route 198, trails along existing waterways, and modifications to the existing waterways within the 286-acre Project APE. The project requires compliance with Section 106 of the NHPA as well as the CEQA, which mandates that public agencies determine whether a proposed project will significantly impact the environment, and, if so, whether that impact can be avoided or mitigated.

Under a previous contract, Æ identified two historical water conveyances that cannot be avoided by the project (Lloyd and Asselin 2015). Accordingly, Æ evaluated the significance of both resources based on archival research and concluded that the Mill Creek Levees (as a recorded element of the Evans Ditch) and the Oakes Ditch are considered significant under Criterion A/1 of the NRHP/CRHR because of their association with the Kaweah and Mill Creek Water Company. However, the portions of both resources within the project APE lack integrity to convey the historical significance of the KMCWC system; therefore, the project will not affect historic properties or historical resources that are eligible for inclusion in the NRHP or CRHR.

No further management of the portions of the Mill Creek Levees or Oakes Ditch within the project APE are necessary.

7
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APPENDIX A

Personnel Qualifications

RANDY BALOIAN

Associate Historian

Areas of Expertise

- Historical research
- Architectural and archaeological survey and site evaluation
- Field logistics
- Statistical analysis
- Biological anthropology

Years of Experience

- 16

Education

M.A., Anthropology, University of California, Davis, 1989

B.A., Anthropology, California State University, Fresno, 1986

B.S., Business Administration, California State University, Fresno, 1986

Permits/Licensure

Field Director, California BLM Statewide Cultural Resources Use Permit CA-15-29

Professional Experience

2001–	Associate Historian, Applied EarthWorks, Inc., Fresno, California

Technical Qualifications

Mr. Baloian conducts historical research, evaluates architectural and archaeological resources, performs statistical analyses, prepares reports, and assists with various administrative tasks including budget and proposal preparation. He has evaluated numerous historical resources in the Central Valley and Sierra Nevada foothills, including residences, ranch complexes, commercial structures, mining sites, recreational camps and parks, and agricultural properties. Through his efforts as a historian, Mr. Baloian has amassed a considerable archive on the topic of irrigation, and he maintains the library and site record archives at Applied EarthWorks' Fresno office. He has authored numerous evaluation reports on irrigation canals on both sides of the Central Valley, and his research on the history of the Central Valley also supports archaeological investigations in that region. In addition to his duties as historian and archivist, Mr. Baloian routinely performs archaeological surveys and has participated in site testing and data recovery fieldwork. He has completed the Advisory Council on Historic Preservation course on National Historic Preservation Act Section 106 compliance. Mr. Baloian's academic studies focused on paleoanthropology, primatology, human genetics, statistical analysis, and the genetic and cultural manifestations of ethnicity.

JAY B. LLOYD

Senior Archaeologist

Areas of Expertise

- Cultural resources management
- California archaeology
- Inventory and excavation strategies

Years of Experience

- 19

Education

M.A., Linguistics, University of California, Santa Cruz, 2000

B.A., Anthropology, California State University, Fresno, 1998

B.A., Linguistics, California State University, Fresno, 1998

Registrations/Certifications

- Register of Professional Archaeologists (2006)
- Paleontologic Site Monitor Certification, Fossil Discovery Center (2011)

Permits/Licensure

- Principal Investigator, California BLM Statewide Cultural Resources Use Permit CA-15-29

Professional Affiliations

- Society for American Archaeology
- Society for California Archaeology
- Fresno County Archaeological Society

Professional Experience

2000–	Senior Archaeologist (2007–), Staff Archaeologist (2001–2007), Archaeological Technician (2000–2001), Applied EarthWorks, Inc., Fresno, California
2000	Adjunct Faculty Member, Reedley College, Reedley, California
1997–1998	Archaeological Field Technician for various cultural resource management firms throughout California

Technical Qualifications

Mr. Lloyd has been involved in cultural resources management throughout California for 18 years. As a senior archaeologist, he manages numerous simultaneous projects throughout the state. In this capacity, Mr. Lloyd ensures compliance with federal and state laws and regulations, and directs the work of technical staff and subcontractors. Additionally, he is responsible for project design and management; data acquisition; field supervision; technical reporting; and Native American coordination and consultation. Mr. Lloyd has worked on dozens of archaeological projects throughout California, including the Sierra Nevada and Cascade ranges, Central Valley, Central Coast, and Mojave Desert regions. He has supervised survey, extended survey, testing and evaluation, and data recovery projects at both prehistoric and historical sites. Additionally, Mr. Lloyd has authored and contributed to numerous National Historic Preservation Act Section 106 and California Environmental Quality Act compliance documents. He is proficient in laboratory sorting, cataloging, and artifact classification and has particular experience with the typologies of *Olivella* and *Haliotis* beads and ornaments.

Appendix H. Historical Study

Architectural Evaluations for the East Side Regional Park and Groundwater Recharge Project, City of Visalia, Tulare County, California

Randy Baloian and Jay B. Lloyd

Prepared By

Applied EarthWorks, Inc.
1391 W. Shaw Ave., Suite C
Fresno, CA 93711

Prepared For
Provost and Pritchard Consulting Group
130 N. Garden Street
Visalia, CA 93291

April 2017

MANAGEMENT SUMMARY

The City of Visalia (City) has obtained 280 acres of land and proposes to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, an extension of Road 148 and interchange at State Route 198, pedestrian paths, and modifications along existing waterways. The East Side Regional Park and Groundwater Recharge Project will require compliance with the California Environmental Quality Act (CEQA), which requires that impacts to cultural resources are considered in project planning and analysis.

To meet state requirements, on behalf of the City and under subcontract to Provost and Pritchard Consulting Group, Applied EarthWorks, Inc. (*Æ*) identified two historic water conveyances, the Mill Creek Levee/Evans Ditch (P-54-002179/CA-TUL-3053H) and the Oakes Ditch (P-54-005290/CA-TUL-3101H), that cannot be avoided by the proposed project. *Æ* evaluated the significance of both resources based on archival research and concluded that the Mill Creek Levees (as a recorded element of the Evans Ditch) and the Oakes Ditch are considered significant under California Register of Historical Resources (CRHR) Criterion 1 because of their association with the Kaweah and Mill Creek Water Company (KMCWC). Despite the significance of the resources as part of the KMCWC system, the recorded segments do not possess sufficient integrity to convey such significance. Based on this evaluation, the proposed project will not have an adverse effect on historical resources eligible for inclusion in the CRHR.

A copy of this report and the associated cultural resource records will be transmitted to the Southern San Joaquin Valley Information Center at California State University, Bakersfield for inclusion in the California Historical Resources Information System. Field notes and photographs are on file at *Æ*'s office in Fresno, California.

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1
INTRODUCTION

The City of Visalia (City) has obtained 280 acres of land on which it proposes to develop the East Side Regional Park and Groundwater Recharge Project within the city limits in Tulare County, California (Figure 1-1). The project area lies within Township 18 South, Range 25 East, Sections 23, 26, and 27 of the Mt. Diablo Base Meridian as depicted on the U.S. Geological Survey (USGS) Exeter, California, 7.5-minute quadrangle (Figure 1-2). The project area is bounded by East Mineral King Avenue on the south, County Road 152/5th Avenue on the east, East Houston Avenue on the north, and the Big Valley Transmission Line (which runs parallel to a residential neighborhood) on the west (Figure 1-3). The City plans to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, an extension of Road 148, an interchange at State Route 198, and trails along existing waterways, as well as modify the existing waterways.

The City is held accountable by the California Environmental Quality Act (CEQA) (Title 14 California Public Resources Code [PRC] 21000[g]), which mandates that government agencies must consider the effects of their discretionary actions on important cultural resources. For the purposes of this investigation, a cultural resource is defined as a prehistoric or historical archaeological site or a historical building, structure, or object that is 50 years or older. The importance or significance of a cultural resource depends on whether it qualifies for inclusion in the California Register of Historical Resources (CRHR). Cultural resources determined eligible for the CRHR are termed "historical resources" (California Code of Regulations [CCR] 15064.5[a]). In order to be considered a historical resource, a cultural resource must possess both historical significance and integrity, according to criteria defined in the implementing regulations of CEQA (PRC 5024.1) and, by convention, under federal guidelines (National Park Service 2002:45–49). Per CEQA regulations, a substantial adverse change in the significance of a historical resource caused by a project constitutes a significant effect and may require mitigation as part of the project (CCR 15064.5[b]; CCR 15370). On the other hand, cultural resources that are not considered historical resources (i.e., not eligible for the CRHR) require no further regulatory or project consideration.

The first step in the CEQA process is a cultural resource inventory, which was carried out by Applied EarthWorks, Inc. (Æ) on behalf of the City and under a subcontract with the Provost and Pritchard Consulting Group. The inventory revealed a total of five cultural resources in the project area (Lloyd and Asselin 2015). Three of these—an isolated prehistoric artifact and two bridges—were considered not eligible for inclusion in the CRHR based on an absence of historical association and by prior determination. The remaining resources—the Mill Creek Levee and Evans Ditch (P-54-002179/CA-TUL-3053H) and the Oakes Ditch (P-54-005290/CA-TUL-3101H) had not been evaluated previously. Thus, the next steps are to evaluate the historical significance of the two ditches under the CRHR eligibility criteria, and, if either is significant, to assess whether the project will adversely affect the resources.

Figure 1-1 Project vicinity in Tulare County, California.

Figure 1-2 Project location on the U.S. Geological Survey Exeter 7.5-minute quadrangle.

Figure 1-3 Aerial view of the project area.

Æ Senior Archaeologist Jay Lloyd (M.A.), a Registered Professional Archaeologist (RPA), served as project manager, providing technical and administrative oversight for all aspects of the project and contributed to the report. Æ Historian Randy Baloian (M.A.) conducted research, wrote the historic context, completed resource evaluations, and is the primary report author. Graphic and GIS Specialist Jessica Jones assisted with the report preparation. Résumés for supervisory personnel are provided in Appendix A.

2
RESEARCH AND EVALUATION METHODS

2.1 RESEARCH GOALS AND SOURCES

Research for this investigation served two purposes: the preparation of the historic context necessary for evaluation and the collection of property-specific data about the Mill Creek Levee/ Evans Ditch and the Oakes Ditch. The *History of Tulare and Kings Counties, California*, by Eugene Menefee and Fred Dodge (1913) provided much of the information for the historical narrative in Chapter 3. Although the local historians cover only the first 60 years of Tulare County history, their work was very appropriate for identifying the events and trends that led to the construction of the subject resources. Data about the ditches themselves largely came from county and irrigation maps, the accounts of court cases involving the ditches, and contemporary government reports on irrigation. The primary goals of property-specific research are to determine (1) the date or chronology of construction of the resource, (2) its builder(s), and (3) the reasons for its construction.

Many of the sources used in this investigation are contained in Æ's in-house library, in both hard copy and electronic form. Over the past 10 years, Æ has performed numerous evaluations on agricultural properties, particularly irrigation conveyances, in the San Joaquin Valley. Along with gathering historical maps and text from reliable Internet sources—including such sites as the USGS website (usgs.gov), Ancestry.com, the David Rumsey Historical Map Collection (www.davidrumsey.com), and Google Books—Æ Historian Randy Baloian makes regular visits to the valley's repositories to gather relevant information on valley agriculture. On March 1, 2017, he visited the subject ditches to assess their integrity as well as the Main Branch of the Tulare County Library in Visalia to obtain additional materials for this particular study. References to the *Visalia Daily Times* are found in the vertical files and digitized newspaper files of the library's Annie R. Mitchell History Room.

2.2 EVALUATION AND ASSESSMENT OF EFFECTS

The purpose of evaluating the CRHR eligibility of cultural resources identified in the project area and, if necessary, assessing impacts to CRHR-eligible resources is to determine if project considerations (i.e., "mitigation" per CCR 15371) are necessary within the scope of the project. Cultural resources eligible for the CRHR require assessment of Project impacts and may be subject to mitigation, whereas resources that are not eligible do not require such consideration.

In this regard, the National Park Service (NPS) has established a process for identifying, evaluating, and assessing effects to cultural resources. Although the federal regulations implementing Section 106 of the National Historic Preservation Act are not applicable to the current project, the NPS guidelines provide a general and useful approach in any regulatory paradigm. Practically speaking, determinations made within a federal regulatory context are almost always universally accepted for purposes of CEQA.

The first threshold in this process is to ascertain whether a site or built environment property within the project area is old enough to be considered a cultural resource and, accordingly, eligible for state and/or federal registers. Consistent with 36 Code of Federal Regulations (CFR) 60.4, to be eligible for the National Register of Historic Places, an archaeological or built environment resource must be 50 years old or older. Except under exceptional circumstances (National Park Service [NPS] 2002:25–43), sites and properties less than 50 years old are dismissed from further consideration. If a cultural resource is found to meet this age criterion, the following sequential steps apply:

- Classifying the resource as a district, archaeological site, building, structure, or object;
- Determining the theme, context, and relevant thematic period of significance to which the resource is associated;
- Determining whether the resource is historically important under a set of significance criteria; and
- If significant, determining whether the resource retains integrity.

In California, cultural resources are usually classified according to *Instructions for Recording Historical Resources*, published by the California Office of Historic Preservation in 1995. This handbook contains listings of resource categories for historical and prehistoric sites as well as standing structures. For built environment resources, it is additionally helpful to define a property along its economic dimensions (e.g., commercial vs. residential, urban vs. rural, agricultural vs. industrial). In this regard, *Historical Context and Archaeological Research Design for Agricultural Properties* (California Department of Transportation 2007) is a useful guide for categorizing rural resources.

The historic context establishes the framework within which decisions about significance are based (NPS 2002:9). The evaluation process essentially weighs the relative importance of events, people, and places against the larger backdrop of history. Within this process, the context provides the comparative standards and/or examples as well as the theme(s) necessary for this assessment. According to the NPS (2002:9), a theme is a pattern or trend that has influenced the history of an area for a certain period. A theme is typically couched in geographic (i.e., local, state, or national) and temporal terms to focus and facilitate the evaluation process.

According to the CEQA Guidelines (CCR 15000 et seq.), in order for a resource to be eligible for the CRHR, it must meet at least one of the criteria defined in PRC 5024.1:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in history or prehistory.

To be included in the CRHR, a property must not only possess historical significance but also the physical means to convey such significance—that is, it must possess integrity. Integrity refers to the degree to which a resource retains its original character. Assessing the integrity of a significant resource depends on an understanding of the components or features that give it significance. For this reason, the issue of integrity is addressed only after significance has been established. Moreover, cultural resources that are not significant per CRHR criteria are by definition not eligible for the register and do not require an integrity assessment.

To facilitate this assessment, the NPS has identified seven aspects of integrity.

> *Location* is the place where the historic property was constructed or the place where the historic event occurred. . . .
>
> *Design* is the combination of elements that create the form, plan, space, structure, and style of a property. . . .
>
> *Setting* is the physical environment of a historic property. . . .
>
> *Materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. . . .
>
> *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. . . .
>
> *Feeling* is a property's expression of the aesthetic or historic sense of a particular period of time. . . .
>
> *Association* is the direct link between an important historic event or person and a historic property. . . [NPS 2002:44–45; *emphasis added*].

Assessing the integrity of linear resources (e.g., canals, railroads, transmission lines, etc.) in particular often presents some unique challenges, mainly because it is usually not feasible to examine their full extent. Moreover, it is possible in some cases that the level of integrity varies over the course of a canal or other linear resource. In previous canal evaluations, Æ has approached these matters by: (1) evaluating the significance of the entire linear resource and (2) restricting conclusions regarding integrity to only the segments of the resources that have been examined and recorded by the current investigation.

If a significant resource demonstrates integrity and is therefore considered to be CRHR eligible, it is then necessary to assess whether or not a project will cause an adverse impact. In this regard, the CEQA Guidelines offer fairly detailed standards for assessing impacts. (While somewhat different in terminology, the CEQA standards closely parallel the Criteria of Adverse Effect for NHPA Section 106 at 36 CFR 800.5[a][1] and [a][2]). According to CCR 15064.5(b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment.

> (1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
>
> (2) The significance of an historical resource is materially impaired when a project

(A) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

3
GENERAL HISTORIC CONTEXT AND PROPERTY-SPECIFIC HISTORIES

3.1 EARLY DAYS IN THE SAN JOAQUIN VALLEY AND TULARE COUNTY

The Spanish and later Mexican explorers who entered the San Joaquin Valley in the first decades of the nineteenth century saw a raw and varied hinterland that differed greatly from today's agricultural landscape. As the chronicler for Lieutenant Gabriel Moraga's 1806 trek into the valley, Father Pedro Muñoz observed well-wooded places near present-day Sanger, Visalia, and Porterville that would have made suitable mission sites (Cook 1960:251–252, 284). By contrast, much of the area surrounding Tulare Lake was marshland. Notwithstanding their (at times) serious intentions, neither the Franciscans nor the Spanish and Mexican provincial governments were able to establish a presence within the San Joaquin Valley. Yet it was through their continual excursions to recover runaway neophytes and stolen livestock that the padres and military became acquainted with the valley and its people (see Cook 1960).

According Menefee's spirited account, the first Euro-Americans to set foot in what became Tulare County were both named Smith (Menefee and Dodge 1913:1–2).[1] Both also anticipated, in different ways, the potential for ranching in the San Joaquin Valley. In the account of his 1826–1827 travels, Jedediah Smith, who entered the valley mainly to trap beavers, noted herds of elk and antelope while remarking favorably about the region's plentiful grasses as possible pastureland (Clough and Secrest 1984:27). Sharply contrasting with the moral-minded and disciplined character of Jedediah Smith was the infamous "Pegleg" Smith, a teacher turned horse thief, who arrived in the lawless San Joaquin Valley in 1830 to practice his newly found profession. Pegleg took up with the native bandits as they pilfered horses and other livestock from the Mexican rancheros. So rampant was the extent of equine larceny in the valley that ranching operations on the two Mexican land grants along the Kings and San Joaquin rivers—Rancho Laguna de Tache and Rancho del San Joaquin Rancho, respectively—could not be established in the 1840s, despite the Mexican military's efforts to curb the outlaws (Clough and Secrest 1984:32–36; Cook 1962). Mexico lost its Alta California province altogether in February 1848 when it agreed to cede the territory to the United States under the terms of the Treaty of Guadalupe Hidalgo, which formally ended the Mexican-American War (1846–1848).

Although only a few people knew at the time of the treaty's signing, gold had been discovered in the hills of northern California. By the summer and fall of 1848, the news had reached the corners of the world, setting off a pandemic rush to the Sierra Nevada in search of the precious ore. The early years of the gold rush were a watershed time in California's history that included, among other events, the ratification of the California Constitution in 1849; the admission of California as the thirty-first state in the Union in 1850; and the creation of Tulare County with Visalia as its seat of government in 1853. It was during this period that cattle and sheep ranching

[1]Menefee used the contemporary expression "white leaders" to refer to the county's first Euro-Americans.

finally took hold in the San Joaquin Valley. The ever-growing horde of gold seekers created demand a not only for food but for other livestock products like leather and wool.

Founded in 1852 (Menefee and Dodge 1913:34–40), Visalia's influence as a pioneer town went beyond its political and economic importance to Tulare County. For its first three decades, the town was the commercial hub of the central and southern San Joaquin Valley. It served as a primary transportation node for the valley and contained the regional branch of the General Land Office that issued federal land patents to early settlers. Similar to the scenario played out in Fresno County, economic and infrastructural development in Tulare County occurred initially along the valley's eastern border, where, as noted by the Franciscans more than a half-century earlier, the land offered more resources (oak groves, pasture, flowing creeks) and fewer obstacles (less marshland) to settlement than the valley's west side. An 1867 county map shows quite vividly that property ownership, along with roads and telegraph lines, was concentrated in the Visalia-Woodlake area and, to a lesser extent, around Porterville (Chapman and Gordon 1867). At times, less than 10 pioneer families had purchased land or taken residence around the future site of Tulare (also see Menefee and Dodge 1913:80–81); even fewer resided along the entire eastern shoreline of Tulare Lake.

Like other parts of the valley, the impact of agriculture on the early economy of Tulare County was negligible, yet the beginnings of numerous developments are traced to this period. Several varieties of fruit—including oranges, apricots, and grapes—that would later become important commodities were initially grown, albeit in small scale, during the 1850s and 1860s (Menefee and Dodge 1913:41–42, 139). Similarly, the adaptability of alfalfa as a livestock feed was recognized as early as 1860, even though its potential was not realized until much later in the century (Menefee and Dodge 1913:137).

The first ditches in the Visalia area were also constructed in the 1850s. About 1854, Wiley Watson built a ditch from Mill Creek to water his race track; a few years later, the conveyance was enlarged to carry 27 cubic feet of water per second (*Pacific Reporter* 1897:564). Despite the ditch's modest capacity and length, Watson's early claim on the creek's waters would later prove to be invaluable for subsequent owners of the ditch. Significantly for this study, Menefee and Dodge (1913:132) briefly note that the Evans Ditch dates to 1858. Perhaps the most ambitious of these early projects was the Peoples Ditch, which headed on the Kaweah River about 10 miles above Visalia (Grunsky 1898:22–25). While the names of these conveyances survive to the present day, it is emphasized that the heads and alignments of these ditches were continually in flux until the mid-twentieth century, owing to natural, commercial, and logistical factors. For instance, the builders of the Peoples Ditch (later the Consolidate Peoples Ditch) initially completed work on the canal in 1864 only to see their head gate washed out by the historic floods of 1867–1868.

Not long after the deluge, the arrival of the Central Pacific Railroad (later Southern Pacific Railroad) prompted the county's population and economy to expand westward. Similar to other valley counties, the railroad chose a route that ran though the sparsely settled central portion of Tulare County rather than its more established east side. In 1872, Tulare, along with towns like Goshen and Tipton, was founded along the railroad's valley main line (Menefee and Dodge 1913:52, 55, 75, 80–84). By connecting the county with the markets of the San Francisco Bay area, the railway created considerable agricultural and business opportunity for the new towns as

well as the older eastern communities of Visalia and Porterville, which were linked to the rail network in 1874 and 1888, respectively.

3.2 BEGINNINGS OF COMMERCIAL AGRICULTURE

The railroad's effect on the development of agriculture and particularly irrigation in Tulare County was immediate, although the specific reasons that initiated such development apparently related more to real estate and politics than farming per se. As early as the late 1860s, anticipation of the valley railroad ignited a land-buying spree along the new line. Thus, even though the new railway ran along the thinly populated (northwest-southeast) axis of the San Joaquin Valley, by the early and mid-1870s there was plenty of interest in improving and specifically irrigating these lands. That is, the same infrastructures that increased agricultural productivity, more importantly perhaps, also enhanced marketability and property value. A major proponent of land development was the Central Pacific Railroad itself, which, as Ludeke (1980:111) points out, "stood to gain greater profits from productive farms and prosperous towns than from any scanty business derived from the open range cattle business." Moreover, the railroad had been granted vast acreage along its tracks by the federal government and sought to dispose of them at lucrative prices. Such interests essentially underlay the "No Fence" Law, approved by the California Legislature in 1874. Although the statute did not explicitly require ranchers to fence in their herds, which had freely grazed and trampled on any (domestic or wild) vegetation that came in their path, it did compel them to do so by holding the cattlemen monetarily responsible for damages caused by livestock. The new law thus removed a major obstacle for crop cultivation in California.

Similar to the case for other rail towns, farmers around Tulare quickly took advantage of the favorable conditions presented by the railroad and legislature. By pooling their resources to create canal companies, they constructed irrigation systems that greatly surpassed—in length, capacity, complexity, and cost—the county's earlier ditches. As one of many local examples from the decade, the Tulare Canal was constructed in 1873 by area landowners, who, in the following year, incorporated as the Tulare Irrigation Company (Grunsky 1898:28–29; Hall 1885a, 1885b; Figure 3-1). Flowing southwesterly for 15 miles from its head on the Kaweah River, the canal was the source of water for a network of ditches irrigating the lands north and west of Tulare. With $40,000 in capital, the company primarily served its stockholders, who were apportioned water according to their relative interest in the company.

Certainly, the combined effect of the railroad and No Fence Law was the chief impetus for the proliferation of irrigation companies and heightened real estate activity in the San Joaquin Valley. In other economic respects, however, that effect took far more time to reach fruition, particularly in terms of land-use patterns and economic structure. And while the new infrastructures and pro-agricultural laws of the 1870s did indeed serve to marginalize ranching, livestock-based products in no way subsided from the valley economy.[2] The personal

[2]The exceptions to this generalization were cattlemen Henry Miller and Charles Lux, whose immense land holdings covered much of western Merced, Fresno, and Kern counties. Far from being an adversary, the railroad facilitated the rise of the Miller & Lux Company as the dominant corporation in the San Joaquin Valley. Additionally, Clough and Secrest (1984:120) comment that passage of the No Fence Law actually benefited the Miller & Lux Company because its vast herds no longer became mixed up with those of other ranchers.

biographies found in Menefee and Dodge's (1913) history make clear that even after the advent of intensive irrigation systems, late nineteenth century property owners in Tulare County essentially remained agrarian generalists. So-called "farmers" commonly maintained livestock just as so-called "ranchers" often cultivated orchards and grain. In this regard, modern historians often distinguish between subsistence and commercial activities, wherein the former produces goods for domestic consumption or barter whereas the latter yields commodities produced for sale to a broader market. For nineteenth century homesteaders, subsistence, by necessity, held priority over commerce. At the time, commercial farming was at best in its nascent state—that is, while the land yielded an impressive output, there was still little diversity and structure in the overall economy.

To illustrate, thanks to the railroad and Californian lawmakers, grain farming replaced cattle ranching as the valley's dominant enterprise in the 1870s. As discussed above, farmland in general carries greater value than pastureland, yet in their operation, grain cultivation and cattle rearing share some of the same basic characteristics. Both require a large tract of land (a section or more) to be profitable. Neither are particularly labor-intensive pursuits, except at specific and limited times of the year (i.e., roundup and harvest). Irrigation generally increases productivity of both pastureland and grain fields but, depending on annual rain and runoff, is not always essential. Thus, even though the shift from cattle ranching to grain farming obviously changed the landscape and the type of agrarian goods yielded by the land, it appears to have had only moderate impact on the structure of the valley's economy, which remained focused on a limited range of commodities and services.

Grain farming eventually gave way to more lucrative crops like grapes, citrus, and tree fruit, but the change was by no means hasty or abrupt, as wheat and other cereals continued to be cultivated in the valley in large tracts until the early twentieth century. In Tulare County, for instance, the trend toward deciduous fruit did not begin in earnest until 1890 (Menefee and Dodge 1913:139–140). Compared to grain farming, the cultivation of commercial premium crops (or commercial horticulture) requires a whole host of attendant sectors, which, during the late nineteenth century, created various niches in the overall economy. Along with irrigation, these included: banking and lending institutions to finance yearly crops; hardware businesses to provide the machinery and supplies to sort and dry the fruit; and shippers to box the products and facilitate their sale and transportation. Perhaps the most important of these was the labor sector. Throughout his well-researched narrative, *Beasts of the Field*, Richard Street (2004) illustrates with numerous examples how the shortage of semi-skilled farmworkers was the limiting factor for commercial farming in California during the latter half of the nineteenth century. Once established, commercial horticulture greatly reconfigured the structure of both land use and the economy. The same sections of land that previously supported unbroken expanses of wheat were transformed into patchworks of 10- or 20-acre parcels, which collectively surpassed the property value and output of the former grain fields. In a similar way, by producing a variety of crops, the agricultural market became more diversified and, to some extent, more stable. That is, although the valley economy was still prone to the vagaries of agriculture in general, it was less tied to the success or failure or any one crop.

Dairying, which became of major importance to Tulare County, mirrored commercial horticulture in these respects. It, too, is a relatively intensive enterprise that combines elements of both farming and animal husbandry, including of alfalfa cultivation, the care and housing of

dairying stock, milk storage, and the production of milk-based products. Moreover, like vineyards and orchards, alfalfa can only be successfully grown over the long term with irrigation. According to Menefee and Dodge (1913:136–138), dairying in Tulare County took even longer to gain traction. After meeting initial failure in 1893, the dairying industry finally gained its footing in the first years of the twentieth century and has been a major player in the county economy ever since.

3.3 PROPERTY-SPECIFIC HISTORY OF THE EVANS AND OAKES DITCHES

The histories of the two subject ditches provide some detail and variation to the basic themes discussed in the general context above. Conveniently, both are part of the same irrigation network and thus share the same historical attributes and associations. The Evans Ditch and possibly the Oakes Ditch predate the proliferation of canals that followed the arrival of the railroad in 1872. They are modest conveyances, localized to the Visalia area.

3.3.1 Challenges of Irrigation in the Visalia Area

Aside from Menefee and Dodge's (1913:132) all too brief mention of the Evans Ditch's existence in 1858, research found only circumstantial information about the two ditches prior to 1877.[3] Because it depends on the flow of the Kaweah River via Mill Creek, the Evans Ditch was no doubt affected by the historic floods of the 1860s. Prior to that decade, the Kaweah River fanned out into four tributaries as it descended from the foothills: (from north to south) Elbow Creek, Mill Creek, Packwood Creek, and Deep Creek (Grunsky 1898:12–13). Water entering Mill Creek from the river's main channel was sufficient to serve the Mill, Jennings, Persian, Birch (or Burch), and Fleming ditches, in addition to the Evans Ditch (Menefee and Dodge 1913:132.) When the 1861–1862 flood struck, it cleaved a new northern branch of the Kaweah River, known as the St. Johns Channel and later the St. Johns River. Moreover, because drift and silt carried by the torrent obstructed the upper reaches of the Kaweah River, much of the runoff during the years following the flood began to course down the St. Johns River, leaving much less for the main channel of the Kaweah River and its other three tributaries.

Thus, along with outlasting the caprices of nature, the primary and somewhat peculiar challenge for nineteenth century irrigators in the Visalia area lay in returning the distribution of water in the Kaweah Delta to its preflood state. In the mid-1860s, they constructed several conveyances and structures for this purpose, but as with the head of the People Ditch described above, most were destroyed by the ensuing 1867–1868 deluge. Considerable progress was eventually made in the 10 years following this flood. Taking advantage of the numerous sloughs that ran between the main channels of the Kaweah Delta, the irrigators constructed several short but strategically placed ditches or cuts in order to create cross-channels between the St. Johns River and the Kaweah River and thus convey water from the former into the latter (Grunsky 1898:11–34; Hall 1885a; Figure 3-1).

[3]Neither ditch appears on the 1867 Tulare County Map, although the mapper may have omitted them due to their relatively small dimensions.

This was the intent of the owners of the Evans, Oaks, Burch, Watson, and possibly other ditches, who in 1876 or 1877 reopened the Bostwick Cut (originally constructed in 1863 or 1864), a short (0.75-mile-long) ditch between the St. Johns River and Lane Slough (Grunsky 1898:31–33; Pomeroy 1911:119–135). They also installed a wing dam across the St. Johns River as well as a head gate within the cut, which together proved to be quite effective in diverting nearly 100 cubic feet per second (cfs) from the St. Johns River (Pomeroy 1911:122, 126). Once through the head gate, the water then travelled a convoluted path through the Kaweah Delta: from the Bostwick Cut, it was dropped into Lane Slough, flowing southwestward until it reached the Kaweah River; joining the river's westward course, it continued to where the river branched into Mill and Packwood creeks; from this point, the water was either diverted into Oakes Ditch or continued westward through Mill Creek to the heads of the Evans, Burch, and Watson ditches (Hall 1885a; Figure 3-1). In 1877, the owners of these and other ditches organized the Kaweah and Mill Creek Water Company (KMCWC) "to keep water in the Kaweah and Mill creek channel" (Pomeroy 1911:131). With $10,000 in capital, the company purchased an 80-acre parcel encompassing the headworks of the Bostwick Cut.

Needless to say, the use of natural streams in tandem with man-made conveyance stretches calls into question conventional criteria for distinguishing these two categories of water courses. Moreover, the character of irrigation in the Visalia area demonstrated by the KMCWC sets it apart from the valley's larger, more prominent systems.[4] That is, by making the best of its limited financial resources and manpower as well as the natural hydrology of the Kaweah Delta, the KMCWC created a network, which, although relatively diminutive in its capacity and geographical scope, is still impressive for its effective if not astute design.

3.3.2 Namesakes, Early Alignments, and Comparisons with Other Contemporary Irrigation Systems

From the various persons with the surname "Evans" found in Menefee and Dodge's (1913) county history, the Evans clan of Visalia appear to have been the builders and namesake of the Evans Ditch. Hailing from Wales, patriarch Samuel Evans and his family were among the first settlers in the town during the early 1850s (Menefee and Dodge 1913:105,132 865, 875, 887–888). The county history makes mention of the members of the Evans family in several places (including the brief note about the ditch's construction in 1858) but not in any coherent, biographical form. The most complete account refers to a heroic episode during the 1867–1868 flood when sons Samuel Jr. and James saved their neighbors from the onrush of icy waters in the early hours of one wintery morning; in all, 25 people took refuge at the Evans' manor, located on high ground in what was then the southeastern outskirts of town.

From the late 1870s to the early 1890s, James Evans took an active role in managing not only the Evans Ditch but the KMCWC system in general (Pomeroy 1911:127–128). His duties included operating the head gate at the Bostwick Cut and ensuring that the flow of KMCWC water remained intact at this all-important point along the St. John's Channel. Farther downstream where the company's ditches drew water from Mill Creek, the KMCWC realigned the Watson

[4]The Fresno Canal and Irrigation Company and the Kings River & Fresno Canal Company of Fresno County also took advantage of natural sloughs in constructing their canals during the 1870s, although perhaps not to the same extent as the irrigators of the Visalia area (Lloyd et al. 2016).

seen on Hall's (1885a, 1885b; Figure 3-1) Tulare County irrigation maps. Heading on the south bank of Mill Creek in the northwest quarter of Section 27 (T18S, R25E), the Evans Ditch flowed in a southerly direction for 0.5 mile to the head of the Watson Ditch, which, in turn, provided water for the Burch Ditch; the Evans Ditch continued its south-southwesterly course for 5 miles. Together, the three canals, along with the Oakes Ditch (described below), irrigated the rural lands southeast, south, and southwest of Visalia.

Government reports estimated that the Evans Ditch irrigated 289 acres in 1885, increasing to 500 acres by the end of the century (Grunsky 1898:32; U.S. Senate 1890:219). The 1892 Tulare County atlas illustrates that much of this acreage was cultivated with vineyards and/or orchards (Thompson 1892:66). Among these properties was the Evansdale Fruit Company, which at the time covered about 100 acres within the Evans estate. The atlas plots a building identified as a "drier," indicating that the fruit was processed/dried on site. The ditch also served the Oakview Colony, one of few agricultural subdivisions in the Visalia area.[5] Management of the Evans Ditch and Evansdale Fruit Company eventually passed into the hands of individuals outside the family circle. James Evans' interest in the ditch apparently ended in 1891, and Visalia businessman Ben Maddox and farmer John Davidson, who do not appear to have been related to the Evans clan, supervised the fruit company's operation in the first decades of the twentieth century (Menefee and Dodge 1913:363, 674; Pomeroy 1911:127–128).

The Oakes Ditch similarly derives from one of Visalia's pioneers, namely James W. Oakes, a native Canadian whose travels throughout the United States landed him in Tulare County in 1868 (Menefee and Dodge 1913:853–854). He married Margaret (Houston) Allen, widow of W. B. Allen, and this union apparently provided the impetus for the Oakes Ditch, which was built by Oakes and others to irrigate his new wife's lands between Mill and Packwood creeks. According to Grunsky (1898:32–33), the ditch was in use prior to the organization of the KMCWC, placing its construction between 1868 and 1877. It headed on the south bank of Mill Creek about 30 feet downstream from the head of the Bacon & Crossmore Cut (Grunsky 1898:31–32; Hall 1885a; Figure 3-2). A downstream brush dam ensured sufficient flow into both conveyances. From this point, the ditch flowed generally west-southwest for no more than 3 miles, where it terminated at the Evans & Turner Ditch. According to Hall's (1885a: Figure 3-1) map, the Oakes and Evans ditches intersected in the northeast quarter of Section 36 (T18S, R25E).[6] During the 1880s and 1890s, acreage irrigated by the Oakes Ditch was even less than that of the Evans Ditch: 150 acres in 1885 and for "seven or eight small farms" by the end of the century (Grunksy 1898:32; U.S. Senate 1890:219). Compared to the Evans Ditch, contemporary sources are less specific about what kinds of crops were irrigated by the Oakes Ditch. Menefee and Dodge (1913:854) state that the Oakes' lands between Mill and Packwood were cultivated with alfalfa and used for dairy purposes. The 1892 Tulare County atlas additionally plots a vineyard or orchard of more than 40 acres within the Oakes' estate (Thompson 1892:62). The Oakes family maintained interest in the ditch at least until the early twentieth century (*Visalia Daily Times* 1904).

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[5]Comparisons of the Thompson's (1891, 1892) Fresno County and Tulare County atlases indicate that the colony system, which was a phenomenon of late nineteenth century valley agriculture, was far less prevalent in the Visalia area than in the rural lands around the town of Fresno.

[6]No references to this intersection could be found in the textual sources. It is possible that a flume carried the flow of one ditch over that of the other.

Figure 3-1 Evans Ditch and Oakes Ditch shown on the Visalia and Traver/Tulare irrigation maps (Hall 1885a, 1885b); other relevant water courses are highlighted in orange.

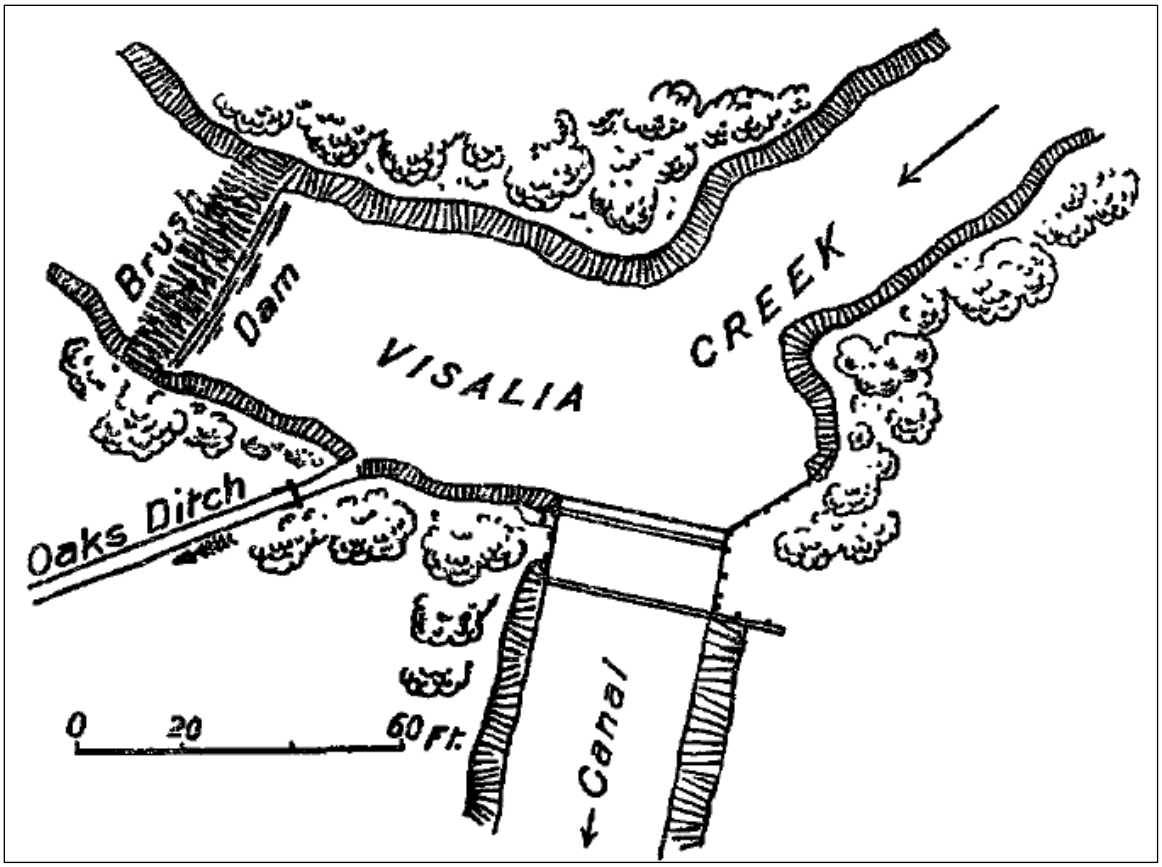

Figure 3-2 **A diagram of the head of the Oakes Ditch and Bacon & Crossmore Cut (labeled "Canal") from Grunsky (1898:30 [Figure 8]). Sources from the late nineteenth century alternatively refer to Mill Creek as "Visalia Creek."**

As mentioned above, the Evans and Oakes ditches served more than their namesakes. Like other county canals, they were owned and operated by their respective ditch companies—namely, the Evans Ditch Company and the Oakes Ditch Company; stockholders were apportioned water in proportion with the number of shares in the company.[7] Stockholders appear to have been levied an annual assessment to pay for the company's maintenance expenses (*Visalia Daily Times* 1908). Each ditch thus appears to have been managed through a two-tiered organization: the Evans and Oakes companies held title to their respective ditches and determined how water would be distributed to its stockholders, whereas the KMCWC acted in the broader interests of all irrigators under its company umbrella by protecting their common sources of water.

A few contextual points regarding the two subject ditches are worth discussing, particularly as they relate to the evaluation in Chapter 5. Neither the Evans nor the Oakes Ditch could be considered anything but diminutive conveyances. For that matter, the sum acreage irrigated by all KMCWC ditches in 1885 amounted to 1,014 acres or only 3 percent of the 33,371 acres irrigated by the Kaweah Delta (U.S. Senate 1890:218–219). In these terms, the Kaweah Delta

[7] Current research unfortunately could not determine the founding dates of these companies or whether their organization occurred before or after that of the KMCWC.

itself ranked well behind the Kings and Kern rivers, which irrigated 99,551 and 63,365 acres in that same year, respectively.

Perhaps more interesting than such quantitative differences were the structural differences among the various irrigation markets associated with the four major rivers of the central and southern San Joaquin Valley—the San Joaquin, Kings, Kaweah, and Kern rivers (U.S. Senate 1890:218–220). To illustrate, the Miller & Lux Company maintained a virtual monopoly on the San Joaquin River—98 percent of the 31,795 acres irrigated by the river's waters in 1885 were owned outright by the cattle company or were within its sphere of influence.[8] To a somewhat lesser extent, the Fresno Canal and Irrigation Company (FCIC) enjoyed a similar dominance along the upper Kings River, as did the Kern River capitalists who eventually formed the Kern County Land Company (KCLC). Both served areas of 30,000 acres or more in 1885, corresponding to roughly 50 percent (or more) of their local markets. Unlike Miller & Lux, which in the late nineteenth century used its water for primarily internal purposes, the FCIC and KCLC sold their water to agricultural colonies around Fresno and Bakersfield, respectively.

By contrast, the collective structure of irrigation companies drawing water from the Kaweah Delta was decentralized and lacked a dominant player of the magnitude of Miller & Lux, FCIC, or KCLC. According to 1885 statistics, 27 canals drew water from the Kaweah River and its tributaries (U.S. Senate 1890:219). The most prominent of these was the Lakeside Ditch, which irrigated 9,167 acre or about 27 percent of the Kaweah Delta irrigation market. The decided majority (19 ditches) irrigated less than 1,000 acres.

Identifying the reasons for this variability in market structure exceeds the scope of this investigation, although they very likely are related to the challenges of canal construction and the local geography associated with each irrigation market. Moreover, it is difficult to ascertain whether the economics of scale afforded by the larger irrigation companies resulted in a more efficient and cost-effective delivery of water, particularly given the haphazard if not anarchic nature of water distribution in the San Joaquin Valley in the late nineteenth and early twentieth centuries. In handing down his decision for a specific court case between two Tulare County irrigation companies, Judge Burnett sums up the muddled state of affairs of irrigation in general:

> The actions of the plaintiffs and defendants resulted in producing nothing more than a scrambling possession which fluctuated from day to day during the irrigation season and was not limited to any particular time, except that some of the witnesses testified that when there was plenty of water for everybody they did not interfere with the running of the water [Pomeroy 1911:123].

Until the second decade of the twentieth century, oversight of water appropriated for irrigation purposes was the jurisdiction of the county governments, which lacked the means to effectively administer water distribution. The legality of water rights was, for the most part, left to the courts. A valley irrigator whose water supply had been compromised by another—a common occurrence during times of drought—had two options. He could appeal to the courts, which was

[8]Mainly because of its longstanding riparian water rights on the San Joaquin and its financial strength, the Miller & Lux Company effectively excluded most irrigators from appropriating water from the San Joaquin River. Its monopoly voluntarily ended in 1939 when the company agreed to receive federal water as part of the Central Valley Project.

often a lengthy and thus costly process, or he could take matters into his own hands by physically removing the structures that obstructed the flow of water into his gate and risking whatever consequences came later. It was under such circumstances that the differences between smaller and larger irrigators become more apparent.

Small companies like the KMCWC and larger ones like the FCIC and KCLC operated with the same nominal goal in mind—to promote the interests of their shareholders. They differed in the economic profiles of their investors and how irrigation was used to advance such interests. For the principals of the FCIC and KCLC, who were influential Bay Area businessmen, irrigation water was a means to improve their land holdings and/or was a commodity that could be acquired and sold for profit. Their deep pockets gave them considerable leverage in surviving protracted litigation and at times expanding their water rights through the purchase of other irrigation entities. For example, the FCIC weathered numerous courts battles during the late nineteenth century to emerge as the dominant irrigation company of the Fresno area. When in 1885 two of its competitors were shut off from the Kings River, the FCIC seized the opportunity by acquiring both systems and greatly enlarging its service area.

By contrast, the irrigators of the Visalia area were local farmers and/or dairymen who used the water to grow grain, fruit, and alfalfa. For ditch owners with modest financial wherewithal, there was strength in numbers and cooperation—as clearly demonstrated by the formation of the KMCWC. In such cases, the benefits of organization lay in coordinating irrigation schedules and protecting their water claims rather than in expanding their share of the local irrigation market. In this sense, the smaller irrigation companies of the Kaweah Delta as well as those of the lower Kings River, although clearly not commercially prominent even in a local context, anticipated the coming of the irrigation district as one of the pillars of valley agriculture in the twentieth century.

Research for this investigation found that the KMCWC ditch companies engaged in at least two legal trials during the late nineteenth and early twentieth centuries: a California Supreme Court case in 1882 involving the owners of the Watson Ditch and a state appellant case in 1910 involving the Evans Ditch Company (*Pacific Reporter* 1897:563–566; Pomeroy 1911:119–135). In both instances, the courts ruled in favor of the KMCWC plaintiffs, based in part on their early and continually maintained use of Mill Creek and the St. Johns River. In jargon of California water law, the irrigators had established an appropriative and longstanding water right by prescription.[9] Specifically, the judges' decisions determined that in the case of the Watson Ditch, water rights pass with title from ditch owner to ditch owner and that, in the case of the Evans Ditch, the company's appropriate right to a specific flow (60 cfs) of the St. Johns River could not be impeded by the defendant's structures. Despite the primacy of the water rights of the Evans Ditch, which was established by the courts decades before its effective start date in 1877, its owners apparently did not regard legal recourse as the first choice of action. In his testimony at

[9]A discussion of the evolution of water rights in California is a complex topic that, even in summary form, exceeds the scope of this context. Generally speaking, the rights of riparianists (i.e., landowners whose property includes a natural water course) held legal priority over the rights of appropriators—i.e., irrigators or miners who conveyed water from natural steams across multiple properties for agricultural or mining purposes. In legal battles, priority of use was also given to those riparianists or appropriators who had established their rights before those of their court adversaries.

the 1910 trial, Jim Evans stated—seemingly matter-of-factly—that when faced with a shortage of water caused by the dam another irrigator erected in 1885, he and his brother Sam wasted little time in pulling the dam out to resume their diversion on the St. Johns River. Interestingly, Evans admitted that he had knowledge of and implicitly consented to the competitor's dam prior to its construction, implying that he objected to its presence only when it compromised the flow of his (KMCWC) water. For the Evans family and other valley farmers of the day, water rights were a kind of individual property that required constant protection in and out of the courtroom. At the same time, however, Evans' discretion in this matter (i.e., by not immediately opposing the construction of another's dam) suggests an underlying civil-minded belief that water needed to be shared in an equitable manner and should not be monopolized by any one entity.

3.3.3 Irrigation Districts, Water Projects of the Twentieth Century, and Changes to the Evans and Oakes Ditches

Approved in 1887 by the California Legislature, the Wright Act provided for the creation of public irrigation districts. Among the central and southern counties of the San Joaquin Valley, the transition from private to public water began relatively early in Tulare County with the organization of the Tulare Irrigation District (TID) in 1889 (Grunsky 1898:34–36; Menefee and Dodge 1913:134–136). Using funds obtained from the sale of bonds, the new district bought up many of the area's existing canals. In 1891, it began construction of its bulk conveyance, the TID Main Canal, which heads at the St. Johns River. As was the case with most (if not all) of California irrigation districts, however, the TID was initially beset with obstacles. Local historians Menefee and Dodge (1913:135) go as far as to lament that the district was "a disheartening failure" in its early years. It was not until 1903 when the TID was able to settle its financial woes and viably serve its members.

The early 1910s brought some much needed oversight and coordination to the haphazard manner of water distribution of the previous century. In 1913, the State Railroad Commission assumed regulation of the business transactions and rates charged by utilities (including irrigation entities). In the following year, California voters approved the Water Commission Act, which empowered the California Water Commission with similar regulatory authority to regulate the appropriation of water (California State Water Commission 1917:7, 147).

Notwithstanding the improved condition of the TID, the county's irrigation market still comprised numerous privately owed small and medium-sized ditch companies that served the irrigation needs of their stockholders. In a report on California irrigation by the U.S. Department of Agriculture (USDA), Adams at al. (1912:117) remarked that "practically all" of the 62 canals drawing water from the Kaweah Delta were managed, like the Evans and Oakes ditches, through a canal or ditch company. The USDA additionally reported that the region's canal companies had further organized into two "associations": one serving the interests of irrigators of the St. Johns River and the other for those of the Kaweah River and its other tributaries. The two associations (later identified as the Kaweah River Association and the St. Johns River Association) operated under an agreement whereby the delta's waters were divided equally when flow exceed 80 cfs. When it dipped below this threshold, however, runoff passed entirely to the Kaweah River Association. Although not stated by Adams, the latter condition appears to have reflected the legal primacy of water rights held by irrigators of the Visalia area (see Section 3.3.2). Because it diverted water from the St. Johns River and conveyed such water through the

Kaweah River and its branches, the KMCWC was member to both associations (California Department of Public Works 1950:13).

The trend of Tulare County irrigators toward coalescing into organizations with greater and more inclusive membership eventually culminated in the creation of one of the valley's larger water districts. Even so, the road to this ultimate end was far from easy, and the process was filled with contention. Much of that strife revolved around the county's underground water resources. With its relatively high and ample aquifer, the Tulare Lake Basin is particularly well suited for irrigation by well water. Hall's (1885a, 1885b) irrigation maps depict numerous "artesian wells," mostly in and west of the town of Tulare. With the advent of electrical pumps in the 1890s, citrus farmers along the valley's east side began taking advantage of this new technology to great effect. By the 1910s, the falling underground water table caused by the growing number of wells had become a concern for valley growers. In Tulare County, the issue came to a head in 1916 when the newly established Lindsay-Strathmore Irrigation District struck a deal with a Visalia land owner to drill water wells on his property for district use (*Visalia Daily Times* 1916). Members of the Kaweah River and St. Johns associations clearly saw this agreement as an incursion into their territory and immediately filed suit against the east side district. For the next 10 years, the district responded by actively purchasing stock from the various ditch companies of the Visalia area, thus establishing water rights within the Kaweah Delta (*Visalia Daily Times* 1926a, 1926b). For the delta ditch owners, who watched helplessly as stock from their companies was acquired by the rival district, the private canal company, as the commercial and legal entity through which irrigation water was distributed, had plainly grown obsolete. To counter the district's stratagem, they formed the Delta Underground Water Protective Association in 1926; among the first to sign on with the new association were the Evans and Oakes ditch companies (*Visalia Daily Times* 1926c). Still, it became apparent that the only way to protect delta water was through public incorporation. Speaking at a Tulare Chamber of Commerce meeting in February 1926, district advocate Calvin Russell expressed this sentiment.

> The only way this particular program can be solved . . . is to form one great irrigation district comprising not only the Tulare Irrigation District, but all its associates in this 10-year old suit. Tulare Irrigation district members can not now sell stock. Were all the associated interests in this fight joined under one such association, this critical matter of sales and purchases of stock would be permanently solved [*Visalia Daily Times* 1926a].

Russell's proposed solution was soon realized. In 1927, the Kaweah River Association and the St. Johns River Association, along with the Delta Underground Water Protective Association, formed the Kaweah Delta Water Conservation District (KDWCD), which was among the first conservation districts to be organized in California (Adams 1929:387–388). As members of KMCWC as well as the three delta associations, the owners of the Evans and Oakes ditches now became part of a multitiered federation of irrigation entities that was headed by the KDWCD. After this initial row, the KDWCD (2017) has since functioned to coordinate the operation of traditional aboveground conveyances and, in years of sufficient runoff, release of water into natural channels to replenish the aquifer. By managing the supply of water over the long haul, such irrigation and conservation districts reduced much of the friction associated with water use in prior decades.

In the meantime, along with these legal and jurisdictional changes, the physical aspects of the ditches as well as the course of Mill Creek itself changed during this period. From the time of

Hall's (1885a) irrigation map of the Visalia area to the 1926 USGS Exeter quadrangle (surveyed in 1924–1925), the creek's path through Sections 25–27 (T18S, R25E) was rechannelized, becoming less sinuous with far fewer turns and bends (Figure 5-1). As a result, the head of Evans Ditch, formerly in the northwest quarter of Section 27, moved upstream to the northeast quarter of the same section. The head of Oakes Ditch, formerly located at the east-west centerline of Section 25, shifted northwestward to correspond with the creek's new channel—a change that correspondingly required a realignment of the ditch through Section 26. Curiously, the 1.5-mile section of Oakes Ditch west of Section 26, as seen on the 1885 map, does not appear on the 1926 map, suggesting that its lower reaches may have been abandoned. On the other hand, the Evans Ditch, which measured about 5.5 miles long in 1885, had been greatly lengthened by the time of the 1926 map; the expanded alignment extended from the ditch's head east of Visalia and flowed in a west-southwesterly direction for about 11–12 miles. The 1926 quadrangle additionally shows that levees had been placed along the banks of selected segments of Mill Creek and the Oakes Ditch. The financial and logistical scope of these improvements, which occurred before the creation of the KDWCD, suggests that they were undertaken by the KMCWC and/or Kaweah River Association. Once established, the irrigation and conservation districts of the twentieth century had an even greater ability to effect such improvements. As public entities with the authority to levy property assessments or issue bonds (subject to membership approval), districts had the financial tools at their disposal to raise the revenue and capital necessary to maintain and upgrade their systems.

While the KDWCD was formed and continues to conserve the waters of the Kaweah Delta within the subterranean aquifer for local use, many valley farmers during the 1920s were clamoring to the state government for an aboveground storage facility large enough to serve as a hedge against the inevitable periods of drought. This was one of the goals for members of the Kings River Water Conservation District, who envisioned a sprawling 650,000 acre-foot reservoir in the Sierra Nevada foothills at a site called Pine Flat (Adams 1929:386–387). The problem was that the costs involved with such projects exceeded not only the collective resources of the valley's irrigation districts but also the financial means of the State of California as well. Ironically perhaps, the long-sought vision of a valley impoundment facility finally began to move forward in the midst of the Great Depression.

Funded and administered through the Bureau of Reclamation (Reclamation), the Central Valley Project (CVP) was an archetypical New Deal undertaking that encompassed both the Sacramento and San Joaquin River valleys. Moreover, its functional scope addressed more than just water storage issues and entailed the redistribution of runoff in the northern part of the state to the San Joaquin Valley for irrigation purposes. Other objectives included general flood control and the desalinization of the San Joaquin–Sacramento Delta. Of the CVP's components, the Friant-Kern Division specifically serves Madera County, Tulare County, Kern County, and (to a lesser extent) Fresno County (Autobee 1994; Bailey 2007; Bureau of Reclamation 1958). Completed in 1944, Friant Dam impounds the waters of the San Joaquin River creating Millerton (Lake) Reservoir. From Millerton Lake, water is diverted north into the Madera Canal or south into the Friant-Kern Canal, which flows through the citrus growing areas of the valley's east side. Constructed from 1945 to 1951, the Friant-Kern Canal was, at the time, an unprecedented conveyance in terms of length (152 miles) and capacity (5,000 cfs at its head). Through a long-term contract with Reclamation, the Kahweah Delta Water Conservation District (2017) receives federal water, which augments its supply from the Kaweah Delta. The CVP was soon followed

by other federal and state-sponsored water projects, including the long-awaited Pine Flat Dam and Reservoir (completed in 1954) and the massive State Water Project (constructed during the 1960s and early 1970s). At the local level, in 1962 the U.S. Army Corps of Engineers completed construction of the Terminus Dam, which impounds the waters of the Kaweah River for irrigation, flood control, and recreational purposes.

It was also during this mid-century flurry of water projects that the two subject ditches and Mill Creek were once again subject to modification. The most prominent change seen on the 1950 Exeter quadrangle is the rigidly straightened course of the creek through the project area (i.e., the western half of Section 26). Like the 1926 version, the map shows that this segment of the creek was bounded by levees on either side. Modern aerials indicate that the creek's course has not changed since the time of this map. The 1950 quadrangle also shows that Oakes Ditch had been restored to its original length of approximately 3 miles, although the alignment of the ditch's lower reaches plainly differs from that shown on the 1885 map. The locations of the two ditch heads remain consistent with those shown on the 1926 quadrangle. Minor adjustments in alignments of the two ditches continued to be effected into the 1950s and 1960s, as highlighted on the subsequent 1969 (photorevised) Exeter and Visalia quadrangles (see Figure 5-1). Modern aerial photographs indicate that by this year, the aboveground sections of the two ditches had arrived generally at their current state, although as a result of the continuing expansion and urbanization of Visalia, the lower reaches of the two ditches have been piped underground in the past 45 years.

4
RESOURCE DESCRIPTIONS

4.1 EVANS DITCH AND MILL CREEK LEVEES (P-54-002179/CA-TUL-3053H)

The Evans Ditch heads on the south bank of Mill Creek, near the creek's intersection with McAuliff Street. The ditch then proceeds in a westerly-southwesterly direction for approximately 11–12 miles to where it terminates on the north bank of the Tulare Canal (approximately 2.5 miles west of the State Route 99/Union Pacific transportation corridor). While this course is apparent on the 1969 series of USGS 7.5-minute quadrangles (including Exeter, Visalia, and Goshen), modern aerial photographs indicate that the overwhelmingly majority of the ditch's present-day alignment has been piped underground due to the residential development of south Visalia in the past 45 years. The aboveground segments of the ditch appear to be earthen, based on the aerial photographs.

Separate segments of Evans Ditch have been variously recorded and the records have been submitted to the Southern San Joaquin Valley Information Center of the California Historical Resources Information System. Of these, Armstrong et al. (2007) recorded a segment of the Mill Creek Levees that lies within the project area. Although the levees were located along the creek rather than the ditch, these structures were recorded as part of the Evans Ditch under P-54-004876. The Information Center recently reclassified the multiple site records for the ditch, subsuming them under P-54-002179/CA-TUL-3053H.

Æ recorded a 2,700-foot segment of the Mill Creek Levees, which included the section documented previously by Armstrong et al. (2007) (Figure 4-1). The levees are earthen berms that rise approximately 2–3 feet above the surface along Mill Creek (Figure 4-2). At the tops, they are 15–20 feet wide, large enough to accommodate a vehicle. The surface of the levees appears to have been oiled. As noted in Section 3.3.3, the levees are depicted and date (at least) to the 1950 Exeter quadrangle. Nut orchards lie north and south of the recorded segment. The updated California Department of Parks and Recreation (DPR) cultural resource record forms are provided in Appendix D.

4.2 OAKES DITCH (P-54-005290/CA-TUL-3101H)

The Oakes Ditch (P-54-005290/CA-TUL-3101H) heads along the south bank of Mill Creek near the point where the Kaweah River divides into Mill Creek and Packwood Creek. It then proceeds in a westerly-southwesterly direction, where it terminates in southeast Visalia. Modern aerials indicate that similar to the Evans Ditch, the lower reaches of the Oakes Ditch have been piped underground due to residential development in the past 45 years. The aboveground portions of the ditch are earthen.

Æ recorded a 2,700-foot segment of the Oakes Ditch within the project area (Figure 4-1). The segment begins at Road 152 (5th Avenue) and proceeds in a westerly direction for 2,450 feet, where it turns due south for the remaining 250 feet. Although not depicted on the 1969 Exeter quadrangle, the 250-foot section appears to be a historical portion of a private ditch. (A similar

Figure 4-1 Recorded segments of evaluated resources within the project area.

Figure 4-2 Mill Creek Levee from western edge of project boundary, facing east.

private ditch heads at the east end of the segment and parallels Road 152.) At the south end of this section, the ditch flows into an underground pipe. The recorded segment generally measures 24 feet wide (bank to bank) and 4.5 feet deep. The aboveground portion of the Oakes Ditch west of the project area (and plotted on the 1969 quadrangle) is no longer visible, apparently having been abandoned or piped under. The recorded segment lies within a mature and apparently unproductive almond orchard.

Four sets of features were observed along the recorded segment. At the east end, water flows under Road 152 through a concrete culvert and immediately enters the bay of a concrete weir (Figure 4-3). The water proceeds westerly for 600 feet to another concrete weir, dated by inscription to 1969 (Figure 4-4). A vehicle bridge located at the point where the ditch turns south is constructed with concrete footings, iron rail cross ties, and a wood plank road surface. The recorded segment terminates at a former concrete weir that has been refashioned to serve as an abutment for the pipe entrance. An inscription indicates that the features was constructed in November 1990. California DPR forms documenting this resource are included in Appendix B.

Figure 4-3 Oakes Ditch at eastern project boundary/Road 152, facing east.

Figure 4-4 Concrete weir along Oakes Ditch, constructed (according to inscription) in 1969; view to the southeast.

5
CRHR ELIGIBILITY EVALUATION OF THE EVANS DITCH/MILL CREEK LEVEES AND OAKES DITCH

The CRHR evaluation of the two subject ditches follows the four-step NPS procedure discussed in Chapter 2.

5.1 CLASSIFICATION

The Evans Ditch and Oakes Ditch are irrigation conveyances that draw water from Mill Creek. Both are more than 50 years old and thus meet the conventional age criterion to be consider a historical resource eligible for the CRHR. More specifically, they are linear structures under the guidelines of the Office of Historic Preservation (1995); this category includes transmission lines, roads, railroads, gas lines, and similar properties.

Given the relationship of the ditches to Mill Creek and to each other, a couple of points need to be made regarding the scope of the evaluation. When the Evans Ditch was documented in 2007, the existing Mill Creek levees were included in the same site record as the ditch. Technically speaking, this inclusion is somewhat problematic considering the ditch and the creek are separate water courses. For the purposes of this evaluation, however, the combination of ditch and creek levees on the same DPR form is practical and even appropriate. As recounted throughout Chapter 3, the creek has historically served and has been manipulated as a conveyance; construction of the levees as well as the rechannelization of the creek was carried out to maintain the integrity of its flow for irrigation and flood control. Although the particulars of ditch and levee construction differ, the levees were built under the same general set of historical circumstances discussed in Chapter 3. To an even greater extent, the two ditches share these same historical associations.

For these reasons, the evaluation of significance subsumes all of the subject structures—the Evans Ditch, the Oakes Ditch, and the Mill Creek Levees—under one rubric, loosely termed as the "Kaweah and Mill Creek Water Company system." The application of CRHR criteria in Section 5.3 thus is equally relevant for evaluating the significance of other KMCWC structures discussed in Chapter 3, such as the Watson and Burch ditches and the Bostwick Cut. By contrast, because assessment of integrity compares the historical versus present-day physical conditions of each resource, it treats the subject structures as distinct parts of the larger system.

5.2 CONTEXT, THEME, AND THEMATIC/RESOURCE PERIOD OF SIGNIFICANCE

The KMCWC system lies wholly within Tulare County and specifically within the Visalia area. Aside from the two state court cases discussed in Section 3.3.2, its history occurs within these boundaries as well. Much like Chapter 3, the evaluation in the following section (particularly under Criterion 1) takes a comparative approach, relating the system's characteristics and history to those of other irrigation systems in the central and southern San Joaquin Valley. Its historical

significance is most fittingly interpreted within a local or (at most) within a regional (valley-wide) geographical context.

As an irrigation company, the KMCWC system is historically related to the theme of agriculture. Accordingly, Chapter 3 examined several subthemes under this general thematic category, including early ditch construction, irrigation companies, water rights litigation, irrigation districts, and the great water infrastructure projects of the mid-twentieth century. By far, the significance of the Evans and Oakes ditches as parts of the KMCWC system is most appropriately evaluated with reference to the first subtheme and to a lesser extent the second and third. For this reason, the evaluations defines the thematic period of significance as the period between 1854 and 1913, extending from the construction of the first ditches in the Visalia area to 1913 when the operational and legal aspects of irrigation began to change. Along with the scant textual references to the ditches, Hall's (1885a, 1885b) irrigation maps serve as the critical source in reconstructing their physical character during this period.

5.3 APPLICATION OF SIGNIFICANCE CRITERA

5.3.1 Criterion 1

Built environment resources are often considered significant under Criterion 1 if they are the first of their kind. The historical KMCWC system contains some of the oldest ditches in Tulare County (if not the San Joaquin Valley), including the Watson Ditch (1854), Persian Ditch (1854), Evans Ditch (1858), Fleming Ditch (1858), and the Burch Ditch (early 1860s) (Menefee and Dodge 1913:132; *Pacific Reporter* 1897:564). Built sometime between 1868 and 1877, the Oakes Ditch also belongs to this system. The age of the KMCWC ditches in fact afford them more than mere historical significance. Because they had established their diversions prior to most other local conveyances, the Watson and Evans ditches (as well as possibly other KMCWC ditches) were granted priority of use over their legal adversaries in court. That legal advantage no doubt accounts for their continuance to the present day. As emphasized in Section 3.3.2, neither the dimensions of the ditches nor the acreage irrigated by them could be considered substantial by contemporary standards. They were, and still are, small conveyances. Yet the manner by which water was brought to the system (as described in Pomeroy 1911:119–135) is an outstanding example of the practical nature of early canal construction and serves as an important historical contrast against the more intensive form of construction related to the county's larger canals. In a similar way, the KMCWC and its stockholders provide an apt historical example of a small irrigation company that distinctly differs from the larger, more corporate-type of irrigation concern exemplified by the FCIC, KCLC, and the irrigation subsidiaries of Miller & Lux. For these reasons, the KMCWC system—including the Evans Ditch and Oakes Ditch—is a good representative of early irrigation in Tulare County and the valley from the period of significance and is thus considered significant under Criterion 1 under the theme of agriculture at (minimally) the local level.

5.3.2 Criterion 2

In order to be considered significant under this criterion, a resource must be closely associated with a significant person within the relevant historic context. Section 3.3.2 confidently links the Evans and Oakes ditches to early pioneer families in the Visalia area. (The same intimate association exists for the Watson Ditch as well.) It is, however, arguably unwarranted to regard

James Oakes or anyone from the Evans clan as an "important person" per Criterion 2. The biographical entries in Menefee and Dodge's (1913:ix–xiv) number about 600. Oakes is listed among these pioneers and the Evans clan is mentioned in particular passages. They were part of the hearty generation that settled the county in the middle and late nineteenth century but do not assume an exceptional or prominent place in the history of this time. The same can be said for other members of the KMCWC system. Due to its lack of association with important persons, the system is not considered significant under Criterion 2.

5.3.3 Criterion 3

For structures like irrigation canals and transmission lines, innovative or novel technological features garner significance under this criterion. This is often problematic because canals and transmission lines are continually subject to modernization, leading to the physical removal of such features. In these cases, significance can be established only through archival materials, especially photographs and diagrams. In Section 3.3.2, it was suggested that the KMCWC systems—which combines manmade cuts and ditches with natural courses to achieve conveyance for irrigation purposes—deserves some historical appreciation for its astute design. Although the account of 1910 court case involving the Evans Ditch (Pomeroy 1911:119–135) does give some interesting details about construction and operation of the system, in the opinion of the evaluator there is not enough material to substantiate significance under this criterion. Due to a lack of sufficient information, the KMCWC is not considered significant under Criterion 3.

5.3.4 Criterion 4

Although Criterion 4 is most relevant for archaeological sites, it can be applied to intact structures in instances where examination of the structure's features would result in historical information that cannot be obtained from other sources. However, this is not the case for the KMCWC system. Further study of its elements would not yield more information about the history and engineering methods of canal construction and operation beyond what is already known from existing sources. It is thus not considered significant under Criterion 4.

5.4 ASSESSMENT OF INTEGRITY

Application of the CRHR significance criteria found that the KMCWC system is locally significant under Criterion 1. The following discussion addresses whether the portions of the two ditches retain sufficient integrity to convey the significance of the system. Specifically, it addresses whether the Evans Ditch/Mill Creek Levees and Oakes Ditch *in their current state* still convey the significant characteristics of the KMCWC system as identified in Section 5.3.1.

5.4.1 Evans Ditch/Mill Creek Levees

As mentioned above, this resource includes two structures—the Evans Ditch proper and the levees along Mill Creek. Only the latter lie within the project area and are treated by this assessment. Neither Hall's (1885a, 1885b) irrigation maps nor textual references from the late nineteenth century or early twentieth century indicate the presence of levees along Mill Creek within or near the project area. Even if such structures were present during the period of significance (1854–1913), they would have been obliterated during the continual episodes of

creek rechannelization (Figure 5-1).[10] While the 1926 USGS Exeter quadrangle indicates that levee construction along the creek had begun by that time, the current structures date to the mid-twentieth century when the creek apparently arrived at its present-day course. Because they were constructed decades after the period of significance, the recorded levees are lacking in all seven aspects of integrity

5.4.2 Oakes Ditch

Except in some rare instances, integrity of location is a necessary (though not sufficient) condition for overall integrity. That is, if the original alignment of a canal is no longer present, it follows that its other original characteristics (dimensions, head gates, irrigation gates, etc.) are absent as well. Figure 5-1 shows that the recorded segment of the Oakes Ditch has undergone multiple realignments during its more than 140-year history. Even if its course had remained the same, it is still wanting in terms of the other aspects of integrity. The few regulatory features seen along the segment date to the 1960s and 1990s, indicating an absence of integrity of workmanship and materials. Intersecting the recorded segment, the Big Creek Transmission Lines, which themselves have been upgraded from their original early twentieth century form, compromise both the integrity of setting and feeling from the period of significance. And while the ditch still irrigates neighboring rural properties, the alfalfa fields of the Oakes estate have long since been replaced by other crops, thus compromising to some extent integrity of association. Due primarily to an absence of integrity of location, the recorded segment of the Oakes Ditch lacks overall integrity.

5.5 SUMMARY OF ELIGIBILITY EVALUATION

The Mill Creek Levees, as a recorded element of the Evans Ditch, and recorded segment of the Oakes Ditch lack integrity to convey the historical significance of the KMCWC system.

[10]Hall's (1885a, 1885b) irrigation maps (see Figure 5-1) show that the alignment of the Evans Ditch dating to the period of significance also has been continually altered and that it lacks integrity of location.

Figure 5-1 Evans Ditch, Oakes Ditch, and Mill Creek alignments from 1885, 1927, and 1969 on the USGS Visalia and Exeter 1969 quadrangles, Sections 25, 26, and 27.

6
SUMMARY AND RECOMMENDATIONS

The City proposes to construct a park, a groundwater-recharge/storm water-layoff basin complex, associated control structures, an extension of Road 148, an interchange at State Route 198, trails along existing waterways, and modifications to the existing waterways. The project requires compliance with the CEQA, which mandates that public agencies determine whether a proposed project will significantly impact the environment, and, if so, whether that impact can be avoided or mitigated.

Under a previous contract, *Æ* identified two historical water conveyances that cannot be avoided by the project (Lloyd and Asselin 2015). Accordingly, *Æ* evaluated the significance of both resources based on archival research and concluded that the Mill Creek Levees (as a recorded element of the Evans Ditch) and the Oakes Ditch are considered significant under Criterion 1 of the CRHR because of their association with the Kaweah and Mill Creek Water Company. However, the portions of both resources within the project area lack integrity to convey the historical significance of the KMCWC system; therefore, the project will not affect historical resources that are eligible for inclusion in the CRHR.

No further management of the portions of the Mill Creek Levees or Oakes Ditch within the project area are necessary.

7
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1926c Water Protective Body of Delta Confidently Expects Many Thousands of Members. 19 July. Visalia, California.

APPENDIX A

Personnel Qualifications

RANDY BALOIAN

Associate Historian

Areas of Expertise

- Historical research
- Architectural and archaeological survey and site evaluation
- Field logistics
- Statistical analysis
- Biological anthropology

Years of Experience

- 16

Education

M.A., Anthropology, University of California, Davis, 1989

B.A., Anthropology, California State University, Fresno, 1986

B.S., Business Administration, California State University, Fresno, 1986

Permits/Licensure

Field Director, California BLM Statewide Cultural Resources Use Permit CA-15-29

Professional Experience

2001–	Associate Historian, Applied EarthWorks, Inc., Fresno, California

Technical Qualifications

Mr. Baloian conducts historical research, evaluates architectural and archaeological resources, performs statistical analyses, prepares reports, and assists with various administrative tasks including budget and proposal preparation. He has evaluated numerous historical resources in the Central Valley and Sierra Nevada foothills, including residences, ranch complexes, commercial structures, mining sites, recreational camps and parks, and agricultural properties. Through his efforts as a historian, Mr. Baloian has amassed a considerable archive on the topic of irrigation, and he maintains the library and site record archives at Applied EarthWorks' Fresno office. He has authored numerous evaluation reports on irrigation canals on both sides of the Central Valley, and his research on the history of the Central Valley also supports archaeological investigations in that region. In addition to his duties as historian and archivist, Mr. Baloian routinely performs archaeological surveys and has participated in site testing and data recovery fieldwork. He has completed the Advisory Council on Historic Preservation course on National Historic Preservation Act Section 106 compliance. Mr. Baloian's academic studies focused on paleoanthropology, primatology, human genetics, statistical analysis, and the genetic and cultural manifestations of ethnicity.

JAY B. LLOYD

Senior Archaeologist

Areas of Expertise

- Cultural resources management
- California archaeology
- Inventory and excavation strategies

Years of Experience

- 19

Education

M.A., Linguistics, University of California, Santa Cruz, 2000

B.A., Anthropology, California State University, Fresno, 1998

B.A., Linguistics, California State University, Fresno, 1998

Registrations/Certifications

- Register of Professional Archaeologists (2006)
- Paleontologic Site Monitor Certification, Fossil Discovery Center (2011)

Permits/Licensure

- Principal Investigator, California BLM Statewide Cultural Resources Use Permit CA-15-29

Professional Affiliations

- Society for American Archaeology
- Society for California Archaeology
- Fresno County Archaeological Society

Professional Experience

2000–	Senior Archaeologist (2007–), Staff Archaeologist (2001–2007), Archaeological Technician (2000–2001), Applied EarthWorks, Inc., Fresno, California
2000	Adjunct Faculty Member, Reedley College, Reedley, California
1997–1998	Archaeological Field Technician for various cultural resource management firms throughout California

Technical Qualifications

Mr. Lloyd has been involved in cultural resources management throughout California for 18 years. As a senior archaeologist, he manages numerous simultaneous projects throughout the state. In this capacity, Mr. Lloyd ensures compliance with federal and state laws and regulations, and directs the work of technical staff and subcontractors. Additionally, he is responsible for project design and management; data acquisition; field supervision; technical reporting; and Native American coordination and consultation. Mr. Lloyd has worked on dozens of archaeological projects throughout California, including the Sierra Nevada and Cascade ranges, Central Valley, Central Coast, and Mojave Desert regions. He has supervised survey, extended survey, testing and evaluation, and data recovery projects at both prehistoric and historical sites. Additionally, Mr. Lloyd has authored and contributed to numerous National Historic Preservation Act Section 106 and California Environmental Quality Act compliance documents. He is proficient in laboratory sorting, cataloging, and artifact classification and has particular experience with the typologies of *Olivella* and *Haliotis* beads and ornaments.

Appendix I. Paleontological Technical Memorandum

Applied EARTHWORKS Inc.
133 N. San Gabriel Blvd., Suite 201
Pasadena, CA 91107-3414
O: (626) 578-0119 | F: (626) 204-5500
www.appliedearthworks.com

April 11, 2022

Ms. Dawn Marple
Provost & Pritchard Consulting Group
130 N. Garden Street
Visalia, CA 93291
Transmitted via email to dmarple@ppeng.com

RE: Paleontological Technical Memorandum for the East Side Regional Park Project
City of Visalia, Tulare County, California

Dear Ms. Marple,

At the request of Provost & Pritchard Consulting Group, Applied EarthWorks, Inc. (*Æ*) is providing this paleontological technical memorandum (memo) for the East Side Regional Park Project in the City of Visalia, Tulare County, California (Project). The City proposes to construct a park and associated infrastructure on 286 acres of presently cultivated land bordered on the north by State Route 216, on the south by State Route 198, to the west by Road 148, and to the east by Road 152. Mill Creek and Oakes Ditch transect the Project area from west to east.

Æ's scope of work included desktop review of geologic maps, paleontological literature, museum records searches, and preparation of this technical memo to summarize our findings. This memo was written by staff who satisfy the requirements of the California Environmental Quality Act (CEQA) by meeting mitigation paleontology industry-wide standards (Murphey et al., 2019) as well as qualification standards of the Society of Vertebrate Paleontology (Society of Vertebrate Paleontology, 2010). In addition to CEQA, the Project also requires partial federal funding from the Land and Water Conservation Fund. The City of Visalia (City) is the lead agency for CEQA and federal compliance.

PROJECT DESCRIPTION AND BACKGROUND

The Project involves the construction of a park, a groundwater-recharge/stormwater-layoff basin complex, associated control structures, the southward extension of Road 148 and construction of a new interchange at State Route 198, and trails along existing waterways. The Project area is mapped in the southwest corner of Section 23, the west half of Section 26, and along the east boundary of Section 27 of Township 18 South, Range 25 East, as shown on the U.S. Geological Survey Exeter, California, 7.5-minute topographic quadrangle map. Generally, ground disturbance will range from 5 to 10 feet below grade for construction of the park and amenities and from 10 to 15 feet below grade for the groundwater recharge and storm water basins. The basins will include construction of dry wells. The wells will have a 15-foot-deep settling chamber and extend to a depth of 45 feet below the bottom of the basin with a drainage pipe to recharge the groundwater table.

REGULATORY CONTEXT

While partial federal funding from the Land and Water Conservation Fund is involved in the Project, there are no pertinent federal laws or regulations concerning paleontological resources. Therefore, the Project is subject only to state laws and local goals and policies. The following section provides an overview of the relevant laws and regulations.

State

At the state level, paleontological resources are protected under CEQA, which requires detailed studies that analyze the environmental effects of a proposed project. If a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered. Specifically, Section VII(f) of Appendix G of the CEQA Guidelines, the Environmental Checklist Form, poses the question, "Will the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?" If paleontological resources are identified as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

Local

The City of Visalia General Plan, Chapter 6: Open Space and Conservation, includes Objective OSC-O-11 and associated Policy OSC-P-39, which addresses the protection of paleontological resources (City of Visalia, 2014:6-24):

> **OSC-O-11** Preserve and protect historic features and archaeological resources of the Visalia planning area including its agricultural surrounding for aesthetic, scientific, educational and cultural values.
>
> **OSC-P-39** Establish requirements to avoid potential impacts to sites suspected of being archeologically, paleontologically, or historically significant or of concern, by:
>
> - Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
> - Determining the potential effects of development and construction on archaeological or paleontological resources (as required by CEQA);
> - Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historical and archaeological sensitivity; and
> - Implementing appropriate measures to avoid the identified impacts, as conditions of project approval.
>
> *In the event that previously unidentified historical, archaeological, or paleontological resources are discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that will be used as guidelines.*

PALEONTOLOGICAL RESOURCE POTENTIAL

Most professional paleontologists in California adhere to the guidelines set forth by the Society of Vertebrate Paleontology (SVP; 2010) to determine the course of paleontological mitigation for a given project unless specific city, county, state, or federal guidelines are available. The SVP's guidelines establish detailed protocols for the assessment of the paleontological sensitivity of a project area and

outline measures to follow in order to mitigate adverse impacts to known or unknown fossil resources during project development (SVP, 2010). Since the City does not have its own paleontological sensitivity map, this memo utilizes the SVP's ranking system and mitigation measures.

Following the SVP's established process, baseline information is used to assign the paleontological sensitivity of a geologic unit(s) (or members thereof) to one of four categories—No Potential, Undetermined, Low, and High (SVP, 2010). Geologic units are considered to be "sensitive" for paleontological resources and have a High Potential if vertebrate or significant invertebrate, plant, or trace fossils have been recovered anywhere in their extent, even if outside the Project area; or if the units are sedimentary rocks that are temporally or lithologically suitable for the preservation of significant fossils. The SVP considers significant fossils as those that contribute new and useful taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data (SVP, 2010).

METHODOLOGY

Æ completed a desktop investigation to assess the paleontological sensitivity of geologic units exposed at the ground surface and those likely to occur in the subsurface of the Project area. *Æ* reviewed published geologic maps and paleontological literature, and conducted museum records searches.

For the records searches, *Æ* retained the Natural History Museum of Los Angeles County (NHMLAC) to conduct a search of fossil localities recorded in their collections (Bell, 2022). To augment these results, *Æ* also conducted searches of the online Paleobiology Database (PBDB) and the University of California Museum of Paleontology (UCMP). The PBDB lists a large collection of museum records and publications of fossil material, while the UCMP is the largest repository of fossils on the West Coast of the United States with an older history of collection than several other regional natural history museums.

RESOURCE CONTEXT

The Project area is on the eastern margin of the San Joaquin Valley within the Great Valley geomorphic province of California. A geomorphic province is a region of unique topography and geology that is readily distinguished from other regions based on its landforms and diastrophic history (Norris and Webb, 1976). The Great Valley is a north-northwest-trending asymmetric structural trough bisected by the Stockton Arch, a structural feature that subdivides the region into the Sacramento Valley in the north and the San Joaquin Valley in the south. The Great Valley is roughly 400 miles long and 50 miles wide. Water from the Pacific Ocean covered the trough as far back as the Jurassic Period (201–145 million years ago [Ma]) and into the Paleogene Period (66–23 Ma).

Deposition into the Great Valley began during the late Jurassic Age (164 Ma) as the paleo-Sierra Nevada began to rise and deliver eroded sediments to the lowlands. Forearc (i.e., the deep marine region between a volcanic arc and the associated subduction zone) marine and nonmarine shale, sandstone, and conglomerate of the Cretaceous Great Valley Sequence were deposited during this time unconformably on top of the Franciscan Complex of the Coast Range and the Sierran Batholith (Bartow and Nilsen, 1990). During the late Mesozoic Era and much of the Cenozoic Era (66 Ma to the present), the actively subsiding region persisted as a submerged lowland basin known as the Great Valley Sea (Bartow, 1991).

By the Pliocene Epoch (5.3–2.6 Ma), most of the marine waters in the Great Valley retreated and brackish and freshwater lakes remained (Weissmann et al., 2005). The present surface of the valley floor

is composed of mostly unconsolidated Pleistocene-age (2.6 Ma to 11,700 years before present [B.P.]) alluvial sediments associated with the drainage of the glaciated Sierra Nevada, alluvial deposits originating from the Coast Ranges, and recent sediments largely representing the alluvial, flood, and delta plains of the Sacramento and San Joaquin rivers (Matthews and Burnett, 1965b; Norris and Webb, 1976; Bartow, 1991; Weissmann et al., 2005). The east side of the valley is characterized by a broad plain of low relief gradually increasing in elevation to large coalescing alluvial fans (e.g., the Kaweah River Fan) at the foothills of the Sierra Nevada range, approximately 3–5 miles from the Project area. These fans are derived from streams flowing from the Sierra Nevada (Weissmann et al., 2005).

According to Matthews and Burnett (1965b), the surficial geology of the Project area consists entirely of Holocene-age (11,700 B.P. to present) recent alluvial fan deposits (Qf), which include granitic sands and silts derived from the highlands surrounding the Great Valley. These sediments are partially equivalent to younger deposits of the Modesto Formation (Matthews and Burnett, 1965a), a unit with an estimated age of 42,000–9000 B.P. (Marchand and Allwardt, 1981). Other than the recent alluvial fan deposits, Pleistocene-age nonmarine sedimentary deposits (Qc) are mapped 4 miles to the east-southeast of the Project area (Matthews and Burnett, 1965b). These are older alluvial and dissected fan deposits consisting of granitic sands, silts, and clays referrable to the Riverbank Formation (Matthews and Burnett, 1965a). This unit has an estimated age of 450,000–130,000 B.P. (Marchand and Allwardt, 1981).

Holocene-age deposits such as those mapped at the surface in the Project area generally do not preserve intact and significant paleontological resources, particularly if they are younger than middle Holocene (4200 B.P.) (SVP, 2010). However, older deposits in the subsurface dating to the early Holocene or Pleistocene, including those from the Modesto and Riverbank Formations, may be fossiliferous. For instance, significant vertebrate fossils have been documented from the Riverbank Formation elsewhere in the San Joaquin Valley (Dundas et al., 1996; Dundas, 2013). Furthermore, Pleistocene-age alluvial deposits throughout California have yielded a variety of megafauna, including mammoths, ground sloths, dire wolves, saber-toothed cats, horses, camels, and bison, as well as numerous invertebrate and plant taxa (Scott, 2007; Springer et al., 2009).

Comparatively older geologic units mapped by Matthews and Burnett (1965b) crop out among the alluvial fan deposits east of the Project area. According to Matthews and Burnett (1965a), these Mesozoic Era units are undifferentiated granitic rocks (gr) ranging from granite to gabbro and ultrabasic intrusive igneous and metamorphic rocks (ub). These geologic units possess little to no paleontological potential.

RECORDS SEARCH RESULTS

Records search results from NHMLAC and online databases are detailed in Table 1. Bell (2022) reports no fossil localities from the NHMLAC collections within the Project area. However, she lists the nearest localities from Pleistocene-age alluvial deposits similar to those likely found at depth in the Project area. The closest locality is LACM VP CIT 117 southwest of the Project area near the intersection of Road 80 and Avenue 120 and east of the community of Angiola, which yielded a horse specimen (*Equus*). The next closest is LACM VP 4087, south-southeast of the Project area and 3 miles east of the community of Terra Bella, which yielded a mammoth specimen (*Mammuthus*). Following that, LACM VP 4088 and 1156 are farther to the south within the city of Delano. These yielded specimens of bison (*Bison*) and horse (*Plesippus*), respectively. The farthest NHMLAC locality is LACM VP 6701 to the south-

southeast, documented from Flynn Ranch, approximately 8.7 miles southeast of the community of Ducor. This locality yielded a mammoth specimen (*Mammuthus*).

The online PBDB does not list any fossil localities from Pleistocene-age alluvial deposits within the Project area or within Tulare County. The UCMP's online database lists four fossil localities from Pleistocene-age alluvial deposits within Tulare County. The database does not provide precise locations for these; however, general locations can be inferred from three of these. The closest of these, UCMP V78124, appears to be a locality from a former farm within the city of Visalia, which yielded a mammoth specimen (*Mammuthus*). The farm was described as Denton's Farm when the specimen was collected in 1965. This farm either does not currently exist or has been renamed; therefore, its precise location is unknown. The second locality, UCMP V65309, yielded a camel specimen (*Camelops*) from alluvial deposits in the community of Strathmore, southeast of Visalia. The third locality, UCMP V69174, yielded specimens of Columbian mammoth (*Mammuthus columbi*), American mastodon (*Mammut americanum*), and an undescribed proboscidean from alluvial deposits in Gordon Gulch, far to the south-southeast of Visalia. The fourth locality, UCMP V6540, described as "Tulare County General" yielded a specimen of mammoth (*Mammuthus*).

Table 1
Fossil Localities Reported Near the Project Area

Locality No.[a]	Geologic Unit (Age)	Taxa	Depth	Distance from Project Area (approximate)
UCMP[1] V78124 (Denton's Farm)	Unknown formation (Pleistocene)	*Mammuthus* (mammoth)	Unknown	<13 miles
UCMP[1] V65309 (Strathmore)	Unknown formation (Pleistocene)	*Camelops* (camel)	Unknown	24 miles
LACM[2] VP CIT 117	Unknown formation (Pleistocene blue shale)	*Equus* (horse)	425 feet bgs (well boring)	24 miles
LACM[2] VP 4087	Unknown formation (Pleistocene)	*Mammuthus* (mammoth)	Unknown	29 miles
LACM[2] VP 4088	Unknown formation (Pleistocene)	*Bison* (bison)	33 feet bgs	>40 miles
LACM[2] VP 1156	Unknown formation (Pleistocene)	*Plessipus* (horse)	45 feet bgs	>40 miles
LACM[2] VP 6701	Unknown formation (Pleistocene green sand)	*Mammuthus* (mammoth)	Unknown	>45 miles
UCMP[1] V69174 (Gordon Gulch)	Unknown formation (Pleistocene)	Probiscidea (elephant order) *Mammuthus columbi* (Columbian mammoth) *Mammut americanum* (American mastodon)	Unknown	60 miles
UCMP[1] V6540 (Tulare County General)	Unknown formation (Pleistocene)	*Mammuthus* (mammoth)	Unknown	Unknown

a - VP = Vertebrate Paleontology, bgs = below ground surface.
Sources: [1]UCMP, [2]Bell (2022).

FINDINGS AND RECOMMENDATIONS

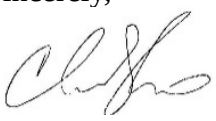
Æ used the SVP (2010) sensitivity criteria to determine the paleontological sensitivity of the Project area. Based on Æ's desktop efforts and the museum and online records searches, the Project area has Low to High Potential for paleontological resources, dependent on depth. Holocene-age recent alluvial fan deposits mapped at the surface have Low Potential. Pleistocene-age alluvial deposits in the subsurface have High Potential, although the depth at which this transition occurs is presently unknown and requires additional investigation. For instance, Project-related ground-disturbing activities that extend below surficial deposits such as construction of the groundwater recharge and storm water basins and the dry wells have a greater likelihood of impacting these deposits than activities that occur at or near the surface such as shallow grading.

Prior to the issuance of grading permits, Æ recommends a Paleontological Resource Impact Mitigation Program (PRIMP) be prepared by a qualified professional paleontologist who meets the SVP (2010) standards for Project Paleontologist because of the likelihood of vertebrate fossils. The PRIMP will utilize the results of this paleontological technical memo possibly refined by the results of geotechnical borings to specify the steps to be taken to mitigate impacts to paleontological resources. For instance, Worker Environmental Awareness Program (WEAP) training should be prepared prior to the start of Project-related ground disturbance and presented in person to all on-site construction personnel to inform them of the types of fossils that may be found and the procedures to follow if any are encountered.

A PRIMP also will indicate where construction monitoring will be required for the Project and the frequency of required monitoring (i.e., full-time, spot-checks, etc.). In addition to monitoring procedures, a PRIMP also will provide details about fossil collection, analysis, and preparation for permanent curation at an approved repository. Lastly, the PRIMP will describe the different reporting standards to be used—monitoring with negative findings versus monitoring resulting in fossil discoveries.

It has been a pleasure assisting you with this Project. If you have any questions, please do not hesitate to contact me at (626) 578-0119 x403.

Sincerely,



Chris Shi
Senior Paleontologist
Applied EarthWorks, Inc.

Edited and Approved By:

Amy Ollendorf, Ph.D., M.S., RPA 12588
Paleontology Program Manager
Applied EarthWorks, Inc.

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Appendix J. Technicon Repo

September 29, 2015
Revised: March 10, 2016

TES No. 141034.002

Mr. Rick Darnley
Provost & Pritchard Engineering Group, Inc.
130 N Garden Street
Visalia, California 93291
Phone: 559.636.1166

Project: Proposed East Side Regional Park and Groundwater Recharge Project
Mineral King Avenue & Road 152
Visalia, California

Subject: Geotechnical Investigation Report

Dear Mr. Darnley:

The attached report presents the results of a geotechnical investigation for the proposed East Side Regional Park and groundwater recharge project in Visalia, California. The report describes the study, findings, conclusions, and recommendations for use in project design and planning.

TECHNICON Engineering Services, Inc. (**TECHNICON**) appreciates the opportunity to provide geotechnical engineering services to you during the design phase of this project. We trust this information meets your current needs. If there are any questions concerning the information presented in this report, please contact this office at your convenience.

Respectfully submitted,
TECHNICON Engineering Services, Inc.

Salvador Alvarez, PE
Project Engineer

Stephen P. Plauson, PE, GE
Geotechnical Engineering Manager

SA:SPP:tr

TECHNICON
ENGINEERING SERVICES, INC.

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT
MINERAL KING AVE & ROAD 152
VISALIA, CALIFORNIA

Prepared For:

Provost & Pritchard Engineering Group, Inc.
130 N Garden Street
Visalia, California 93291

September 29, 2015
Revised: March 10, 2016

TES No. 141034.001

GEOTECHNICAL & ENVIRONMENTAL ENGINEERING ~ CONSTRUCTION TESTING & INSPECTION

Prepared For:

Mr. Rick Darnley
Provost & Pritchard Engineering Group, Inc.
130 N Garden Street
Visalia, California 93291
Phone: (559) 636-1166

GEOTECHNICAL INVESTIGATION REPORT PROPOSED EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT MINERAL KING AVENUE & ROAD 152 VISALIA, CALIFORNIA

TECHNICON PROJECT
TES No. 141034.001

Prepared by:

Salvador Alvarez, PE
Project Engineer

Stephen P. Plauson, PE, GE
Geotechnical Engineering Manager

TECHNICON ENGINEERING SERVICES, INC.
4539 North Brawley Avenue, Suite 108
Fresno, California 93722
559.276.9311

September 29, 2015
Revised: March 10, 2016

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DOUBLE RING INFILTRATION TEST MAP 7
R-VALUE MAP 8

Appendix

BORING LOGS AND LOG KEY A
LABORATORY TESTS B
INFILTRATION TESTS C

GEOTECHNICAL INVESTIGATION REPORT
PROPOSED EAST SIDE REGIONAL PARK AND
GROUNDWATER RECHARGE PROJECT
MINERAL KING AVENUE & ROAD 152
VISALIA, CALIFORNIA

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1 INTRODUCTION

1.1 GENERAL

This report presents the results of a geotechnical investigation for the proposed East Side Regional Park and Groundwater Recharge Project to be located near Mineral King Avenue and Road 152 in Visalia, California. The purpose of the investigation was to explore and evaluate the subsurface soil stratigraphy and percolation characteristics of the subsurface soils of the site for use in the planning and design of groundwater recharge basins. Additionally, the investigation included performing soil tests to aid the preliminary design of off-site roadway improvements

The Vicinity Map, Figure 1, provides the location of site, the Site Map, Figure 2, provides the locations of the test borings for this study, Figures 3 through 6 demonstrate cross sections of the estimated soil profile based on the boring logs stratigraphy. Figures 7 and 8 provide the locations of double ring infiltration tests and R-value tests, respectively.

1.2 PROPOSED CONSTRUCTION

TECHNICON understands the project involves the planning and design of a 242-acre area with integrated regional park and groundwater recharge basins located north of Highway 198, between the planned Tower Street extension and Road 152. The proposed facilities include approximately 100 acres of land devoted to groundwater recharge basins and the remainder of the property to be set aside for the future development of a public park. The scope of the project involves the preliminary layout design of the recharge basins and master planning of the regional park.

Preliminary discussions with Provost & Pritchard indicate the recharge facilities will consist of excavated recharge basins with side slopes on the order of 6:1 horizontal to vertical (H:V). The total depth of the of the proposed basins is on the order of approximately 7 feet and comprised of approximately 3 feet excavation below site grade (invert elevation of 348 feet) and perimeter berms raised approximately 4 feet above the surround grade (top of berm elevation of 355 feet).

1.3 PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to evaluate the subsurface conditions at the project site to provide subsurface soil stratigraphy and percolation characteristics of the subsurface soils to aid in Provost & Pritchard's evaluation of the site for groundwater recharge purposes. In addition, pavement recommendations are needed to support the preliminary design of off-site roadway improvements explore the site subsurface conditions to allow for development of recommendations and opinions to aid in project feasibility and preliminary planning. To achieve this purpose, this investigation report the report includes the following:

- A description of the proposed project including a vicinity map showing the location of the site and site maps showing the locations of the exploration points and testing locations for this study
- A description of the site surface and subsurface conditions encountered during the field investigation, including boring logs
- A summary of the field exploration and laboratory testing program
- Recommendations for the locations and layouts of the recharge basins based on the results of the boring logs, laboratory tests and infiltration tests.
- Recommendations for asphalt concrete and Portland cement concrete pavements based on a range of truck traffic indexes
- Recommendations for site preparation and earthwork, including the use of on-site soils for engineered fill and recommended import fill specifications
- Comments on general site drainage

The scope of services consisted of a field exploration program, laboratory testing, and preparation of this written report as outlined in **TECHNICON's** proposal dated August 28, 2014 (TES No. GP14-013B).

2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

The field exploration, conducted between the dates of December 20, 2014 and January 2, 2015, consisted of drilling fourteen (14) exploratory test borings and a site reconnaissance by a staff engineer. The test borings were drilled with a CME 55 truck-mounted drill rig using hollow stem auger, mud rotary, and air rotary drilling techniques. Twelve (12) of the exploratory test borings were drilled to a depth of 51.5 feet below ground surface (bgs). Two (2) exploratory test borings were drilled to 73 and 81.5 bgs at which point groundwater was encountered. The boring locations were provided by Provost and Pritchard and are indicated on the attached Site Map, Figure 2. The soils encountered in the borings were visually classified in the field and a continuous log was recorded. The boring logs are provided in Appendix A.

The soils encountered in the borings were visually classified in the field and a continuous log was recorded. Relatively undisturbed samples were collected from the test boring at selected depths by driving a 2.5-inch I.D. split barrel sampler containing brass liners into the undisturbed soil with a 140-pound automatic hammer free falling a distance of 30 inches. In addition, samples of the subsurface material were obtained using a 1.4-inch I.D. standard penetrometer, driven 18 inches in accordance with ASTM D1586 test procedures. The sampler was used without liners. Resistance to sampler penetration was noted as the number of blows per foot over the last 12 inches of sampler penetration on the boring log. The blow counts listed in the boring log have not been corrected for the effects of overburden pressure, boring diameter, rod length, sampler size, or hammer efficiency. In addition four (4) near surface bulk soil samples were collected along the locations of the proposed roadways for the purpose of R-value testing.

2.2 PENETRATION TESTS

Penetration rates, determined in general accordance with ASTM D1586, were used to aid in evaluating the consistency, compression, and strength characteristics of the foundation soils. The penetration rates are indicated on the boring logs in Appendix A.

2.3 LABORATORY TESTS

Laboratory tests were performed on selected near surface samples to evaluate their physical characteristics. The following laboratory tests were used to develop the design geotechnical parameters:

- ❑ Unit weight (ASTM D2937)

- ❑ Moisture content (ASTM D2216)
- ❑ Sieve Analysis (ASTM C-136)
- ❑ R-value (California Test Method No. 301)

The dry density and moisture content test results are shown on the boring logs in Appendix A. The sieve analysis and R-value test results are provided in Appendix B.

2.4 INFILTRATION TESTS

Double ring infiltration test were performed at the project site the locations shown on Figure 7 as selected by Provost and Pritchard based on the approximate depths to the bottom of the basins. Nine (9) double-ring infiltration tests were performed within backhoe test pits excavated to the approximate invert depth of the proposed recharge basins established by Provost and Pritchard. The exposed subgrade was then smoothed in preparation for the installation of the double-ring test equipment. The outer 24-inch diameter ring followed by the inner 12-inch diameter ring were driven into the subgrade soil to a depth of approximate 2 to 3 inches to provide a seal between the rings and surrounding soil. Separate water storage tanks were connected to individual float systems within each ring to provide a controlled supply of water and constant water level during the test. The inner and outer rings were then filled with water to a depth of approximately 2 inches above the bottom and allowed to continuously soak over-night to pre-saturate the soils underlying the test area. The infiltration tests resumed the following day, which involved recording the volume of water at various time intervals. The double-ring infiltration tests were performed in accordance with ASTM (D3385). The test concluded after several constant readings were obtained.

The individual infiltration rate test reports that include a graphical representation of the recorded data are provided in Appendix C. The measured infiltration rates are summarized in Table 2.4-1.

TABLE 2.4-1
SUMMARY OF DOUBLE-RING INFILTRATION TEST

Test Location	Test Date	Test Depth (ft)	Soil Type at Test Elevation	Infiltration Rate (gallons/ft^2/day)
DR-1	7/28/15	2.0	Silty SAND (SM)	25
DR-2	7/28/15	2.0	Silty SAND (SM)	18
DR-3	7/28/15	1.0	Silty SAND (SM)	37
DR-4	7/28/15	2.0	Poorly Graded SAND (SP)	129
DR-5	7/28/15	2.0	Silty SAND (SM)	17
DR-6	7/30/15	3.0	Silty SAND (SM)	47
DR-7	7/30/15	3.0	Sandy SILT (ML)	10
DR-8	7/30/15	1.0	Sandy SILT (ML)	5
DR-9	7/30/15	2.0	Sandy SILT (ML)	9

TECHNICON suggests that an appropriate factor of safety be applied to the infiltration rates for use in design. The purpose of the safety factor is to account for possible plugging and sealing due to the intrusion of organics, fines, etc.

The testing locations are presented on the Infiltration Tests Site Map, Figure 7. The double-ring infiltration tests reports are provided in Appendix C.

3 SITE CONDITIONS

3.1 SURFACE CONDITIONS

The project site is located within agricultural area east of Visalia, California and is generally bounded by Ivanhoe Drive (SR-216) to the north, agricultural fields and Road 152 to the east, Mineral King Avenue to the south, and existing residential neighborhoods to the west. The project site consists of mature pecan and walnut orchards. It was noted that the orchards were utilizing a flood irrigation system. The project site has three (3) unlined canals on the southern half of the site that are generally in an east-west orientation. At the time of the field exploration the canals were observed to have little or no water.

3.2 EARTH MATERIALS

The natural site soil consists of Holocene age fan deposits. The general earth material profile depicted by the subsurface exploration consisted of silty sand and sandy silt, underlain by laterally discontinuous alternating layers of poorly graded sand, sandy silt, silty sand, and sandy clay extending to the depth explored of 81.5 feet bgs. It was noted that the deeper test borings B-13 and B-14 were found to have a layer of poorly graded gravel beginning at an approximate depth of 60 to 65 feet bgs. The granular soils generally had a relative consistency of medium dense to dense and the fine grained soils had a relative consistence of medium stiff to hard.

The above is a general description of the earth material profile. A more detailed representation of the stratigraphy at the specific exploration location is provided on the boring logs in Appendix A and the subsurface cross-sections on Figures 3 through 6.

3.3 GROUNDWATER CONDITIONS

Groundwater was encountered within in test borings B-13 and B-14 at depths of 76 and 71.5 feet bgs, respectively. It is possible that groundwater conditions at the site could vary between boring locations or could change at some time in the future due to variations in the rainfall, groundwater withdrawal or recharge, agricultural activities, or other factors not apparent at the time of our field reconnaissance.

4 PRELIMINARY PLANNING RECOMMENDATIONS

4.1 GENERAL

Based on the field exploration, laboratory data, and geotechnical assessment conducted for this study, it is geotechnically feasible to plan and eventually construct the proposed regional park and groundwater recharge project as currently envisioned. Preliminary recommendations concerning basin slopes, pavements, and site grading are presented in subsequent sections of this report.

4.2 RECHARGE BASIN DESIGN

4.2.1 General Discussion

The proposed recharge basins are anticipated to consist of cut and fill slopes with an overall depth of approximately 7 feet. The perimeter embankments are anticipated to be filled above natural grade approximately 4 feet and will blend into the overall grading for the surrounding park and trail improvements. The gradients of the interior and exterior basin slopes have not yet been determined, however, based on information provided by Provost and Pritchard, preliminary planning calls for gradients of the basin slopes of approximately 6:1 horizontal to vertical (H:V).

There are no geotechnical considerations that dictate the minimum width of the basin embankments, however, maintenance or other factors may dictate the specific width. Embankments should be constructed with a minimum top width of 5 feet. The basin embankments should be constructed with on-site soil as described in Section 4.4, “EARTHWORK”.

4.2.2 Embankment Stability

Planning calls for recharge basin slopes of 6:1 horizontal to vertical (H:V). The stability of the basin slopes was analyzed utilizing the computer program GeoStudio 2012. The Bishops method for circular trial surfaces was utilized for the analysis. The analysis indicated that cut and fill slopes constructed at a gradient of 3:1 horizontal to vertical (H:V), or flatter would be stable with regard to deep-seated failure up to a height of 10 feet. Steeper slopes may be considered and should be evaluated once the final planning/design is complete.

4.2.3 Embankment Settlement

The settlement associated with the proposed embankments constructed in accordance with Section 4.4 of this report is less than 0.25-inch. Due the granular nature of the underlying sediments, settlement is anticipated to occur as embankment construction occurs.

4.2.4 Infiltration Characteristics

The soil types that may be encountered within the basins as depicted by the borings and test pits excavated for this study will primarily consist of Silty Sand (SM) and Sandy Silt (ML) as well as occasionally Poorly Graded Sand (SP) soils. These soils are anticipated to comprise the invert of the recharge basins. The average measured infiltration rates of these soils are summarized in Table 4.2-1.

TABLE 4.2-1
INFILTRATION CHARACTERISTICS

Soil Type	Average Infiltration Rates	
	gallons/ft^2/day	ft/day
Silty Sand (SM)	28	3.7
Sandy Silt (ML)	8	1.0
Poorly Graded Sand (SP)[1]	129	17.2

1) Infiltration rates given based on one (1) test and thus do not represent average conditions.

The project site is underlain by laterally continuous and discontinuous layers of Silty Sand (SM), Sandy Silt (ML), Clayey Sand (SC), Sandy Clay (CL), Poorly Graded Sand (SP), and Poorly Graded Gravel (GP). Cross sections of the test borings are provided on Figures 3 through 6 to aid in assessing the recharge potential of the site.

4.2.5 Additional Infiltration Tests

Once the rough pond invert elevations are established, observation of the soils exposed and additional double ring infiltration test recommended to assess the characteristics of the soil. The purpose of these observations and tests is to check that the soils exposed at the invert elevation of the recharge ponds are similar to those assumed in the design of the basins.

4.3 PAVEMENTS

4.3.1 Design R-value and Traffic Assumptions

The subgrade Resistance-value (R-value) for the on-site soil was evaluated in the laboratory on four (4) samples of near surface soil collected at the locations noted on the R-value Map, Figure 8. The tested soil had measured R-values ranging from 41 to 56. The laboratory testing conformed to Caltrans Test Method 301. An R-value of 40 is recommended for design of on-site pavements.

Detailed vehicular load and frequency information is not available for the on-site pavements. Traffic on the site is anticipated to consist of auto parking and drives for heavy trucks. Consequently, a range of pavement sections have been provided for the site based on traffic indexes of 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, and 8.0. These traffic design assumptions should be reviewed for compatibility with the actual development, and revised pavement sections developed, as necessary.

4.3.2 Asphalt Concrete Pavement Design

Flexible pavement design recommendations have been developed based upon the California Department of Transportation (Caltrans) design procedures and a design R-value of 40. The flexible asphalt concrete pavement sections associated with the assumed T.I.'s for on-site asphalt pavements are summarized in Table 4.3-1.

TABLE 4.3-1
RECOMMENDED MINIMUM PAVEMENT SECTIONS

Traffic Index	Asphalt Concrete (inches)	Aggregate Base – Class 2 (inches)
Up to 4.5	2.5	4
5.0	2.5	4.5
5.5	3	5
6.0	3	5
6.5	3.5	6.5
7.0	4	7
7.5	4	8
8.0	4.5	8.5

The design criteria assumes a 20-year design period and that normal maintenance (crack sealing, etc.) is performed. The traffic index is a measure of the volume of truck traffic that will be applied to a pavement section in the design life. The allowable average daily truck traffic (ADTT) for the assumed traffic indexes is presented in Table 4.3-2.

TABLE 4.3-2
AVERAGE DAILY TRUCK TRAFFIC

Traffic Index	2-Axle Vehicle	or	3-Axle Vehicle	or	5-Axle Vehicle
5.0	5.2		2.0		0.5
5.5	11.6		4.4		1.2
6.0	24.1		9.0		2.4
6.5	47.3		17.7		4.7
7.0	88.1		33.0		8.8
7.5	157.3		59.0		15.8
8.0	270.6		101.5		27.1

The flexible pavement should conform to, and be placed in accordance with, current Caltrans Standard Specifications, 2013. The aggregate base (Class 2) should comply with the specifications in Section 26. The aggregate base and upper 6 inches of subgrade should be compacted to a minimum of 95 percent relative compaction as determined by Caltrans Test Method No. 216 (dry weight comparison) or ASTM D1557 test procedures.

4.3.3 Portland Cement Pavement Design

Portland Cement concrete pavement (PCCP) may be desirable at entry points, delivery areas, trash collection areas and other locations where tight-turning heavy vehicles may be maneuvering.

Design recommendations for PCCP are based on standards developed by the Portland Cement Association. Table 4.3-3 provides the rigid concrete pavement sections for light to moderate commercial usage. Consideration could be given to utilizing “Auto Only” pavement section in areas limited primarily to vehicle traffic and occasional light trucks. The “Light Duty” pavement section should be used in areas where heavy trucks may occasionally access or pass through the development.

TABLE 4.3-3
RECOMMENDED MINIMUM PAVEMENT SECTIONS

Truck Usage	Average Daily Truck Traffic (ADTT)	Portland Cement Concrete (inches)	Aggregate Base – Class 2 (inches)
Auto Only		4.0	4.0
Light Duty	10	4.5	4.0
Medium Duty	25	5.0	6.0

The aggregate base should be compacted to 95 percent of maximum density based on Caltrans Test Method 216 (dry determination) or ASTM D1557. The pavement section should be supported on 12 inches of subgrade which has been moisture conditioned to above optimum moisture content and compacted to at least 95 percent of Caltrans Test Method 216 (dry determination) or ASTM D1557.

The concrete mix design should provide a 28-day compressive strength of at least 4,000 pounds per square inch. The concrete mix should also be designed for a slump not exceeding 4 inches. Thickened edges should be used along outside edges of concrete pavements. Edge thickness should be at least 2 inches greater than the concrete pavement thickness and taper to the actual concrete pavement thickness 36 inches inward from the edge. Integral curbs may be used in lieu of thickened edges.

There are no geotechnical considerations (e.g. expansive soil), which would require special reinforcement of pavement. Therefore, the reinforcement of concrete pavement should be determined by structural, curing (i.e. thermal, etc.) considerations, and should be designed by the project civil designer.

Continuous sections of concrete pavement should have construction or control joints in an approximately 12-foot square grid system or less. If a square system is impractical, rectangular panels having a maximum dimension of 12 feet can be used. Construction or control joints should be located at each grid line location, a maximum of 12 feet apart. All longitudinal or transverse control joint should be constructed by saw-cutting, hand forming (e.g. deep grooving) or placing pre-molded fillers, such as zip strips. Longitudinal or transverse construction joints should be keyed or doweled to mitigate against differential movement. Expansion joints should be used to isolate fixed objects abutting or within the pavement area. The expansion joints should extend the full depth of the pavement. Joints should run continuously and extend through integral curbs

and thickened edges. It is recommended that joint layout be adjusted to coincide with the corner of objects and structures.

4.3.4 Moisture Considerations

The pavement design should consider both the vehicular loading, as well as the environmental factors. The vehicular loading will depend on the amount and type of traffic anticipated for the pavement design life. Environmental factors include the potential for moisture variations beneath the pavement structural section. It is recommended that all pavement areas conform to the following criteria:

- All trench backfill, including utility and sprinkler lines, should be properly placed and adequately compacted to provide a stable subgrade.
- Adequate drainage should be provided to prevent surface water from basining and saturating the subgrade soil.
- A periodic maintenance program should be incorporated.
- All concrete curbs separating pavement and landscaped areas should extend to the subgrade.

4.3.5 Construction Considerations

In the event unstable (pumping) subgrades are encountered within planned pavement areas, we recommend a heavy, rubber-tired vehicle (typically a loaded water truck) be used to test the load/deflection characteristics of the finished subgrade materials. It is recommended this vehicle have a minimum rear axle load (at the time of testing) of 16,000 pounds with tires inflated to at least 65 psi pressure. If the tested surface shows a visible deflection extending more than 6 inches from the wheel track at the time of loading, or a visible crack remains after loading, corrective measures should be implemented. Such measures could include discing to aerate, chemical treatment, replacement with drier material, or other methods. It is recommended **TECHNICON** be retained to assist in developing which method (or methods) would be applicable for this project.

4.4 EARTHWORK

The recommendations contained in this section are applicable to construction of the recharge basins and the mass grading of the park facilities. A project specific Geotechnical Investigation Report for the park facilities should address the final earthwork necessary at park structures, parking areas, pathways, etc. The following recommendations are based on the assumption that

the recharge basins may consist of cut and fill slopes up to 10 feet in height with fills not exceeding 5 feet in vertical thickness.

Recommendations regarding site grading are presented in subsequent sections of this report. All reference to relative compaction, maximum density, and optimum moisture is based on ASTM Test Method D1557.

4.4.1 Removal of Existing Trees and Structures

Trees should be removed from all areas to receive general fill, embankment fill, roadways, structural fill, etc. and their root systems should be thoroughly cleared of root balls as well as isolated roots greater than ½-inch in diameter. Additional removal may be required to remove concentrated or large volumes of finer roots as determined by the Geotechnical Engineer at the time of root removal. The amount of soil lost or disturbed with removal will likely vary with the moisture conditions at the time of removal, soil type and the methods of removal. It is anticipated that much of the granular soil will likely break away from the root system at the time of removal. It is suggested a tree service and demolition contractor be contacted for more detailed information regarding the typical soil loss and disturbance associated with tree root removal.

Where not to remain existing structures including associated foundations, utilities, septic systems, and other unsuitable structures should be entirely removed.

Following demolition and removal of trees, structures, disturbed soils should be mitigated as described in Sections 4.4.3, 4.4.4, and 4.4.6.

4.4.2 Stripping

All surface vegetation and any miscellaneous surface obstructions should be removed from the project area, prior to any site grading. It is anticipated stripping of vegetation will involve the upper 1 to 3 inches. Surface strippings should not be incorporated into embankment fill or structural fill unless they can be sufficiently blended to result in an organic content of less than 3 percent by weight (ASTM D2974). Stripped topsoil, with an organic content between 3 and 12 percent by weight, may be stockpiled and used as non-structural fill (i.e. landscaped areas, park areas, etc.). If placed in landscape and park areas, strippings and organic rich soil should be placed within 2 feet of finished grade and at least 5 feet outside of building and pavement areas. Soils with an organic content greater than 12 percent should be excluded from all fill and may be placed on the surface of the outboard banks of the recharge basins, if approved by Provost & Pritchard Engineering Group, Inc. or the City of Visalia.

4.4.3 Disturbed Soil, Undocumented Fill and Subsurface Obstructions

A reasonable search should be performed to locate disturbed or loose soil, undocumented fill soils, debris, abandoned underground structures, foundations, or existing utilities that may exist within the area of construction. Any obstructions should be removed from the project area. Undocumented fill or loose or disturbed soil should be excavated to expose firm unyielding subgrade. If any areas or pockets of soft, disturbed or saturated soils or void spaces made by burrowing animals are encountered, they should be over-excavated to firm native material and replaced with engineered fill. Excavations for removal of the above items should be backfilled with engineered fill as appropriate to establish the design grades shown on the approved grading plans. Excavated soil and may be reused provided it meets the applicable requirements provided in Section 4.4.7, "Engineered Fill").

If any canals are to be abandoned, all trees and shrubs should be removed in accordance with Section 4.4.1 and the surface stripped of vegetation. In addition, all debris as well as organic and loose sediments should be removed to expose native undisturbed soil. The resulting clearing and excavation should be made dish shaped and backfilled with engineered fill as described herein. If any unstable or wet soils are encountered, they should be excavated to expose firm undisturbed soil approved by the Geotechnical Engineer. As an alternative to removal, the Geotechnical Engineer may recommend mitigation options such as use of geotextile, geogrid, and or chemical treatment to stabilize soft or pumping subgrade to initiate compaction and backfill operations. Recommendations would be given based on the conditions observed at the time of grading.

If any wells are to be abandoned, they should be properly abandoned in accordance with the standards of the Kings County Environmental Health Department.

4.4.4 Over-excavation

The site reconnaissance and borings indicated firm and unyielding surface soils that are suitable for support of the embankments, however, tree removal will disturb the near surface soils requiring overexcavation and recompaction prior to placement of fill or support of project improvements. The overexcavation will also serve to minimize the potential for horizontal seepage paths to develop below the proposed basin embankments and minimize seepage losses and reduce the potential for piping, which could undermine the embankments.

The subgrade soils below proposed embankments, roadways, and park structures shall be excavated to a depth of 3 feet, or deeper as needed to excavate and recompact the soils loosened by the removal of trees. The excavation should extend laterally a minimum distance of 5 feet

beyond the embankment fill, roadways, and structures. The resulting excavation should be scarified an additional 8 inches, moisture conditioned, proof rolled, and compacted in accordance with Sections 4.4.6, “Scarification and Compaction”. The excavation may in turn be backfilled and compacted with soil approved for embankment construction, refer to Section 4.4.7, “Engineered Fill”. The Geotechnical Engineer should approve the final overexcavation depth based on the depth of disturbance observed at the time of tree removal.

If after tree and root removal is complete and recompaction of individual tree wells below embankments is chosen over a mass overexcavation and recompaction approach then site areas to receive embankments, roadways, and park structures should be scarified and recompacted in accordance with Section 4.4.6, “Scarification and Compaction”. All tree wells shall be excavated to expose firm undisturbed soils approved by the Geotechnical Engineer and the resulting excavation dish shaped and backfilled with engineered fill as described herein.

4.4.5 Alternative Seepage Cut-Off Zone

A seepage cut-off trench will be required if recompaction of individual tree wells is performed in lieu of the mass overexcavation described in Section 4.4.4.

After stripping the site, excavating and backfilling tree wells with engineered fill, and performing all other any necessary removals, a seepage cut-off trench should be excavated under the center of the proposed embankments. The purpose of the cut-off zone is to interrupt horizontal seepage paths and to remove any unanticipated root zones, buried debris, etc. The cut-off should be 8-foot in width and should extend to a depth of 3 feet below the surrounding grade. The resulting cut-off excavation should be scarified 8 inches, moisture conditioned, and compacted in accordance with Section 4.4.6, “Scarification and Compaction”. The trench may be backfilled with the excavated soil provided it meets the criteria of Section 4.4.7, “Engineered Fill” and compacted in accordance with Section 4.4.9, “Compaction”.

4.4.6 Scarification and Compaction

Following site stripping and any necessary removals, the exposed subgrade soil in areas to receive fill, roadways, or structural improvements should be scarified to a minimum depth of 8 inches, uniformly moisture conditioned to at, or above optimum, and compacted to the requirements of engineered fill.

4.4.7 Engineered Fill

All engineered fill soils should be nearly free of organic or other deleterious debris and less than 3 inches in maximum dimension. The on-site soil exclusive of debris may be used as engineered fill, provided it contains less than 3 percent organics by weight (ASTM D 2974).

Recommended requirements for on-site soil to be used as embankment fill as well as applicable test procedures to verify material suitability are provided on Table 4.4-1.

TABLE 4.4-1
FILL CRITERIA FOR EMBANKMENTS

Gradation (ASTM C136)	
Sieve Size	**Percent Passing**
76 mm (3-inch)	100
19 mm (¾-inch)	80 – 100
No. 4	60 – 100
No. 200	25 – 70

All fill materials to be used for embankment fill should be sampled and tested by a representative of the project Geotechnical Engineer.

Recommended requirements for on-site or imported soil to be used as engineered fill below roadways and park structures, as well as applicable test procedures to verify material suitability are provided on Table 4.4-2.

TABLE 4.4-2
FILL CRITERIA FOR ROADWAYS AND PARK STRUCTURES

Gradation (ASTM C136)			
Sieve Size		**Percent Passing**	
76 mm (3-inch)		100	
19 mm (¾-inch)		80 – 100	
No. 4		60 – 100	
No. 200		20 – 50	
Expansion Index (ASTM D4829)		**Plasticity (ASTM D4318)**	
		Liquid Limit	**Plasticity Index**
< 20		< 25	< 9
Organic Content (ASTM D 2974)			
< 3% by dry weight			
Corrosivity			
pH	**Minimum Resistivity (ohm-cm)**	**Soluble Sulfate (ppm)**	**Soluble Chloride (ppm)**
6 to 8	> 2,000	< 2,000	< 500
Resistance Value California Test Method No. 301			
Minimum R-value = 40			

All on-site and imported fill materials to be used for engineered fill should be sampled, tested, and approved by a representative of the project Geotechnical Engineer prior to being transported to the site. The import criteria for corrosion are typical threshold limits for non-corrosive soil. Should corrosion concentrations of import soils fall outside of the threshold limits indicated above, revised protection measures will be necessary.

4.4.8 Benching

In areas to receive fill having slopes steeper than 5:1 (H:V), it will be necessary to bench/notch the slope to receive fill. The benches should be constructed to a minimum width and depth of 2 feet. Benching should begin at the toe of the slope. Compaction equipment should provide kneading effort (e.g. with sheeps foot rollers) to enhance uniformity and minimize stratification.

4.4.9 Compaction Criteria

Soils used for engineered fill should be uniformly moisture conditioned to at, or above the optimum moisture content, placed in horizontal lifts less than 8 inches in loose thickness, and compacted to at least 92 percent relative compaction. Disking and/or blending may be required to uniformly moisture-condition soils used for engineered fill. It is recommended that fill be compacted using kneading compactors (e.g. with sheeps foot rollers) to promote blending within and between individual construction lifts. Track rolling, pneumatic wheel rolling, and smooth drum compactors should not be used.

Compaction effort on slopes shall be made perpendicular to the face of the slope to achieve the required compaction, or the sloped embankments shall be over built and cut back to the compacted core.

4.5 TEMPORARY EXCAVATIONS

4.5.1 General

All excavations must comply with applicable local, State, and Federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. The information provided is a service to the client. Under no circumstances should the information provided be interpreted to mean that **TECHNICON** is assuming responsibility for construction site safety or the Contractor's activities; such responsibility is not being implied and should not be inferred.

4.5.2 Excavations and Slopes

The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, State, and/or Federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations). Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties.

All excavations should be constructed and maintained in conformance with current OSHA requirements (29 CFR Part 1926) for a Type C soil (Silty Sand).

4.5.3 Construction Considerations

Heavy construction equipment, building materials, excavated soil, and vehicular traffic should be kept sufficiently away from the top of any excavation to prevent any unanticipated surcharging. If it is necessary to encroach upon the top of an excavation, **TECHNICON** can provide comments on slope gradients or loads on shoring to address surcharging, if provided with the geometry. Shoring, bracing, or underpinning required for the project (if any), should be designed by a professional engineer registered in the State of California.

During wet weather, earthen berms or other methods should be used to prevent runoff water from entering all excavations. All runoff should be collected and disposed of outside the construction limits.

4.6 CONSTRUCTION CONSIDERATIONS

Should site grading be performed during or subsequent to wet weather, near-surface site soils may be significantly above optimum moisture content. These conditions could hamper equipment maneuverability and efforts to compact site soils to the recommended compaction criteria. Discing to aerate, chemical treatment, replacement with drier material, stabilization with a geotextile fabric or grid, or other methods may be required to mitigate the effects of excessive soil moisture and facilitate earthwork operations. Any consideration of chemical treatment (e.g. lime) to facilitate construction would require additional soil chemistry evaluation and could affect some construction materials (e.g. aluminum).

4.7 SITE DRAINAGE

4.7.1 Recharge Basins

All site drainage is planned to be directed to the recharge basins. This includes runoff from the adjacent roadways. This is a Low Impact Development approach and bio-swales will be utilized to achieve water quality standards before flowing into the recharge basins. Any drainage directed off-site will be approved by the City of Visalia.

Providing and maintaining adequate site drainage to prevent entrapment and ponding of surface water and excessive moisture migration into subgrade soil around pavements and park related structures is very important. Poor perimeter or surface drainage could cause reduced subgrade support. The improvements should incorporate the basis for good drainage with positive gradients away to direct runoff to proper channels or drainage collection systems and flowing into the recharge basins.

4.7.2 Roadways and Park Structures

Providing and maintaining adequate site drainage to prevent entrapment and ponding of surface water and excessive moisture migration into subgrade soil is very important. Poor perimeter or surface drainage could cause reduced subgrade support. The site development should incorporate the basis for good drainage. This includes:

- Sufficient pad height to allow for proper drainage.
- Defined drainage gradients away from the roadways and structures to points of conveyance, such as drainage swales and/or area drains and discharge pipe.
- Roof downspouts connected to proper areas of discharge.

The maintenance personnel must maintain the established drainage by not blocking or obstructing gradients away from roadways and structures without providing some alternative drainage means (e.g. area drains and subsurface pipes). If planter areas are established near roadways and structures, it is important to prevent surface run-off from entering the planter. Where planted areas are adjacent to the roadways and structures, care must be taken not to over irrigate and to maintain a leak-free sprinkler piping system. Consideration should be given to use of low volume emitter irrigation systems for planters. Well-maintained low-volume emitter irrigation (drip system) is best suited for planters adjacent to roadways and structures. Watering practices must strive to use only sufficient water to sustain and promote plant growth.

5 ADDITIONAL SERVICES

5.1 ADDITIONAL GEOTECHNICAL ENGINEERING INVESTIGATIONS

The final design of the East Side Regional Park and Groundwater Recharge Project should be addressed in a comprehensive Geotechnical Investigation Report addressing the park design concept, arrangement of recharge basins, pavements, and infrastructure. It is recommended that **TECHNICON** be retained to provide these services as a continuation of this preliminary report.

5.2 DESIGN REVIEW AND CONSULTATION

It is recommended that **TECHNICON** be retained to review those portions of the contract drawings and specifications that pertain to earthwork, foundations, and pavements prior to finalization to determine whether they are consistent with our recommendations.

5.3 CONSTRUCTION OBSERVATION AND TESTING

It is recommended that a representative of **TECHNICON** observe the excavation, earthwork, and pavement phases of work to determine that the subsurface conditions are compatible with those used in the analysis and design. **TECHNICON** can conduct the necessary field testing and provide results on a timely basis so that action necessary to remedy indicated deficiencies can be taken in accordance with the plans and specifications. Upon completion of the work, a written summary of our observations, field testing, and conclusions regarding the conformance of the completed work to the intent of the plans and specifications will be provided. This additional service is not part of this current contractual agreement. **TECHNICON** firm will not be responsible for establishing or confirming building or foundations depths or locations unless retained to do so.

6 LIMITATIONS

The conclusions and recommendations presented in this report are based on the information provided regarding the proposed construction, and the results of our field and laboratory investigation, combined with interpolation of the subsurface conditions between boring locations. The nature and extent of the variations between borings may not become evident until construction. If variations or undesirable conditions are encountered during construction, our firm should be notified promptly so that these conditions can be reviewed and our recommendations reconsidered where necessary. The unexpected conditions frequently require additional expenditures for proper construction of the project. **TECHNICON** Engineering Services, Inc. will not assume any responsibility for errors or omissions if the final extent and depth of earthwork is not determined by our firm at the time of construction due to said variations or undesirable conditions encountered.

If the proposed construction is relocated or redesigned, or if there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes, or construction operations at or adjacent to the site, the conclusions and recommendations contained in this report should be considered invalid unless the changes are reviewed and our conclusions and recommendations modified or approved in writing. Such conditions may require additional field and laboratory investigations to determine if our conclusions and recommendations are applicable considering the changed conditions or time lapse.

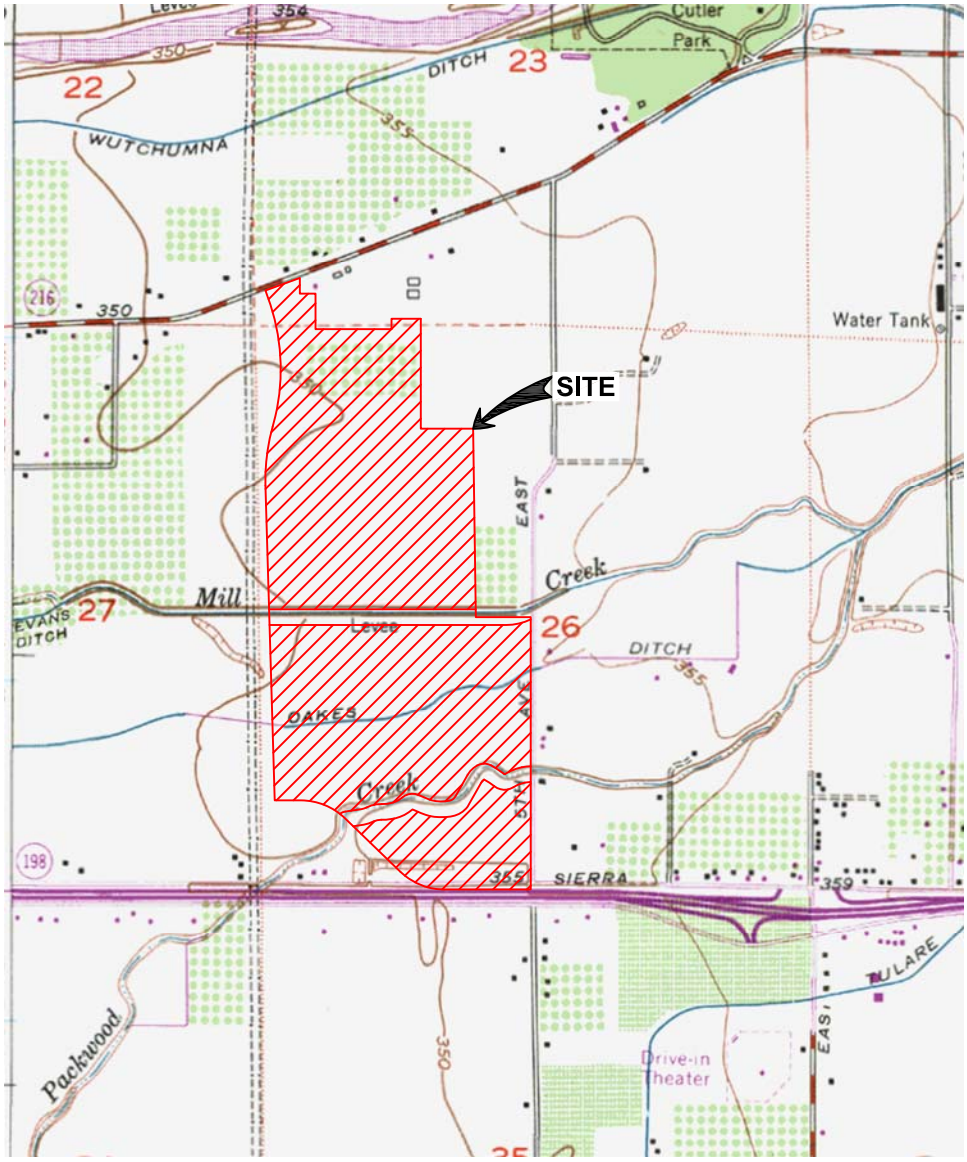
It is the responsibility of the contractor to provide safe working conditions with respect to excavation slope stability. This report does not relieve the contractors of responsibility for temporary excavation construction, bracing and shoring in accordance with CAL OSHA requirements.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied. This report should not be construed as an environmental audit or study.

This report has been prepared for the sole use by Provost and Pritchard Engineering Group, Inc. and their designated consultants for the proposed East Side Regional Park and Groundwater Recharge project to be located in Visalia, California. Recommendations presented in this report should not be extrapolated to other areas or used for other projects without prior review. This report has been prepared with the intent that the firm of **TECHNICON** will be performing the construction testing and observation for the complete project. If, however, another firm or individual(s) should be retained or employed to use this geotechnical investigation report for the purpose of construction testing and observation, notice is hereby given that **TECHNICON** will not assume any responsibility for errors or omissions, if any, which may occur and which could have been avoided, corrected, or mitigated if **TECHNICON**, had performed the work. This notice also applies to the misuse or misinterpretation of the conclusions and recommendations outlined in this report. Furthermore, the other firm or individual(s) performing construction testing and observation should accept transfer of responsibility of the work, as required by the California Building Code, in writing to the project owner and **TECHNICON**. The firm accepting transfer of responsibility should perform additional investigation(s) as may be necessary to develop their own conclusions, evaluations, and recommendations for design and construction.

FIGURES

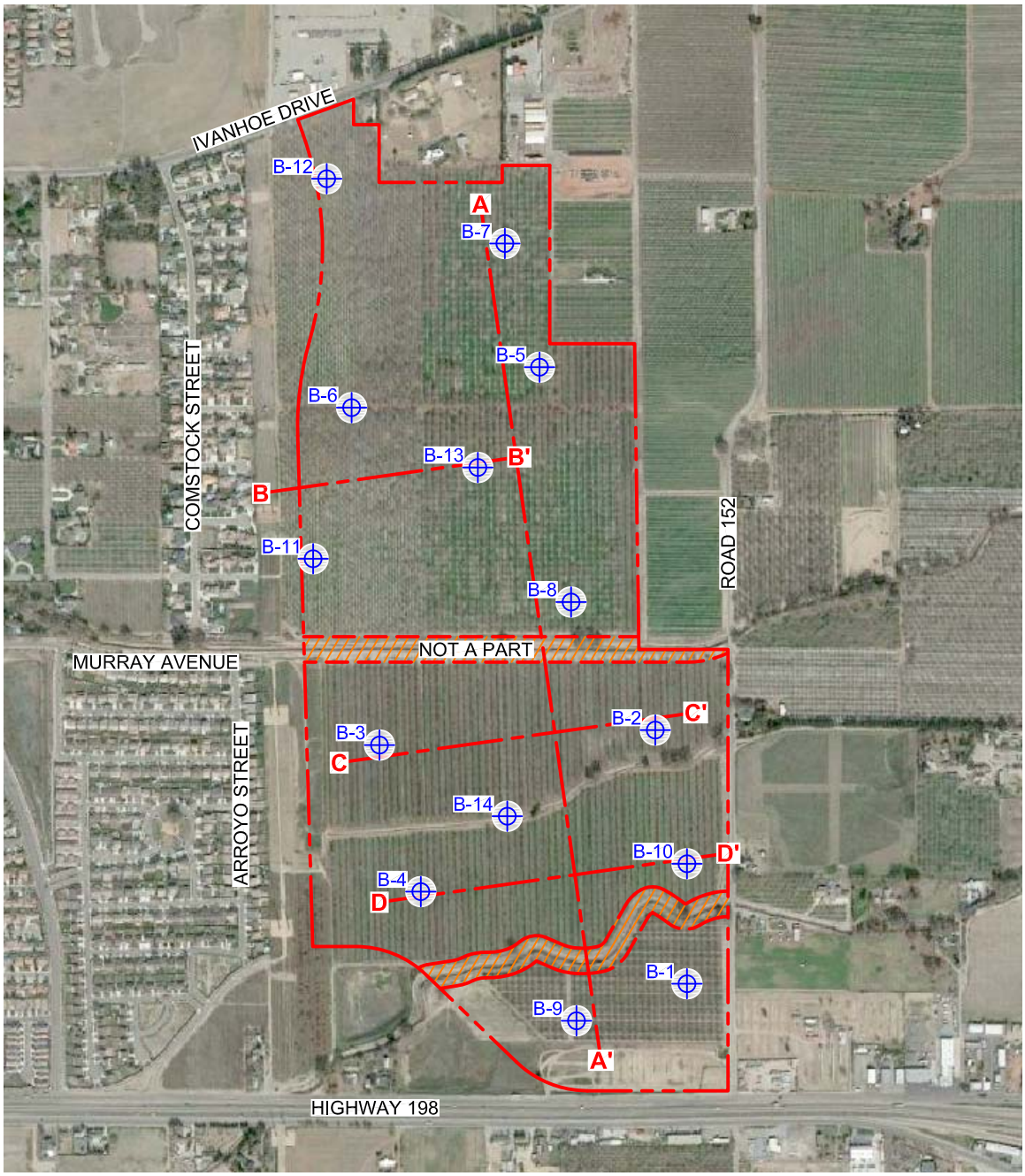
1, 2, 3, 4, 5, 6, 7, & 8



N

LAT.: 36.3348°N, LONG.: 119.2393°W, 26-T18S-R25E, MDB&M, USGS MAP: EXETER, DATE: 1950, PHOTO REV.: 1969

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034 SOURCE: USGS TOPOGRAPHIC MAPS	VICINITY MAP PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 1 NTS



N

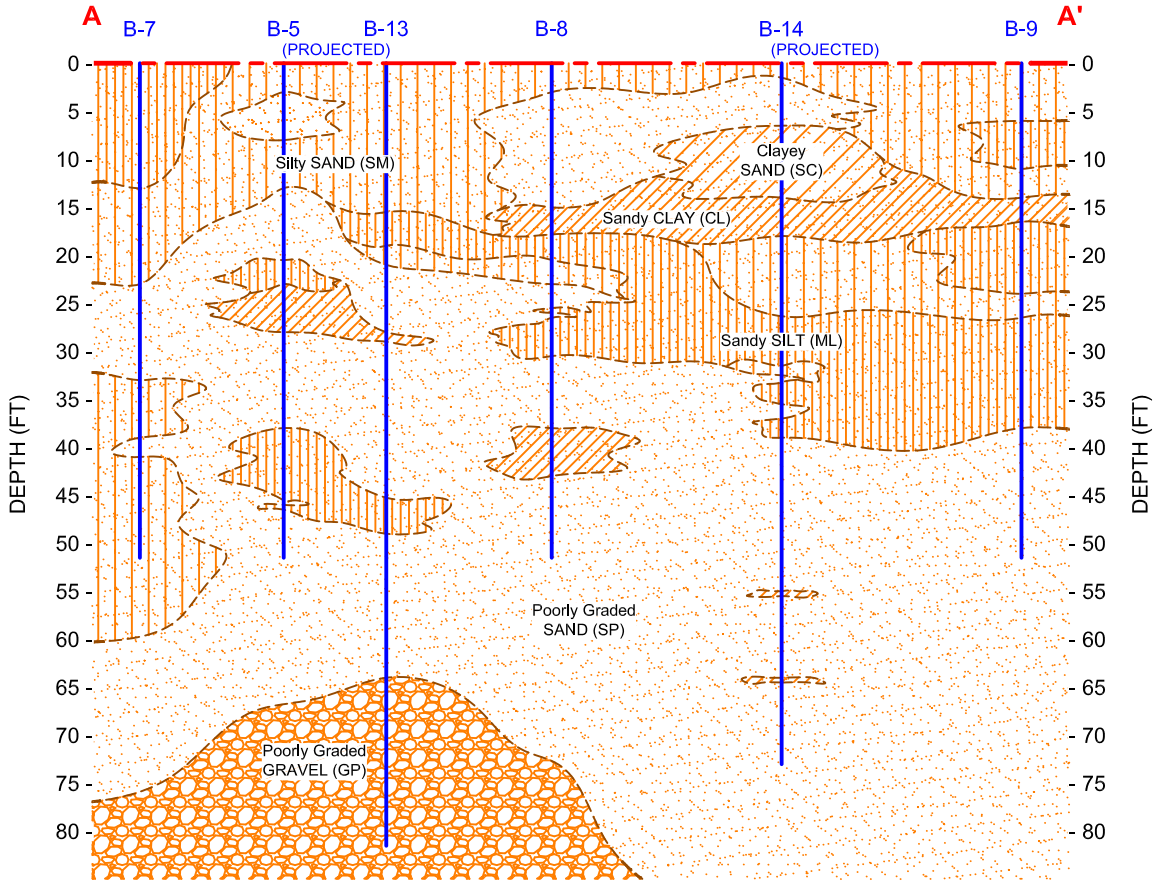
SCALE: 1"=1000'

0' 500' 1000'

B-14 =SOIL BORING LOCATIONS

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	SITE MAP PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 2
	CAD BY: MH		

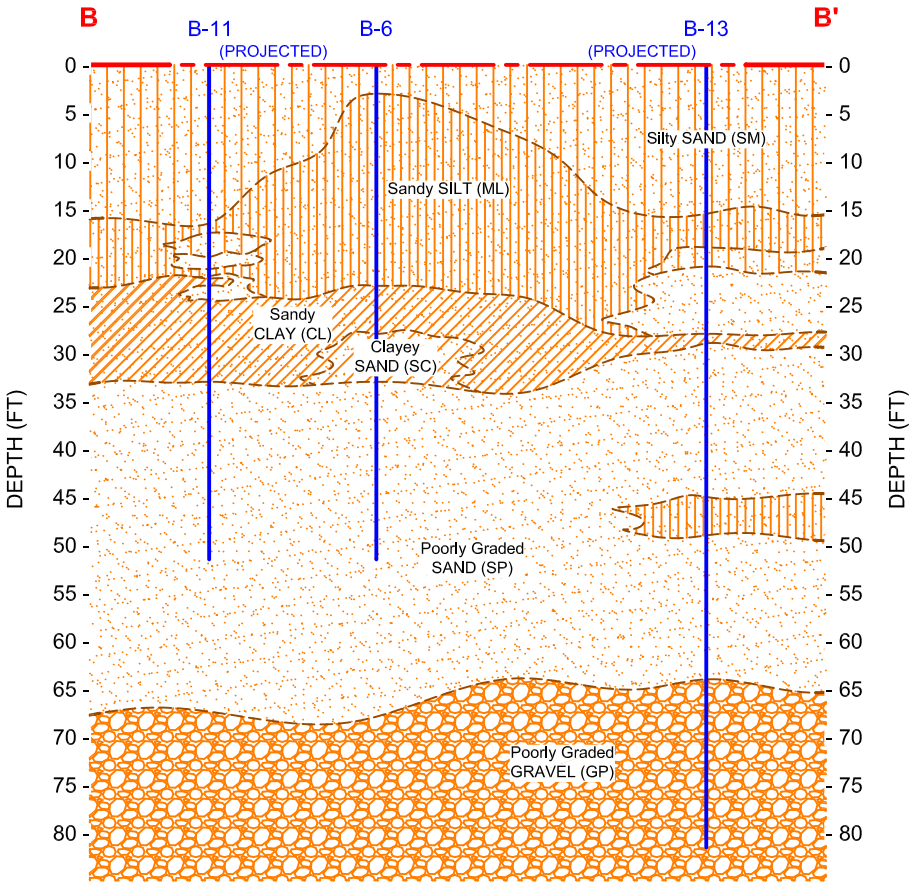
SCALE: 1"=1000'



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	CROSS SECTION A-A' DETAIL PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 3
	CAD BY: MH		

N

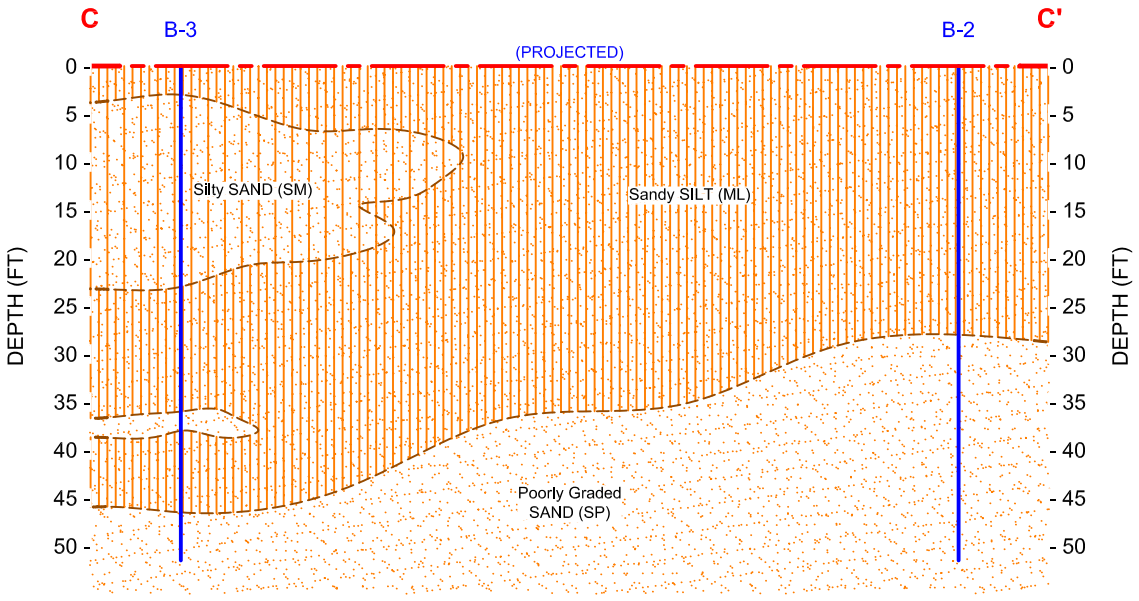
SCALE: 1"=400'



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	CROSS SECTION B-B' DETAIL PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 4
	CAD BY: MH		

N

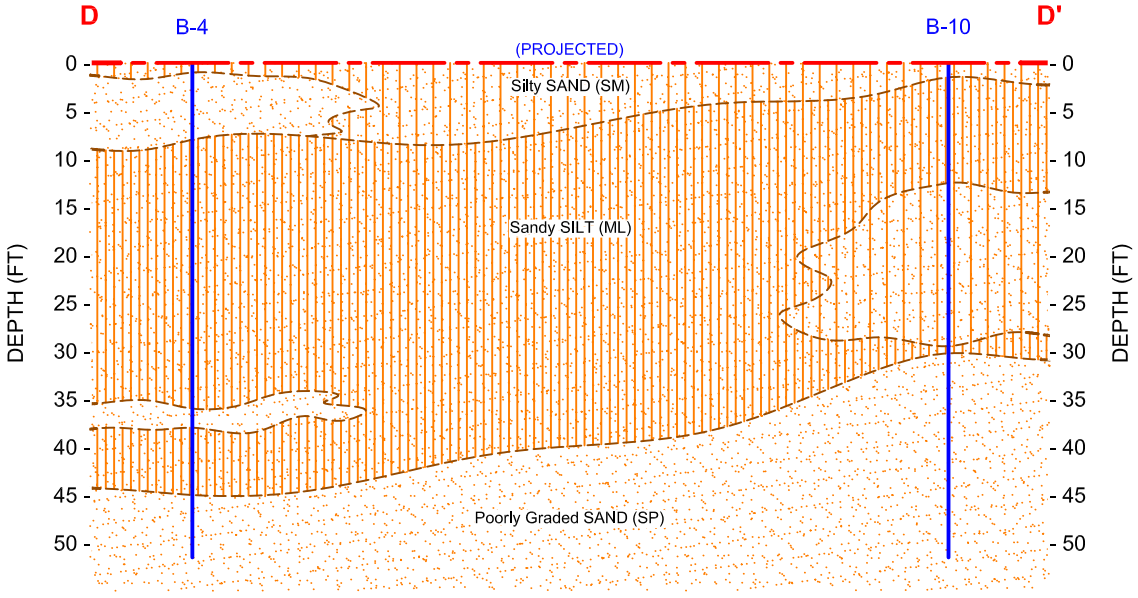
SCALE: 1"=400'



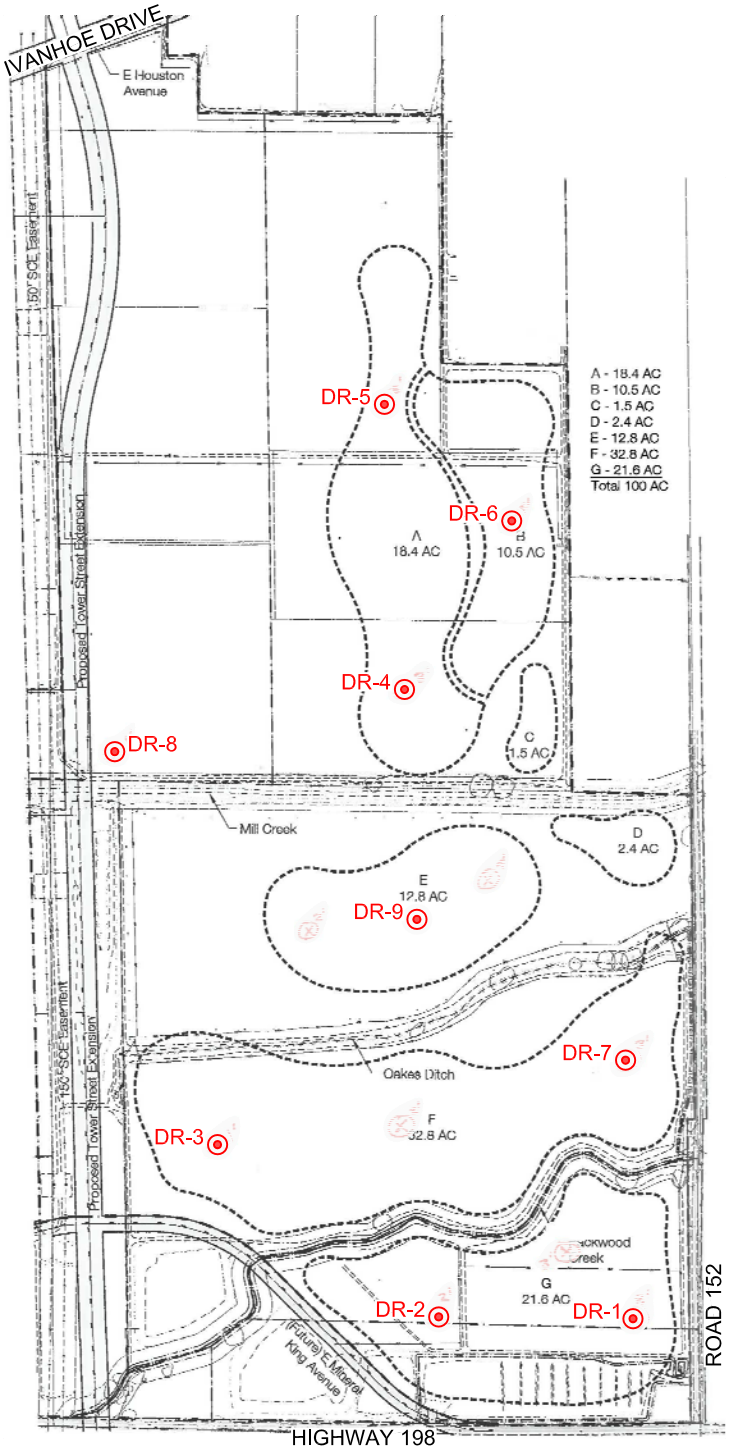
TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	CROSS SECTION C-C' DETAIL PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 5
	CAD BY: MH		

N

SCALE: 1"=400'



TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	CROSS SECTION D-D' DETAIL PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 6
	CAD BY: MH		



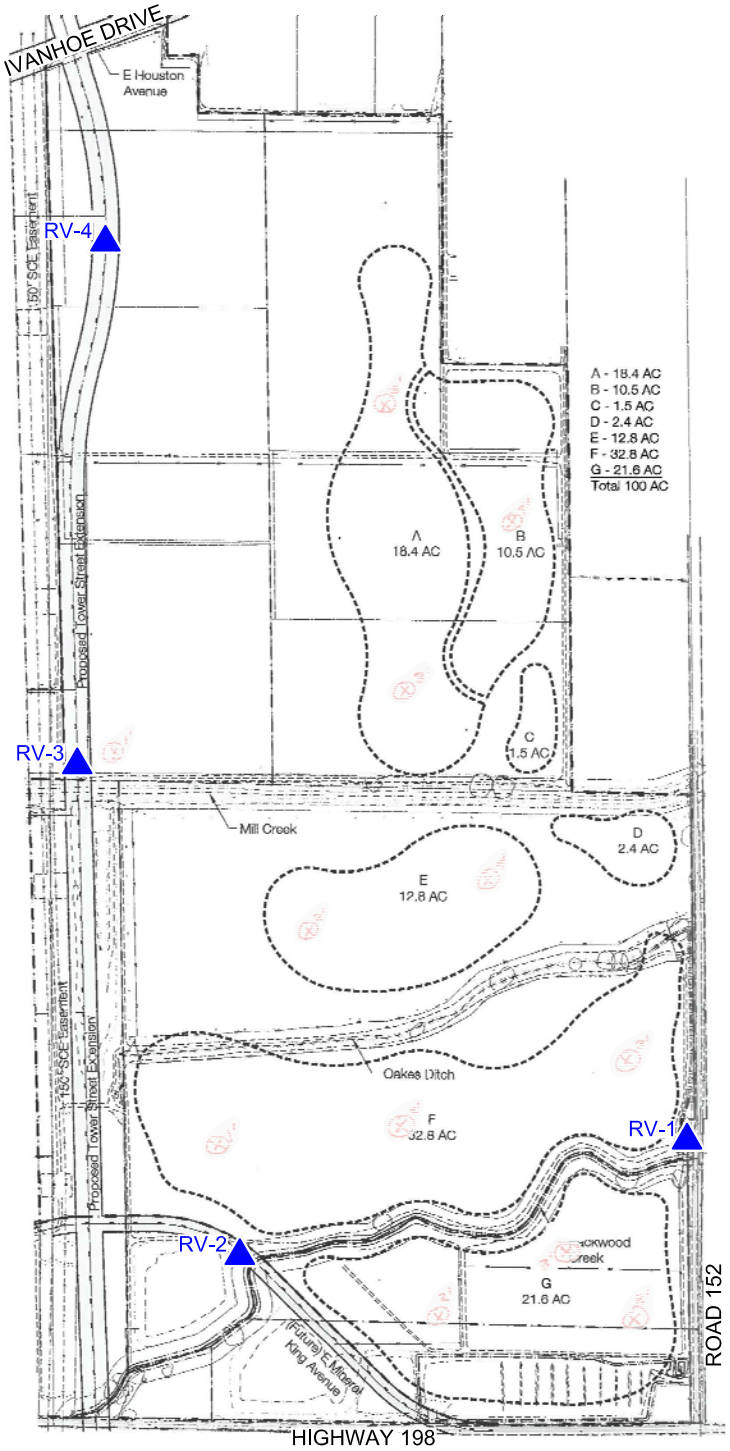
N

SCALE: 1"=800'

0' 400' 800'

⊙ =DOUBLE RING TEST

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	INFILTRATION TEST MAP PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 7
	SOURCE; THE HLA GROUP		



N

SCALE: 1"=800'

0' 400' 800'

RV-4 =R-VALUE LOCATIONS

TECHNICON ENGINEERING SERVICES, INC.	PROJECT: 141034	R-VALUE MAP PROPOSED EAST SIDE REGIONAL PARK AND RECHARGE BASIN VISALIA, CALIFORNIA	FIGURE 8
	SOURCE; THE HLA GROUP		

BORING LOGS AND LOG KEY

APPENDIX A

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

KEY TO SYMBOLS

PROJECT NAME East Side Regional Park **DATE OF EXPLORATION** 12/20/2014

PROJECT LOCATION Visalia, California **PROJECT NUMBER** TES # 141034

LITHOLOGIC SYMBOLS (Unified Soil Classification System)

FILL

SW WELL GRADED SAND

SP POORLY GRADED SAND

SM SILTY SAND

SC CLAYEY SAND

PT PEAT

OL LOW PLASTICITY ORGANIC SILT

OH HIGH PLASTICITY ORGANIC SILT

ML LOW PLASTICITY SILT

MH HIGH PLASTICITY SILT

GW WELL GRADED GRAVEL

GP POORLY GRADED GRAVEL

GM SILTY GRAVEL

GC CLAYEY GRAVEL

CL LOW PLASTICITY CLAY

CH HIGH PLASTICITY CLAY

SAMPLER SYMBOLS

STANDARD PENETRATION TEST

CALIFORNIA SAMPLER

MODIFIED CALIFORNIA SAMPLER

SHELBY TUBE SAMPLER

ROCK CORE BARREL

BULK SAMPLE

Water Level at Time of Drilling

Water Level at End of Drilling

Water Level After 24 Hours

Assumed stratum line

Observed stratum line

Note 1: The degree of saturation shown on the boring logs is based on an assumed specific gravity of 2.65. The actual degree of saturation may vary.

Note 2: The stratum lines shown on the logs represent the approximate boundary between soil types; the actual in-situ transition may be gradual.

ABBREVIATIONS

LL - LIQUID LIMIT (%)
PI - PLASTIC INDEX (%)
W - MOISTURE CONTENT (%)
DD - DRY DENSITY (PCF)
S - DEGREE OF SATURATION (%)
NP - NON PLASTIC
-200 PERCENT PASSING NO. 200 SIEVE
PP - POCKET PENETROMETER (TSF)
TV - TORVANE
PID - PHOTOIONIZATION DETECTOR
UC - UNCONFINED COMPRESSION
ppm - PARTS PER MILLION

KEY TO SYMBOLS 2 - TECHNICON.GDT - 1/9/15 07:24 - \\TECH1\USERSHARES\TESDATA\PROJECTS\2014 PROJECTS\141000-141099\141034 EAST SIDE REGIONAL PARK\141034.GPJ

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 1

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL GB	4-10-9 (19)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained	114.5	2.5	S = 15 %	
5	SPT	4-5-5 (10)		Fine grained				
10	CAL	9-29-30 (59)		Dense, light brown, fine to coarse grained, weak cementation				
15	SPT	10-8-7 (15)		**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to coarse grained, trace fine gravel				
20	CAL	8-20-32 (52)		**Sandy SILT (ML)** - hard, light grayish brown, moist, with fine sand, iron oxide staining				
25	SPT	5-9-12 (21)		Trace clay				
30	CAL	4-11-13 (24)		**Poorly Graded SAND (SP)** - medium dense, light whiteish gray, moist, fine to medium grained				
35								

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 1

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	7-8-6 (14)		**Poorly Graded SAND (SP)** - medium dense, light whiteish gray, moist, fine to medium grained *(continued)* Fine to coarse grained, trace fine gravel				
40	CAL	6-11-13 (24)		Fine to medium grained, no gravel				
45	SPT	7-9-10 (19)		Fine to coarse grained, iron oxide staining				
50	CAL	8-17-26 (43)		**Silty SAND (SM)** - dense, brown, moist, fine grained				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/20/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 2

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	4-8-11 (19)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand, trace roots	115.6	2.2	S = 14 %	
5	SPT	5-5-6 (11)		Light brown				
10	CAL	4-15-16 (31)		Very stiff, brown, with clay	123.2	3.3	S = 25 %	
15	SPT	12-16-26 (42)		Hard, moderate cementation				
20	CAL	20-46-50 (96)		Hard, none cementation				
25	SPT	7-11-15 (26)		Very stiff, decreased clay				
30	CAL	8-15-18 (33)		**Poorly Graded SAND (SP)** - medium dense, light grayish brown, moist, fine to medium grained				
35								

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 2

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	4-6-8 (14)		**Poorly Graded SAND (SP)** - medium dense, light grayish brown, moist, fine to medium grained *(continued)* Loose, light brown, fine grained, trace medium sand				
40	CAL	9-18-20 (38)		Medium dense, fine to coarse grained				
45	SPT	11-8-10 (18)		Fine grained, trace fine gravel				
50	CAL	7-18-31 (49)		Fine to coarse grained, with fine gravel				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/20/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 3

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL GB	10-12-16 (28)		**Sandy SILT (ML)** - very stiff, brown, moist, with fine sand, with roots	115.4	3.9	S = 24 %	
5	GB SPT	5-4-6 (10)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
10	CAL	9-15-18 (33)		Trace clay				
15	SPT	8-8-12 (20)		Trace coarse sand, weak cementation				
20	CAL	8-10-15 (25)		Fine to coarse grained, decreased silt				
25	SPT	5-5-5 (10)		**Sandy SILT (ML)** - stiff, light grayish brown, moist, with fine sand				
30	CAL	14-21-20 (41)		Hard, iron oxide staining				
35								

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 3

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/20/14 **COMPLETED** 12/20/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	10-10-12 (22)		**Poorly Graded SAND (SP)** - medium dense, whiteish gray, moist, fine grained				
				Sandy SILT (ML) - hard, brown, moist, with fine sand, with clay				
40	CAL	11-22-20 (42)						
45	SPT	4-8-9 (17)		Very stiff				
				Poorly Graded SAND (SP) - dense, light grayish brown, moist, fine to coarse grained				
50	CAL	7-16-21 (37)						

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/20/14.

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4539 N Brawley Ste 108
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Fax: 559-276-9344

BORING B- 4

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/21/14 **COMPLETED** 12/21/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	4-4-5 (9)		**Silty SAND (SM)** - dense, brown, moist, with fine sand, with roots				
				Poorly Graded SAND (SP) - loose, light brown, moist, fine to medium grained	103.2	3.3	S = 14 %	
5	GB							
	SPT	3-2-4 (6)						
				Sandy SILT (ML) - medium stiff, light reddish brown, moist, with fine sand, with clay				
10	CAL	3-4-6 (10)			119.6	6.6	S = 45 %	
15	SPT	4-3-5 (8)		Stiff, brown				
20	CAL	12-13-24 (37)		Hard, iron oxide staining				
25	SPT	7-7-6 (13)		Stiff, light brown, with fine to medium sand, decreased clay				
30	CAL	4-13-25 (38)						
35								

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BOREHOLE - TECHNICON.GDT - 2/18/15 06:46 - \\TECH1\USERSHARES\TESDATA\PROJECTS\PROJECTS\141000-141099\141034 EAST SIDE REGIONAL PARK\141034.GPJ

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 4

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/21/14 **COMPLETED** 12/21/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	7-9-11 (20)						
				Poorly Graded SAND (SP) - medium dense, whiteish gray, moist, fine grained				
				Sandy SILT (ML) - hard, light grayish brown, moist, with fine sand, with clay				
40	CAL	10-23-27 (50)						
45	SPT	8-9-13 (22)		**Poorly Graded SAND (SP)** - medium dense, whiteish gray, moist, fine to medium grained, trace coarse sand				
50	CAL	6-8-12 (20)		Fine to coarse grained, trace fine gravel				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/21/14.

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Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 5

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/21/14 **COMPLETED** 12/21/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL GB	2-3-4 (7)		**Silty SAND (SM)** - loose, dark brown, moist, fine to medium grained	118.3	5.6	S = 37 %	
5	SPT	2-2-1 (3)		**Poorly Graded SAND (SP)** - very loose, light grayish brown, moist, fine to medium grained				
10	CAL	3-5-12 (17)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
15	SPT	3-3-4 (7)		**Poorly Graded SAND (SP)** - loose, light grayish brown, moist, fine to medium grained, trace coarse sand				
20	CAL	4-14-24 (38)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand, with clay, iron oxide staining				
25	SPT	8-7-15 (22)		**Sandy CLAY (CL)** - very stiff, brown, moist, low plasticity, with fine to medium sand				
30	CAL	7-17-26 (43)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to coarse grained, some fine gravel				
35								

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 5

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/21/14 **COMPLETED** 12/21/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	6-8-11 (19)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to coarse grained, some fine gravel *(continued)*				
				Sandy SILT (ML) - very stiff, brown, moist, with fine sand, with clay				
40	CAL	6-13-17 (30)						
45	SPT	5-9-12 (21)		Decreased clay **Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine grained **Sandy SILT (ML)** - very stiff, brown, moist, with fine sand				
50	CAL	10-14-16 (30)		**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to coarse grained, with fine gravel				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/21/14.

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Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 6

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat road, bare soil
DATE STARTED 12/21/14 **COMPLETED** 12/29/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	9-17-30 (47)		**Silty SAND (SM)** - dense, brown, moist, fine to medium grained	114.6	2.4	S = 14 %	
5	SPT	5-5-8 (13)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand				
10	CAL	10-20-30 (50)		Hard	118.2	3.3	S = 22 %	
15	SPT	9-6-6 (12)		Stiff, whiteish gray				
	SPT	7-6-7 (13)						
20	CAL	6-18-30 (48)		Hard				
25	SPT	11-16-24 (40)		**Sandy CLAY (CL)** - hard, brown, moist, low plasticity, with fine sand, moderate cementation				
30	SPT	19-26-26 (52)		**Clayey SAND (SC)** - very dense, brown, moist, fine to coarse grained, strong cementation				
35				**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to coarse grained, with coarse gravel				

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 6

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat road, bare soil
DATE STARTED 12/21/14 **COMPLETED** 12/29/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	10-15-19 (34)		**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to coarse grained, with coarse gravel *(continued)*				
40	SPT	10-12-13 (25)		Fine to medium grained, trace coarse sand, no gravel				
45	CAL	9-15-19 (34)		Increased silt				
50	SPT	5-7-7 (14)		Light brown, fine to coarse grained, decreased silt				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/29/14.

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 7

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/22/14 **COMPLETED** 12/22/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Air Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	4-5-6 (11)		**Sandy SILT (ML)** - medium stiff, dark brown, moist, with fine sand, with roots	109.3	10.8	S = 56 %	
5	SPT	3-3-4 (7)		Brown				
10	CAL	5-9-12 (21)						
15	SPT	8-9-24 (33)		**Silty SAND (SM)** - dense, brown, moist, fine to medium grained				
20	CAL	5-9-13 (22)		Medium dense, fine to coarse grained, trace fine gravel				
25	SPT	6-6-8 (14)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to coarse grained				
30	CAL	9-11-15 (26)		Trace fine gravel				
35				**Silty SAND (SM)** - medium dense, brown, moist, fine grained				

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Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 7

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/22/14 **COMPLETED** 12/22/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Air Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	4-8-12 (20)		**Silty SAND (SM)** - medium dense, brown, moist, fine grained *(continued)*				
40	CAL	12-29-50 (79)		**Poorly Graded SAND (SP)** - very dense, brown, moist, fine to coarse grained **Silty SAND (SM)** - very dense, brown, moist, fine to coarse grained				
45	SPT	14-16-17 (33)		Decreased silt				
50	CAL	14-26-41 (67)		Fine to medium grained				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/22/14.

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Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 8

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/22/14 **COMPLETED** 12/22/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	3-4-5 (9)		**Silty SAND (SM)** - loose, dark brown, moist, fine to medium grained				
	SS	2-2-3 (5)						
5	SPT	3-2-3-4 (5)		**Poorly Graded SAND (SP)** - loose, light brown, moist, fine to medium grained				
	CAL	3-5-6 (11)			104.8	2.7	S = 12 %	
	SS	3-4-5 (9)						
10	SPT	3-2-3-5 (5)		Fine to coarse grained				
	CAL	6-7-9 (16)						
	SS	4-6-7 (13)						
15	SPT	3-4-6-7 (10)						
	CAL	6-11-22 (33)		**Sandy CLAY (CL)** - stiff, reddish brown, moist, low plasticity, with fine sand	126.3	6.5	S = 56 %	
	SS	11-11-14 (25)						
20	SPT	8-8-8-10 (16)		**Sandy SILT (ML)** - very stiff, brown, moist, with fine sand				
	CAL	7-9-12 (21)		**Silty SAND (SM)** - medium dense, brown, moist, fine to coarse grained				
	SS	6-7-7 (14)						
25	SPT	6-6-7-7 (13)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to medium grained				
	CAL	8-9-12 (21)		**Sandy SILT (ML)** - very stiff, brown, moist, with fine sand				
	SS	5-7-9 (16)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to medium grained				
30	SPT	6-7-8-12 (15)		**Sandy SILT (ML)** - very stiff, brown, moist, with fine sand				
	CAL	8-16-18 (34)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to medium grained				
35				Trace coarse sand				

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 8

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/22/14 **COMPLETED** 12/22/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	9-12-16 (28)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to medium grained *(continued)*				
				Sandy CLAY (CL) - very stiff, light grayish brown, moist, with silt, iron oxide staining				
40	SPT	4-9-14 (23)						
				Poorly Graded SAND (SP) - dense, light brown, moist, fine to medium grained				
45	CAL	11-18-24 (42)						
50	SPT	9-11-11 (22)						

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/22/14.

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Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 9

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	5-9-13 (22)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
	SS	5-5-5 (10)						
	SPT	3-4-4-5 (8)						
5	CAL	5-12-12 (24)		Fine grained				
	SS	6-6-8 (14)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand, with roots				
	SPT	4-5-5-7 (10)		Trace roots				
10	CAL	6-8-13 (21)						
	SS	6-5-6 (11)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
	SPT	3-5-13-24 (18)		Weak cementation	105.5	3.5	S = 16 %	
15	CAL	16-25-23 (48)		**Sandy CLAY (CL)** - very stiff, brown, moist, low plasticity, with fine sand				
	SS	9-11-17 (28)		**Sandy SILT (ML)** - stiff, brown, moist, with fine to medium sand, with clay				
	SPT	11-11-16-22 (27)						
20	CAL	13-21-33 (54)						
	SS	7-10-10 (20)		No clay				
	SPT	7-10-13-17 (23)		With clay				
25	CAL	7-15-22 (37)		**Silty SAND (SM)** - medium dense, light brown, moist, fine grained				
	SS	10-12-18 (30)		**Sandy SILT (ML)** - stiff, light brown, moist, with fine sand Light grayish brown, iron oxide staining				
	SPT	9-11-14-19 (25)		Increased fine sand				
30	CAL	9-22-24 (46)		Trace roots				
35								

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B- 9

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	SPT	8-9-10 (19)		**Sandy SILT (ML)** - stiff, light brown, moist, with fine sand *(continued)*				
40	CAL	8-16-23 (39)		**Poorly Graded SAND (SP)** - dense, grayish white, moist, fine to medium grained				
45	SPT	5-6-10 (16)		Medium dense, fine to coarse grained, with fine gravel				
50	CAL	8-19-33 (52)		Dense, fine to medium grained, trace coarse sand, no gravel				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/23/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-10

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	5-10-11 (21)		**Silty SAND (SM)** - medium dense, dark brown, moist, fine to medium grained, trace roots				
	SS	4-5-5 (10)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand				
	SPT	4-4-4-8 (8)		Increased sand				
5	CAL	6-9-11 (20)		Fine grained, decreased sand				
	SS	3-6-9 (15)		Light grayish brown, with clay	125.2	5.0	S = 42 %	
	SPT	3-4-5-7 (9)		Brown, iron oxide staining				
10	CAL	7-10-19 (29)						
	SS	9-9-18 (27)		With fine to medium sand, increased sand				
	SPT	1-9-12-18 (21)		**Silty SAND (SM)** - very dense, brown, moist, fine to medium grained, trace coarse sand, weak cementation	105.8	2.6	S = 12 %	
15	CAL	18-50-50 (100)						
	SS	29-31-35 (66)		Fine to coarse grained, trace fine gravel, none cementation				
	SPT	4-8-8-14 (16)		With fine gravel				
20	CAL	12-17-21 (38)		Decreased silt				
	SS	10-13-15 (28)						
	SPT	7-9-12-14 (21)		Trace fine gravel				
25	CAL	14-24-36 (60)		Fine to medium grained, trace coarse sand, increased silt, no gravel				
	SS	13-14-15 (29)		Decreased silt				
	SPT	8-11-13-18 (24)						
30	SPT	9-10-11 (21)		**Sandy SILT (ML)** - hard, light grayish brown, moist, with fine sand				
				Poorly Graded SAND (SP) - medium dense, brown, moist, fine grained				
35								

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-10

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	9-22-24 (46)		**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine grained *(continued)* Dense				
40	SPT	9-9-11 (20)		Medium dense, trace medium sand				
45	CAL	12-21-27 (48)		Dense, fine to medium grained, trace fine gravel				
50	SPT	11-10-10 (20)		Fine to coarse grained, with fine gravel				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/23/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-11

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	3-4-6 (10)		**Silty SAND (SM)** - loose, dark brown, moist, fine to medium grained, with roots				
	SS	3-3-3 (6)						
	SPT	3-3-4-6 (7)		Medium dense, brown, fine grained, no roots				
5	CAL	4-9-10 (19)						
	SS	4-4-5 (9)		With pinhole voids, with roots				
	SPT	3-4-4-5 (8)		No roots				
10	CAL	8-11-17 (28)						
	SS	7-7-9 (16)		Fine to medium grained				
	SPT	5-5-7-14 (12)						
15	CAL	8-12-21 (33)		Light grayish brown, fine grained				
	SS	8-10-14 (24)		**Sandy SILT (ML)** - light brown, moist, with fine sand	114.8	3.9	S = 23 %	
	SPT	5-5-6-10 (11)		**Silty SAND (SM)** - medium dense, light brown, moist, fine grained				
20	CAL	6-14-23 (37)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine grained				
	SS	8-20-15 (35)		**Sandy SILT (ML)** - light grayish brown, moist, with fine sand				
	SPT	5-9-12-20 (21)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine grained				
25	CAL	17-39-50 (89)		**Sandy CLAY (CL)** - hard, brown, moist, low plasticity, with fine sand				
	SS	21-21-32 (53)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to medium grained, trace fine gravel				
	SPT	16-23-30-45 (53)		**Sandy CLAY (CL)** - hard, brown, moist, low plasticity, with fine sand With fine to coarse sand, with fine gravel, moderate cementation				
30	SPT	16-19-19 (38)		Strong cementation				
35				**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to coarse grained				

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BOREHOLE - TECHNICON.GDT - 2/18/15 06:47 - \\TECH1\USERSHARES\TESDATA\PROJECTS\PROJECTS\141000-141099\141034 EAST SIDE REGIONAL PARK\141034.GPJ

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-11

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/23/14 **COMPLETED** 12/23/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	10-16-21 (37)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to coarse grained *(continued)*				
40	SPT	7-9-12 (21)		Medium dense, fine grained				
45	CAL	13-21-30 (51)		Dense				
50	SPT	5-8-7 (15)		Medium dense, fine to medium grained				

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/23/14.

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-12

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/29/14 **COMPLETED** 12/29/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	5-8-10 (18)		**Silty SAND (SM)** - medium dense, dark brown, moist, fine to medium grained				
	SS	8-8-10 (18)		Brown, with pinhole voids				
5	SPT	8-8-12-14 (20)						
	CAL	7-12-21 (33)						
	SS	10-8-7 (15)		Fine grained				
10	SPT	9-9-10-12 (19)						
	CAL	8-14-20 (34)						
	SS	8-9-10 (19)		Light brown, fine to medium grained				
15	SPT	5-8-12-18 (20)		**Sandy SILT (ML)** - hard, light brown, moist, with fine sand	101.1	8.0	S = 33 %	
	CAL	9-12-17 (29)		**Sandy CLAY (CL)** - very stiff, brown, moist, low plasticity, with fine sand				
	SS	8-10-13 (23)		**Sandy SILT (ML)** - hard, light brown, moist, with fine sand				
20	SPT	6-13-22-22 (35)						
	CAL	11-15-20 (35)		**Poorly Graded SAND (SP)** - dense, light brown, moist, fine to medium grained				
	SS	9-10-10 (20)						
25	SPT	5-6-8-14 (14)		Fine to coarse grained				
	CAL	15-26-42 (68)						
	SS	11-16-19 (35)		**Sandy SILT (ML)** - very stiff, light brown, moist, with fine sand				
30	SPT	10-20-20-23 (40)						
	SPT	10-10-10 (20)						
				Poorly Graded SAND (SP) - medium dense, light brown, moist, fine to medium grained				
35				**Sandy CLAY (CL)** - very stiff, brown, moist, low plasticity, with fine sand				

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-12

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/29/14 **COMPLETED** 12/29/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL No groundwater encountered.
DRILL RIG TYPE CME 55
BORING DEPTH 51.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	12-18-20 (38)		**Sandy CLAY (CL)** - very stiff, brown, moist, low plasticity, with fine sand *(continued)*				
40				**Clayey SAND (SC)** - medium dense, brown, moist, fine to medium grained				
	SPT	8-6-8 (14)		**Sandy CLAY (CL)** - stiff, brown, moist, low plasticity, with fine to medium sand				
45				**Clayey SAND (SC)** - dense, brown, moist, fine grained				
	CAL	12-22-33 (55)		Fine to coarse grained				
50				**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to coarse grained, iron oxide staining				
	SPT	9-10-13 (23)						

NOTES:
1. Bottom of boring at 51.5 feet.
2. No groundwater encountered.
3. Boring backfilled with soil cuttings 12/29/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-13

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/30/14 **COMPLETED** 12/31/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 76 ft
DRILL RIG TYPE CME 55
BORING DEPTH 81.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Mud Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	3-5-6 (11)		**Silty SAND (SM)** - loose, dark brown, moist, fine to medium grained				
	SS	1-3-3 (6)						
	SPT	2-2-2-2 (4)		Decreased silt				
5	CAL	3-5-7 (12)						
	SS	3-3-4 (7)		Medium dense	99.3	2.5	S = 10 %	
	SPT	2-3-3-3 (6)		Fine grained				
10	CAL	4-6-8 (14)						
	SS	4-5-7 (12)		Fine to medium grained				
	SPT	3-4-6-6 (10)		Increased silt				
15	CAL	4-5-7 (12)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand				
	SS	4-3-9 (12)						
	SPT	3-3-5-6 (8)						
20	CAL	3-7-11 (18)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
	SS	4-10-12 (22)		**Poorly Graded SAND (SP)** - medium dense, brown, moist, fine to medium grained				
	SPT	4-7-6-9 (13)						
25	CAL	6-10-13 (23)		Fine to medium grained				
	SS	7-9-11 (20)						
	SPT	7-7-13 (20)		**Sandy CLAY (CL)** - very stiff, reddish brown, moist, with fine sand				
30	CAL	11-20-23 (43)		**Poorly Graded SAND (SP)** - dense, brown, moist, fine to medium grained				
	SS	14-17-23 (40)						
	SPT	10-13-14-21 (27)		Fine to coarse grained				
35								

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-13

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/30/14 **COMPLETED** 12/31/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 76 ft
DRILL RIG TYPE CME 55
BORING DEPTH 81.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Mud Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	16-28-37 (65)		**Poorly Graded SAND (SP)** - dense, brown, moist, fine to medium grained *(continued)*				
	SS	16-22-23 (45)		Fine to coarse grained				
	SPT	14-17-18-21 (35)						
40	CAL	15-25-29 (54)		Fine to medium grained				
	SS	15-21-28 (49)						
	SPT	13-12-18-25 (30)		Fine to coarse grained, trace fine gravel				
45	CAL	12-18-29 (47)		**Sandy SILT (ML)** - very stiff, brown, moist, with fine sand				
	SS	12-13-16 (29)						
	SPT	14-21-26-24 (47)		Hard				
50	CAL	25-31-40 (71)		**Poorly Graded SAND (SP)** - very dense, brown, moist, fine to medium grained, trace coarse sand				
	SS	21-24-21 (45)		Fine to coarse grained, trace fine gravel				
	SPT	13-17-18-21 (35)		No gravel				
55	CAL	14-50-50 (100)		With fine gravel				
	SS	37-37-46 (83)		White, fine to medium grained, no gravel				
	SPT	14-14-28-49 (42)						
60	CAL	37-50-50 (100)		Brown, with fine gravel				
	SS	17-17-26 (43)		Fine to coarse grained, no gravel				
	SPT	28-28-25-37 (53)		With fine gravel				
65	CAL	20-30-50 (80)		**Poorly Graded GRAVEL (GP)** - very dense, blackish brown, moist, fine to coarse grained, maximum gravel size 1"				
	SS	33-50-50 (100)						
70								

(Continued Next Page)

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Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-13

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat, short annual grass
DATE STARTED 12/30/14 **COMPLETED** 12/31/14
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 76 ft
DRILL RIG TYPE CME 55
BORING DEPTH 81.5 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Mud Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
70	CAL	19-24-50 (74)		**Poorly Graded GRAVEL (GP)** - very dense, blackish brown, moist, fine to coarse grained, maximum gravel size 1" *(continued)*				
	SS	17-50-50 (100)						
75	CAL	17-50/4"		▽				
80	CAL	12-12-16 (28)		With fine to coarse sand				

NOTES:
1. Bottom of boring at 81.5 feet.
2. Groundwater encountered at 76.0 feet.
3. Boring backfilled with soil cuttings 12/31/14.

Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-14

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat bare soil
DATE STARTED 12/31/14 **COMPLETED** 1/2/15
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 71.5 ft
DRILL RIG TYPE CME 55
BORING DEPTH 73 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Air Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
0	CAL	5-7-7 (14)		**Silty SAND (SM)** - medium dense, dark brown, moist, fine to medium grained, with roots				
	SS	4-5-5 (10)		**Poorly Graded SAND (SP)** - medium dense, whiteish brown, moist, fine to medium grained				
	SPT	3-4-4-5 (8)						
5	CAL	5-7-6 (13)		Fine to coarse grained				
	SS	2-3-2 (5)		**Clayey SAND (SC)** - medium dense, dark brown, moist, fine to medium grained				
	SPT	1-5-5-7 (10)						
10	CAL	1-3-7 (10)			120.1	8.3	S = 59 %	
	SS	2-5-2 (7)						
	SPT	2-2-5-11 (7)						
15	CAL	3-9-10 (19)		**Sandy CLAY (CL)** - stiff, reddish brown, with fine sand	119.9	7.4	S = 52 %	
	SS	1-4-6 (10)		Trace fine gravel				
	SPT	5-6-4-7 (10)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained, trace coarse sand, with clay				
20	CAL	4-10-24 (34)						
	SS	13-16-17 (33)		No coarse sand				
	SPT	6-7-9-13 (16)						
25	CAL	7-11-15 (26)		Increased silt				
	SS	6-10-15 (25)		**Sandy SILT (ML)** - very stiff, light grayish brown, moist, with fine sand, with clay				
	SPT	7-9-10-12 (19)						
30	CAL	6-12-21 (33)						
	SS	12-12-15 (27)		**Silty SAND (SM)** - medium dense, brown, moist, fine to medium grained				
	SPT	6-7-8-12 (15)		**Poorly Graded SAND (SP)** - medium dense, whiteish brown, moist, fine to medium grained				
35								

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Technicon Engineering Services Inc.
4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-14

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat bare soil
DATE STARTED 12/31/14 **COMPLETED** 1/2/15
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 71.5 ft
DRILL RIG TYPE CME 55
BORING DEPTH 73 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Air Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
35	CAL	11-17-19 (36)		**Sandy SILT (ML)** - stiff, brown, moist, with fine sand, iron oxide staining *(continued)*				
	SS	11-14-26 (40)		**Poorly Graded SAND (SP)** - dense, whiteish gray, moist, fine grained, iron oxide staining				
	SPT	6-10-16-21 (26)		**Sandy SILT (ML)** - hard, grayish brown, moist, with fine sand, iron oxide staining				
40	CAL	9-13-17 (30)		**Poorly Graded SAND (SP)** - medium dense, whiteish brown, moist, fine grained				
	SS	9-9-12 (21)		Fine to coarse grained				
	SPT	6-9-9-12 (18)		Fine to medium grained				
45	CAL	7-12-16 (28)						
	SS	10-10-11 (21)						
	SPT	7-7-11-17 (18)						
50	CAL	5-15-21 (36)						
	SS	14-14-17 (31)						
	SPT	12-12-23-25 (35)		Fine to coarse grained				
55	CAL	16-22-22 (44)		**Sandy CLAY (CL)** - hard, reddish brown, moist, low plasticity, with fine sand				
	SS	11-15-20 (35)		**Poorly Graded SAND (SP)** - medium dense, light brown, moist, fine to coarse grained, with fine gravel				
	SPT	17-17-23-19 (40)						
60	CAL	7-29-30 (59)		Increased fine to coarse gravel				
	SS	17-15-19 (34)						
	SPT	12-14-24-40 (38)						
65	CAL	6-16-25 (41)		**Sandy CLAY (CL)** - hard, reddish brown, moist, low plasticity, with fine sand				
	SS	16-18-20 (38)		**Poorly Graded SAND (SP)** - dense, light brown, moist, medium to coarse grained, with fine to coarse gravel, maximum gravel size 1.5"				
70								

(Continued Next Page)

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4539 N Brawley Ste 108
Fresno, CA 93722
Telephone: 559-276-9311
Fax: 559-276-9344

BORING B-14

PROJECT NAME East Side Regional Park
PROJECT NUMBER TES # 141034
PROJECT LOCATION Visalia, California
SURFACE DESCRIPTION Flat bare soil
DATE STARTED 12/31/14 **COMPLETED** 1/2/15
GROUND ELEVATION
DRILLING CONTRACTOR TECHNICON Engineering Services, Inc.
GROUND WATER LEVEL 71.5 ft
DRILL RIG TYPE CME 55
BORING DEPTH 73 ft
DRILLING METHOD 7.5-inch Hollow Stem Auger & Air Rotary
LOGGED BY S. Alvarez **CHECKED BY** S. Plauson

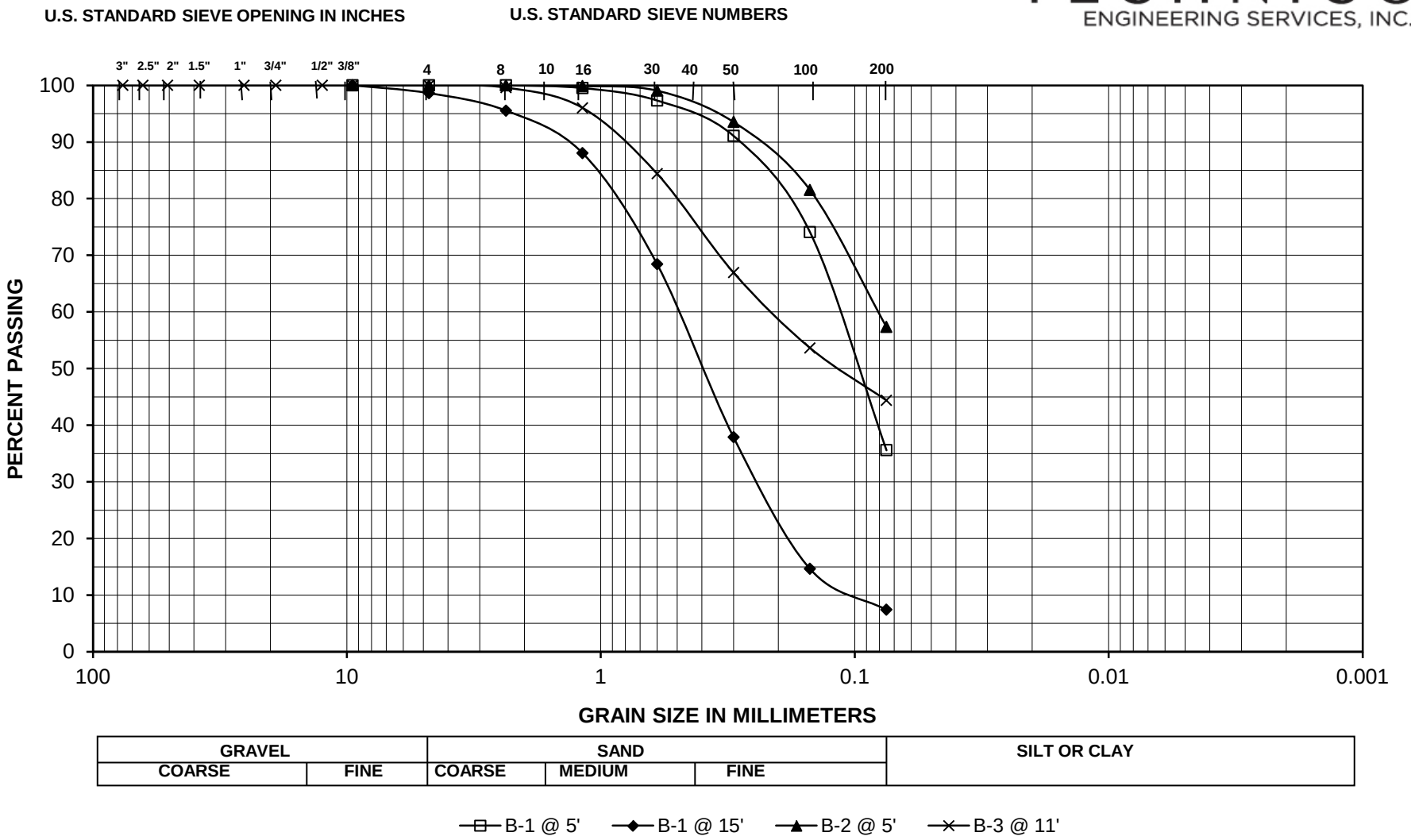
DEPTH (ft)	SAMPLE TYPE	BLOWS/ft	GRAPHIC LOG	MATERIAL DESCRIPTION	DRY DENSITY (pcf)	MOISTURE (%)	OTHER TESTS	REMARKS
70								
	CAL	8-17-30 (47)		**Poorly Graded SAND (SP)** - dense, light brown, moist, medium to coarse grained, with fine to coarse gravel, maximum gravel size 1.5" *(continued)*				
	SS	17-18-31 (49)		Wet, fine to coarse grained Saturated, trace clay				

NOTES:
1. Bottom of boring at 73.0 feet.
2. Groundwater encountered at 71.5 feet.
3. Boring backfilled with soil cuttings 1/2/15.

LABORATORY TESTS

APPENDIX B

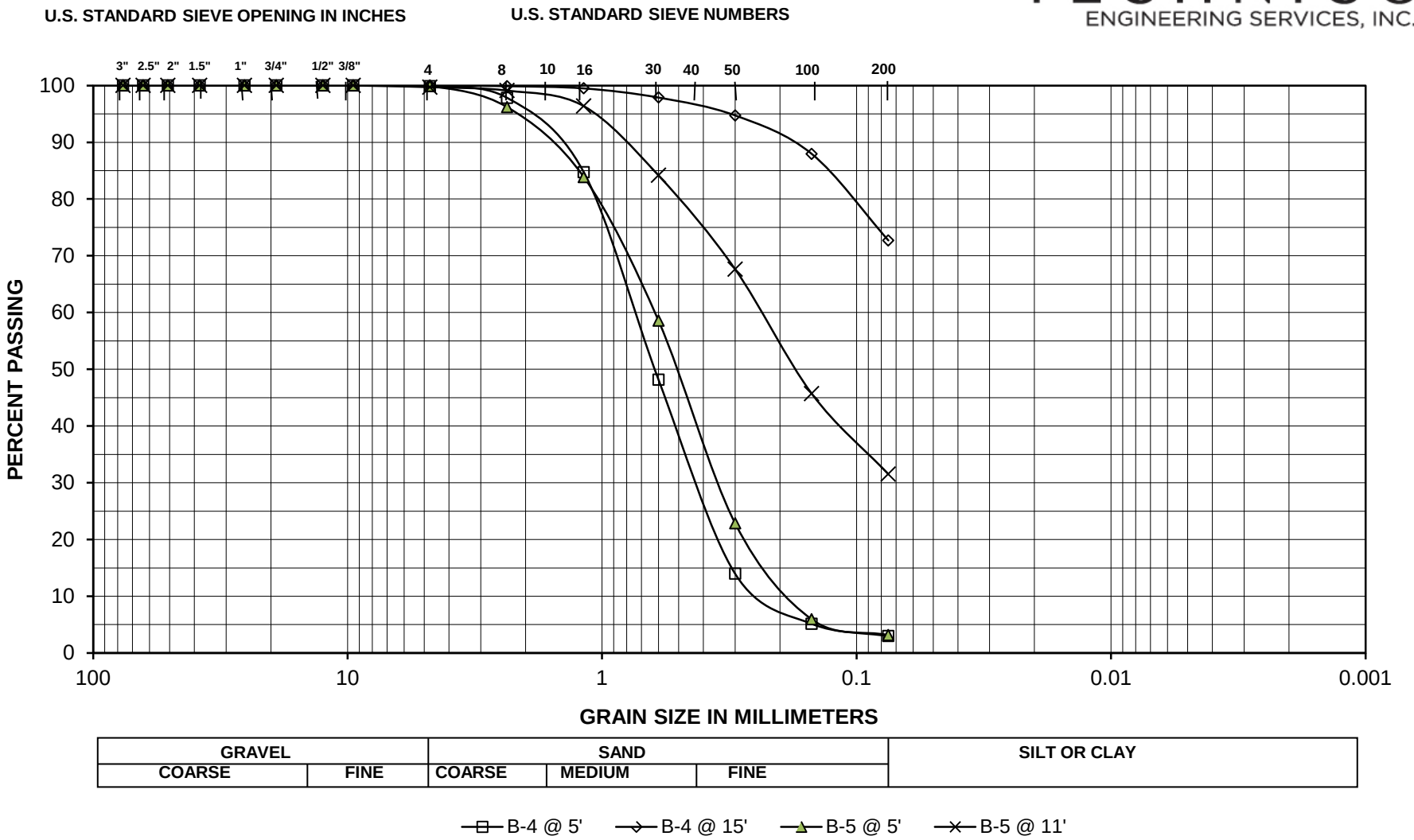
TECHNICON
ENGINEERING SERVICES, INC.



Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI
B-1 @ 5'	Silty SAND (SM)	0	64.4	35.6				
B-1 @ 15'	Silty SAND (SM/SP)	1.4	91.2	7.4				
B-2 @ 5'	Sandy SILT (ML)	0	42.7	57.3				
B-3 @ 11'	Silty SAND (SM)	0	55.6	44.4				

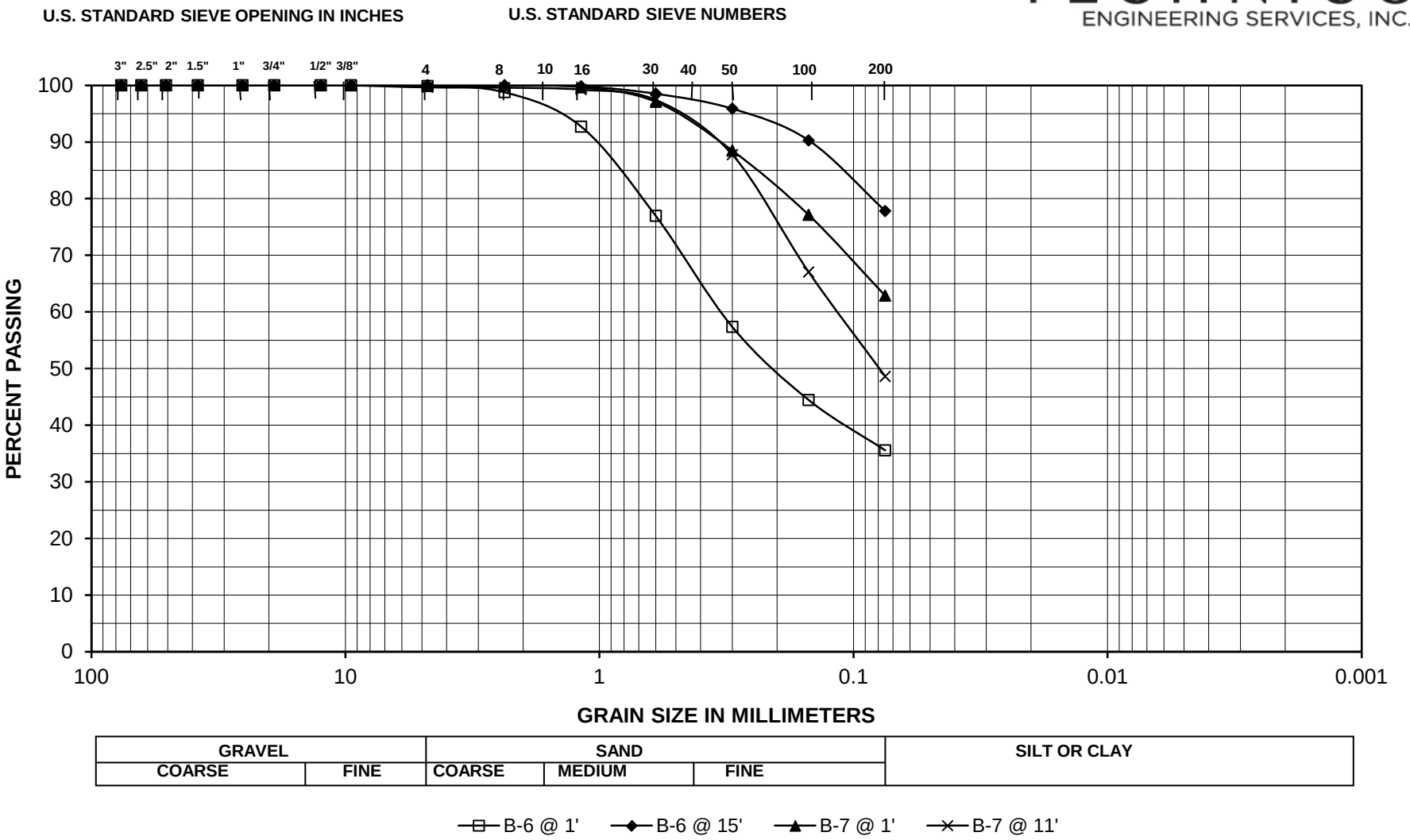
Project:	East Side Regional Park
	Visalia, CA
TES#:	141034
Date:	2/13/2015

TECHNICON
ENGINEERING SERVICES, INC.



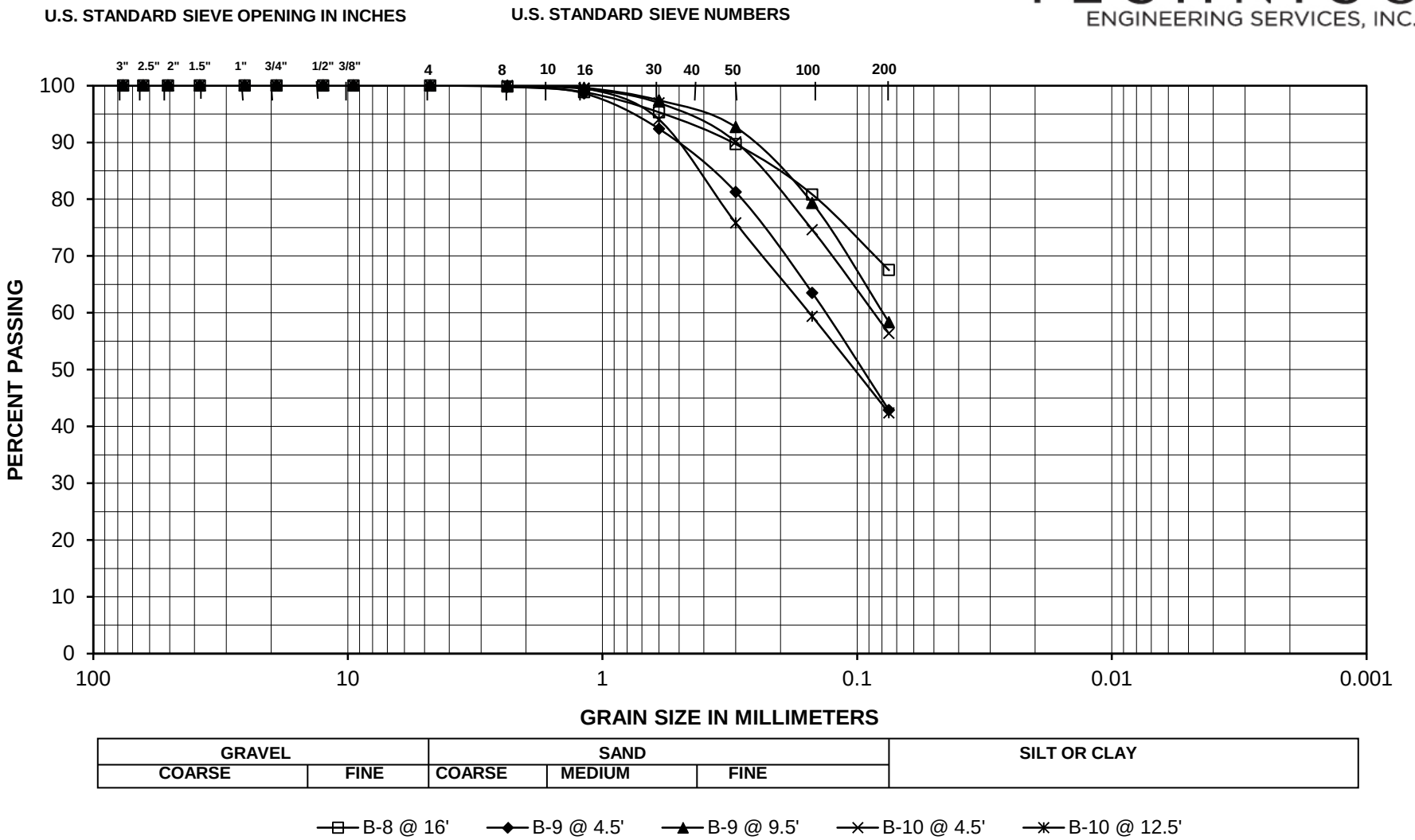
Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project:	East Side Regional Park
B-4 @ 5'	Poorly Graded SAND (SP)	0.2	96.9	3.0						Visalia, CA
B-4 @ 15'	Sandy SILT (ML)	0	27.3	72.7					TES#:	141034
B-5 @ 5'	Poorly Graded SAND (SP)	0.1	96.8	3.1						
B-5 @ 11'	Silty SAND (SM)	0.3	68.2	31.5					Date:	2/13/2015

TECHNICON
ENGINEERING SERVICES, INC.



Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project:	East Side Regional Park
B-6 @ 1'	Silty SAND (SM)	0.1	64.3	35.6						Visalia, CA
B-6 @ 15'	Sandy SILT (ML)	0	22.2	77.8					TES#:	141034
B-7 @ 1'	Sandy SILT (ML)	0	37.2	62.8						
B-7 @ 11'	Silty SAND (SM)	0.4	51.1	48.6					Date:	2/13/2015

TECHNICON
ENGINEERING SERVICES, INC.



Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI
B-8 @ 16'	Sandy CLAY (CL)	0	32.5	67.5				
B-9 @ 4.5'	Silty SAND (SM)	0	57.2	42.8				
B-9 @ 9.5'	Sandy SILT (ML)	0	41.7	58.3				
B-10 @ 4.5'	Sandy SILT (ML)	0	43.7	56.3				
B-10 @ 12.5'	Silty SAND (SM)	0	57.6	42.4				

Project:	East Side Regional Park
	Visalia, CA
TES#:	141034
Date:	2/13/2015

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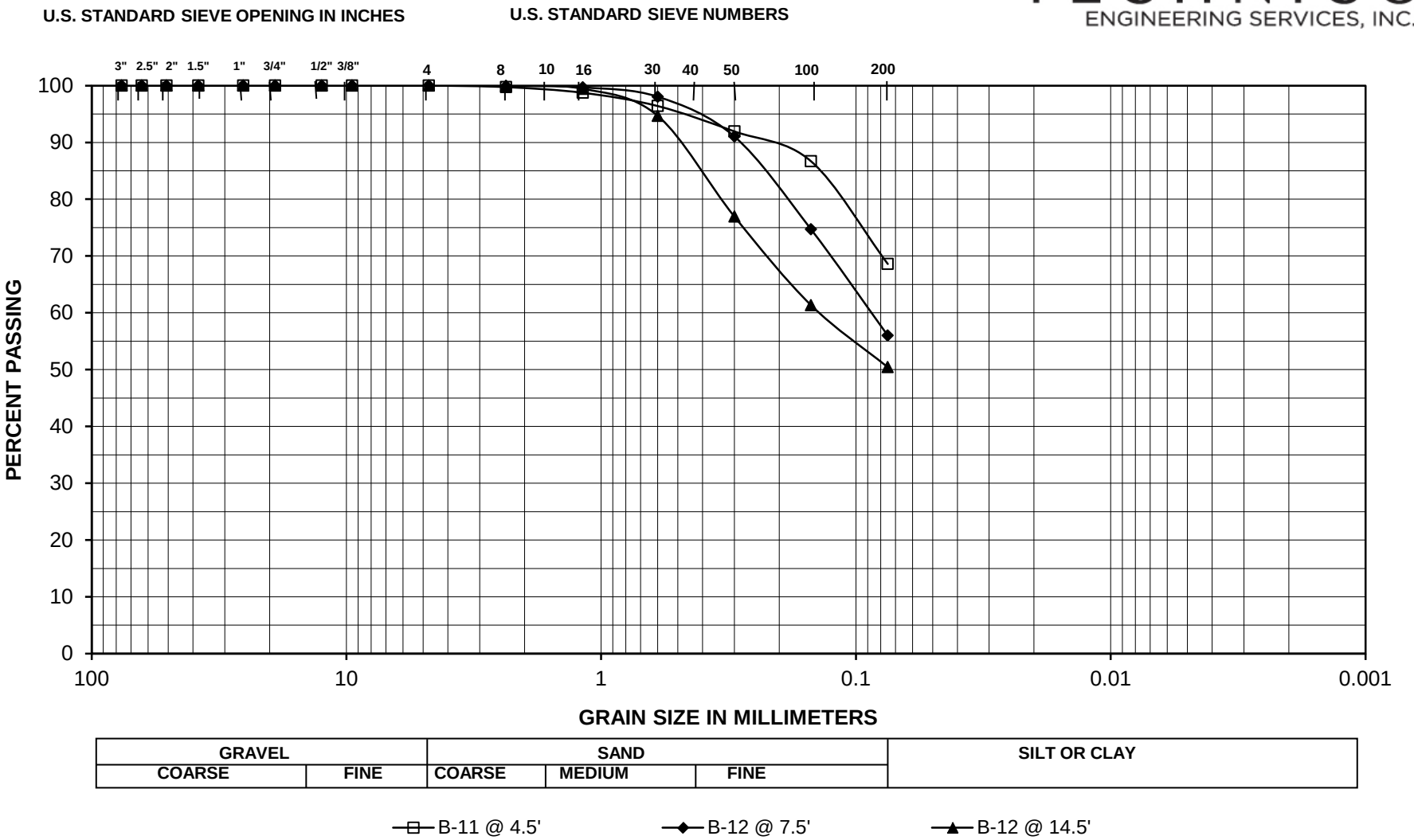

Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project:	East Side Regional Park
B-11 @ 4.5'	Sandy SILT (ML)	0	31.4	68.6						Visalia, CA
B-12 @ 7.5'	Sandy SILT (ML)	0	44.0	56.0					TES#:	141034
B-12 @ 14.5'	Sandy SILT (ML)	0	49.6	50.4						
									Date:	2/13/2015

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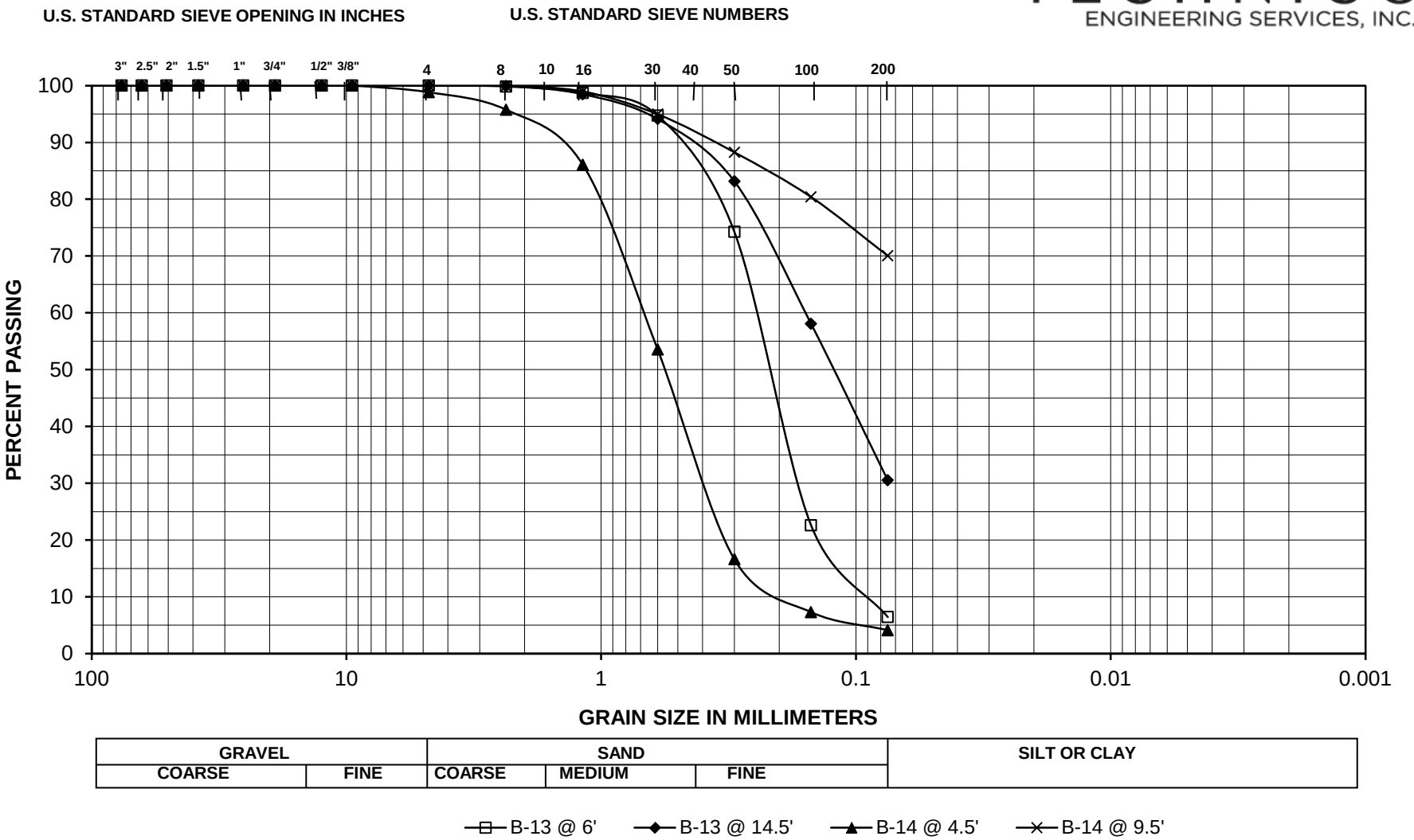

Sample #	Classification	% Gravel	% Sand	% Fines	% Moist.	LL	PL	PI	Project:	East Side Regional Park
B-13 @ 6'	Silty SAND (SM/SP)	0	93.6	6.4						Visalia, CA
B-13 @ 14.5'	Silty SAND (SM)	0	69.5	30.5					TES#:	141034
B-14 @ 4.5'	Poorly Graded SAND (SP)	1.2	94.7	4.1						
B-14 @ 9.5'	Sandy CLAY (CL)	0	30.0	70.0					Date:	2/13/2015

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	R. Fernandez
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-1 @ 5'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	168.1	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	67.8	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.	0	0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.8	0.5	0.5	99.5	
#30	4.5	2.2	2.7	97.3	
#50	15.0	6.2	8.9	91.1	
#100	43.6	17.0	25.9	74.1	
#200	108.3	38.5	64.4	35.6	
Pan	114.7				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	R. Fernandez
	Visalia, CA	Date:	2/12/2015
TES#:	141034	Sample No.:	B-1 @ 15'
Lab #:		Remarks:	Silty SAND (SM/SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	197.3	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	184.0	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.	0	0.0	0.0	100.0	
#4	2.7	1.4	1.4	98.6	
#8	8.8	3.1	4.5	95.5	
#16	23.6	7.5	12.0	88.0	
#30	62.3	19.6	31.6	68.4	
#50	122.6	30.6	62.1	37.9	
#100	168.5	23.2	85.4	14.6	
#200	182.7	7.2	92.6	7.4	
Pan	184.0				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/12/2015
TES#:	141034	Sample No.:	B-2 @ 5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	169.9	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	84,2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.2	0.1	0.1	99.9	
#30	1.6	0.8	0.9	99.1	
#50	11.0	5.5	6.5	93.5	
#100	31.4	12.0	18.5	81.5	
#200	72.5	24.2	42.7	57.3	
Pan	84.2				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/12/2015
TES#:	141034	Sample No.:	B-3 @ 11'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	151.2	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	86.6	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.6	0.4	0.4	99.6	
#16	6.0	3.6	4.0	96.0	
#30	23.6	11.6	15.6	84.4	
#50	50.0	17.5	33.1	66.9	
#100	70.1	13.3	46.4	53.6	
#200	84.1	9.3	55.6	44.4	
Pan	86.6				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-4 @ 5'
Lab #:		Remarks:	Poorly Graded SAND (SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	197.5	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	192.1	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.3	0.2	0.2	99.8	
#8	4.3	2.0	2.2	97.8	
#16	30.2	13.1	15.3	84.7	
#30	102.4	36.6	51.9	48.1	
#50	169.9	34.2	86.0	14.0	
#100	187.3	8.8	94.9	5.1	
#200	191.6	2.2	97.0	3.0	
Pan	192.1				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-4 @ 15'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	128.7	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	38.8	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.2	0.1	0.1	99.9	
#16	0.7	0.4	0.5	99.5	
#30	2.7	1.6	2.1	97.9	
#50	6.8	3.1	5.3	94.7	
#100	15.5	6.8	12.1	87.9	
#200	35.1	15.2	27.3	72.7	
Pan	38.8				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-5 @ 5'
Lab #:		Remarks:	Poorly Graded SAND (SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	183.6	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	178.3	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.2	0.1	0.1	99.9	
#8	7.0	3.7	3.8	96.2	
#16	29.6	12.3	16.1	83.9	
#30	76.1	25.3	41.5	58.5	
#50	141.7	35.7	77.2	22.8	
#100	172.7	16.9	94.1	5.9	
#200	177.8	2.8	96.9	3.1	
Pan	178.3				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-5 @ 11'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	175.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	123.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.5	0.3	0.3	99.7	
#8	1.6	0.6	0.9	99.1	
#16	6.4	2.7	3.6	96.4	
#30	27.7	12.2	15.8	84.2	
#50	56.7	16.5	32.4	67.6	
#100	95.0	21.9	54.3	45.7	
#200	119.9	14.2	68.5	31.5	
Pan	123.2				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-6 @ 1'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	189.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	123.6	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.3	0.1	0.1	99.9	
#8	2.3	1.1	1.2	98.8	
#16	13.8	6.1	7.3	92.7	
#30	43.6	15.8	23.1	76.9	
#50	80.6	19.6	42.7	57.3	
#100	105.0	12.9	55.6	44.4	
#200	121.8	8.9	64.4	35.6	
Pan	123.6				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-6 @ 15'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	121.4	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	29.4	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.2	0.2	0.2	99.8	
#30	1.8	1.3	1.5	98.5	
#50	5.0	2.6	4.1	95.9	
#100	11.8	5.6	9.7	90.3	
#200	26.9	12.5	22.2	77.8	
Pan	29.4				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-7 @ 1'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	117.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	45.4	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.4	0.3	0.3	99.7	
#30	3.4	2.6	2.9	97.1	
#50	13.5	8.6	11.5	88.5	
#100	26.8	11.4	22.9	77.1	
#200	43.5	14.3	37.2	62.8	
Pan	45.4				

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TECHNICON
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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-7 @ 11'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	171.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	93.8	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.6	0.4	0.4	99.6	
#8	0.7	0.1	0.4	99.6	
#16	1.3	0.4	0.8	99.2	
#30	4.4	1.8	2.6	97.4	
#50	20.9	9.6	12.2	87.8	
#100	56.4	20.8	33.0	67.0	
#200	87.9	18.4	51.4	48.6	
Pan	93.8				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-8 @ 16'
Lab #:		Remarks:	Sandy CLAY (CL)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	162.2	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	57.5	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.3	0.2	0.2	99.8	
#16	1.9	1.0	1.2	98.8	
#30	7.6	3.5	4.7	95.3	
#50	16.7	5.6	10.3	89.7	
#100	31.1	8.9	19.2	80.8	
#200	52.7	13.3	32.5	67.5	
Pan	57.5				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-9 @ 4.5'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	176.7	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	105.7	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.4	0.2	0.2	99.8	
#16	2.4	1.1	1.4	98.6	
#30	13.5	6.2	7.6	92.4	
#50	33.1	11.1	18.7	81.3	
#100	64.5	17.8	36.5	63.5	
#200	101.0	20.7	57.2	42.8	
Pan	105.7				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-9 @ 9.5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	181.9	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	83.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.7	0.4	0.4	99.6	
#30	4.7	2.2	2.6	97.4	
#50	13.3	4.7	7.3	92.7	
#100	37.6	13.4	20.7	79.3	
#200	75.8	21.0	41.7	58.3	
Pan	83.2				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-10 @ 4.5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	156.7	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	72.6	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	0.9	0.5	0.6	99.4	
#30	4.8	2.5	3.1	96.9	
#50	15.5	6.8	9.9	90.1	
#100	39.8	15.5	25.4	74.6	
#200	68.4	18.3	43.7	56.3	
Pan	72.6				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-10 @ 12.5'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	117.1	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	72.8	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.0	0.0	0.0	100.0	
#16	0.5	0.4	0.4	99.6	
#30	7.0	5.6	6.0	94.0	
#50	28.3	18.2	24.2	75.8	
#100	47.6	16.5	40.6	59.4	
#200	67.5	17.0	57.6	42.4	
Pan	72.8				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-11 @ 4.5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	150.0	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	57.3	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.4	0.3	0.3	99.7	
#16	1.9	1.0	1.3	98.7	
#30	5.4	2.3	3.6	96.4	
#50	12.1	4.5	8.1	91.9	
#100	20.0	5.3	13.3	86.7	
#200	47.1	18.1	31.4	68.6	
Pan	57.3				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-12 @ 7.5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	158.4	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	76.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	0.5	0.3	0.3	99.7	
#30	3.1	1.6	2.0	98.0	
#50	14.2	7.0	9.0	91.0	
#100	40.1	16.4	25.3	74.7	
#200	69.7	18.7	44.0	56.0	
Pan	76.2				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-12 @ 14.5'
Lab #:		Remarks:	Sandy SILT (ML)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	178.7	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	91.6	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	1.0	0.5	0.6	99.4	
#30	9.5	4.8	5.3	94.7	
#50	41.2	17.7	23.1	76.9	
#100	69.1	15.6	38.7	61.3	
#200	88.6	10.9	49.6	50.4	
Pan	91.6				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-13 @ 6'
Lab #:		Remarks:	Silty SAND (SM/SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	128.9	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	121.2	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.2	0.2	0.2	99.8	
#16	1.7	1.2	1.3	98.7	
#30	6.8	4.0	5.3	94.7	
#50	33.2	20.5	25.8	74.2	
#100	99.8	51.7	77.4	22.6	
#200	120.6	16.1	93.6	6.4	
Pan	121.2				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-13 @ 14.5'
Lab #:		Remarks:	Silty SAND (SM)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	157.9	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	115.3	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	2.4	1.5	1.5	98.5	
#30	9.3	4.4	5.9	94.1	
#50	26.6	11.0	16.9	83.1	
#100	66.2	25.1	41.9	58.1	
#200	109.7	27.6	69.5	30.5	
Pan	115.3				

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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-14 @ 4.5'
Lab #:		Remarks:	Poorly Graded SAND (SP)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	150.6	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	144.6	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	1.8	1.2	1.2	98.8	
#8	6.4	3.1	4.2	95.8	
#16	21.0	9.7	13.9	86.1	
#30	70.0	32.5	46.5	53.5	
#50	125.6	36.9	83.4	16.6	
#100	139.6	9.3	92.7	7.3	
#200	144.4	3.2	95.9	4.1	
Pan	144.6				

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TECHNICON
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Sieve Analysis for Coarse and Fine Aggregate
ASTM C 136

Project:	East Side Regional Park	Technician:	K. Akataobi
	Visalia, CA	Date:	2/13/2015
TES#:	141034	Sample No.:	B-14 @ 9.5'
Lab #:		Remarks:	Sandy CLAY (CL)

	Weight (lbs. or grams)	Maximum Sieve Size	Minimum Weight of Test Specimen, lbs. (kg)
Total Dry Sample + Tare Wt.		Sand	1.0 (0.5)
Tare Weight		3/8"	2.0 (1.0)
Total Dry Sample Wt.	144.8	1/2"	4.0 (2.0)
Initial Weight Fine Aggregate Before Wash		3/4"	11.0 (5.0)
		1"	22.0 (10.0)
Final Weight Fine Aggregate After Wash	46.3	1 1/2"	33.0 (15.0)
		2"	44.0 (20.0)

Sieve Size	Cumulative Weight Retained	Individual % Retained	Cumulative % Retained	Cumulative % Passing	Specs.
3 in.		0.0	0.0	100.0	
2 1/2 in.		0.0	0.0	100.0	
2 in.		0.0	0.0	100.0	
1 1/2 in.		0.0	0.0	100.0	
1 in.		0.0	0.0	100.0	
3/4 in.		0.0	0.0	100.0	
1/2 in.		0.0	0.0	100.0	
3/8 in.		0.0	0.0	100.0	
#4	0.0	0.0	0.0	100.0	
#8	0.1	0.1	0.1	99.9	
#16	1.5	1.0	1.0	99.0	
#30	7.3	4.0	5.0	95.0	
#50	17.0	6.7	11.7	88.3	
#100	28.4	7.9	19.6	80.4	
#200	43.4	10.4	30.0	70.0	
Pan	46.3				

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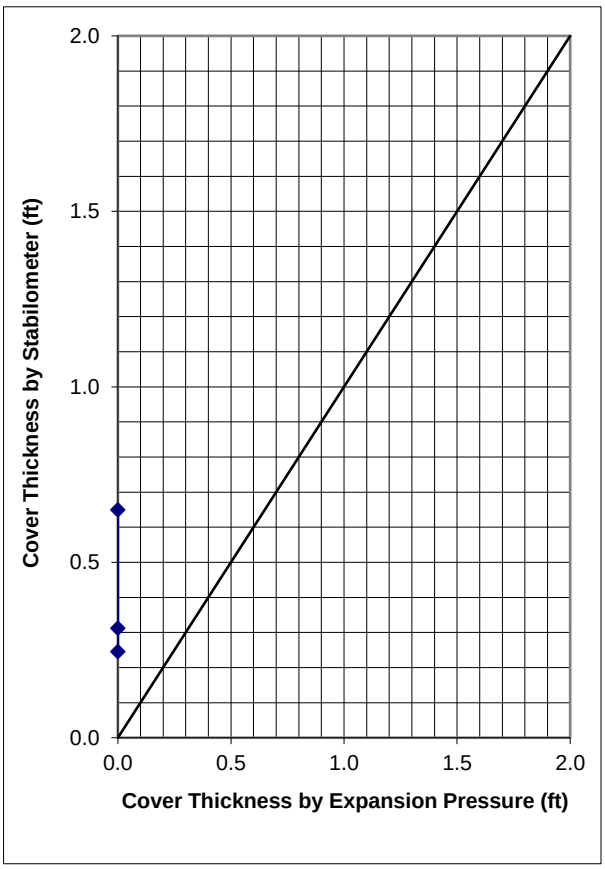
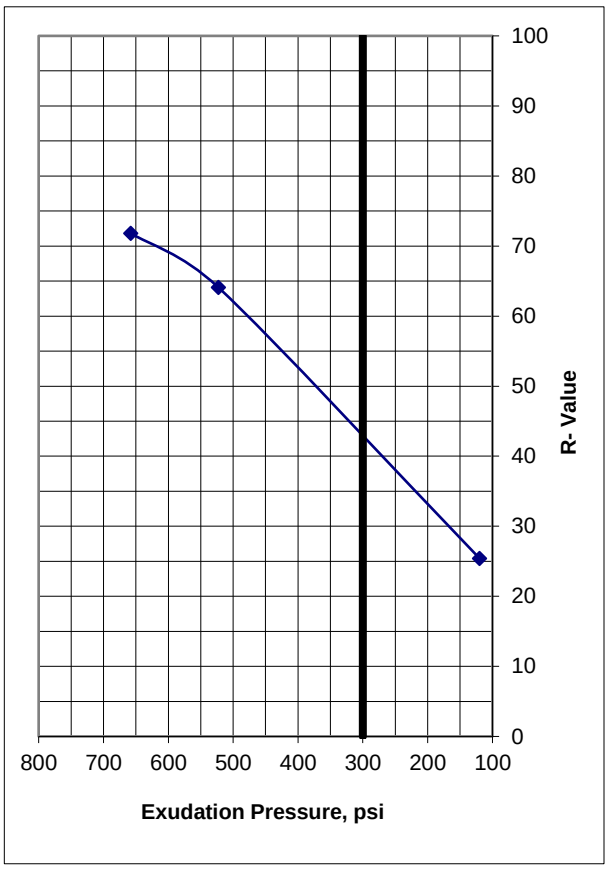
Resistance *R* - Value and Expansion Pressure of Compacted Soils

ASTM D2844-94, Cal 301

Project Name	East Side Regional Park	Lab ID Number	Unspecified
Project Number	141034	Sample Location	RV-1 @ 0'-1.5'
Sample Date	8/23/15	Tested By	S. Alvarez
Sampled By	J. Cayaban	Date Tested	8/24/2015
Material Description	Silty SAND (SM)		





Specimen	1	2	3
Exudation Pressure, psi	120	523	658
Moisture at Test, %	9.9	9.0	8.5
Dry Density, pcf	124.1	120.1	119.6
Expansion Pressure, psf	0	0	0
Thickness by Stabilometer, ft.	0.6	0.3	0.2
Thickness by Expansion Pressure, ft.	0.0	0.0	0.0
R-Value by Stabilometer	25	64	72
R-Value by Expansion Pressure (TI=4.5)	NA		
R-Value at 300 psi Exudation Pressure	43		

Controlling R-Value	**43**

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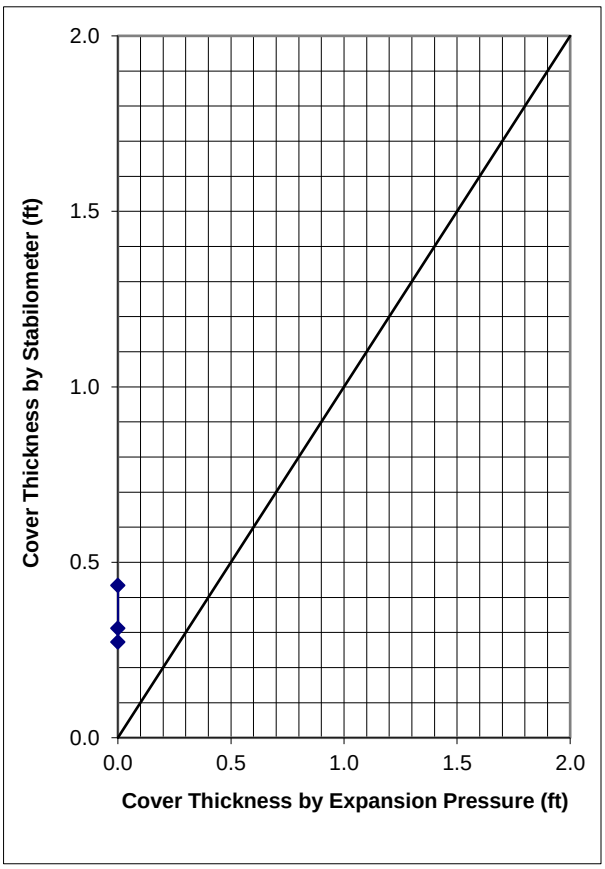
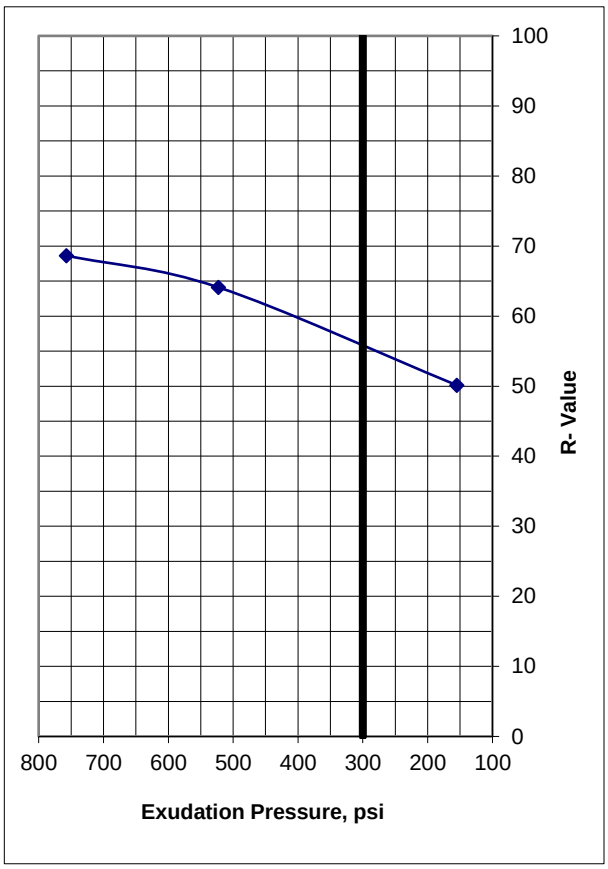
Resistance *R* - Value and Expansion Pressure of Compacted Soils

ASTM D2844-94, Cal 301

Project Name	East Side Regional Park	Lab ID Number	Unspecified
Project Number	141034	Sample Location	RV-2 @ 0'-1.5'
Sample Date	8/23/15	Tested By	S. Alvarez
Sampled By	J. Cayaban	Date Tested	8/24/2015
Material Description	Silty SAND (SM)		





Specimen	1	2	3
Exudation Pressure, psi	155	523	757
Moisture at Test, %	13.9	13.6	13.3
Dry Density, pcf	119.6	118.0	118.3
Expansion Pressure, psf	0	0	0
Thickness by Stabilometer, ft.	0.4	0.3	0.3
Thickness by Expansion Pressure, ft.	0.0	0.0	0.0
R-Value by Stabilometer	50	64	69
R-Value by Expansion Pressure (TI=4.5)	NA		
R-Value at 300 psi Exudation Pressure	56		

Controlling R-Value	**56**

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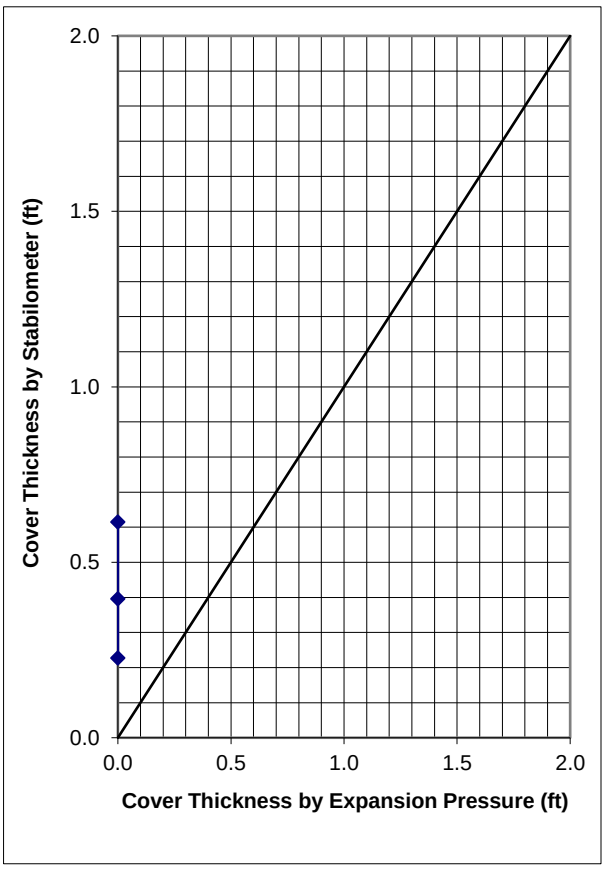
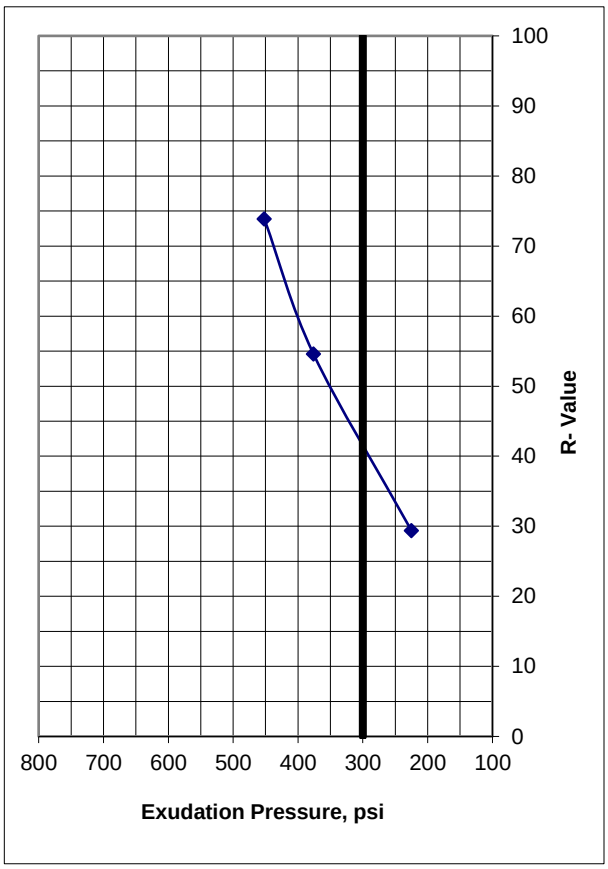
Resistance *R* - Value and Expansion Pressure of Compacted Soils

ASTM D2844-94, Cal 301

Project Name	East Side Regional Park	Lab ID Number	Unspecified
Project Number	141034	Sample Location	RV-3 @ 0'-1.5'
Sample Date	8/23/15	Tested By	S. Alvarez
Sampled By	J. Cayaban	Date Tested	8/24/2015
Material Description	Silty SAND (SM)		





Specimen	1	2	3
Exudation Pressure, psi	452	376	225
Moisture at Test, %	12.6	13.1	13.7
Dry Density, pcf	122.7	119.8	119.2
Expansion Pressure, psf	0	0	0
Thickness by Stabilometer, ft.	0.2	0.4	0.6
Thickness by Expansion Pressure, ft.	0.0	0.0	0.0
R-Value by Stabilometer	74	55	29
R-Value by Expansion Pressure (TI=4.5)	NA		
R-Value at 300 psi Exudation Pressure	41		

Controlling R-Value	**41**

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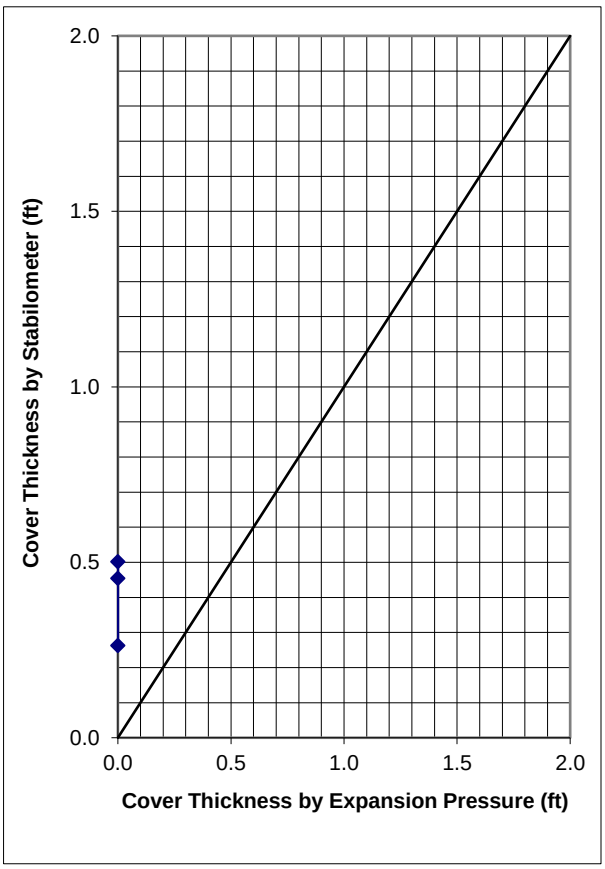
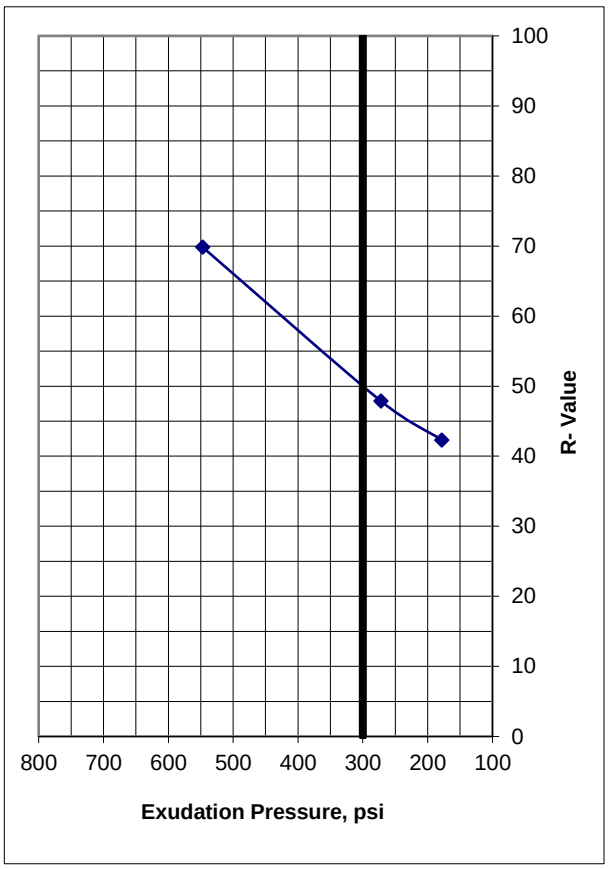
Resistance *R* - Value and Expansion Pressure of Compacted Soils

ASTM D2844-94, Cal 301

Project Name	East Side Regional Park	Lab ID Number	Unspecified
Project Number	141034	Sample Location	RV-4 @ 0'-1.5'
Sample Date	8/23/15	Tested By	S. Alvarez
Sampled By	J. Cayaban	Date Tested	8/24/2015
Material Description	Silty SAND (SM)		





Specimen	1	2	3
Exudation Pressure, psi	547	272	178
Moisture at Test, %	13.7	14.9	15.5
Dry Density, pcf	117.8	116.1	116.0
Expansion Pressure, psf	0	0	0
Thickness by Stabilometer, ft.	0.3	0.5	0.5
Thickness by Expansion Pressure, ft.	0.0	0.0	0.0
R-Value by Stabilometer	70	48	42
R-Value by Expansion Pressure (TI=4.5)	NA		
R-Value at 300 psi Exudation Pressure	50		

Controlling R-Value	**50**

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INFILTRATION TESTS

APPENDIX C

TECHNICON
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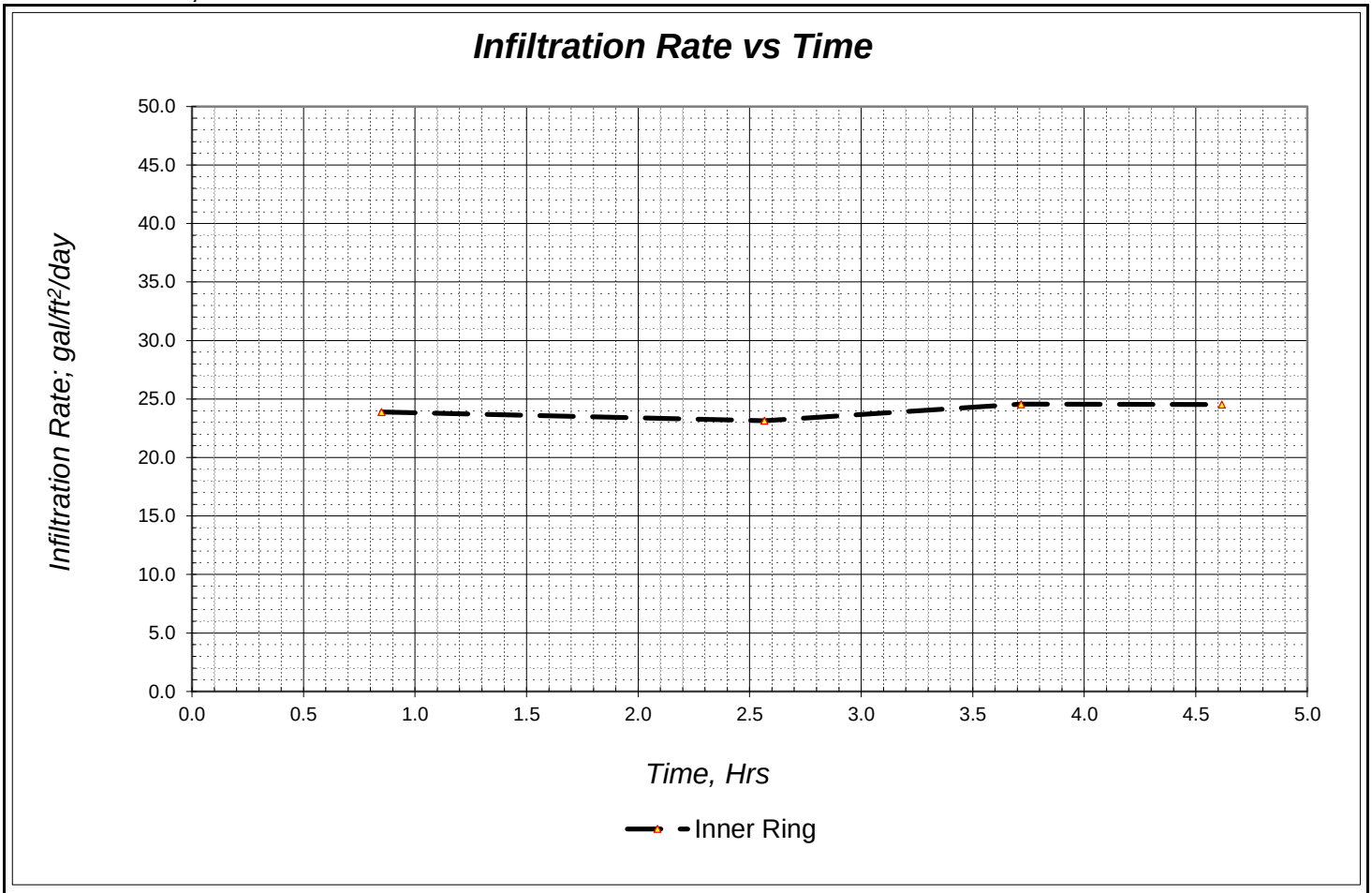
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-1**	**2.0 ft**

Project Location	Test Date:
Visalia, CA	***7/28/15***



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*51*	*23.9*	Silty SAND (SM)
2	*103*	*23.1*	
3	*69*	*24.6*	
4	*54*	*24.5*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

25 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safet factor is 2.0.

COMMENTS:

Potable water used as permeant

TECHNICON
ENGINEERING SERVICES, INC.

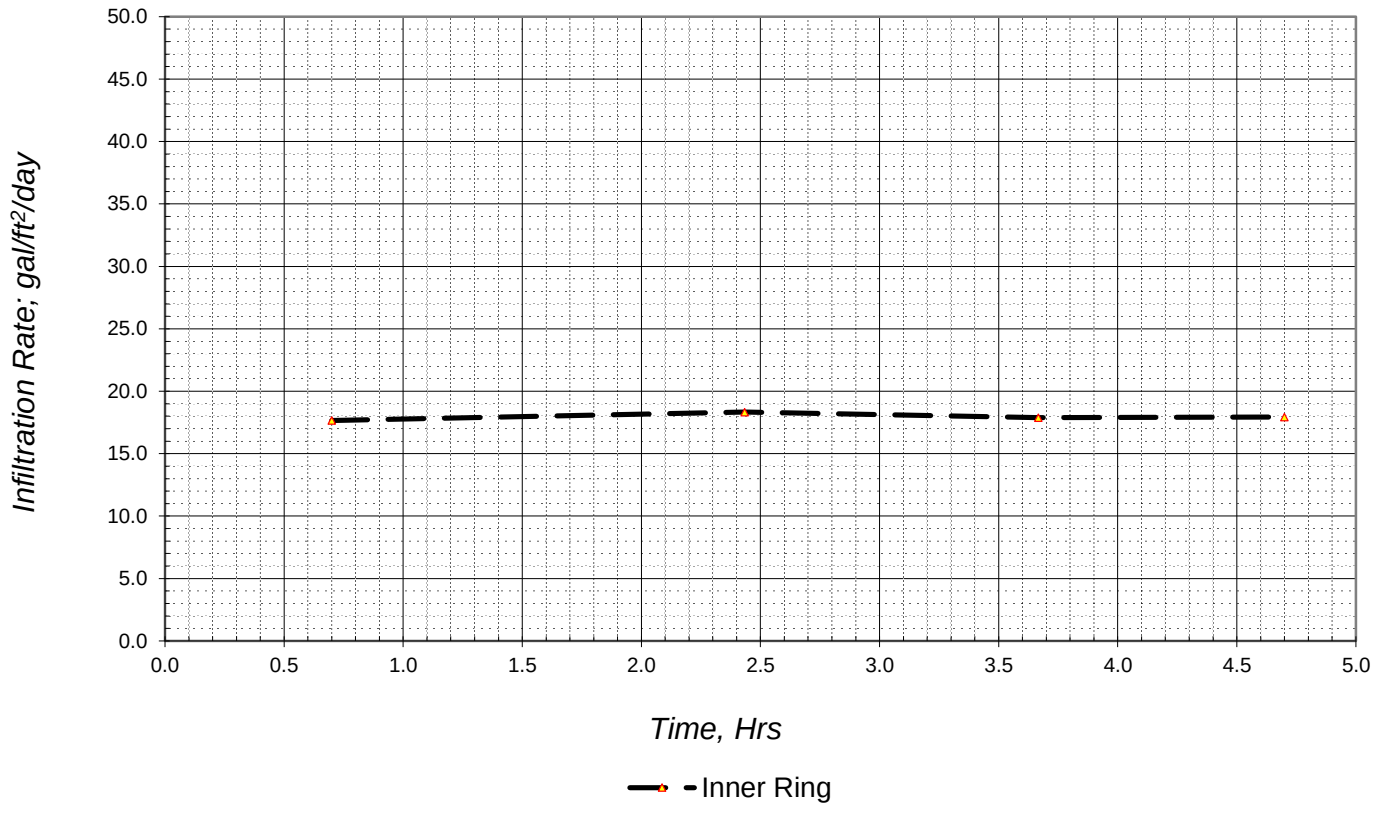
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-2**	**2.0 ft**

Project Location	Test Date:
Visalia, CA	***7/28/15***

Infiltration Rate vs Time



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*42*	*17.7*	Silty SAND (SM)
2	*104*	*18.3*	
3	*74*	*17.9*	
4	*62*	*17.9*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

18 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safet factor is 2.0.

COMMENTS:

Potable water used as permeant

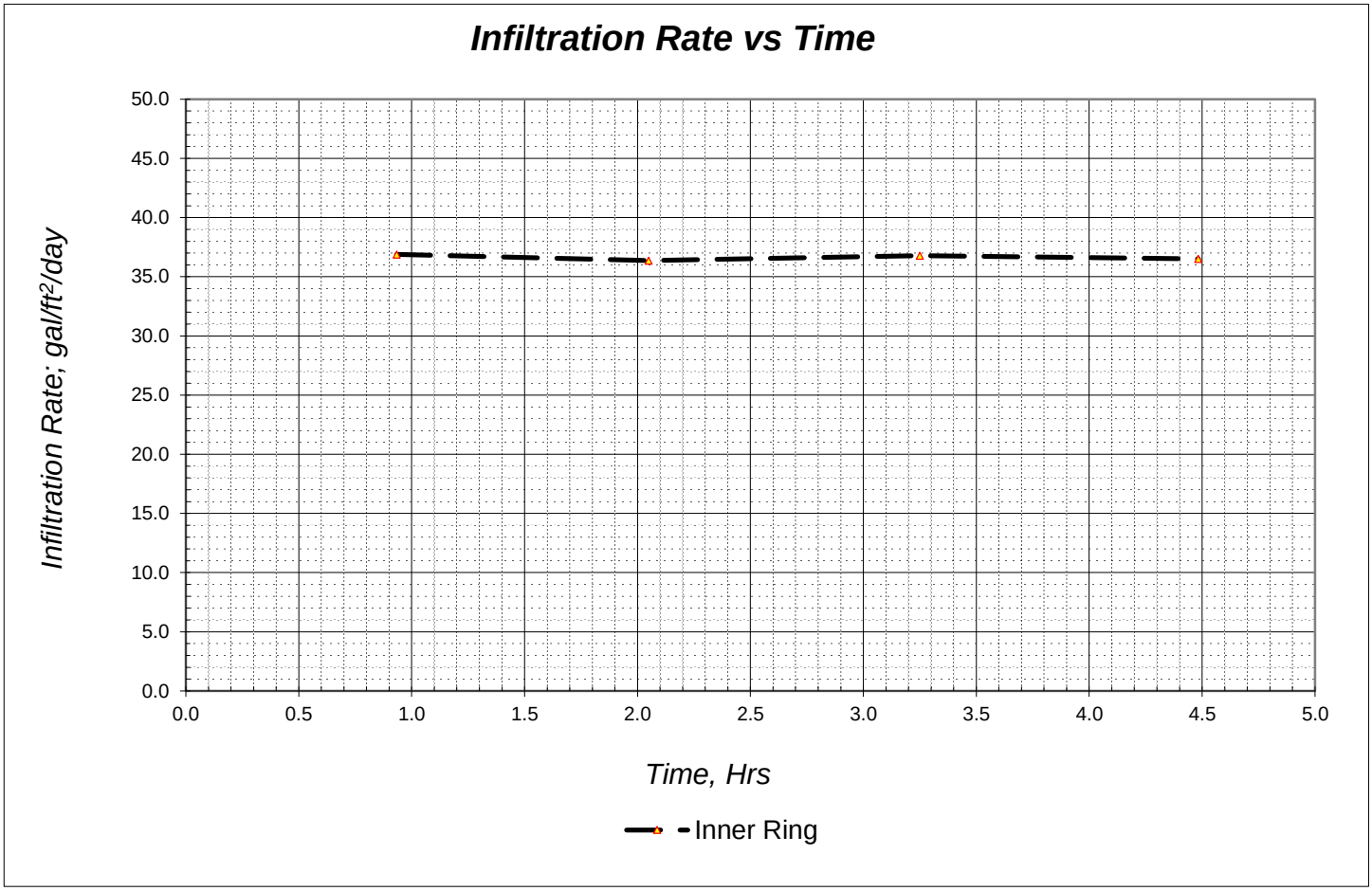
TECHNICON
ENGINEERING SERVICES, INC.

Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-3**	**1.0 ft**

Project Location	Test Date:
Visalia, CA	***7/28/15***



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*56*	*36.9*	Silty SAND (SM)
2	*67*	*36.4*	
3	*72*	*36.8*	
4	*74*	*36.5*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

37 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safety factor is 2.0.

COMMENTS:

Potable water used as permeant

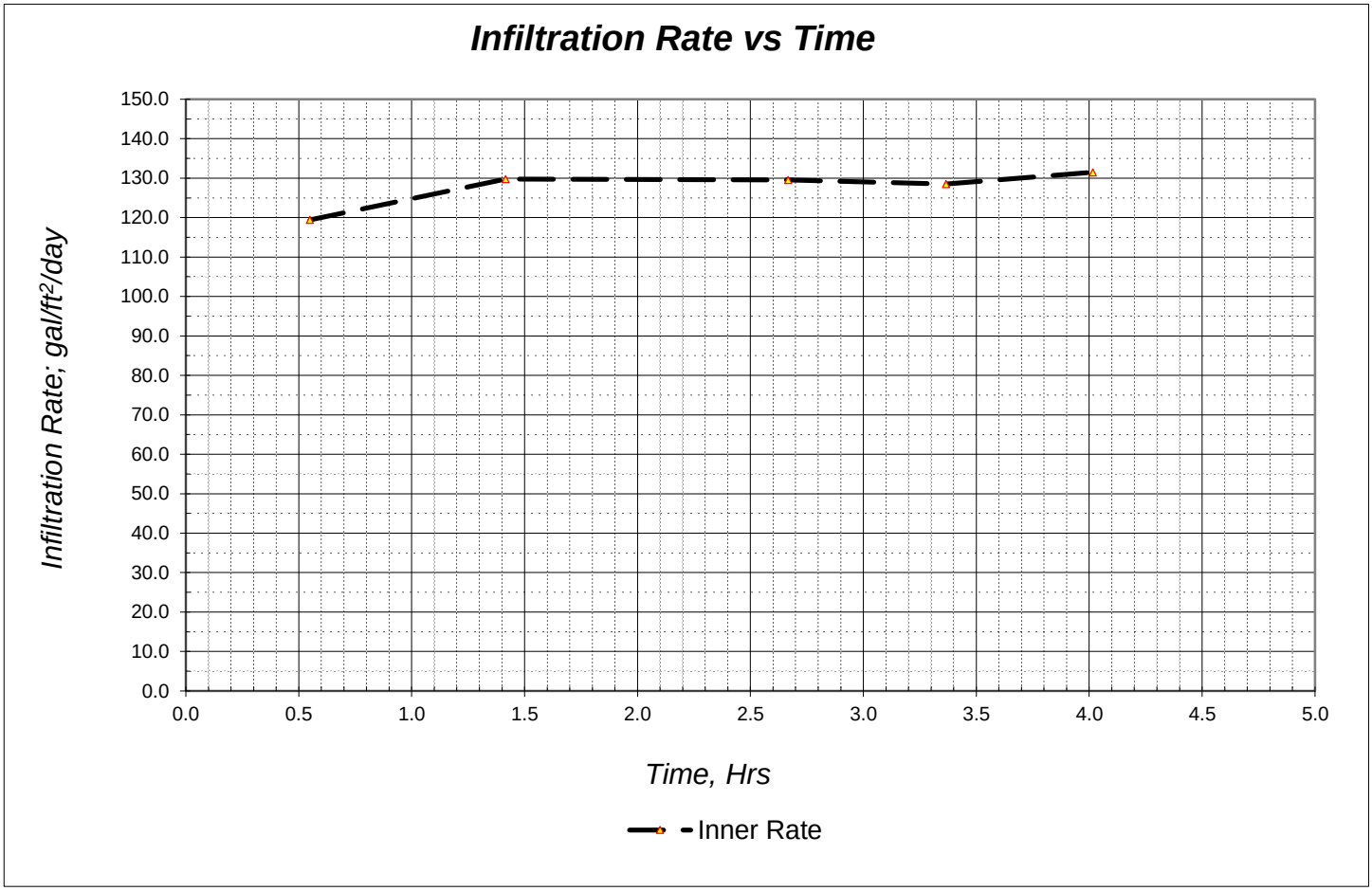
TECHNICON
ENGINEERING SERVICES, INC.

Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-4**	**2.0 ft**

Project Location	Test Date:
Visalia, CA	***7/28/15***



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)
1	*33*	*119.4*
2	*52*	*129.8*
3	*75*	*129.6*
4	*42*	*128.5*
5	*39*	*131.5*
6		
7		

Soil Description:

Poorly Graded Sand (SP)

Groundwater Conditions:

Groundwater Not Encountered

TEST RESULTS

Infiltration Rate =

129 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safety factor is 2.0.

COMMENTS:

Potable water used as permeant

TECHNICON
ENGINEERING SERVICES, INC.

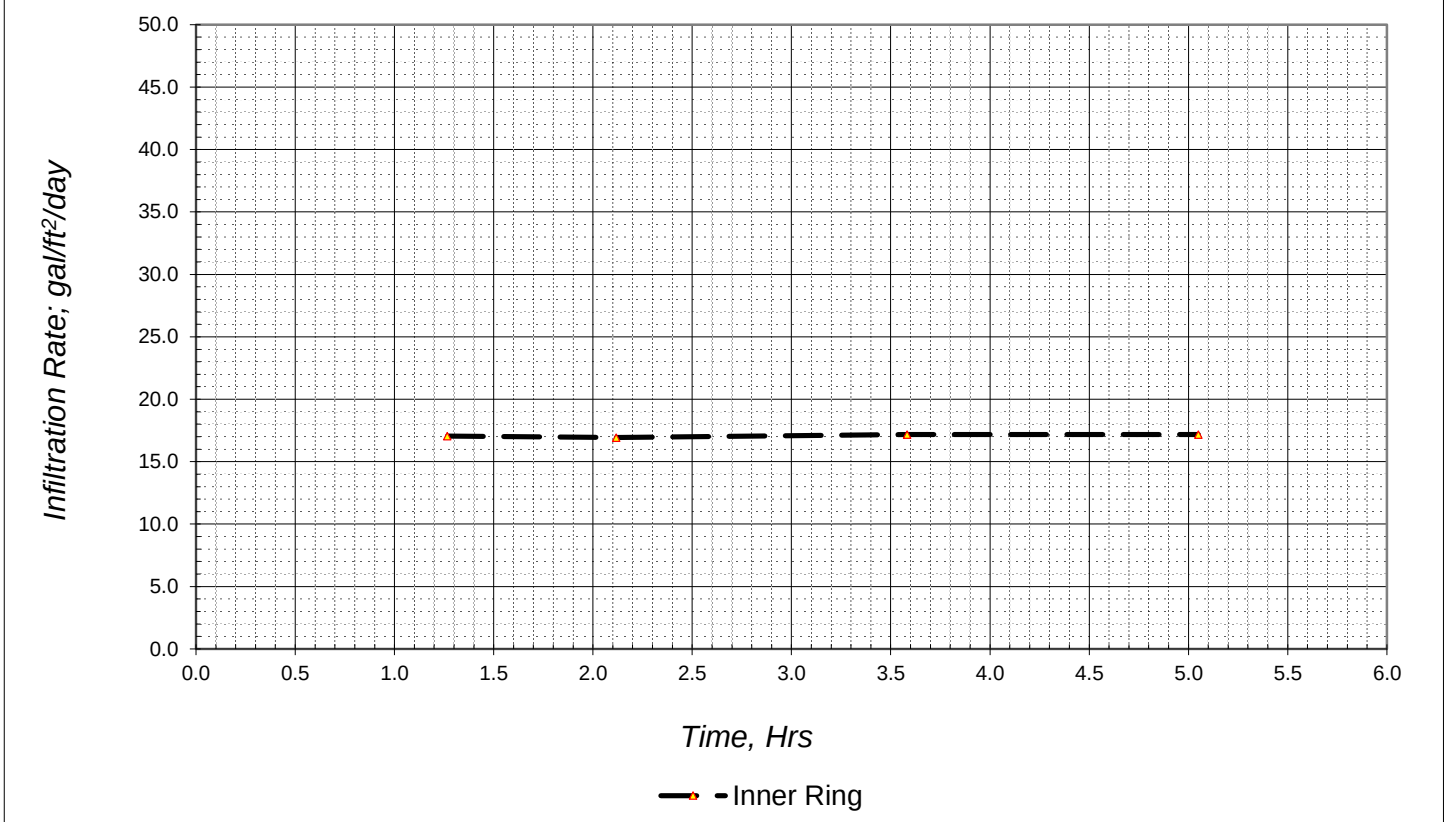
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-5**	**2.0 ft**

Project Location	Test Date:
Visalia, CA	***7/28/15***

Infiltration Rate vs Time



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*76*	*17.0*	Silty SAND (SM)
2	*51*	*16.9*	
3	*88*	*17.2*	
4	*88*	*17.2*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

17 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safety factor is 2.0.

COMMENTS:

Potable water used as permeant

TECHNICON
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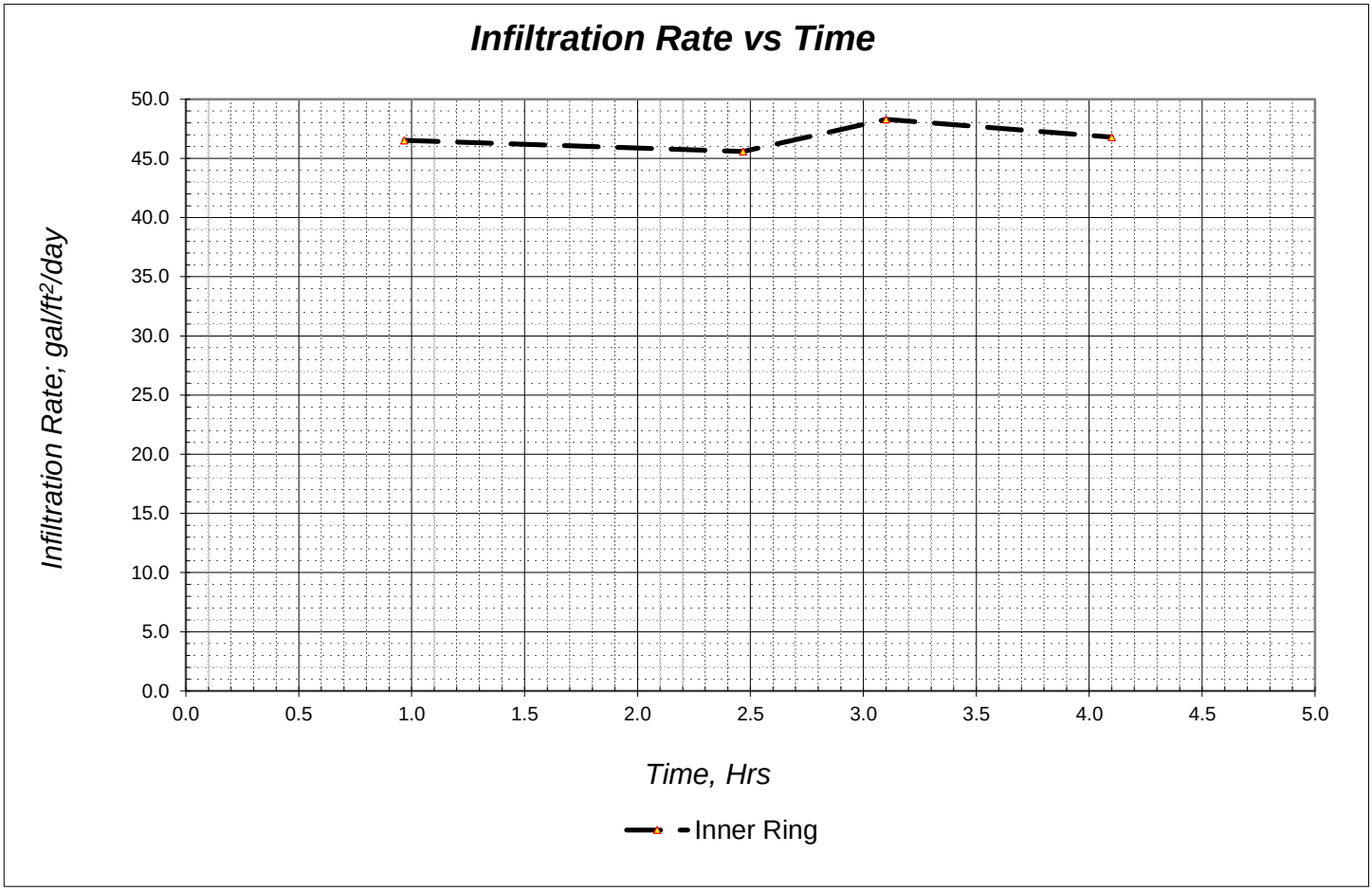
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-6**	**3.0 ft**

Project Location	Test Date:
Visalia, CA	***7/30/15***



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*58*	*46.5*	Silty SAND (SM)
2	*90*	*45.6*	
3	*38*	*48.3*	
4	*60*	*46.8*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

47 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safety factor is 2.0.

COMMENTS:

Potable water used as permeant

TECHNICON
ENGINEERING SERVICES, INC.

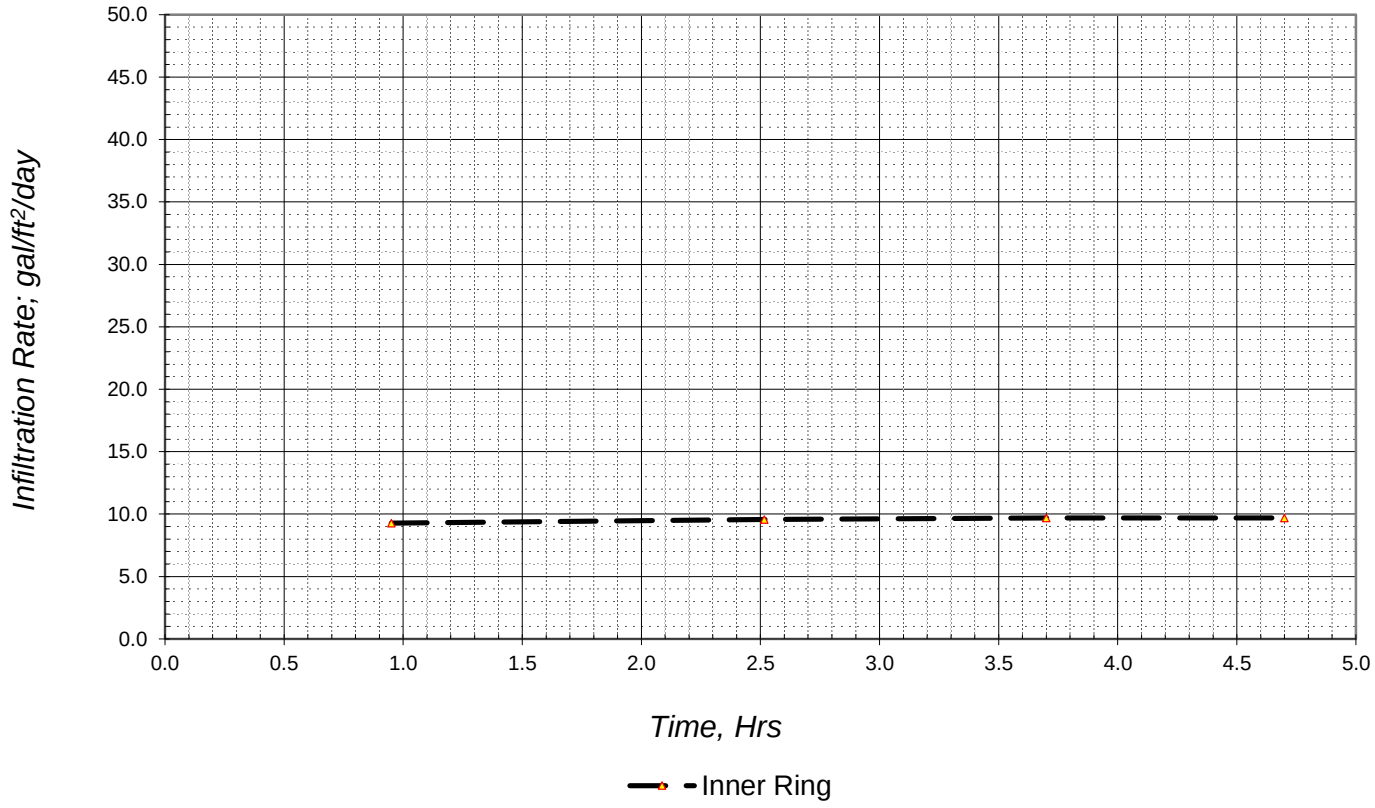
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-7**	**3.0 ft**

Project Location	Test Date:
Visalia, CA	***7/30/15***

Infiltration Rate vs Time



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)
1	*57*	*9.3*
2	*94*	*9.6*
3	*71*	*9.7*
4	*60*	*9.7*
5		
6		
7		

Soil Description:

Sandy SILT (ML)

Groundwater Conditions:

Groundwater Not Encountered

TEST RESULTS

Infiltration Rate =

10 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safet factor is 2.0.

COMMENTS:

Potable water used as permeant

TECHNICON
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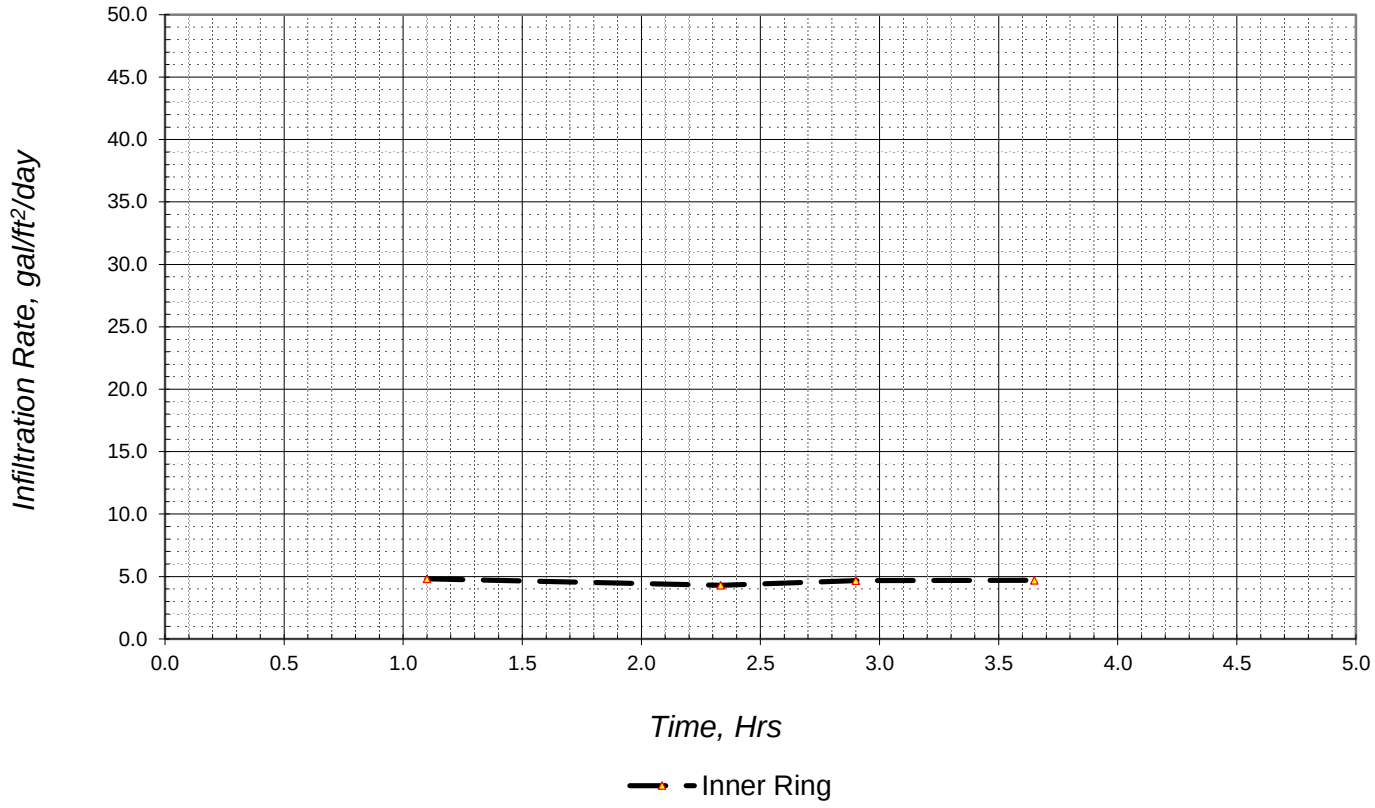
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-8**	**1.0 ft**

Project Location	Test Date:
Visalia, CA	***7/30/15***

Infiltration Rate vs Time



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)
1	*66*	*4.8*
2	*74*	*4.3*
3	*34*	*4.7*
4	*45*	*4.7*
5		
6		
7		

Soil Description:

Sandy SILT (ML)

Groundwater Conditions:

Groundwater Not Encountered

TEST RESULTS

Infiltration Rate =

5 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safet factor is 2.0.

COMMENTS:

Potable water used as permeant

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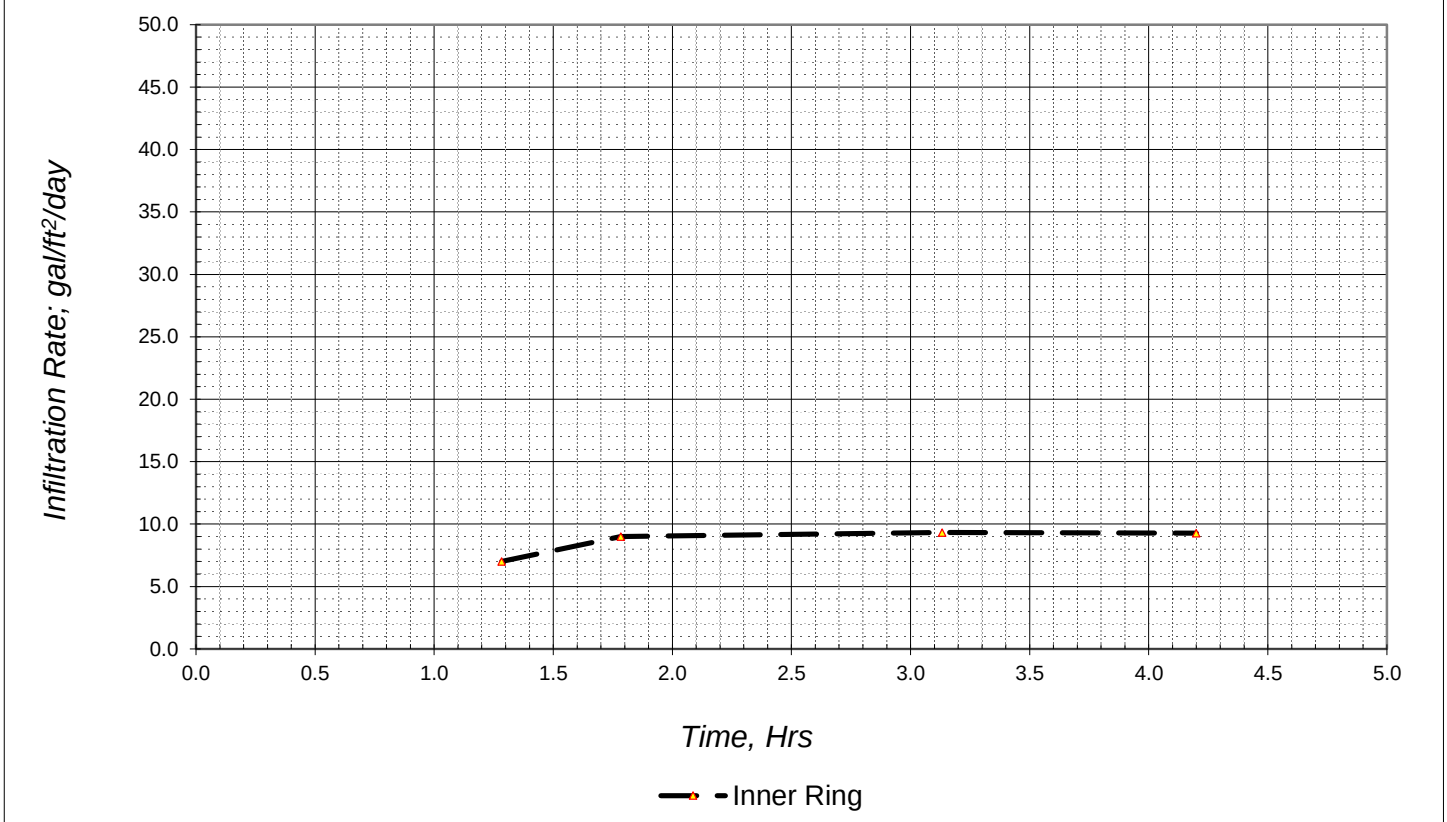
Double Ring Infiltration Test

REPORT

Client / Project Name:	Project No:	Test No.:	Test Depth:
East Side Regional Park	**141034**	**DR-9**	**2.0 ft**

Project Location	Test Date:
Visalia, CA	***7/30/15***

Infiltration Rate vs Time



TEST DATA

ASTM Test Method D3385-88

Trial No.	Duration (min)	Incremental Infiltration Rate (gal/ft²/day)	Soil Description:
1	*77*	*7.0*	Sandy SILT (ML)
2	*30*	*9.0*	
3	*81*	*9.3*	
4	*64*	*9.3*	**Groundwater Conditions:**
5			Groundwater Not Encountered
6			
7			

TEST RESULTS

Infiltration Rate =

9 gal/ft²/day

Note: An appropriate safety factor should be applied to the infiltration rate to account for plugging/sealing and should be based on the expected sediment loading of the permeant. The minimum safet factor is 2.0.

COMMENTS:

Potable water used as permeant

Appendix K. H&H Analysis and Grading

EST. 1968
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CONSULTING GROUP
An Employee Owned Company

2505 Alluvial Avenue
Clovis, CA 93611-9166
Tel: (559) 326-1100
Fax: (559) 326-1090
www.ppeng.com

Memorandum

To:	City of Visalia
From:	Randy Hopkins, PE
Subject:	East Side Regional Park – H&H Analysis and Grading/Flood Zone Technical Study
Date:	9-17-2018

The intent of this memo is to provide documentation for the hydraulic analysis used for the design of the East Side Regional Park (Project).

Background:

The City of Visalia (City) has obtained 280 acres of agricultural land on which it proposes to develop the Project within the City limits in Tulare County, California. The project area lies within Township 18 South, Range 25 East Sections 23, 26, and 27 of the Mt. Diablo Base Meridian. The area for the project is bounded by East Mineral King Avenue on the south (northerly frontage road to SR 198), County Road 152/5th Avenue on the east, East Houston Avenue/SR 216 on the north, and the Big Creek Transmission Lines (which runs parallel to a residential neighborhood) on the west. The City plans to construct: a groundwater recharge/storm water layoff basin complex with associated control structures, a regional park integrated around the basin complex, Tower Street (a northerly extension of the alignment of County Road 148 south of SR 198), an interchange at State Route 198 and Tower Street (not a part of the proposed Project), intersection improvements at Tower Street and State Route 216 (Houston Avenue), Greenway Trail within the SCE easement along the west edge of the project (not a part of the proposed Project), local street connections to the existing subdivisions to the west of Tower Street, trails and other park features adjacent to or along existing waterways, and modifications to the existing waterways.

Objective:

The Project is designed to recharge water that is available from any of the 3 systems that traverse the Project site (Mill Creek, Oakes Ditch, and Packwood Creek). In 2013 the City entered into an agreement with the Tulare Irrigation District (TID) for a long-term exchange of water supplies. The City will deliver to TID treated effluent from its upgraded water treatment plant west of Highway 99 and in exchange TID will provide a portion of its Central Valley Project water supplies in certain higher flow year types marked by what is called “Uncontrolled Season.” On average this should result in approximately 5,500 acre-feet per year of water being made available from the Friant Division of the CVP (Friant-Kern Canal) which the City can take delivery of via the lower Kaweah System (Mill Creek, Persian-Watson Ditches, Packwood Creek, Oakes Ditch, Evans Ditch, Tulare Irrigation Company Ditch or Cameron Creek) or via the St. Johns River system (St. Johns River, St. Johns Ditch, Modoc Ditch or Goshen Ditch). The volume of water to be taken by the City in any one year will likely be significantly greater than the average because there will be many years when no water at all will be made available to the City via the exchange.

Historical Flow Rates

Historical flow rates were evaluated on each of the three water sources through the Project (Packwood Creek, Oakes Ditch, and Mill Creek) from 1981 to 2012 (Refer to Exhibit A-C). With the historical data, monthly measured flow was graphed for Dry, Wet and Normal hydrologic years. Also graphed were probabilities of flow exceedance. With this information, flows available in the water sources were then compared to the ability for the Project to take water and the lower of the two was chosen to size the diversion points.

Packwood Creek has a wet year maximum flow of 211 cfs in June and a normal year maximum flow of 109 cfs in June. The 30% exceedance flow is approximately 103 cfs. The Project in its entirety has the ability to take an estimated 103 cfs. However, water coming from Packwood Creek currently is not designed to be siphoned under Mill Creek so water can only be distributed to the basins adjacent to Packwood Creek (F and G) for a total of 55 cfs. The diversion to Basin F will be sized for 33 cfs and the diversion to Basin G will be sized for 22 cfs.

Oakes Ditch has a wet year maximum flow of almost 10 cfs in April and a normal year maximum flow of nearly 13 cfs in August. The 30% exceedance flow is approximately 7 cfs. The Project in its entirety has the ability to take an estimated 103 cfs. Since the availability of water in Oakes ditch is the restriction, 13 cfs was chosen for the diversion sizing.

Mill Creek has a wet year maximum flow of 129 cfs in July and a normal year maximum flow of 122 cfs in June. The 30% exceedance flow is approximately 73 cfs. The Project in its entirety has the ability to take an estimated 103 cfs.
However, water coming from Mill Creek is not designed to be siphoned under Packwood Creek so water will from Mill Creek will not be able to reach Basin G. This results in a diversion to the northern porition of the Project of 32 cfs (for Basins A, B, and C) and a diversion to the southern portion of the project of 49 cfs (for Basins D, E and F).

Facility Sizing and Flow Routing

Based on the geotechnical investigation prepared by Technicon, infiltration rates based on a double ring infiltration test show a range between 5 and 129 gal/sf/day which is the equivalent of 0.3 cfs/acre to 8.7 cfs/acre. With the 129 gal/sf/day outlier removed, the average is more in the range of 21 gal/sf/day, or approximately 1.4 cfs/acre. This rate will vary depending on location and is expected to slow down with time after the basins have had time to fill. For the purpose of this analysis, the basins were estimated to recharge an average of 0.5 ft/day. For the purposes of the design, the diversion was calculated based on a higher rate to allow the basins to be filled and to allow for a higher infiltration rate of 2.0 ft/day on start up due to the dry soils. Flows to each basin based on the recharge rates were calculated and are listed in the table below. This results in a total diversion requirement of 103 cfs for the project.

Basin	Area (AC)	Filling Flow[1] (CFS)	Downstream Basins	Total Flow to Basin (CFS)	Water Source
A	19	19	-	19	Mill Creek
B	11.4	11	-	11	Mill Creek
C	1.7	2	A, B	32	Mill Creek
D	2.5	3	E, F	49	Mill Creek, Oakes Ditch

Basin	Area (AC)	Filling Flow[1] (CFS)	Downstream Basins	Total Flow to Basin (CFS)	Water Source
E	12.8	13	-	13	Mill Creek, Oakes Ditch
F	32.8	33	-	33	Mill Creek, Oakes Ditch, Packwood Creek
G	21.7	22	-	22	Packwood Creek

**Rounded to the nearest 1 CFS.*

Assuming an allowable headloss of 1 ft across the inlet and outlet structures and maintaining 5 ft/s as the upper velocity limit, the minimum pipe diameters were calculated. Each conveyance between the basins is designed for the recharge demand for the basin plus any downstream basin (i.e. movement of water through Basin D to Basin F). During initial filling, as the basin fills the flow will begin to diminish until equilibrium is reached between the actual recharge rate and the influent flow rate. Also, water is intended to be taken from multiple sources (Packwood Creek, Oakes Ditch or Mill Creek) requiring the pipelines to accommodate bi-directional operations, thus the pipelines were sized for the greatest possible flow they could encounter (Refer to Exhibit G)

Mill Creek – The high-water level elevation (HWL) in Mill Creek is approximately 353.0. A check structure is proposed in Mill Creek to allow this water level to be maintained while water is being delivered to the Project. Water received from Mill Creek could be distributed north to Basin C, after which it can flow to Basins A and B. Water could also be distributed to Basin D, after which it can flow to Basins E and F. The diversion from Mill Creek is designed for 32 cfs to Basins A, B and C and 49 cfs to Basins D, E, and F.

Oakes Ditch – The HWL in Oakes Ditch is approximately 353.0, also. The pipeline crossing Rd. 152 will be extended into the site and a distribution box built where the City can direct flows to Basin D or F. Water from Oakes Ditch can flow by gravity to Basins D, E and F. The diversion from Oakes Ditch is designed for 49 cfs.

Packwood Creek – The HWL in Packwood Creek could be raised from elevation 348 to elevation 351.25 with modifications to the new check structure just west of the Project. Water received from Packwood Creek will be directed south to Basin G and north to Basin F. The design is based on the HWL of 351.25. Since the HWL is lower than Mill Creek and Oakes Ditch, the water from Packwood Creek will not be able to be routed to the northerly basins, Basins A, B, C, D or E. The diversion from Packwood Creek is designed for 33 cfs to Basin F and 22 cfs to Basin G.

Re-Alignment of Mill Creek

Mill Creek is planned to be re-aligned to accommodate the park amenities while maintaining the Creek's current capacity. The channel boundaries, bed surface, irregularities, obstructions, vegetation and channel meandering are to be considered in hydraulic computations to allow the creek to convey the current capacity without restriction. There are generally three stages in designing the geometry of a stable meandering channel:

1. Reach average dimensions and layout (bank full width, bank full depth, bed slope, sinuosity, wavelength and regular meander path);

2. Local geomorphological variability around meander bend ways (including variable width, location of pools and riffles, maximum scour depth in pools and adjustments to the layout to account for natural variability and site constraints);

3. Fine-tuning of the initial design, based on channel stability assessment

Channel restoration design aim at reconstructing the creek channel to a stable geometric configuration that is self-sustaining and in balance with imposed flow and sediment regimes and the character of the catchment landscape.

Any realignment which would change the floodway would also require a Conditional Letter of Map Revision (CLOMR) from the Federal Emergency Management Agency (FEMA), approving the changes in advance of any construction.

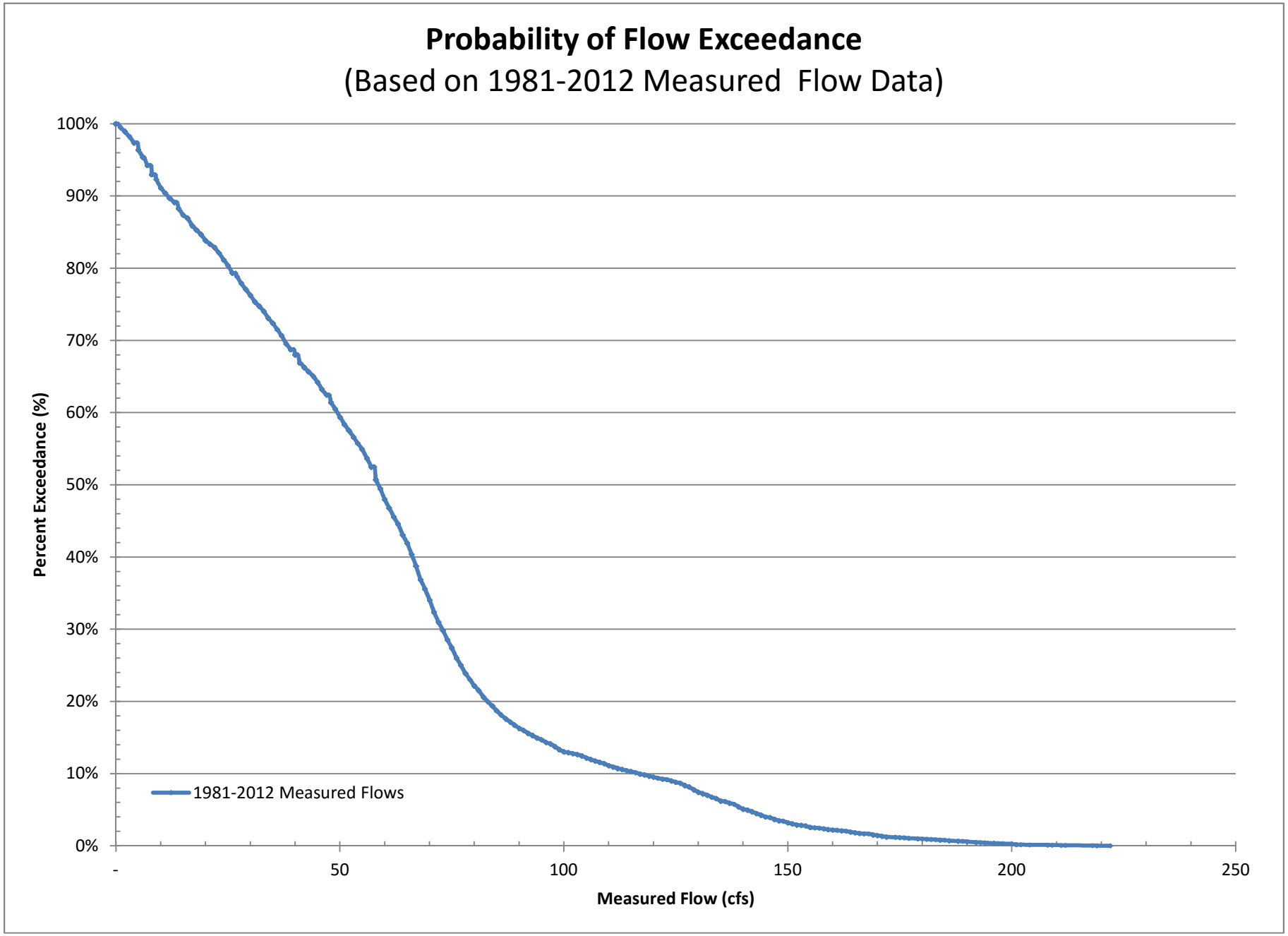
Potential Flood Plain Permitting Requirements

The proposed park area is cover by both FEMA Flood Zones AE and X (Refer to Exhibit H, Map 06107C0955E). For Zone AE, elevations have been established that will need to be respected when designing buildings, support structures, and critical equipment. In general, for the proposed site the AE elevations range from a low of 352 on the west side to a high of 355 on the east side.

The overall grading plan was submitted as part of 30% design. The overall grading cut/fill summary (Refer to Exhibit I) compares the preliminary 30% design finished grade surface to the existing ground surface. Section A (facing north) and Section B (facing west) depict the proposed and existing profiles of the site. The proposed grading sets the top of basin elevation above the existing ground surface. Since most of the basins are elevated above the FEMA Flood Zone AE elevation, the change in the floodway will require a CLOMR from FEMA. A rendered view of the preliminary grading within Flood Zone AE shows the proposed elevations above and below the Zone AE contours (Refer to Exhibit J).

The proposed site grading must also comply with the City's Floodplain Management Regulations Chapter 15.60. The flood carrying capacity within the altered or relocated portion of watercourse must be maintained. All Letters of Map Revision (LOMR) for flood control projects must be approved by FEMA prior to the issuance of building permits. Building Permits shall not be issued based on the CLOMR. Approved CLOMR's do allow construction of the proposed flood control project and land preparation. A cross-sectional flow analysis may be required by the floodplain administrator to determine the potential impacts from developing in Zone AE.

EXHIBIT A - MILL CREEK



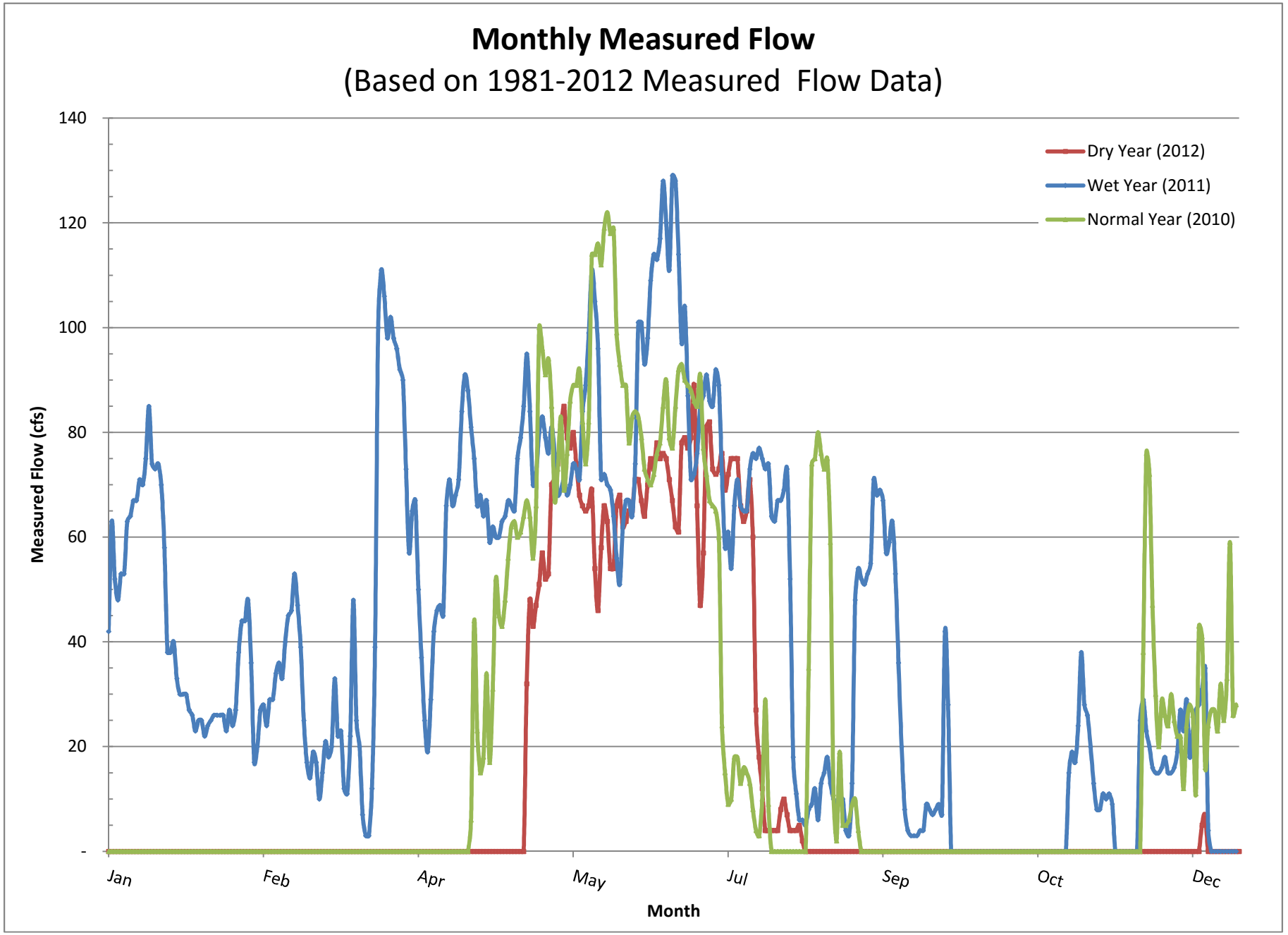
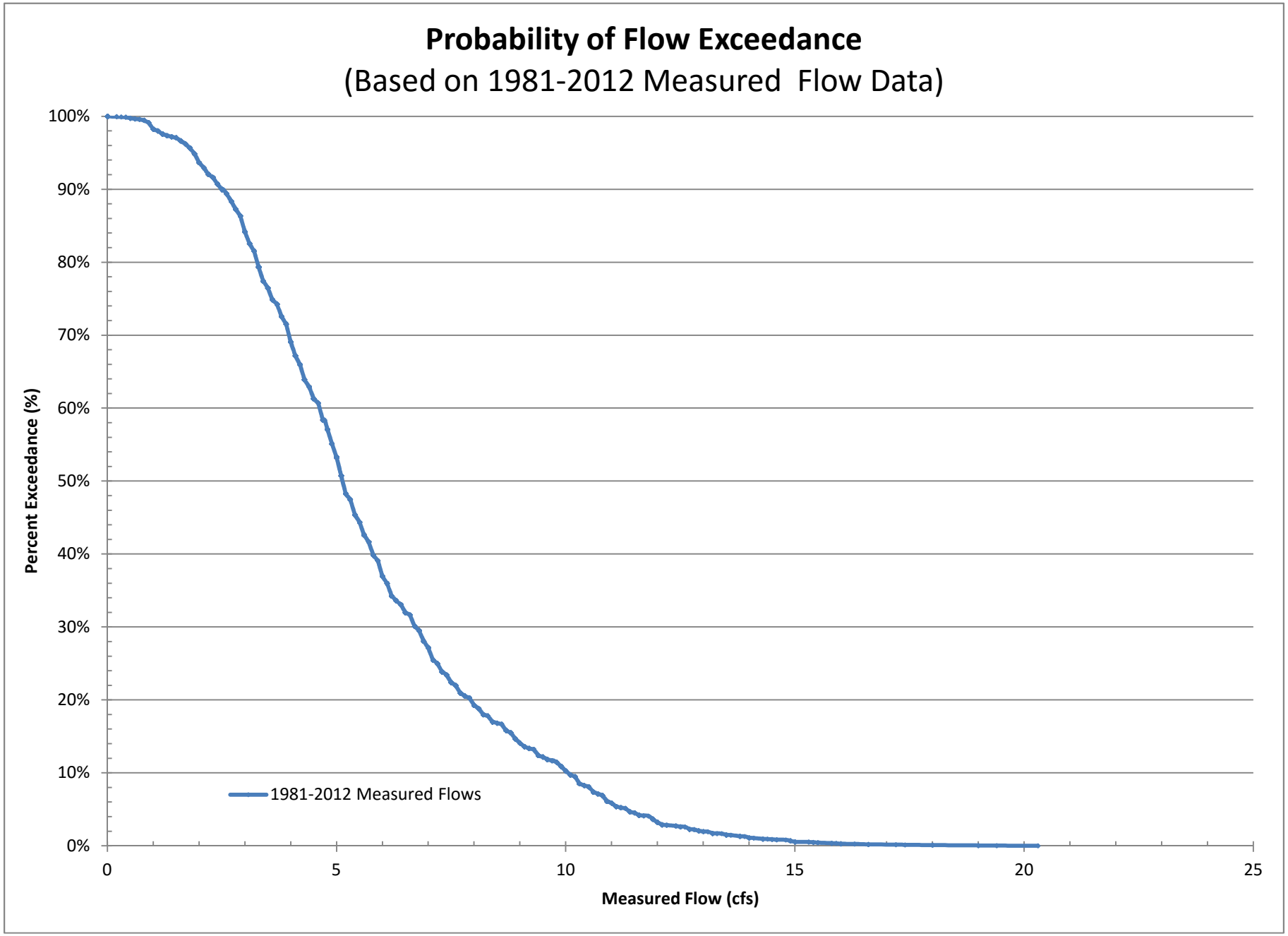

Monthly Measured Flow
(Based on 1981-2012 Measured Flow Data)
Measured Flow (cfs)
140
120
100
80
60
40
20
-
Jan
Feb
Apr
May
Jul
Sep
Oct
Dec
Month
Dry Year (2012)
Wet Year (2011)
Normal Year (2010)

EXHIBIT B - OAKES DITCH



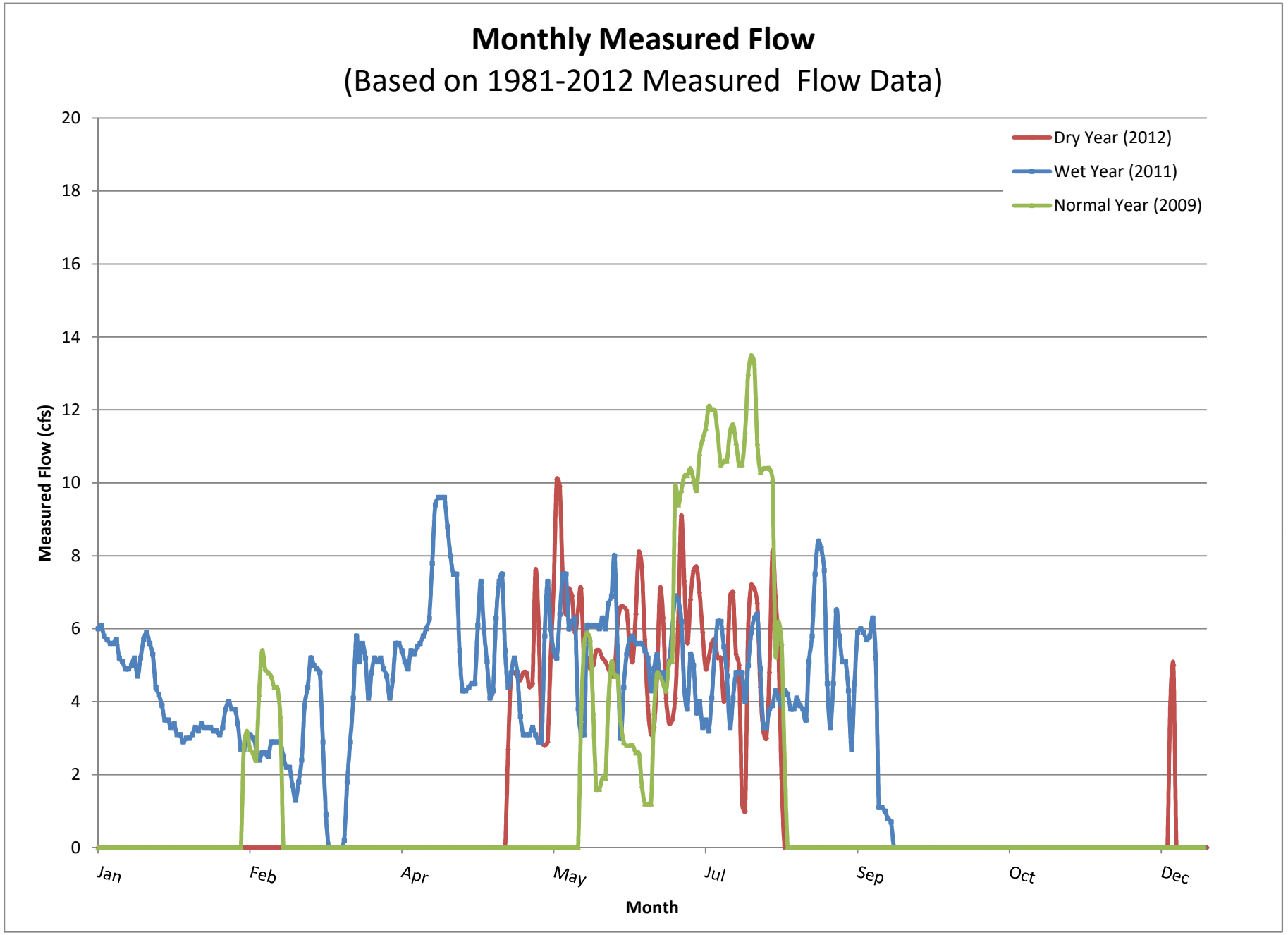
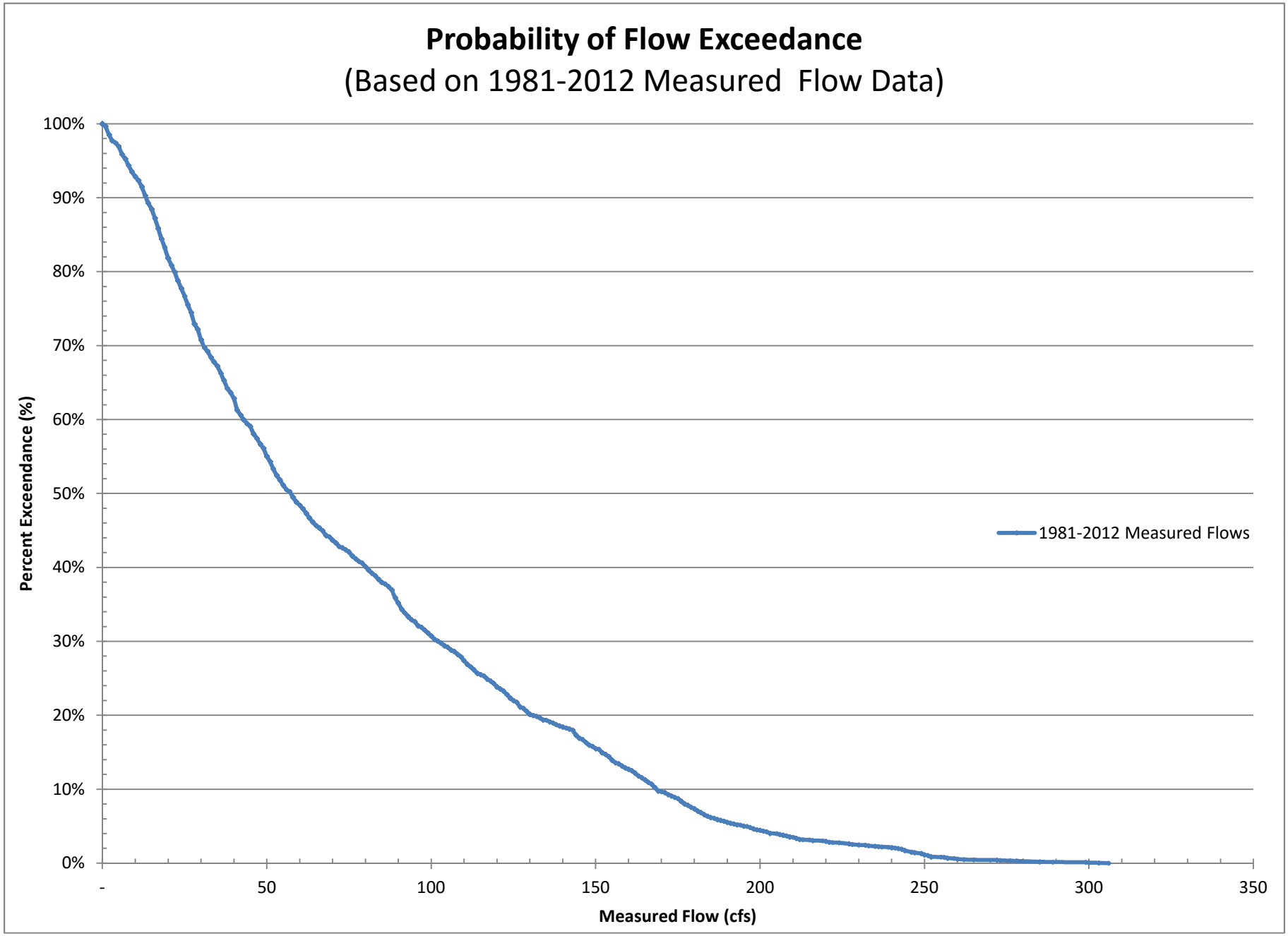

Monthly Measured Flow
(Based on 1981-2012 Measured Flow Data)
Dry Year (2012)
Wet Year (2011)
Normal Year (2009)
Measured Flow (cfs)
20
18
16
14
12
10
8
6
4
2
0
Jan
Feb
Apr
May
Jul
Sep
Oct
Dec
Month

EXHIBIT C - PACKWOOD CREEK



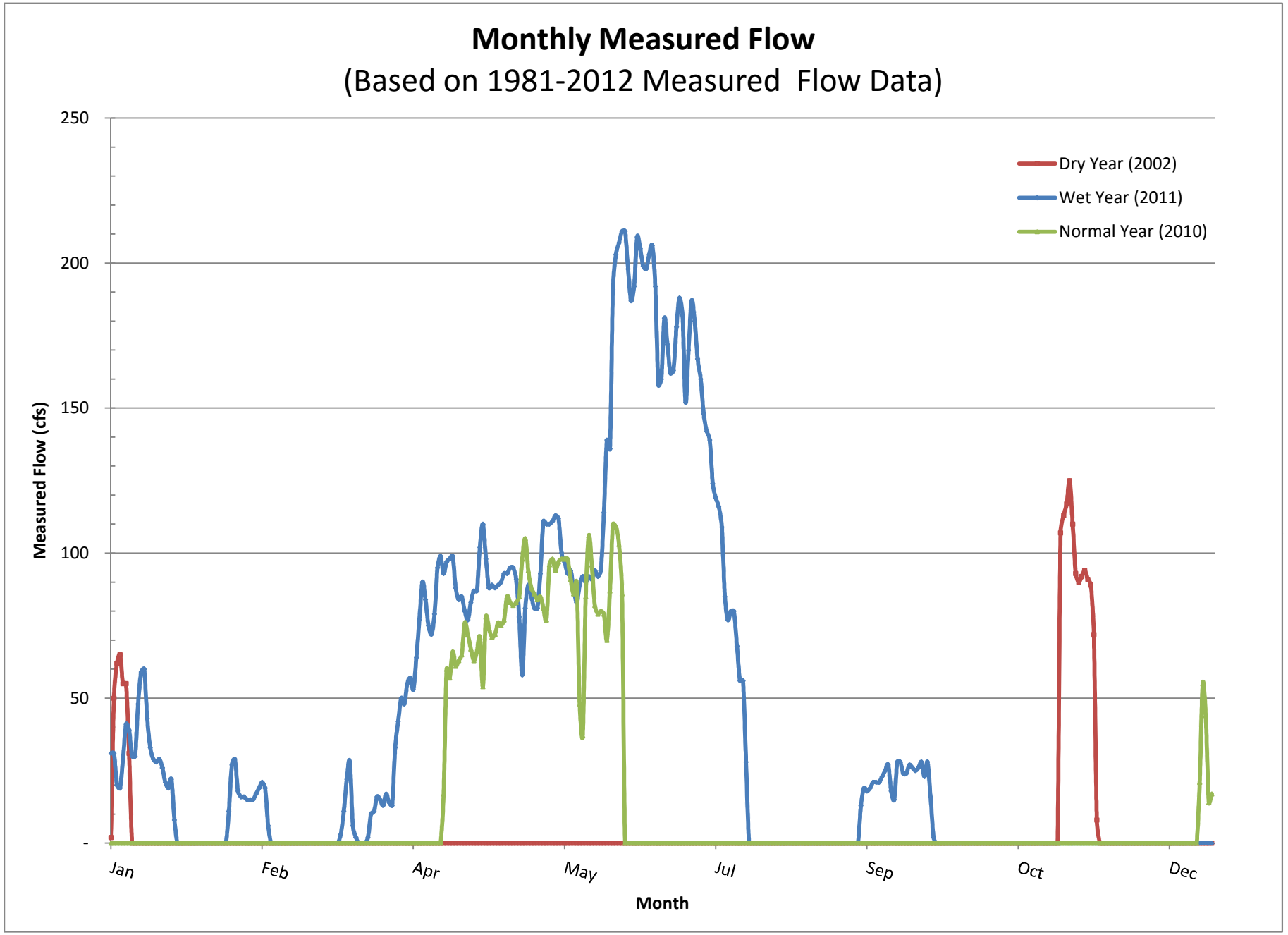
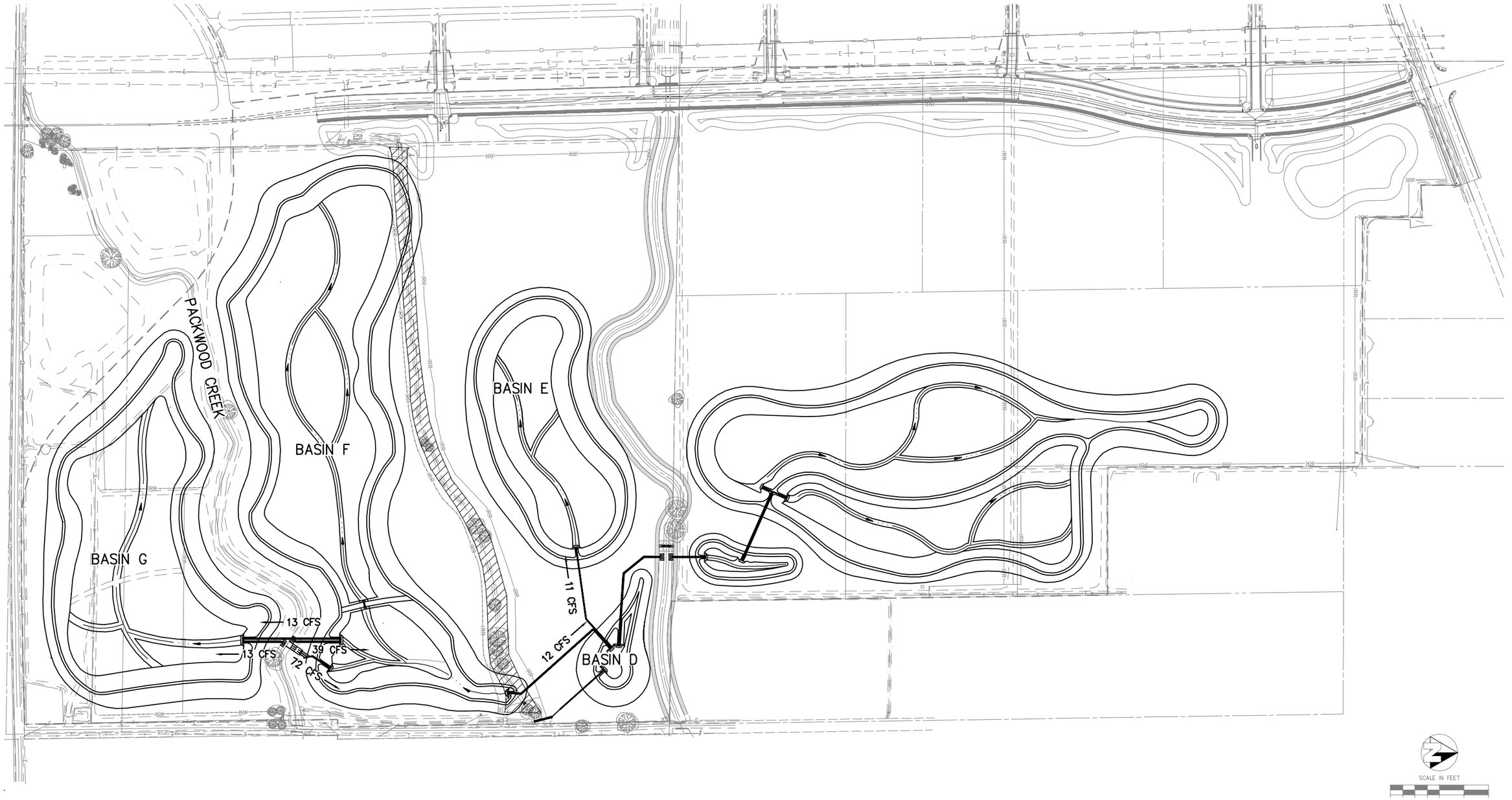

Monthly Measured Flow
(Based on 1981-2012 Measured Flow Data)
250
200
150
100
50
-
Measured Flow (cfs)
Dry Year (2002)
Wet Year (2011)
Normal Year (2010)
Jan
Feb
Apr
May
Jul
Sep
Oct
Dec
Month

EXHIBIT D - Packwood Creek Routing

WATER SOURCE = PACKWOOD CREEK
FLOW ROUTING



WARNING
POWER LINES OVERHEAD

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PRELIMINARY 30%
NOT FOR CONSTRUCTION
3-14-2016

No.	REVISION	BY	DATE

FOR REVIEW ONLY

EAST SIDE REGIONAL PARK
BASIN EARTHWORK CONTRACT
CITY OF VISALIA
TULARE COUNTY

GENERAL

SITE LAYOUT

EST. 1968
PROVOST & PRITCHARD
CONSULTING GROUP
An Employee Owned Company
2505 ALLUVIAL AVENUE
CLOVIS, CALIFORNIA 93611-9166
559/326-1100 FAX 559/326-1090
www.ppeng.com

DESIGN ENGINEER: R. HOPKINS
LICENSE NO: 63538

DRAFTED BY: MAP	CHECKED BY: ACC

DATE: 3-14-2016
JOB NO: 139114V3
PROJECT NO: ----
PHASE: ----

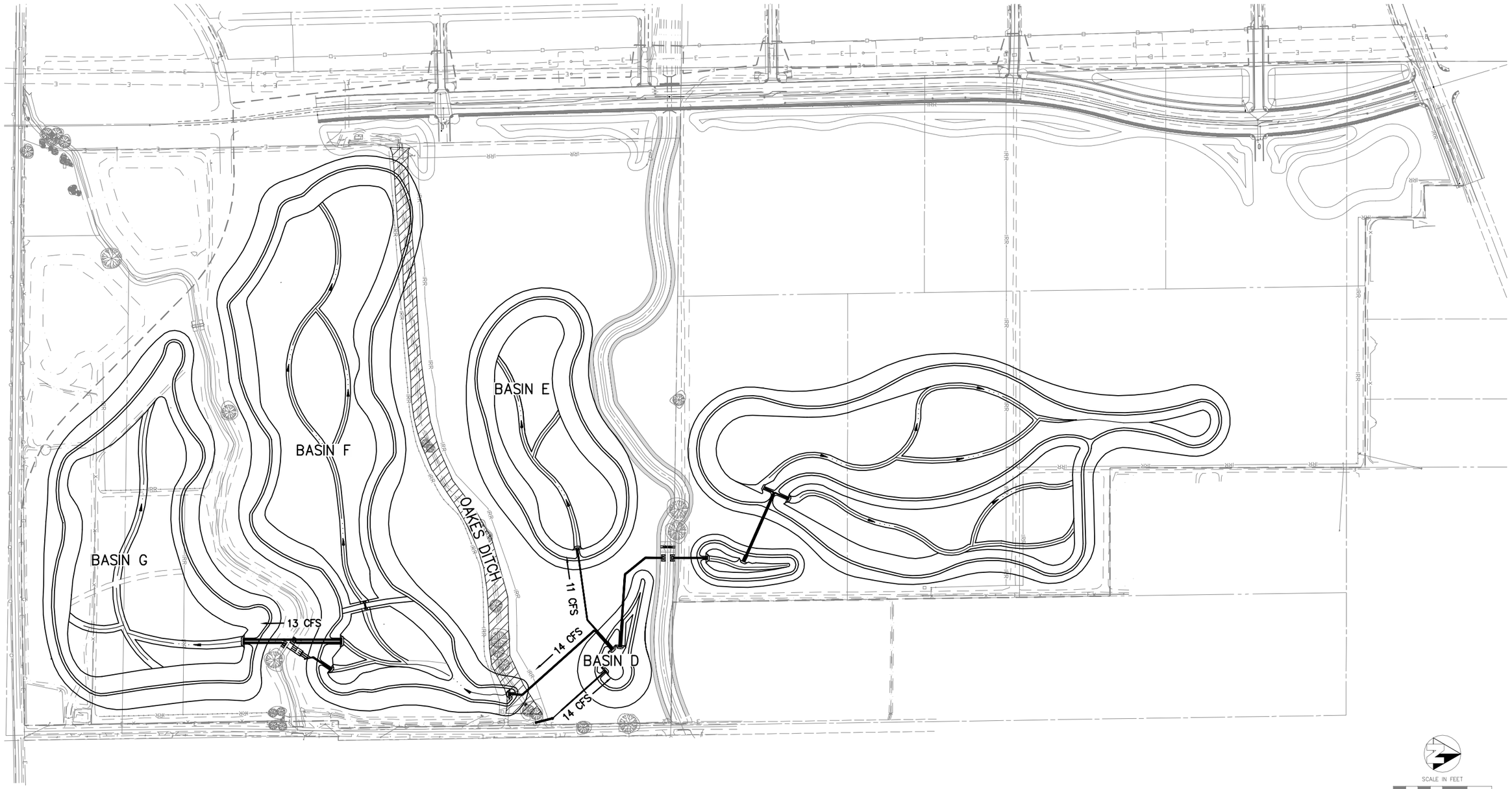
0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET 7 OF 56

4/27/2016 6:10 PM G:\Visalia City of-1391\139114V3-East Side Park\DWG\EXHIBIT\FXR SITE.dwg -Alex Collins

EXHIBIT E - Oakes Ditch Routing

WATER SOURCE = OAKES DITCH
FLOW ROUTING



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DESIGN ENGINEER: R. HOPKINS
LICENSE NO: 63538

DRAFTED BY: MAP	CHECKED BY: ACC

DATE: 3-14-2016
JOB NO: 139114V3
PROJECT NO: ----
PHASE: ----

0 1"
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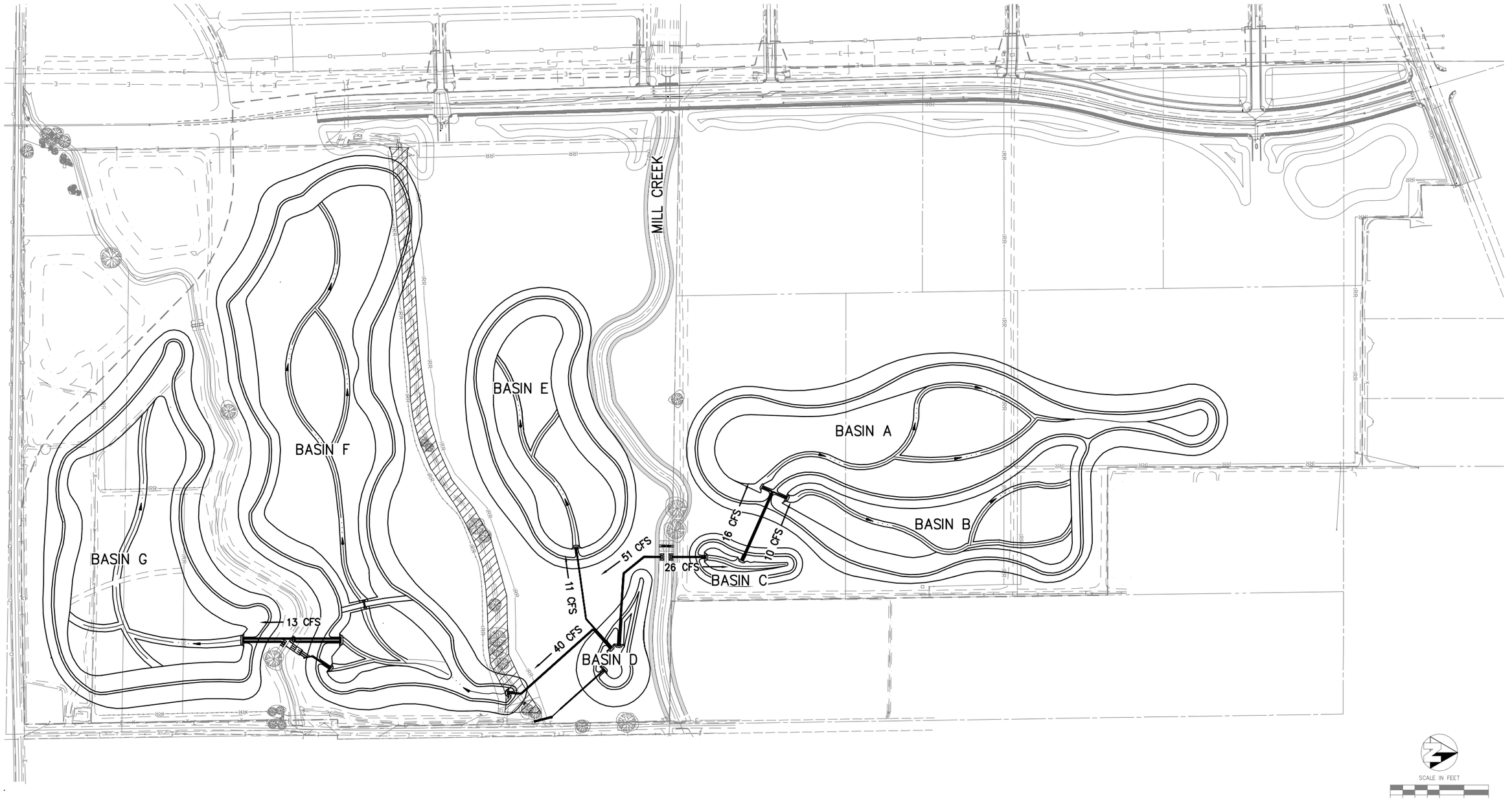
SHEET 7 OF 56

4/27/2016 6:09 PM G:\Visalia City of-1391\139114V3-East Side Park\DWG\EXHIBIT\EXR SITE.dwg -Alex Collins

EXHIBIT F - Mill Creek Routing

WATER SOURCE = MILL CREEK
FLOW ROUTING



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LICENSE NO: 63538

DRAFTED BY: MAP	CHECKED BY: ACC

DATE: 3-14-2016
JOB NO: 139114V3
PROJECT NO: ----
PHASE: ----

0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET 7 OF 56

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South of Mill Ditch 1.4

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PIPE HYDRAULICS

PROJECT: East Side Park
JOB NO: 139114V3 **PHASE:**
DESCRIPTION: Interbasin Pipes 1.4 cfs/acre

COMP. BY: ACC **DATE:** 5/21/2015
CHKD. BY: **DATE:**

				Starting Station Information																	
Starting Station	Ending Station	Location	Observed HW Elev. (ft)	HGL (ft)	Elev. (ft)[3]	Pres. (ft)	Nominal Diameter (in)	Pipe Material[4]	Actual Pipe I.D. (in)	Q (cfs)	Q (gpm)	Manning's n[4]	Velocity (fps)	Vel Head (ft)	Length (ft)	Fric. Rate (ft/ft)	Friction Loss (ft)[5]	Sum of K's [6]	Minor Losses (ft)[7]	Total Head Loss (ft)	End Station HGL (ft)
0+00	4+64	Mill to D		100.0	95.0	5.0	48	RCP	48	51.66	23,185	0.015	4.11	0.26	464	0.00172	0.80	2.00	0.52	1.3	98.7
0+00	4+43	D to E		98.7	95.0	3.7	30	RCP	30	11.06	4,964	0.015	2.25	0.08	443	0.00097	0.43	2.00	0.16	0.6	98.1
0+00	5+48	D to F		98.1	96.0	2.1	48	RCP	48	39.76	17,844	0.015	3.16	0.16	548	0.00102	0.56	2.00	0.31	0.9	97.2
0+00	3+90	F to G		97.2	97.0	0.2	36	RCP	36	13.02	5,843	0.015	1.84	0.05	390	0.00051	0.20	2.00	0.11	0.3	96.9
4+43	--	End		**98.1**	95.0	3.1															

Total Head Loss (ft) = ***1.9***

NOTES:

1) *Inputs are in BLUE*
2) *Calculations are done from upstream to downstream*
3) *Elevations are at center of pipe*
4) *Manning's N Values*
   - *PVC 0.011*
   - *RCP 0.015*
   - *STEEL 0.012*
5) *Manning's Equation*
   $h_L = L \times 0.453 * V^2 n^2 (1/R_h^{4/3})$
6) *K Values for Minor Losses:*
   - *0.5 Square Entrance, "Hydraulics" Daugherty & "Hydraulics" Schoder & Dawson*
   - *1.0 Exit Loss, "Hydraulics" Schoder & Dawson*
   - *2.0 Tilting Disc Check Valve, Tent. Stds. Hydr. Inst.*
   - *0.5 Butterfly Valve, Russell, "Public Water Supplies," p. 236. "Handbook of Appl. Hydr. " Davis*
   - *0.3 90-degree elbow, "Handbook of Hydraulics" Brater & King*
   - *0.2 45-degree elbow, "Handbook of Hydraulics" Brater & King*
   - *1.5 Standard Tee, "Hydraulics" Schoder & Dawson*
   - *0.2 Gate Valve Wide Open*
7) *Minor Loss = $\Sigma K(V^2/2g)$*

COMMENTS:

Flow requrements based on 1.4 CFS/AC fill rate from Architect basin sizes
Allowable headloss assumed to be around 1 ft

North of Mill Ditch 1.4

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PIPE HYDRAULICS

PROJECT: East Side Park
JOB NO: 139114V3 **PHASE:**
DESCRIPTION: Interbasin Pipes 1.4 cfs/acre

COMP. BY: ACC **DATE:** 5/21/2015
CHKD. BY: **DATE:**

				Starting Station Information																	
Starting Station	Ending Station	Location	Observed HW Elev. (ft)	HGL (ft)	Elev. (ft)[3]	Pres. (ft)	Nominal Diameter (in)	Pipe Material[4]	Actual Pipe I.D. (in)	Q (cfs)	Q (gpm)	Manning's n[4]	Velocity (fps)	Vel Head (ft)	Length (ft)	Fric. Rate (ft/ft)	Friction Loss (ft)[5]	Sum of K's [6]	Minor Losses (ft)[7]	Total Head Loss (ft)	End Station HGL (ft)
0+00	1+31	Mill to C		100.0	95.0	5.0	48	RCP	36	26.32	11,812	0.015	3.72	0.22	131	0.00207	0.27	2.00	0.43	0.7	99.3
0+00	3+40	C to A		99.3	95.0	4.3	30	RCP	30	16.24	7,289	0.015	3.31	0.17	340	0.00209	0.71	2.00	0.34	1.0	98.2
0+00	3+48	C to B		98.2	96.0	2.2	24	RCP	24	9.52	4,273	0.015	3.03	0.14	348	0.00236	0.82	2.00	0.29	1.1	97.1
3+40	--	End		**98.2**	95.0	3.2															

Total Head Loss (ft) = ***1.8***

NOTES:

1) *Inputs are in BLUE*
2) *Calculations are done from upstream to downstream*
3) *Elevations are at center of pipe*
4) *Manning's N Values*
   - *PVC 0.011*
   - *RCP 0.015*
   - *STEEL 0.012*
5) *Manning's Equation*
   $h_L = L \times 0.453 * V^2 n^2 (1/R_h^{4/3})$
6) *K Values for Minor Losses:*
   - *0.5 Square Entrance, "Hydraulics" Daugherty & "Hydraulics" Schoder & Dawson*
   - *1.0 Exit Loss, "Hydraulics" Schoder & Dawson*
   - *2.0 Tilting Disc Check Valve, Tent. Stds. Hydr. Inst.*
   - *0.5 Butterfly Valve, Russell, "Public Water Supplies," p. 236. "Handbook of Appl. Hydr. " Davis*
   - *0.3 90-degree elbow, "Handbook of Hydraulics" Brater & King*
   - *0.2 45-degree elbow, "Handbook of Hydraulics" Brater & King*
   - *1.5 Standard Tee, "Hydraulics" Schoder & Dawson*
   - *0.2 Gate Valve Wide Open*
7) *Minor Loss = $\Sigma K(V^2/2g)$*

COMMENTS:

Flow requrements based on 1.4 CFS/AC fill rate from Architect basin sizes
Allowable headloss assumed to be around 1 ft

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 11. The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from U.S. Geological Survey Digital Orthophoto Quadrangles produced at a scale of 1:12,000 from photography dated 1987 or later.

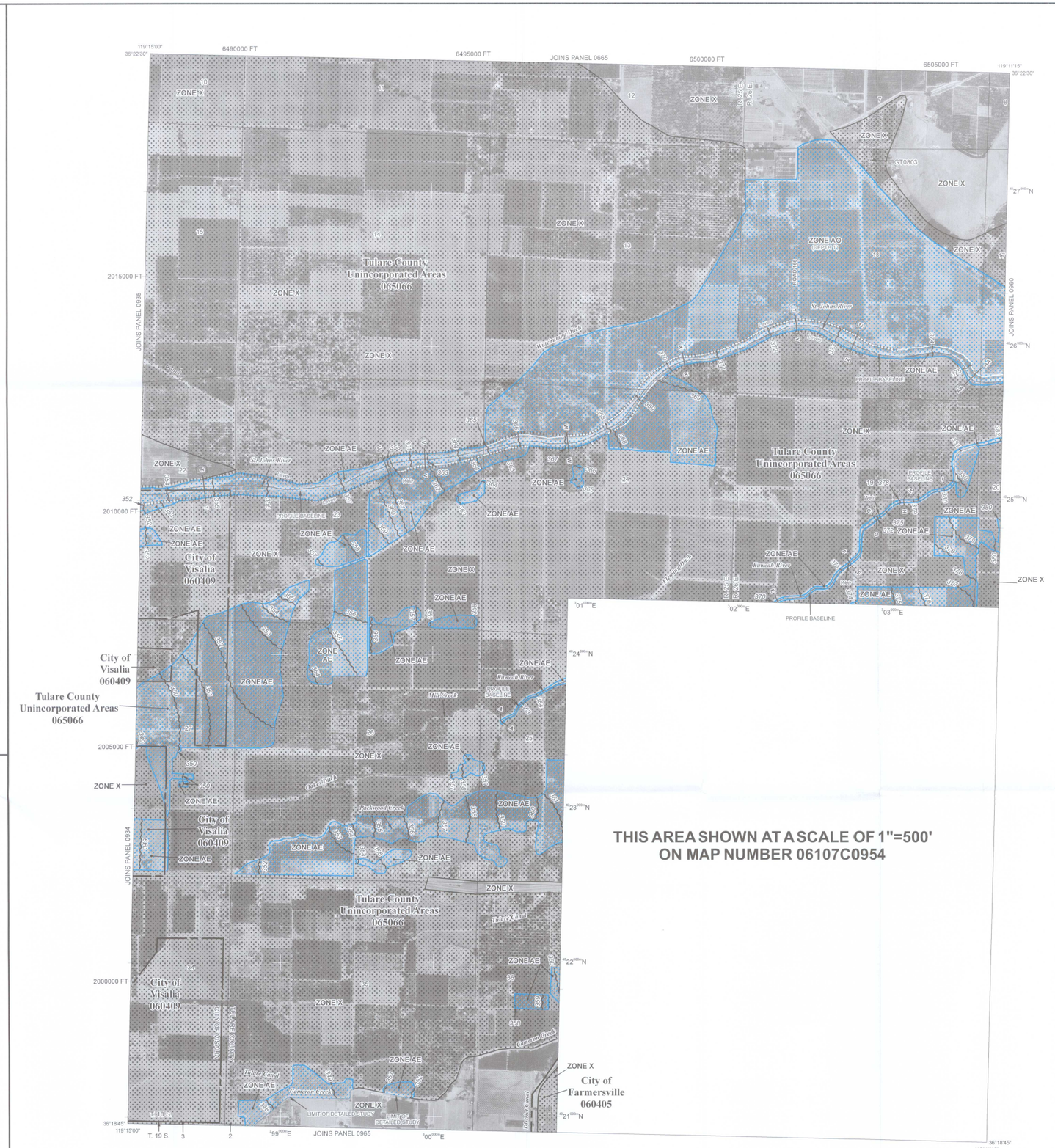
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equalled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet* / Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- (A) (A) — Cross section line
- (23) (23) — Transect line
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4276000mN — 1000-meter Universal Transverse Mercator grid values, zone 11
- 600000 FT — 5000-foot grid ticks: California State Plane coordinate system, zone IV (FIPSZONE 0404), Lambert Conformal Conic projection
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
June 16, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0955E

FIRM

FLOOD INSURANCE RATE MAP

TULARE COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 955 OF 2550
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
FARMERSVILLE, CITY OF	060405	0955	E
TULARE COUNTY	065066	0955	E
VISALIA, CITY OF	060409	0955	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06107C0955E

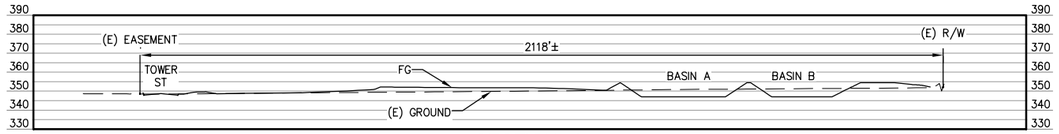
EFFECTIVE DATE
JUNE 16, 2009

Federal Emergency Management Agency

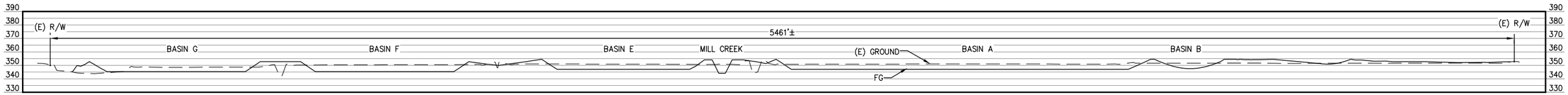
EXHIBIT I - Overall Grading Cut Fill

811 Know what's below. Call before you dig.

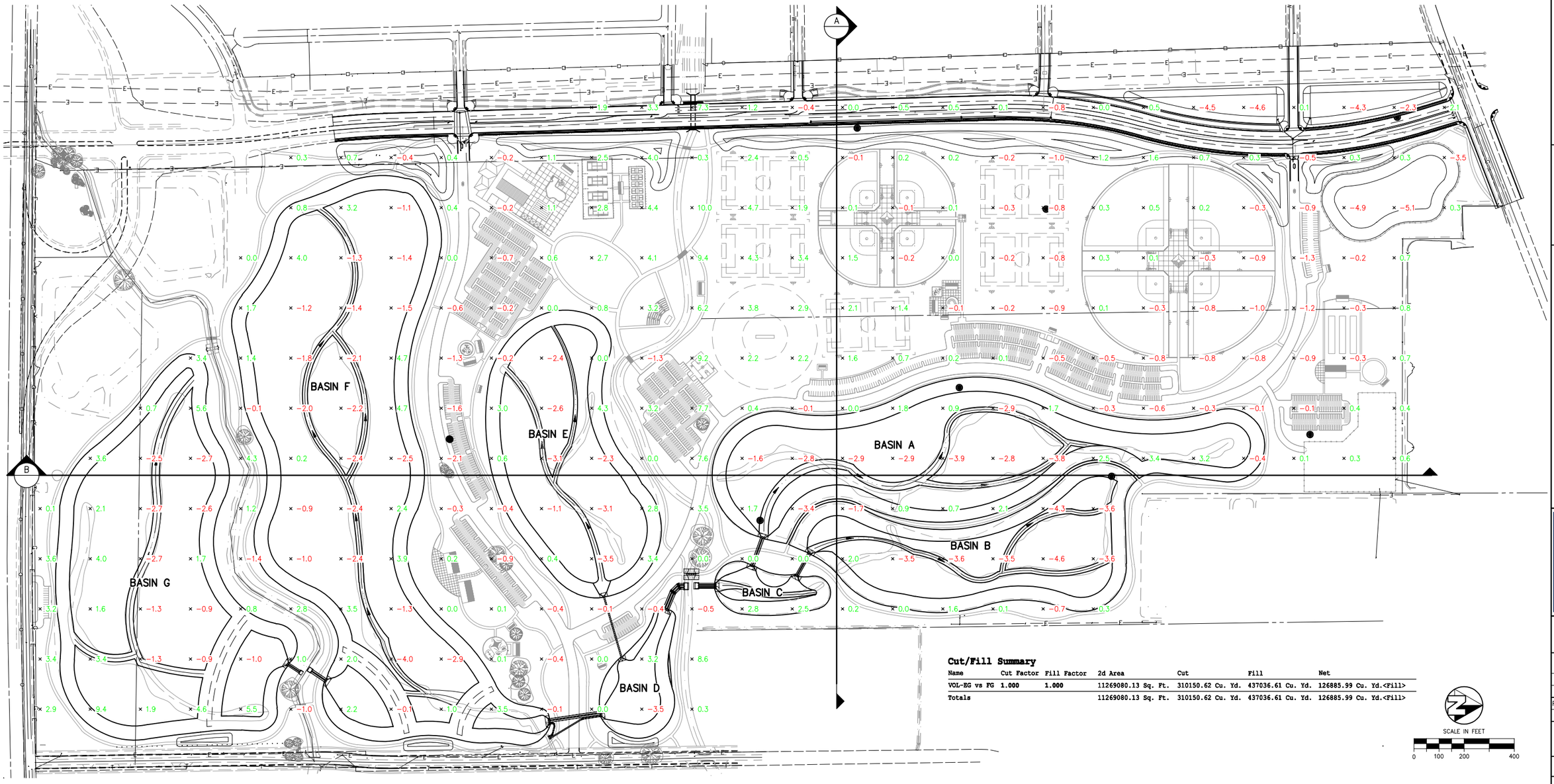
WARNING
POWER LINES OVERHEAD



SECTION A



SECTION B



Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
VOL-EG vs FG	1.000	1.000	11269080.13 Sq. Ft.	310150.62 Cu. Yd.	437036.61 Cu. Yd.	126885.99 Cu. Yd.<Fill>
Totals			11269080.13 Sq. Ft.	310150.62 Cu. Yd.	437036.61 Cu. Yd.	126885.99 Cu. Yd.<Fill>

SCALE IN FEET
0 100 200 400

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PRELIMINARY 30%
NOT FOR CONSTRUCTION
10-27-2016

No.	REVISION	BY	DATE

FOR REVIEW ONLY

EAST SIDE REGIONAL PARK BASIN
RECHARGE CONTRACT
CITY OF VISALIA
TULARE COUNTY

EXHIBIT

OVERALL GRADING

PROVOST & PRITCHARD CONSULTING GROUP
EST. 1968
An Employee Owned Company
2505 ALLUVIAL AVENUE
CLOVIS, CALIFORNIA 93611-9166
559/326-1100 FAX 559/326-1090
www.ppeng.com

DESIGN ENGINEER: R. HOPKINS
LICENSE NO: 63538

DRAFTED BY: MAP | CHECKED BY: ACC

DATE: 10-27-2016

JOB NO: 139114V3

PROJECT NO: ----

PHASE: ----

0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET EXB

— OF 23

9/7/2018 3:02 PM \\ppeng.com\pzdata\Clients\Visalia_City of-1391\139114V3-East Side Park\DWG\EXHIBIT\EXB OVERALL GRADING.dwg -Sean Smith

EXHIBIT J - Elevations in Zone AE

LEGEND

FEMA AE–100 YR FLOOD ZONE
MAP 06107C0955E

PROPOSED AREA ABOVE THE FEMA
AE–100 YR FLOOD ZONE ELEVATION

PROPOSED AREA BELOW THE FEMA
AE–100 YR FLOOD ZONE ELEVATION

PROPOSED TOWER STREET

MINERAL KING AVENUE

ROAD 152

TOP 352.75

TOP 354.50

351

352

353

354

355

SCALE IN FEET
0 100 200 400

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No.	REVISION	BY	DATE

EAST SIDE REGIONAL PARK BASIN
RECHARGE CONTRACT
CITY OF VISALIA
TULARE COUNTY

EXHIBIT
PRELIMINARY GRADING IN
FLOOD ZONE AE

EST. 1968
PROVOST & PRITCHARD CONSULTING GROUP
An Employee Owned Company
265 ALLUVIAL AVENUE
CLOVIS, CALIFORNIA 93611-9166
559/323-1100 FAX 559/326-1090
www.ppeng.com

DESIGN ENGINEER:
R. HOPKINS
LICENSE NO:
63538

DRAFTED BY: MAP | CHECKED BY: SMS

DATE: 9-14-2018

JOB NO: 139114V3

PROJECT NO:

PHASE:

0 1"
ORIGINAL SCALE SHOWN IS ONE INCH. ADJUST SCALE FOR REDUCED OR ENLARGED PLANS.

SHEET EXB

OF

9/14/2018 2:19 PM G:\visalia_city of-139\139114v3-east side park\DWG\EXHIBIT\EXB FLOOD ZONE AE.dwg -Mike A. Porter

Appendix L. Noise

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR

Noise Study Report

March 2019

Prepared for:
Provost & Pritchard
130 N Garden Street
Visalia, CA 93291

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722
Project Manager: Georgiena Vivian

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR Noise Study Report

Study Team

- ✓ Georgiena Vivian, President, VRPA Technologies, Inc., gvivian@vrpatechnologies.com, (559) 259-9257
- ✓ Jason Ellard, Transportation Engineer, VRPA Technologies, Inc., jellard@vrpatechnologies.com, (559) 271-1200

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Executive Summary

This Noise Study Report (NSR) has been prepared for the purpose of identifying potential noise impacts that may result from the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

The Project lies within the central portion of the San Joaquin Valley in Tulare County. The Project is located on the Valley floor at an elevation of approximately 331 feet above sea level with the surrounding area mostly flat.

IMPACTS

Exterior Noise Analysis

Traffic Noise

Traffic volumes, truck mix, and vehicle speeds were used as inputs to the TNM 2.5 noise model

for the Existing, Existing Plus Project, Near-Term (Opening Year) 2018 With and Without Project, and Cumulative Year 2040 With and Without Project modeled scenarios. Traffic volumes and truck mix were determined by the Traffic Impact Study (TIS) prepared for the Project. Tables E-1 and E-2 show the predicted noise levels at nine (9) sensitive receptors for the Cumulative Year 2040 scenario. Results of the analyses show that one of the sensitive receptors will exceed City of Visalia's Transportation Noise Source criteria for both the Cumulative Year 2040 Without Project and the Cumulative Year 2040 Plus Project scenarios. Receiver 7 (residence) is anticipated to exceed the 65 dB DNL/CNEL criteria for residential homes. It should be noted that the existing noise level at Receiver 7 currently exceeds the City of Visalia criteria due to the close proximity of SR 198 (see Table 3). As a result, the Project will not create a significant impact at Receiver 7.

Table E-1
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	52.0	55.0	3.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	57.0	58.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	59.0	60.0	1.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	60.0	60.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	56.0	57.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	59.0	60.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	80	76.0	76.0	0.0	65.0	None [b]
8	Residential area located along Murray Avenue, west of Arroyo Street	100	52.0	53.0	1.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	57.0	57.0	0.0	65.0	None

Source: VRPA Technologies, 2017
a: Distance from Tower Street for Plus Project scenario
b: See Table 3

Table E-2
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	62.0	0.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	63.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	60.0	0.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	56.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	60.0	0.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Stationary Noise

Phase 2 Operations

Phase 2 of the Project includes the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area).

Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receivers directly to the west of the Project site will be impacted by the ball fields assuming that games are being played on all 13 ball fields at the same time. Table E-3 shows that Area 1, Area 2, and Area 3 (see Figure 52) would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 10 dBA would be needed to meet City of Visalia's noise criteria.

Table E-3 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

Table E-3
Phase 2 and 3 On-Site Noise Source Impacts

Area	Hourly Equivalent Sound Level Leq dBA	Maximum Sound Level, dBA	City of Visalia's Stationary Noise Source Criterion	Impact
1	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
2	60.0	70.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
3	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
4	65.0	70.0	50 L_{eq} (h) / 70 L_{max}	Yes / No

Source: VRPA Technologies, 2017

Phase 3 Operations

This section provides an assessment of the anticipated on-site noise conditions related to Phase 3 (Full Buildout) of the Project and the impact of noise generated by the Project on the surrounding land uses within the study area. The only significant noise source that Phase 3 of the Project will add to the previous phases is the amphitheater amenity.

The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. It is anticipated that several events will take place within the amphitheater area of the Project site throughout the year. The exact types of events are unknown at this time. It should be noted that amplified events (i.e. music concerts) would generate more noise than a non-amplified event. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet[1] from speaker equipment, which would generate maximum noise levels of approximately 65-70 dBA at sensitive receivers directly west of the amphitheater. Though the City of Visalia's Stationary Noise Source criteria for maximum noise may not be exceeded, sustained noise levels of 85-90 dBA at the amphitheater would cause hourly noise levels at sensitive receivers directly to the west of the Project to exceed the City of

1 Source: Bollard Acoustical Consultants, Inc. Saint James Park Concerts Environmental Noise Analysis

Visalia's Stationary Noise Source criteria for the hourly equivalent sound level as depicted in Table E-3. Potential noise levels associated with amplified events at the amphitheater are considered significant given the lack of information related to events to be held at the amphitheater.

CEQA ENVIRONMENTAL CHECKLIST

In accordance with the California Environmental Quality Act (CEQA), the effects of a Project were evaluated to determine if they will result in significant adverse impacts on the environment. This NSR has determined the Project may result in the following significant impacts requiring the stated recommended mitigation measures. The level of impact after incorporation of mitigation is also described.

The criteria used to determine the significance of a noise impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, noise impacts resulting from the Project are considered significant if the Project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Short-Term Impacts

During the construction phase of any future development projects, noise from construction activities will add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85dB at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity will not result in significant adverse impacts to nearby sensitive receptors.

MM Noise 1 **-** *Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

Long-Term Impacts

Traffic Noise

Future development within the planning area will result in increased traffic volumes, thus increasing noise levels in some areas. Tables 13, 14, 15, and 16 and Figures 22 through 51 show the predicted noise levels at the modeled receivers evaluated in the study area for the Cumulative Year 2040 With and Without Project conditions. Results of the analysis show that noise at sensitive receptors will not exceed the City of Visalia's Transportation Noise Source criteria for the Cumulative Year 2040 Plus Project scenarios. There will be minimal changes

in the traffic noise exposure levels with the Project at various setbacks of 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area as shown in Tables 17, 18, 19, 20, 21, and 22. Implementation of the Project will not result in significant adverse impacts from traffic noise levels within the Project study area. Therefore, no mitigation measures are needed.

Stationary Noise

Phase 2 Operations

Section 4.2 indicates that Phase 2 on-site operations will impact sensitive receptors directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site will be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time. Table 23 shows that Area 1, Area 2, and Area 3, as shown on Figure 52, would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 10 dBA would be needed to meet City of Visalia's noise criteria.

Table 23 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the following recommended mitigation measures:

> ***MM Noise 2 –*** *Use of softball, baseball, and soccer fields shall be limited to the hours of 7:00am – 10:00pm.*
> ***MM Noise 3 –*** *Construction of the specified portion of an 8-foot sound wall along residential boundary of homes directly to the west of Project site (see Figure 54 for approximate location). The sound wall material should consist of concrete block (8in. x 8in. x 16in.), dense concrete (4in. thick), or light concrete (4in. to 6in. thick).*

Mitigation Measures MM Noise 2 and MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design.

An alternative to the recommended 8-foot sound wall along the residential boundary of homes directly to the west of the Project site is an 8-foot earth berm (2:1 slope). The earth berm would be located along the western boundary of the Project site as depicted in Figure 55. This mitigation alternative would alleviate noise impacts from the Project in relation to the residential homes directly west of the Project.

Phase 3 Operations

Section 4.2 also indicates that Phase 3 on-site operations will impact sensitive receivers directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate hourly noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the **MM Noise 3**. The following mitigation measure can be implemented in lieu of an 8-foot sound wall (see Figure 54 – Phase 3):

MM Noise 4 – *Reorient the amphitheater to the northeast.*

Mitigation Measure MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design. Mitigation Measure MN Noise 4 will eliminate the Project's impacts to sensitive receivers to the west of the Project.

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Construction activities associated with Phases 1, 2, and 3 of the Project would likely require the use of various types of equipment including bulldozers, vibratory rollers, and dump trucks. Based on the vibration levels provided in Table 7, ground vibration generated by common construction equipment would be between 75 and 82 VdB or less at a distance of 100 feet or more. The single-family residences located adjacent to Receiver 6 and Receiver 9 may be subject to vibration levels greater than 75 VdB depending on the location of bulldozers, vibratory rollers, and dump trucks operating on the Project site.

In order to reduce potential construction vibration impacts to sensitive receivers to less than significant, all construction phases of the Project should comply with the following

recommended mitigation measures:

MM Noise 5 – *Vibration Monitoring will be conducted during construction of Phases 1, 2, and 3 of the Project when directly adjacent to a sensitive receptor. Vibration will be monitored along the perimeter of the construction area and at varying distances.*

A vibration criterion of 0.5 inches per second (in/sec) peak particle velocity (PPV) is proposed as the applicable action threshold criteria for ground-borne vibration measurement during proposed remedial construction activities. The 0.5 in/sec PPV criterion has been established by the United States Bureau of Mines (USBM) as the threshold above which damage to interior plaster walls may occur. This criterion has become recognized by industry as the threshold for the onset of vibration damage to typical residential structures. Collected vibration monitoring results will be compared to the vibration criterion. The results will also be tabulated and reviewed on a weekly basis to assess trends and formulate the basis for mitigation measures, if required.

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Traffic Noise

Tables 3, 8, and 10 shows the impact of the Project to the modeled sensitive receivers evaluated in the study area. The results indicate that the changes in noise levels, as a result of the Project, are insignificant. The Project will result in a maximum increase of eight (8) decibels when comparing Existing and Existing Plus Project Conditions (Receivers 1 and 2). This increase is primarily due to the construction of Tower Street and the adjustments to existing travel patterns in the study area as a result of Tower Street.

There will be minimal changes in the traffic noise exposure levels at various setbacks of 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area. Implementation of the Project will not result in significant adverse impacts from traffic noise levels within the Project study area. Therefore, no mitigation measures are needed.

Stationary Noise

Section 4.2 above indicates that Phase 2 on-site operations will impact sensitive receptors directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site will be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields

at the same time. Table 23 shows that Area 1, Area 2, and Area 3 as shown on Figure 52 above would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 10 dBA would be needed to meet City of Visalia's noise criteria.

Table 23 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with mitigation measures **MM Noise 2 MM and Noise 3**.

Mitigation Measures MM Noise 2 and MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design.

Section 4.2 also indicates that Phase 3 on-site operations will impact sensitive receivers directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with mitigation measures **MM Noise 3 or MM Noise 4**.

Mitigation Measure MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design. Mitigation Measure MN Noise 4 will eliminate the Project's impacts to sensitive receivers to the west of the Project.

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

During the construction phase of any future development projects, noise from construction

activities will add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85dB at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity will not result in significant adverse impacts to nearby sensitive receptors.

MM Noise 1 *- Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Project is not located within five miles of a public airport or public use airport. Therefore, the Project will not result in the stated impact. No Mitigation is needed.

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The Project is not located within the vicinity of a private airstrip. Therefore, the Project will not result in the stated impact. No Mitigation is needed.

1.0 Introduction

1.1 Description of the Region/Project

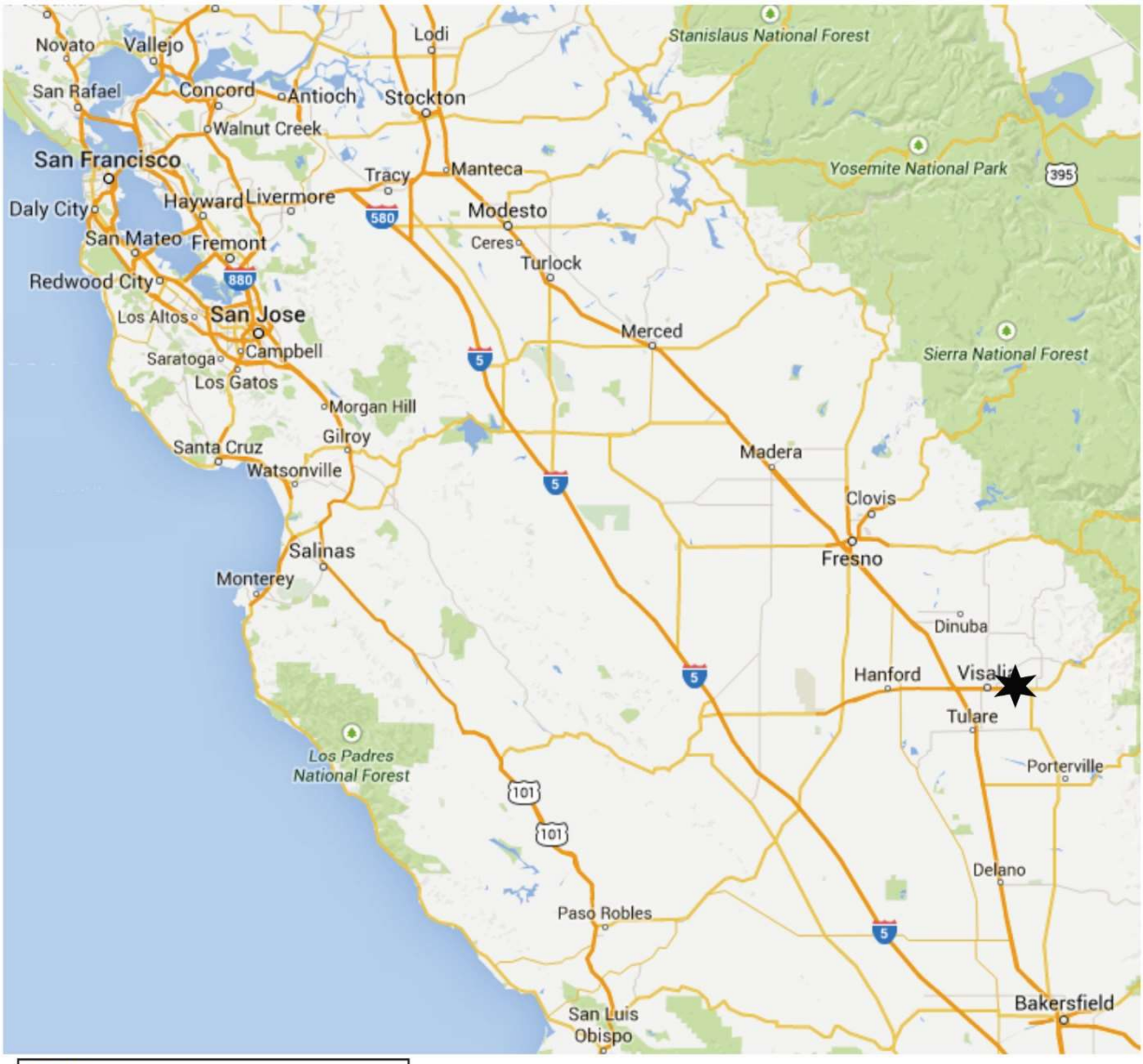
This Noise Study Report (NSR) has been prepared for the purpose of identifying potential noise impacts that may result from the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west. Figures 1 and 2 show the location of the Project along with major roadways and highways. Figure 3 provides the locations of various components of the Project.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

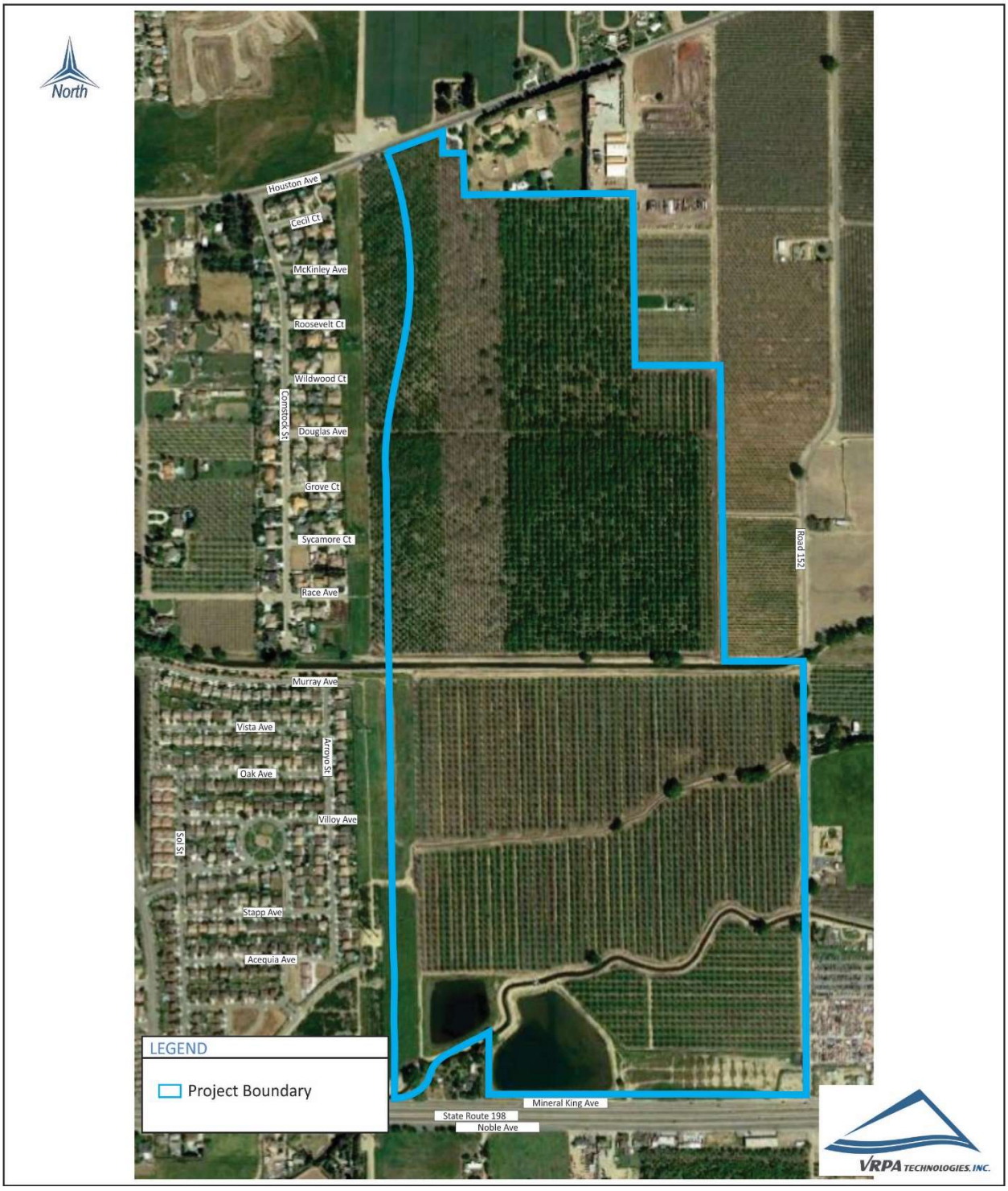
It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 1**
Regional Location



East Side Regional Park & Groundwater Recharge Project EIR **Figure 2**
Project Location



East Side Regional Park & Groundwater Recharge Project EIR **Figure 3**
Project Components

The approximately 148-acre regional park mentioned above will include individual components such as:

- Four (4) lighted and fenced Adult Softball Fields (325' to outfield)
- Four (4) lighted and fenced Youth Baseball Fields (225' to outfield)
- Five (5) lighted full-size Soccer Fields (210' X 330')
- Cricket Field
- Lighted Tennis Courts
- Lighted Pickleball Courts
- Lighted Full Basketball Court
- 18-hole disc golf course
- Amphitheater with seating capacity of 1,500
- Community Center Building (Approx. 30,000 sq. ft.) including outdoor swimming pools
- Dog Park (Approx. 3 acres)
- Multi-use trails with fitness equipment
- Event and Open space turf areas
- Children's Adventure play areas and splash pad
- Picnic Areas (formal and informal)
- Agriculture Education Barn
- Resource Center
- Maintenance Yard
- Parking Areas

The 100-acres of primary use recharge basins along the east and south areas will also be utilized for storm water lay-off as needed in very large storm events. The two basins west of the park on the west side of Tower Street will be utilized for park and street storm water runoff. The dog park area is also depressed to handle storm water runoff from the park. All three total 6 acres of basin area. Other low impact development techniques may be used throughout the park area to handle storm water. Ultimately, when not being utilized for recharge or flood lay-off purposes, and due to their large size, these recharge basin areas can be used for passive recreational activities. While noise will be generated during construction of these basins, they are not expected to generate significant noise levels during operation of the park.

When preparing an NSR, guidelines set by the City of Visalia must be followed. In analyzing noise levels, the guidelines and policies in the Noise section of the City of Visalia's Noise adopted General Plan was utilized. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dBA). A-weighting de-emphasizes the very low and very high frequencies of sound in a

manner similar to the human ear. Most community noise standards use A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

1.2 Sound and the Human Ear

Sound levels are presented on a logarithmic scale to account for the large range of acoustic pressures that the human ear is exposed to and is expressed in units of decibels (dB). A decibel is defined as the ratio between a measured value and a reference value usually corresponding to the lower threshold of human hearing defined as 20 micropascals (µPa). Noise can generally be described as unwanted sound and has been cited as being a health problem, not just in terms of actual physiological damages such as hearing impairment, but also in terms of inhibiting general wellbeing and contributing to stress and annoyance. Long or repeated exposure to sounds at or above 85 dB can cause hearing loss. The louder the sound, the shorter the time period before hearing loss can occur. Sounds of less than 75 dB are unlikely to cause hearing loss even after long exposure.[1]

1.2.1 *A-Weighted Decibels*

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by the characteristics of the human ear. Human hearing is limited not only in the range of audible frequencies but also in the way it perceives the SPL in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. To approximate the frequency response of the human ear, a series of SPL adjustments is usually applied to the sound measured by a sound level meter. The adjustments (referred to as a weighting network) are frequency dependent. The A-scale weighting network approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments of the relative loudness or annoyance of a sound, their judgments correlate well with the A-scale sound levels of those sounds. Other weighting networks have been devised to address high noise levels or other special problems (e.g., B-scale, C-scale, D-scale), but these scales are rarely, if ever, used in conjunction with highway traffic noise. Noise levels for traffic noise reports are typically reported in terms of A-weighted dBAs. In environmental noise studies, A-weighted SPLs are commonly referred to as noise levels.

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise, or of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance, and habituation to noise over differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment, referred to as the "ambient" environment. In general, the more a new noise exceeds the previously existing

1 Source: National Institute on Deafness and Other Hearing Disorders

ambient noise level, the less acceptable the new noise will be judged by the hearers. Regarding increases in A-weighted noise level, knowledge of the following relationships will be helpful in understanding this report:

1. Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived by humans.
2. Outside of the laboratory, a 3 dB change is considered a just-perceivable difference.
3. A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
4. A 10 dB change is subjectively heard as approximately a doubling in loudness.

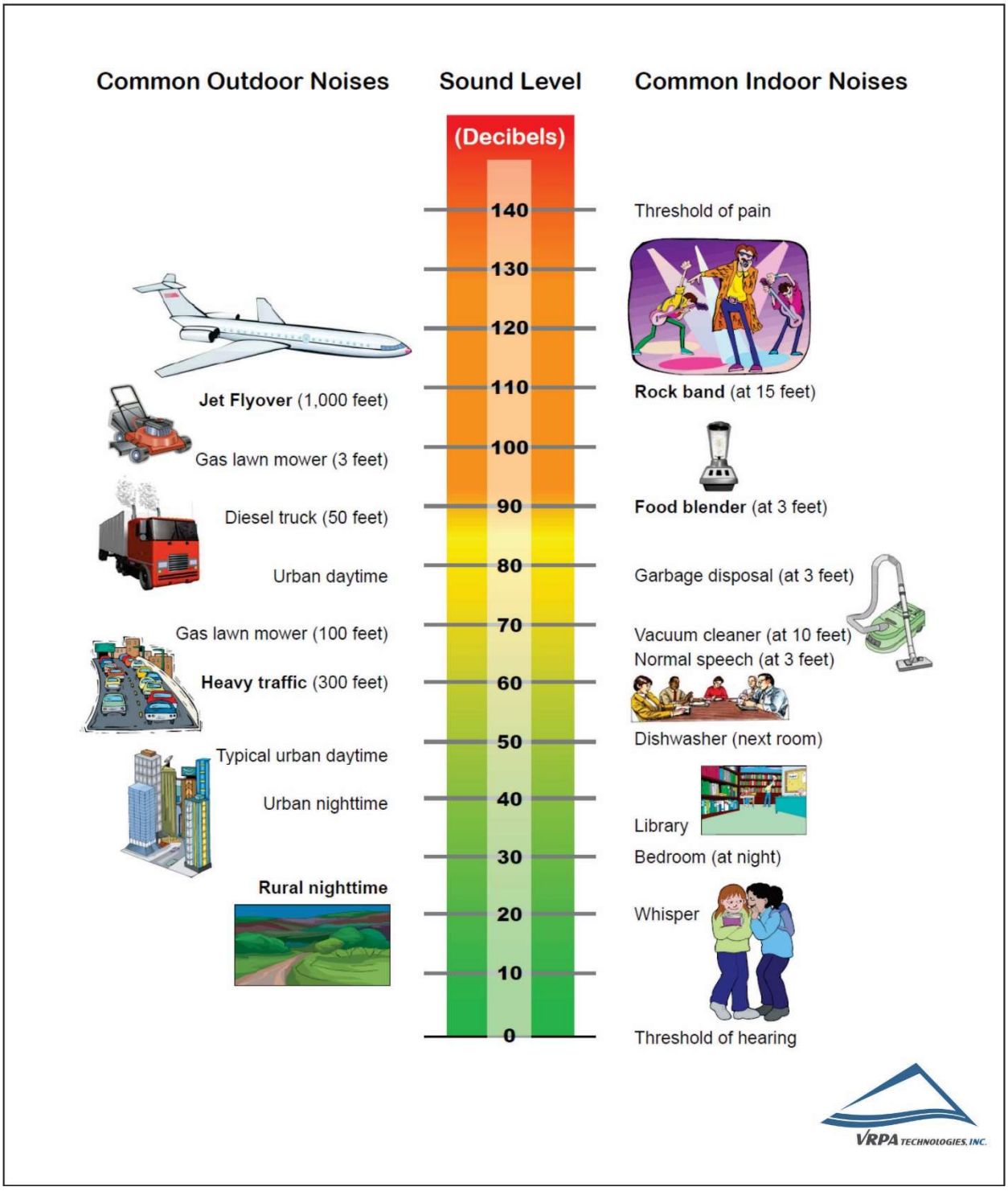
1.2.2 *Sound Pressure Levels and Decibels*

Because of the ability of the human ear to detect a wide range of sound pressure fluctuations, sound pressure levels are expressed in logarithmic units called decibels. The sound pressure level in decibels is calculated by taking the log of the ratio between the actual sound pressure and the reference sound pressure squared. The reference sound pressure is considered the absolute hearing threshold. In addition, because the human ear is not equally sensitive to all sound frequencies, a specific frequency-dependent rating scale was devised to relate noise to human sensitivity. A dBA scale performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear. The basis for comparison is the faintest sound audible to the average ear at the frequency of maximum sensitivity. This dBA scale has been chosen by most authorities for purposes of environmental noise regulation. Typical indoor and outdoor noise levels are presented in Figure 4 (Common Environmental Sound Levels).

1.2.3 *Sound, Noise, and Acoustics*

Sound is a disturbance created by a moving or vibrating source in a gaseous or liquid medium or the elastic stage of a solid and is capable of being detected by the hearing organs. Sound may be thought of as the mechanical energy of a vibrating object transmitted by pressure waves through a medium to a hearing organ, such as a human ear. For traffic sound, the medium of concern is air. Noise is defined as sound that is loud, unpleasant, unexpected, or undesired. Sound is actually a process that consists of three components: the sound source, the sound path, and the sound receiver. All three components must be present for sound to exist. Without a source to produce sound, there is no sound. Likewise, without a medium to transmit sound pressure waves, there is also no sound. Finally, sound must be received; a hearing organ, sensor, or object must be present to perceive, register, or be affected by sound or noise. In most situations, there are many different sound sources, paths, and receivers rather than just one of each. Acoustics is the field of science that deals with the production, propagation, reception, effects, and control of sound.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 4**
Common Environmental Sound Levels



1.2.4 *Frequency and Hertz*

A continuous sound can be described by its frequency (pitch) and its amplitude (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch, like the low notes on a piano, whereas high-frequency sounds are high in pitch, like the high notes on a piano. Frequency is expressed in terms of oscillations, or cycles, per second. Cycles per second are commonly referred to as Hertz (Hz). A frequency of 250 cycles per second is referred to as 250 Hz. High frequencies are sometimes more conveniently expressed in units of kilo-Hertz (kHz), or thousands of Hertz. The extreme range of frequencies that can be heard by the healthiest human ear spans from 16–20 Hz on the low end to about 20,000 Hz (or 20 kHz) on the high end.

1.2.5 *Addition of Decibels*

Because decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means. For example, if one automobile produces an SPL of 70 dBA as it passes an observer, two cars passing simultaneously would not produce 140 dBA; they would, in fact, combine to produce 73 dBA. When two sounds of equal SPL are combined, they will produce a combined SPL 3 dBA greater than the original individual SPL. In other words, sound energy must be doubled to produce a 3 dBA increase. If two sound levels differ by 10 dBA or more, the combined SPL is equal to the higher SPL; in other words, the lower sound level does not increase the higher sound level.

1.3 Characteristics of Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks, and airplanes, and stationary sources such as construction sites, machinery, and industrial operations.

Noise generated by mobile sources typically attenuates (is reduced) at a rate between 3.0 and 4.5 dBA per doubling of distance. The rate depends on the ground surface and the number or type of objects between the noise source and the receiver. Hard and flat surfaces, such as concrete or asphalt, have an attenuation rate of 3.0 dBA per doubling of distance. Soft surfaces, such as uneven or vegetated terrain, have an attenuation rate of about 4.5 dBA per doubling of distance.

Noise generated by stationary sources typically attenuates at a rate between 6.0 and about 7.5 dBA per doubling of distance. Sound levels can be reduced by placing barriers between the noise source and the receiver (commonly called the “receptor”). In general, barriers contribute to decreasing noise levels only when the structure breaks the “line of sight” between the source and the receiver. Buildings, concrete walls, and berms can all act as effective noise barriers. Wooden fences or broad areas of dense foliage can also reduce noise, but are less effective than solid barriers.

1.3.1 *Noise Descriptors*

Noise in the daily environment fluctuates over time. Some of the fluctuations are minor; some are substantial. Some noise levels occur in regular patterns; others are random. Some noise levels fluctuate rapidly, others slowly. Some noise levels vary widely; others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following is a list of the noise descriptors most commonly used in traffic noise analysis:

1. **Equivalent Sound Level (Leq) -** Leq represents an average of the sound energy occurring over a specified period. Leq is, in effect, the steady-state sound level that, in a stated period, would contain the same acoustical energy as the time-varying sound that actually occurs during the same period. The one-hour A-weighted equivalent sound level, Leq(h), is the energy average of the A-weighted sound levels occurring during a one-hour period and is the basis for the Noise Abatement Criteria (NAC) used by the California Department of Transportation (Caltrans) and the Federal Highway Administration (FHWA).
2. **Percentile-Exceeded Sound Level (Lx) -** Lx represents the sound level exceeded for a given percentage of a specified period. For example, L10 is the sound level exceeded 10 percent of the time, and L90 is the sound level exceeded 90 percent of the time.
3. **Maximum Sound Level (Lmax) -** Lmax is the highest instantaneous sound level measured during a specified period.

1.3.2 *Sound Propagation*

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise reduces with distance depends on the following factors:

1. Geometric Spreading - Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of six dBA for each doubling of distance. Highway noise is not a single, stationary point source of sound. The movement of the vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a line source) rather than a point. This line source results in cylindrical spreading rather than the spherical spreading that results from a point source. The change in sound level from a line source is 3 dBA per doubling of distance.
2. Ground Absorption - Most often, the noise path between the highway and the observer is very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is done for simplification only; for distances of less than 60 m (200 ft), prediction results based on this scheme are sufficiently accurate. For acoustically hard sites (i.e., those sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receiver), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface, such

as soft dirt, grass, or scattered bushes and trees, between the source and the receiver), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

3. Atmospheric Effects - Research by Caltrans and others has shown that atmospheric conditions can have a significant effect on noise levels within 60 m (200 ft) of a highway. Wind has been shown to be the most important meteorological factor within approximately 150 m (500 ft) of the source, whereas vertical air temperature gradients are more important for greater distances. Other factors such as air temperature, humidity, and turbulence also have significant effects. Receivers located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lower noise levels. Increased sound levels can also occur as a result of temperature inversion conditions (i.e., increasing temperature with elevation).
4. Shielding by Natural and Human-Made Features - A large object or barrier in the path between a noise source and a receiver can substantially attenuate noise levels at the receiver. The amount of attenuation provided by this shielding depends on the size of the object and the frequency content of the noise source. Natural terrain features (e.g., hills and dense woods) and human-made features (e.g., buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receiver specifically to reduce noise. A barrier that breaks the line of sight between a source and a receiver will typically result in at least 5 dBA of noise reduction.

1.4 Ground-borne Vibration

Annoyance to humans and damage to buildings are the two ground-borne vibration impacts of general concern. The two measurements corresponding to human annoyance and building damage for evaluating ground-borne vibration are peak particle velocity (PPV) and root-mean square (RMS) velocity. PPV is the maximum instantaneous positive or negative peak of the vibration signal, measured as a distance per time (such as millimeters or inches per second). This measurement has been used historically to evaluate shock-wave type vibrations from actions like blasting, pile driving, and mining activities, and their relationship to building damage. RMS is an average, or smoothed, vibration amplitude, commonly measured over 1-second intervals. It is expressed on a log scale in decibels (VdB) referenced to 0.000001 x 10-6 inch per second and is not to be confused with noise decibels. It is more suitable for addressing human annoyance and characterizing background vibration conditions because it better represents the response time of humans to ground vibration signals.

1.5 Methodology

When preparing an NSR, guidelines set by affected agencies must be followed. Acoustical terminology used for this NSR is documented in Appendix A. In analyzing traffic noise levels, the FHWA Highway Traffic Noise Prediction methodology must be applied. Safety concerns must also

be analyzed to determine the need for appropriate mitigation resulting from increased noise due to increased traffic and other evaluations such as the need for noise barriers and other noise abatement improvements. Stationary noise levels were evaluated using Section 2.1.4 of the California Department of Transportation's (Caltrans) Technical Noise Supplement which evaluates the decrease in noise as distance from the noise source increases. Unless otherwise stated, all sound levels reported are in A-weighted decibels (dBA). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards use A-weighting, as it provides a high degree of correlation with human annoyance and health effects.

1.5.1 *California Environmental Quality Act (CEQA)*

CEQA requires environmental impact reports to evaluate whether and to what extent a proposed project may result in significant effects on the environment. If a project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are also evaluated and determined to not be feasible. An EIR is also required to evaluate a reasonable range of alternatives to the proposed Project that could feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project. An EIR must also evaluate a "No Project" Alternative. CEQA Guidelines Appendix G suggests the following as potential thresholds for determining whether a project will result in significant impacts on the environment:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

1.5.2 *City of Visalia*

The Safety and Noise section of the City of Visalia's currently adopted 2014 General Plan serves as the primary policy statement for the City for implementing policies to maintain and improve the noise environment in the City of Visalia. The Safety and Noise section presents Goals and Objectives relative to planning for the noise environment within the City. Section 8.36 of the City's Municipal Code establishes exterior and interior noise standards. Future noise/land use

incompatibilities can be avoided or reduced with implementation of City of Visalia's noise criteria and standards. The City of Visalia realizes that it may not always be possible to avoid constructing noise-sensitive developments in existing noisy areas and therefore provides noise reduction strategies to be implemented in situations with potential noise/land use conflicts. It should be noted that the City of Visalia does not have specific zoning or general plan requirements related to vibration.

Table 1 shows the City of Visalia's maximum allowable noise exposure from Transportation Noise Sources as depicted in the City of Visalia General Plan. Table 2 shows the City of Visalia's maximum allowable noise exposure from Stationary Noise Sources. The information presented in Table 2 comes from Chapter 8.36 of the City of Visalia's Municipal Code which contains the City of Visalia's noise ordinance. It should be noted that the City of Visalia's Municipal Code does note include criteria related to transportation noise sources.

Table 1
Transportation Noise Sources

Noise-Sensitive Land Use	Outdoor Activity Areas [1]	Interior Spaces	
	DNL/CNEL[2], dB	DNL/CNEL[2], dB	L_{eq}, dB [3]
Residential	65	45	--
Transient lodging	65	45	--
Hospitals, Nursing Homes	65	45	--
Theaters, Auditoriums, Music Halls	--	--	35
Churches, Meeting Halls	65	--	45
Office Buildings	--	--	45
Schools, Libraries, Museums	--	--	45

Notes:
(1) Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation area of multi-family developments.
(2) The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.
(3) As determined for a typical worst-case hour during periods of use.
-- = not applicable
DNL = Day-Night Average Level
CNEL = Community Noise Equivalent Level
dB = Decibles
L_{eq} = Noise Equivalent Level

Table 2
Stationary Noise Sources[1]

	Daytime (6:00 a.m. - 7:00 p.m.)	Nighttime (7:00 p.m. - 6:00 a.m.)
Hourly Equivalent Sound Level (L_{eq}), dBA	50	45
Maximum Sound Level (L_{max}), dBA	70	65

Notes:
(1) As determined at the property line of the receiving noise-sensitive use.
L_{eq} = Noise Equivalent Level
L_{max} = Maximum noise level recorded during a noise event

1.5.3 *Study Methods and Procedures*

Site Selection

Developed and undeveloped land uses in the project vicinity were identified through land use maps, aerial photography, and site inspection. Within each land use category, sensitive receptors were then identified. Land uses in the Project vicinity include agricultural, single-family residences, and industrial uses. The generalized land use data and location of particular sensitive receptors were the basis for the selection of the noise monitoring and analysis sites.

Noise Level Measurement Program

Existing noise levels in the project vicinity were sampled during the PM peak hour because traffic counts conducted in the study area show a greater volume of traffic in the PM peak hour than the AM peak hour. All measurements were made using an Extech Type 2 sound level meter datalogger.

The following measurement procedure was utilized:

1. Calibrate sound level meter.
2. Set up sound level meter at a height of 1.5 m (5 ft).
3. Commence noise monitoring.
4. Collect site-specific data such as date, time, direction of traffic, and distance from sound level meter to the center of the roadway.
5. Stop measurement after 15 minutes.
6. Proceed to next monitoring site and repeat.

2.0 Existing Conditions

Existing noise levels in the City are principally generated by transportation noise sources. Vehicular traffic noise is the dominant source in most areas, but aircraft and rail activity are also significant sources of environmental noise in the local areas surrounding these operations. Noise is generated by either mobile or stationary sources.

- ✓ Mobile source noise is typically associated with transportation, such as cars, trains, and aircraft. The most significant sources of mobile noise in the City of Visalia are SR-198 and other major arterial roadways, the Visalia Municipal Airport, and the Burlington Northern and Union Pacific railroad lines.

- ✓ Stationary noise is that generated by any 'fixed' noise source. Examples of stationary sources include outdoor machinery (i.e. such as heating/air conditioning systems and power generators), farming activities, high voltage power lines, and industrial areas within the City. Noise generated from construction sites also falls into the category of stationary sources.

2.1 Traffic Noise

Highway and roadway traffic noise levels are generally dependent upon three primary factors, which include the traffic volume, the traffic speed, and the percent of heavy vehicles on the roadway. Traffic generated noise is the result of vehicle engines, exhaust, tires, and wind generated by taller vehicles. Vehicles with defective mufflers or faulty equipment have the propensity to increase traffic noise. Traffic noise levels are reduced by distance, terrain, vegetation, and natural/manmade obstacles between a noise receptor and the highway/roadway.

To assess existing noise conditions, VRPA Technologies staff conducted noise level measurements at seven (7) locations (called receivers) around the perimeter of the Project study area and tabulated the results. The weather during the time of the noise measurements taken consisted of sunshine and wind speeds of less than 5 mph. The purpose of the measurements was to determine baseline existing noise levels in the Project area and to calibrate the FHWA Traffic Noise model, which will be used to then predict and assess future year conditions.

Noise measurements were taken on September 29, 2016 over the time period of 2pm to 6pm. The seven (7) receivers were located at residential uses along roadways adjacent to or closest to the study area. The receiver locations are shown in Figure 5. It should be noted that the receiver's distance from the roadway centerline in Figure 5 represents the property line of the rear yard for all of the residences. Two additional receivers (8 and 9) were incorporated into the analysis to assess impacts of the Project to other sensitive receptors (residences) in the study area. Those additional receivers are also reflected in Figure 5.

East Side Regional Park & Groundwater Recharge Project EIR
Noise Receiver Locations

Figure 5

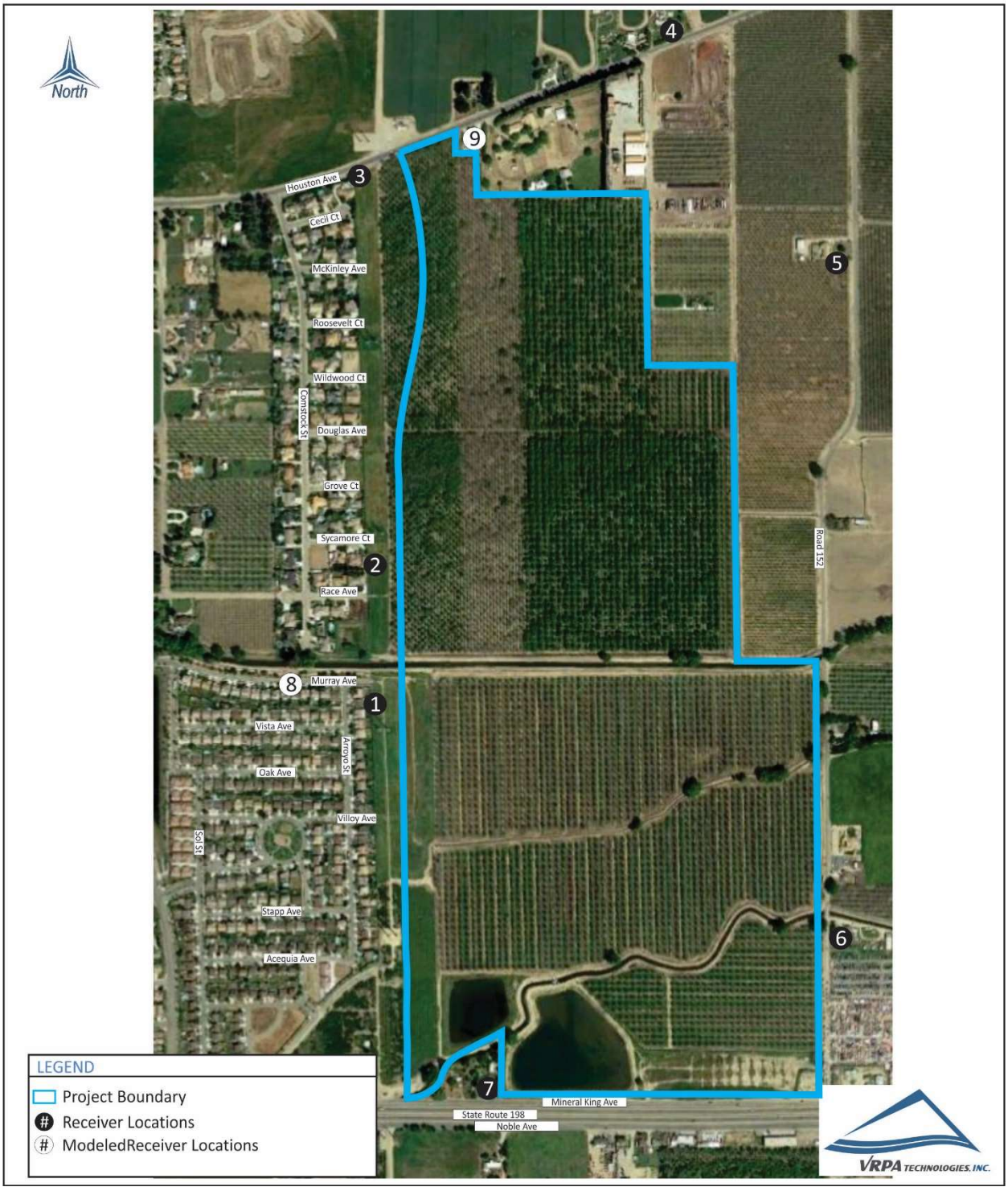


Table 3 characterizes the results of the existing noise conditions at the seven (7) receivers evaluated in the study area. The results shown in Table 3 were used to develop the traffic noise exposure levels at various setbacks to achieve 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major roadways within the study area. Table 4 shows the anticipated noise levels for each roadway evaluated within the study area. Figures 6, 7, and 8 graphically display the results included in Table 4.

Table 3
East Side Regional Park & Groundwater Recharge
Existing Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Existing Noise Level Leq(h) dBA
1	Residential area located along Arroyo Street, south of Murray Avenue	--	46.0
2	Residential area located Race Avenue, east of Comstock Street	--	49.0
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	58.0
4	Residence located north of Houston Avenue (SR 216), west of Road 152	25	61.0
5	Residence located along Road 152, south of Houston Avenue (SR 216)	25	47.0
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	25	59.0
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	20	78.0

Source: VRPA Technologies, 2017

Table 4
Existing Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	5	9	15	24	40
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	--	5	8	14	23
Mineral King Avenue						
West of Road 152	2 lanes Undivided	16	26	42	70	115

Source: VRPA Technologies, 2017

Traffic noise exposure is mainly a function of the number of vehicles on a given roadway per day, the speed of those vehicles, the percentage of medium and heavy trucks in the traffic volume, and the receiver's proximity to the roadway. Every vehicle passage on every roadway in the City radiates noise.

Existing high noise levels along major streets and highways are generally caused by traffic and congestion. Potential impacts along these facilities are generally classified as follows:

- ✓ Low - Ldn 59 dB or below
- ✓ Moderate - Ldn 60 dB to 65 dB
- ✓ High - Ldn 66 dB or greater

The potential for adverse noise impacts is generally moderate to high along most segments of State highways, and is generally low to moderate along most segments of City streets and highways.

2.2 Railroad Noise

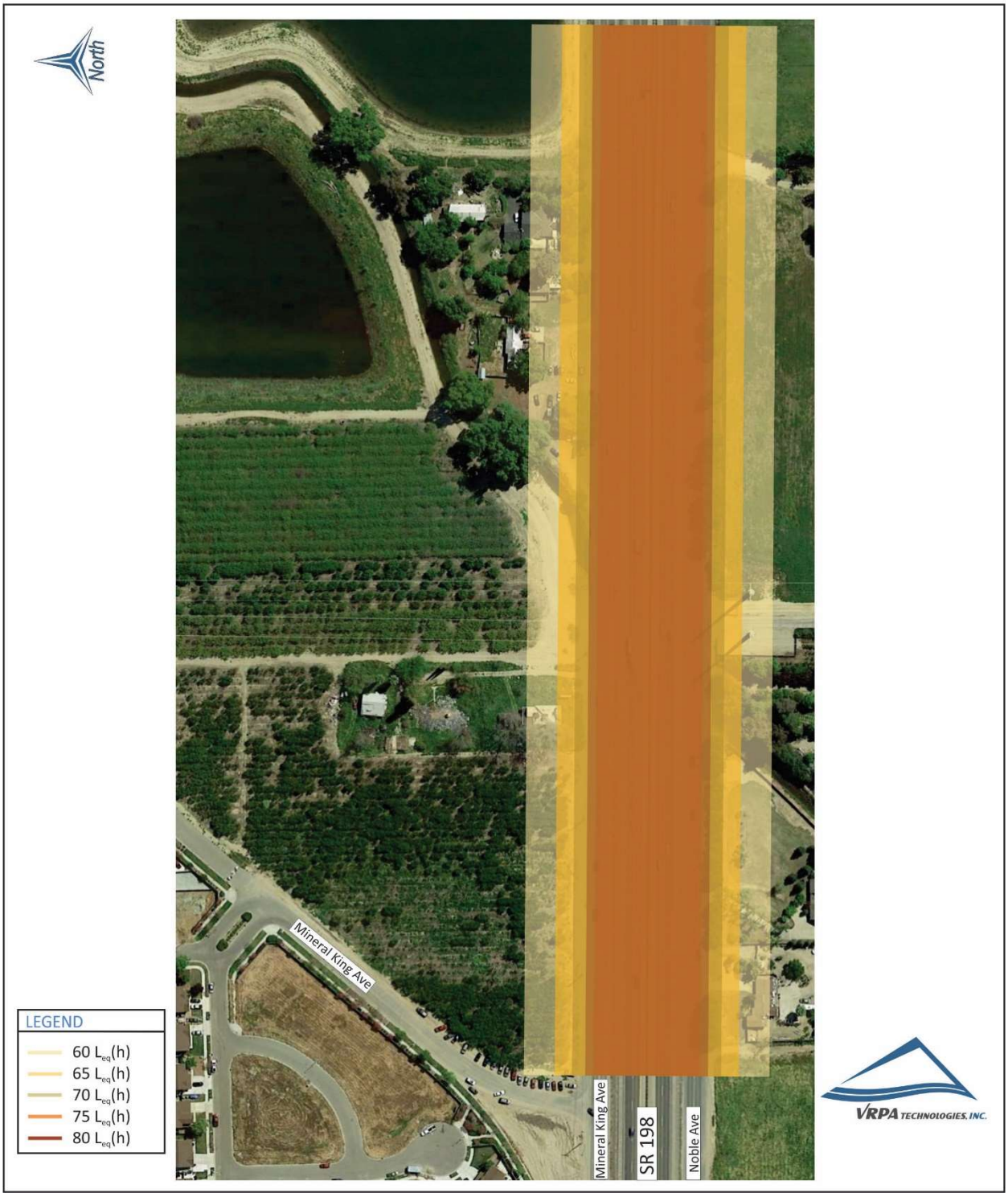
The Union Pacific (UP), Burlington Northern & Santa Fe (BNSF), and San Joaquin Valley Railroad (SJVRR) provide freight service to Visalia, connecting Visalia and Tulare County to other major markets and destinations throughout California. Passenger rail service in Tulare County is provided by Amtrak on its San Joaquin service, with the nearest rail station located in the City of Hanford, approximately 22 miles west of the site. Railroad noise will not impact the Project study area since the nearest rail line is over 2 miles away.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 6**

Existing Traffic Noise Contours - Houston Avenue (SR 216)

East Side Regional Park & Groundwater Recharge Project EIR **Figure 7**
Existing Traffic Noise Contours - Road 152

East Side Regional Park & Groundwater Recharge Project EIR Figure 8
Existing Traffic Noise Contours - Mineral King Avenue



2.3 Airport Noise

The Visalia Municipal Airport (VIS), located in the southeast quadrant of the SR 198 and SR 99 interchange, serves Tulare and eastern Kings County. The airport is primarily used for general aviation operations, including local and itinerant services. The airport, which is owned and operated by the City of Visalia, is home to over 150 aircraft, which generate approximately 80,000 annual operations. Noise generated from the airport will not impact the Project study area since the Project is located nearly 8.5 miles away and falls outside of the airport noise contour zones. The Project site occasionally experiences transient overflight noise which is not considered significant or adverse.

2.4 Roadway Network

Functional classification is the process by which streets and highways are grouped into classes or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of streets and roads of varying service capacities.

The current hierarchical system of streets and roads within the study area consists of the following four (4) basic classifications:

- ✓ **Freeways** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the study area to other parts of the State.

  - **SR 198 –** currently exists as a four-lane freeway (2-lanes in each direction) with a posted speed limit of 65 miles per hour (mph) through the study area. According to Caltrans' website, the Average Annual Daily Traffic (AADT) along SR 198 in 2013 was 26,500. To determine a 2014 volume, the 2013 volume estimate from Caltrans was increased by 2% per year resulting is approximately 27,000 AADT in 2014.

- ✓ **Arterials** – provide for mobility within study area, carrying through-traffic on continuous routes and joining major traffic generators, freeways, and other arterials. According to the Visalia General Plan, "arterials collect and distribute traffic from freeways and expressways to collector streets and vice versa. On arterials, the optimum distance between intersections is approximately one quarter mile. Driveways to major traffic generators may be permitted within the quarter-mile spacing. Other intersections closer than one quarter mile should be restricted to right turn access. Based upon the Visalia Improvement Standards (2013), the arterial right-of-way widths range from 84 feet to 110 feet. Arterials feature two to three through lanes of traffic in each direction with a left turn channelization."

  - **Lovers Lane/SR 216 –** is designated as an Arterial facility and currently exists as a four-lane divided roadway between Noble and Houston within the study area. No bike lanes

are present and the facility has a posted speed limit of 45 mph.

- **Houston Avenue/SR 216 -** is designated by the City General Plan as an 11-25 Year Arterial between Lovers Lane and Road 152 in the study area. This segment currently exists as a four-lane divided roadway between Lovers Lane and McAuliff Street and as a two-lane road between McAuliff Street and Road 152. Bike lanes are located along Houston Avenue between Lovers Lane and McAuliff Street. The facility has a posted speed limit of 40 mph between Lovers Lane and McAuliff Street, except for the school zone, which includes a posted speed limit of 25 mph. The posted speed between McAuliff Street and Road 152 is 55 mph.
- **Ivanhoe Drive/SR 216 (the same as Houston alignment but the segment outside City limits)–** is designated by the County General Plan as a Minor Arterial. The facility currently exists as a two-lane undivided roadway without bike lanes and with a posted speed limit of 40 and 55 mph.

✓ **Collectors** – provide for internal traffic movement within communities and neighborhoods, and connect local roads to arterials. According to the Visalia General Plan, "Collectors also connect local and arterial streets and provide direct access to parcels. At major intersections, driveways on collector streets should be no closer than 100 feet to the intersection per the City of Visalia Improvement Standards. Non-residential driveways and/or intersecting streets on collector streets should be no closer than 300 to 400 feet apart. Major collectors carry four lanes of traffic within an 84-foot right-of-way and two bicycle lanes within an additional 10 feet of right-of-way. Collectors generally carry two lanes of traffic and are a minimum of 60 feet wide." The following collectors are identified in the Circulation Element as collectors:

- **McAuliff Street –** is a four-lane undivided roadway between Mineral King and Houston and a 4-lane divided roadway north of Houston. For purpose of LOS analysis, McAuliff was identified as an arterial roadway using the Modified HCM Segment LOS tables. Bike lanes are present along both sides of McAuliff Street except along the west side of the roadway between Willow Avenue and Mineral King Avenue. The posted speed along McAuliff Street is 45 mph.
- **Millcreek Parkway –** is a two-lane divided roadway without bike lanes and with a posted speed limit of 45 mph.
- **Mineral King Avenue –** currently exists as a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Noble Avenue -** is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Road 152 –** is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.

✓ **Local Streets** – provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. According to the City General Plan, "access to local streets is unrestricted and right-of-way widths vary between 48 and 66 feet depending on surrounding land uses (2013 City of Visalia

Design and Improvement Standards). All roadways not identified in the City of Visalia or Tulare County General Plans as freeways, arterials, or collectors are designated as local streets."

2.5 Stationary Noise

There are a wide variety of industrial and other non-transportation noise sources throughout the City of Visalia, including heavy industrial or manufacturing operations, food packaging and processing facilities, lumber mills, and car washes to name a few. It should be noted that the Project will be located on parcels of land that currently consist of walnut and pecan orchards. Though agricultural equipment was not in operation during the site evaluation on September 29, 2016, the Occupational Safety and Health Administration (OSHA) Technical Manual identifies a median noise level of 86.8 dBA's (at the source) for the agricultural industry. The residences located between 155 to 375 feet to the west of the Project site may experience an increase in ambient noise levels due to agricultural activities. The change in noise level due to distance for point sources is determined by the following formula, which comes from the California Department of Transportation's (Caltrans) Technical Noise Supplement to the Traffic Noise Analysis Protocol.

$$dBA_2 = dBA_1 + 10\log_{10}[(D_1/D_2)]^2 = dBA_1 + 20\log_{10}(D_1/D_2)$$

Where:
dBA_1 = noise level at distance D_1
dBA_2 = noise level at distance D_2

Considering the formula above at the closest distance between the orchards and the residences to the west of the Project site, the approximate noise level that would be experienced at residences due to agricultural activities is 57 dBA. Residences to the west are therefore not exposed to significant adverse noise generated from existing agricultural activities.

In addition to the agricultural activities that exist on the Project site, high voltage power lines are also present just west of the Project boundary. An audible noise (buzz) can be heard from the power lines which is a result of the release of energy that occurs when the ionization of a fluid, such as air surrounding a conductor, is electrically charged. Noise generated by the high-voltage power lines was captured by Receivers 1, 2, and 3 during the site evaluation on September 29, 2016. As shown in Table 3 (Receiver 1 and 2), residences adjacent to the powerlines are not exposed to significant adverse noise generated from the existing power lines.

2.6 Ground-borne Vibration

Ambient vibration levels in residential areas are typically 50 VdB, which is well below human perception. The operation of heating/air conditioning systems and slamming of doors produce typical indoor vibrations that are noticeable to humans. The most common exterior sources of ground vibration that can be noticeable to humans inside residences include construction

activities, train operations, and street traffic. Table 5 provides some common sources of ground vibration and the relationship to human perception. This information comes from the Federal Transit Administration's "Basic Ground-Bourne Vibration Concepts."

Table 5
Typical Levels of Ground-Borne Vibration

Human/Structural Response	Velocity Level, VdB	Typical Events (50 ft. Setback)
Threshold, minor cosmetic damage fragile buildings	100	Blasting from construction projects
		Bulldozers, vibratory rollers, and other heavy tracked construction equiment
Difficulty with tasks such as reading a video or computer screen	90	
		Commuter rail, upper range
Residential annoyance, infrequent events (e.g commuter rail)	80	Rapid transit, upper range
		Commuter rail, typical
Residential annoyance, infrequent events (e.g rapid transit)		Bus or truck over bump
	70	Rapid transit, typical
Limit for vibration sensitive equipment. Approx. threshold for human perception of vibration		Bus or truck, typical
	60	
		Typical background vibration
	50	

3.0 Short-Term Impacts

3.1 Construction Noise Impacts

The Project has the potential to result in short-term noise impacts to surrounding land uses due to orchard removal and construction activity noise (collectively referred to hereafter as just "construction" noise). Construction noise represents a short-term impact on ambient noise levels and includes activities such as demolition, site preparation, grading, and other construction-related activities. Noise generated from the transport of workers and the movement of materials to and from the construction site and the physical activities associated with any construction-related activities could potentially impact neighboring sensitive land uses. Although most of the types of exterior construction activities associated with the Project will not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible. Table 6 depicts typical construction equipment noise levels, based upon a distance of 50 feet between the noise source and the noise receptor. Noise emitted by construction equipment is controlled by the Environmental Protection Agency's (EPS's) Noise Control Program (Part 204 of Title 40, Code of Federal Regulations).

As noted previously, it is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

3.1.1 *Phase 1 Construction*

During construction of Phase 1 of the Project, noise from construction activities will add mobile noise sources that impact the abutting sensitive residential land uses. Activities involved in orchard demolition and recharge basin construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85 dBA at a distance of 50 feet. Construction activities will be temporary in nature and are required to occur during specified daytime working hours per the City of Visalia Noise Ordinance. Based on information provided in Table 6 and the noise attenuation formula provided in Section 2.5, single-family residences located adjacent to Road 152, south of Packwood Creek, may be subject to short-term noise reaching 80 dBA Lmax generated by construction activities. Considering the maximum sound level of 70 dBA Lmax from the City of Visalia's Stationary Noise Source criteria (Table 2), construction of Phase 1 of the Project will, more likely than not, impact the other neighboring residences directly east of the Project site. Mitigation Measure 1 is recommended in Section 5.0 to attenuate this noise exposure from construction of Phase 1 of the Project.

Table 6
Construction Equipment Noise

TYPE OF EQUIPMENT	Sound Levles Measured (dBA of 50 feet)
Rock Drills	85
Jack Hammers	85
Pneumatic Tools	85
Pumps	77
Dozers	85
Tractor	84
Vibratory Rollers[1]	80
Front-End Loaders	80
Hydraulic Backhoe	80
Hydraulic Excavators	85
Graders	85
Air Compressors	80
Trucks	84

Source: Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek and Newman, 1987).
1 - Federal Highway Administration Roadway Construction Noise Model, FHWA 2006

3.1.2 *Phase 2 and 3 Construction*

During construction of Phases 2 and 3 of the Project, noise from construction activities will add to the noise environment in the immediate area similar to Phase 1. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85 dBA at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residences if nighttime operations occurred, or if unusually noisy equipment was used. It is not anticipated that any portion of the construction phase will take place during nighttime hours.

The Tower Street alignment (roadway centerline) is located approximately 205 feet to the east of single family residential homes lying between by Houston Avenue (SR-216) to the north and Mineral King Avenue to the south. Based on information provided in Table 6 and the noise attenuation formula provided in Section 2.5, the residences to the west of the Project site may be subject to short-term noise reaching 74 dBA Lmax generated by construction activities. The lone single-family residence located off Houston Avenue (SR-216) at the far northeast corner of

the site adjacent to Receiver 9 may be subject to short-term noise reaching 85 dBA. Considering the maximum sound level of 70 dBA from the City of Visalia's Stationary Noise Source criteria (Table 2), construction of Phases 2 and 3 of the Project will, more likely than not, impact the neighboring residences adjacent to the Project site. Mitigation Measure 1 is recommended in Section 5.0 to attenuate this noise exposure from construction of Phases 2 and 3 of the Project.

3.2 Ground-borne Vibration

Construction activity can result in ground vibration, depending upon the types of equipment used. Operation of construction equipment causes ground vibrations, which spread through the ground and diminish in strength with distance from the source generating the vibration. Building structures that are founded on the soil in the vicinity of the construction site respond to these vibrations, with varied results. Ground vibrations as a result of construction activities very rarely reach vibration levels that will damage structures, but can cause low rumbling sounds and detectable vibrations for buildings very close to the site.

Vibration levels from various types of construction equipment are shown in Table 7. The primary concern with construction vibration is building damage. Therefore, construction vibration is generally assessed in terms of peak particle velocity (PPV). It should be noted that there is a considerable variation in reported ground vibration levels from construction activities. The data provides a reasonable estimate for a wide range of soil conditions.

Despite the perceptibility threshold of about 65 VdB, human reaction to vibration is not significant unless the vibration exceeds 75 VdB according to the United States Department of Transportation. In order to estimate the impact of vibrations from construction activities at distances of 100 feet, 150 feet, and 200 feet, the following formula was applied.

$Lv(D) = Lv(25\ ft) - 20 \log (D/25)$

Using the vibratory roller vibration level shown in Table 7 (Lv 94) and the formula shown above, the anticipated vibration levels at 100 feet, 150 feet, and 200 feet are 82, 78, and 76 VdB, respectively. Using the large bulldozer vibration level shown in Table 7 (Lv 87) and the formula shown above, the anticipated vibration levels at 100 feet, 150 feet, and 200 feet are 75, 71, and 69 VdB, respectively.

3.2.1 *Phase 1 Construction*

Construction activities associated with Phase 1 of the Project would likely require the use of various types of equipment including bulldozers, vibratory rollers, and dump trucks. Based on the vibration levels provided in Table 7, ground vibration generated by common construction equipment would be between 75 and 82 VdB or less at a distance of 100 feet or more. The nearest single-family residence to the Project site, reflected by Receiver 6, is located approximately 150 feet to the east of the Project site and may be impacted by ground vibrations generated by the construction phase of the Project. Mitigation Measure 5 is recommended in

Section 5.0 to attenuate this noise exposure from construction of Phase 1 of the Project.

3.2.2 *Phase 2 and 3 Construction*

Construction activities associated with Phases 2 and 3 of the Project would likely require the use of various types of equipment including bulldozers, vibratory rollers, and dump trucks. Based on the vibration levels provided in Table 7, ground vibration generated by common construction equipment would be between 75 and 82 VdB or less at a distance of 100 feet or more. The residences to the west of the Project site are nearly 200 feet away and wouldn't be impacted by ground vibrations generated by construction of Phases 2 and 3 of the Project. However, single-family residences located adjacent to Receiver 9 may be subject to vibration levels greater than 75 VdB depending on the location of bulldozers, vibratory rollers, and dump trucks operating on the Project site during construction of Phases 2 and 3. As a result, predicted vibration levels at the single-family residences adjacent to Receiver 9 may exceed vibration levels greater than 75 VdB. Mitigation Measure 5 is recommended in Section 5.0 to attenuate this noise exposure from construction of Phases 2 and 3 of the Project.

Table 7
Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 ft (in/sec)	Approximate L_v* at 25 ft
Vibratory roller	0.210	94
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Federal Transit Administration 2006 (except Hanson 2001 for vibratory rollers)

* RMS velocity in decibels (VdB) re 1 minch/second

4.0 Long-Term Impacts

4.1 Traffic Noise Impacts

As noted previously, it is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

4.1.1 *Phase 1 Operations*

Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. It is anticipated that Phase 1 of the project will generate very few trips on a daily basis. It was assumed that there would be one trip in and one trip out in the AM and PM peak hours, resulting in four total trips per day. This represents a worst-case assumption that two maintenance workers would visit the site on a typical day and that they would make their trips in either the AM or PM peak hours. As a result, traffic resulting from Phase 1 of the Project will not increase traffic noise significantly enough to impact neighboring residences.

4.1.2 *Phase 2 and 3 Operations*

This section provides an assessment of the anticipated noise conditions in the future as it relates to Phase 2 and Phase 3 (Full Buildout) of the Project and the impact of noise generated by the Project on the surrounding land uses within the study area. The noise impacts from Phase 3 of the Project was analyzed considering Existing Plus Project Conditions and Cumulative Year 2040 Conditions as a result of the City of Visalia General Plan. Noise impacts from Phase 2 of the Project was analyzed considering Near-Term Opening Year 2018 conditions.

Existing Plus Project Conditions

Phase 3 (Full Buildout) Project traffic was added to existing traffic conditions in the study area. Existing Plus Project traffic noise levels were established based on previously collected traffic data and using the Traffic Noise Model (TNM) Version 2.5. Existing Plus Project levels, which are based on expected Project trip distribution, are calculated and compared to both the existing noise level and the maximum allowable noise exposure for transportation noise sources as described in the City of Visalia's General Plan. Referencing Table 1, the City of Visalia's criteria shows that mitigation must be considered when the exterior noise exposure level of 65 DNL/CNEL for residential, transient lodging, hospitals, churches, and meeting halls has been exceeded. Levels reported in this section are in terms of A-weighted levels. It should be noted that the DNL is estimated to be within +/- 2 dBA of the peak hour L_{eq} under normal traffic conditions based upon Caltrans' Traffic Analysis Noise Protocol.

Traffic volumes collected from the traffic report completed for this project and average vehicle speeds along Houston Avenue (SR 216), Road 152, Mineral King Avenue, Tower Street (to be constructed with the Project), and SR 198 were entered into the model to estimate noise levels at various receivers that would be affected by the Project. In order to calibrate the TNM 2.5 model, the existing counts, lane geometry, and any other pertinent existing conditions were added to the model. The noise level measurements taken in the study area were then compared to the noise levels computed by the model. The difference between the measured and modeled noise levels, referred to as the "K constant", is then added to any additional receivers to be evaluated in the TNM 2.5 model.

Table 8 shows the predicted noise levels at sensitive receivers in the study area as a result of adding the Project. Results of the analysis show that one of the sensitive receivers will exceed the City of Visalia's Transportation Noise Source criteria for the Existing Plus Project scenario. It should be noted that the existing noise level at Receiver 7 currently exceeds the City of Visalia criteria due to the close proximity of SR 198. As a result, the Project will not create a significant impact at Receiver 7. TNM 2.5 printouts included are provided in the Appendices. It should be noted that the noise levels presented in Table 8 do not account for noise attenuation caused by buildings or tree/shrubs that break the line of sight from the sound source to the receiver. A decibel reduction of 3 to 5 dBA is plausible when buildings or trees/shrubs break the line of sight according to FHWA.

The results shown in Table 8 were used to develop the traffic noise exposure levels at various setbacks to achieve 60, 65, 70, 75, and 80 Leq(h) dBA for the major street and roads within the study area. Table 9 shows the anticipated noise levels for each roadway evaluated within the study area. Figures 9, 10, 11, 12, and 13 graphically display the results included in Table 9.

Near-Term Opening Year 2018 Conditions

This section provides an assessment of the anticipated noise conditions for Phase 2 operations of the Project, which are anticipated for the Year 2018. The levels of traffic expected in the year 2018 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies. Traffic conditions in the Year 2018 were developed using the currently adopted general plan and historic traffic growth in the study area. Near-Term Opening Year 2018 traffic volumes come directly from the traffic study prepared for the Project. Traffic volumes, truck mix, and vehicle speeds were used as inputs to the TNM model for the Near-Term Opening Year 2018 modeled scenarios.

Table 10 shows the predicted noise levels at all of the modeled sensitive receivers in the Near-Term Opening Year 2018 scenario with and without the Project. Results of the analysis show that one of the sensitive receivers will exceed the City of Visalia's Transportation Noise Source (Table 1) criteria for the Near-Term scenarios. Receiver 7 (residence) is anticipated to exceed the 65 dB DNL/CNEL criteria for residential homes. It should be noted that the existing noise level at Receiver 7 currently exceeds the City of Visalia criteria due to the close proximity of SR 198. As a result, the Project will not create a significant impact at Receiver 7. It should be noted that the

noise levels presented in Table 10 do not account for noise attenuation caused by buildings or tree/shrubs that break the line of sight from the sound source to the receiver. A decibel reduction of 3 to 5 dBA is plausible when buildings or trees/shrubs break the line of sight according to FHWA.

The results shown in Table 10 were used to develop the traffic noise exposure levels at various setbacks to achieve 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area. Tables 11 and 12 show the anticipated noise levels for each street and road evaluated within the study area. Figures 14, 15, 16, 17, 18, 19, 20, and 21 graphically display the results included in Tables 11 and 12.

Table 8
East Side Regional Park & Groundwater Recharge
Existing Plus Project Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Existing Plus Project Noise Level Leq(h) dBA	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	54.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	57.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	59.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	59.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	53.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	56.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	80	74.0	65.0	None
8	Residential area located along Murray Avenue, west of Arroyo Street	100	50.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	56.0	65.0	None

Source: VRPA Technologies, 2017
a: Distance from Tower Street

Table 9
Existing Plus Project Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	6	10	16	27	44
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	--	6	10	17	28
Mineral King Avenue						
West of Road 152	2 lanes Undivided	16	27	45	73	121
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	18	30	49	81	134
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	--	5	9	15

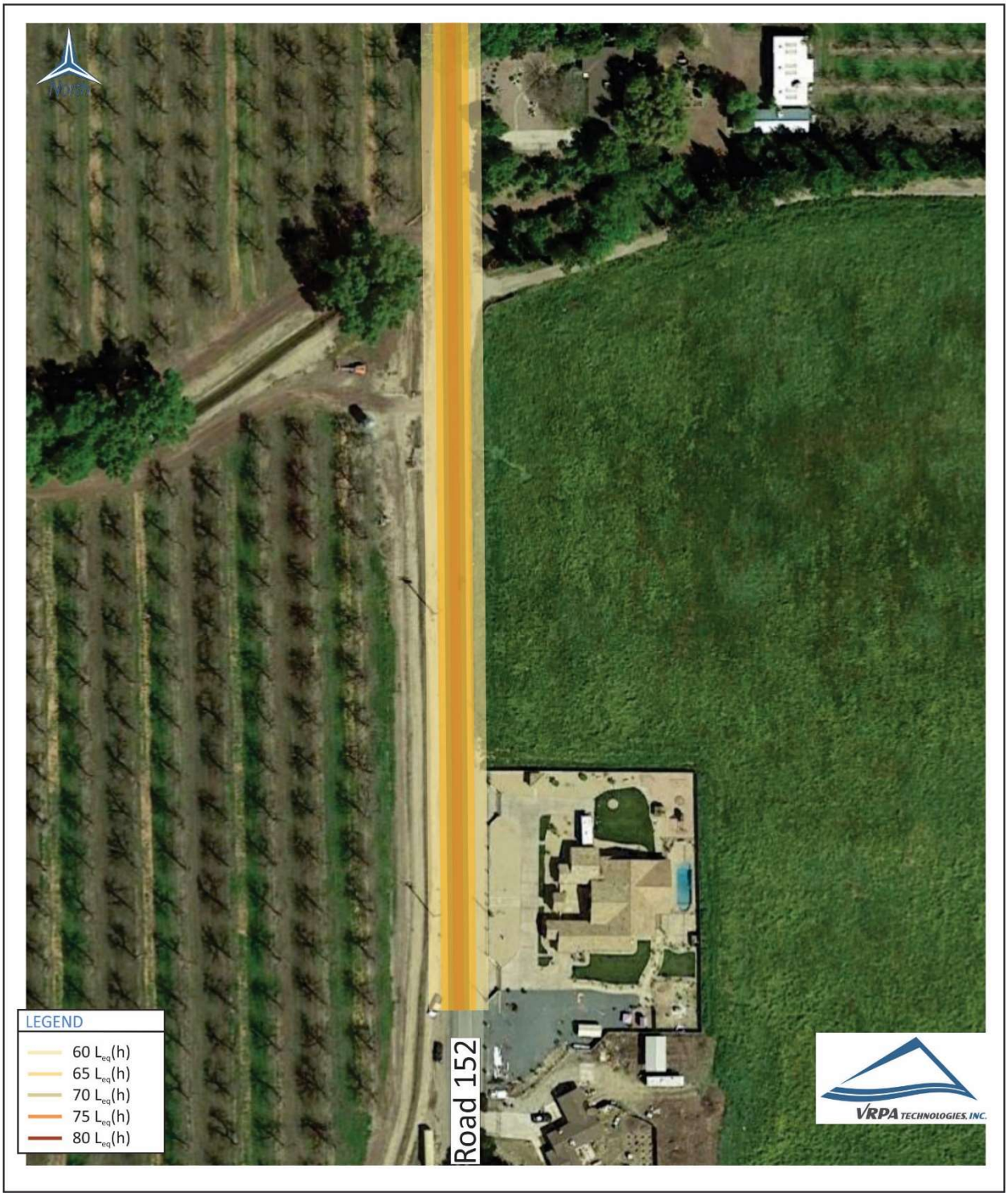
Source: VRPA Technologies, 2017

East Side Regional Park & Groundwater Recharge Project EIR
Existing Plus Project Traffic Noise Contours - Houston Avenue (SR 216)

Figure 9

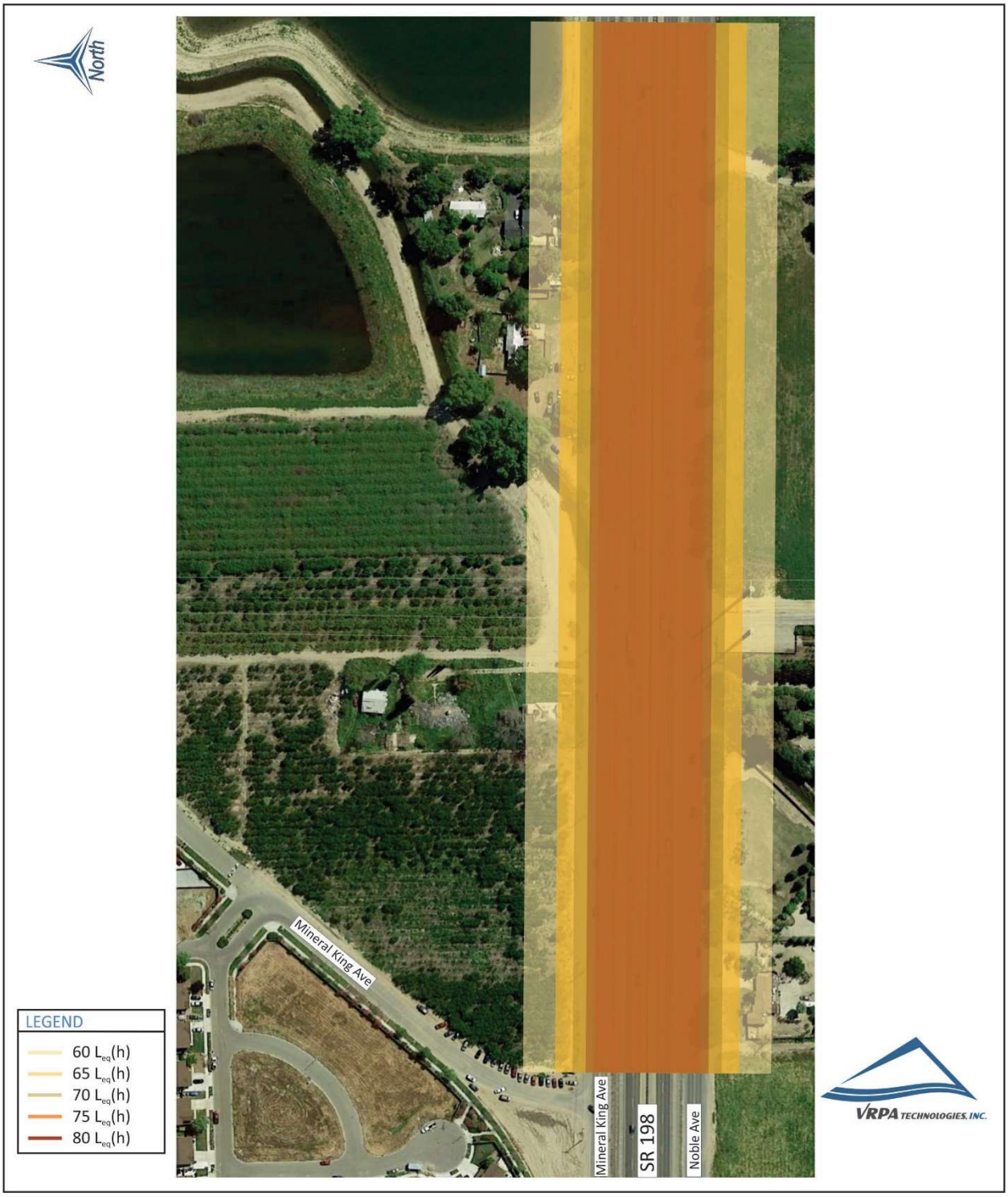
East Side Regional Park & Groundwater Recharge Project EIR **Figure 10**

Existing Plus Project Traffic Noise Contours - Road 152

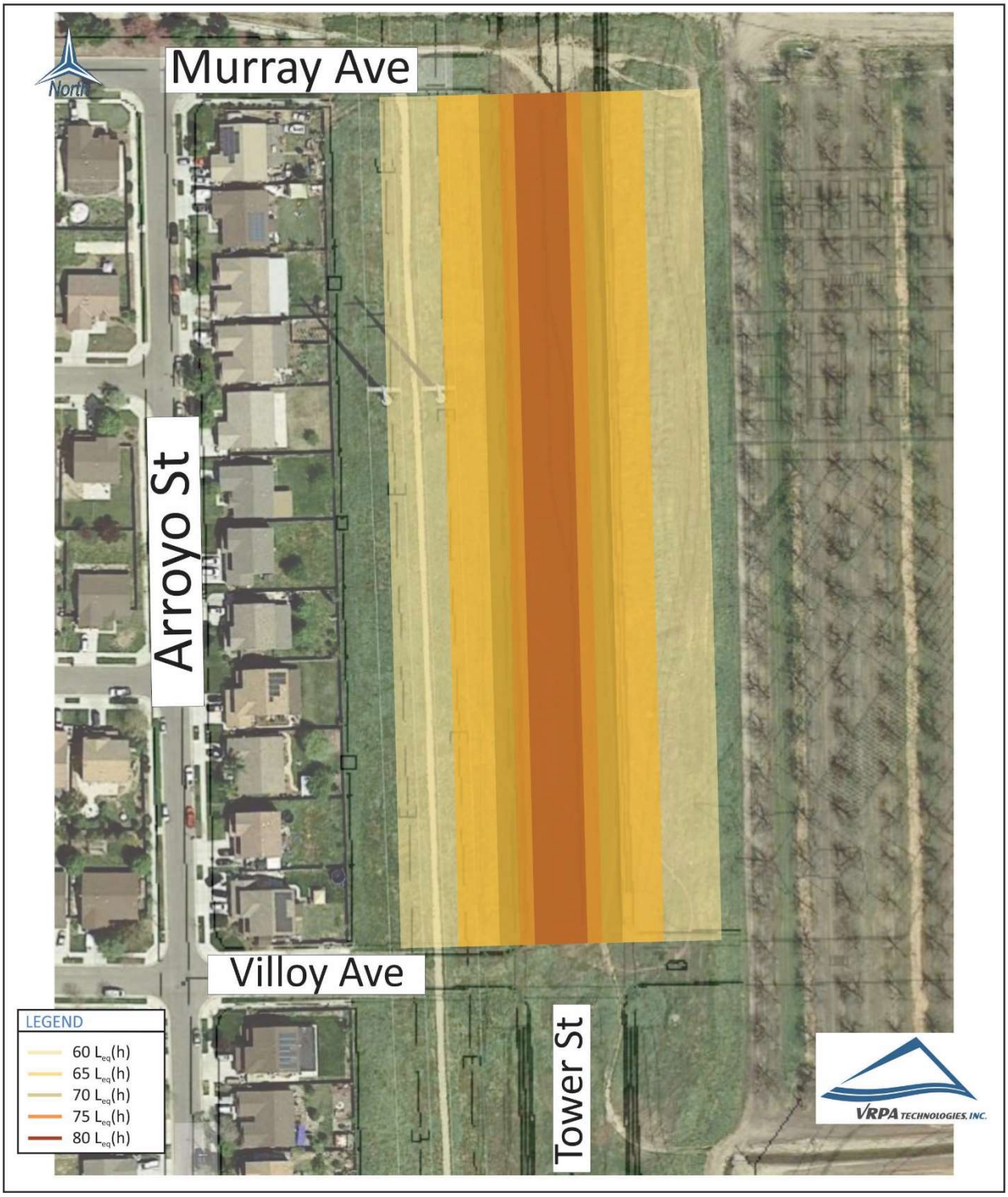


East Side Regional Park & Groundwater Recharge Project EIR
Existing Plus Project Traffic Noise Contours - Mineral King Avenue

Figure 11



East Side Regional Park & Groundwater Recharge Project EIR **Figure 12**
Existing Plus Project Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR **Figure 13**

Existing Plus Project Traffic Noise Contours - Murray Avenue

Table 10
East Side Regional Park & Groundwater Recharge
Near-Term Opening Year 2018 Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Near-Term Without Project Noise Level Leq(h) dBA	Near-Term Plus Project Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	46.0	53.0	7.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	49.0	56.0	7.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	58.0	60.0	2.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	59.0	60.0	1.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	51.0	53.0	2.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	54.0	55.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	80	74.0	74.0	0.0	65.0	None
8	Residential area located along Murray Avenue, west of Arroyo Street	100	50.0	50.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	56.0	57.0	1.0	65.0	None

Source: VRPA Technologies, 2017
a: Distance from Tower Street for Plus Project scenario

Table 11
Near-Term Opening Year 2018 Without Project Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	5	9	15	25	41
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	--	5	8	14	23
Mineral King Avenue						
West of Road 152	2 lanes Undivided	16	26	43	71	116

Source: VRPA Technologies, 2017

Table 12
Near-Term Opening Year 2018 Plus Project Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	6	11	17	29	48
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	--	6	10	17	28
Mineral King Avenue						
West of Road 152	2 lanes Undivided	16	27	45	73	121
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	16	26	43	72	118
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	--	5	9	15

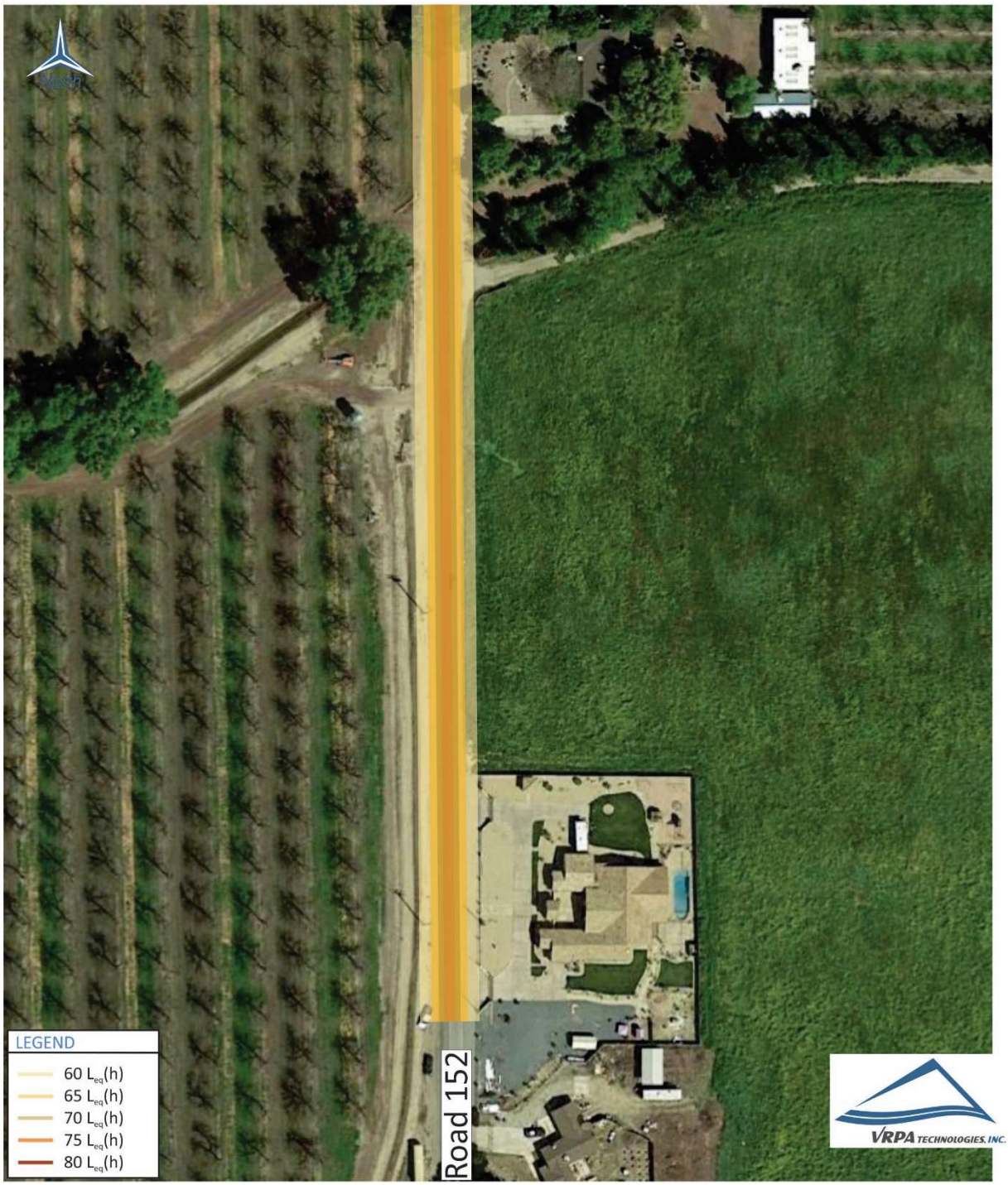
Source: VRPA Technologies, 2017

East Side Regional Park & Groundwater Recharge Project EIR **Figure 14**

Near-Term Opening Year Without Project Traffic Noise Contours - Houston Avenue (SR 216)

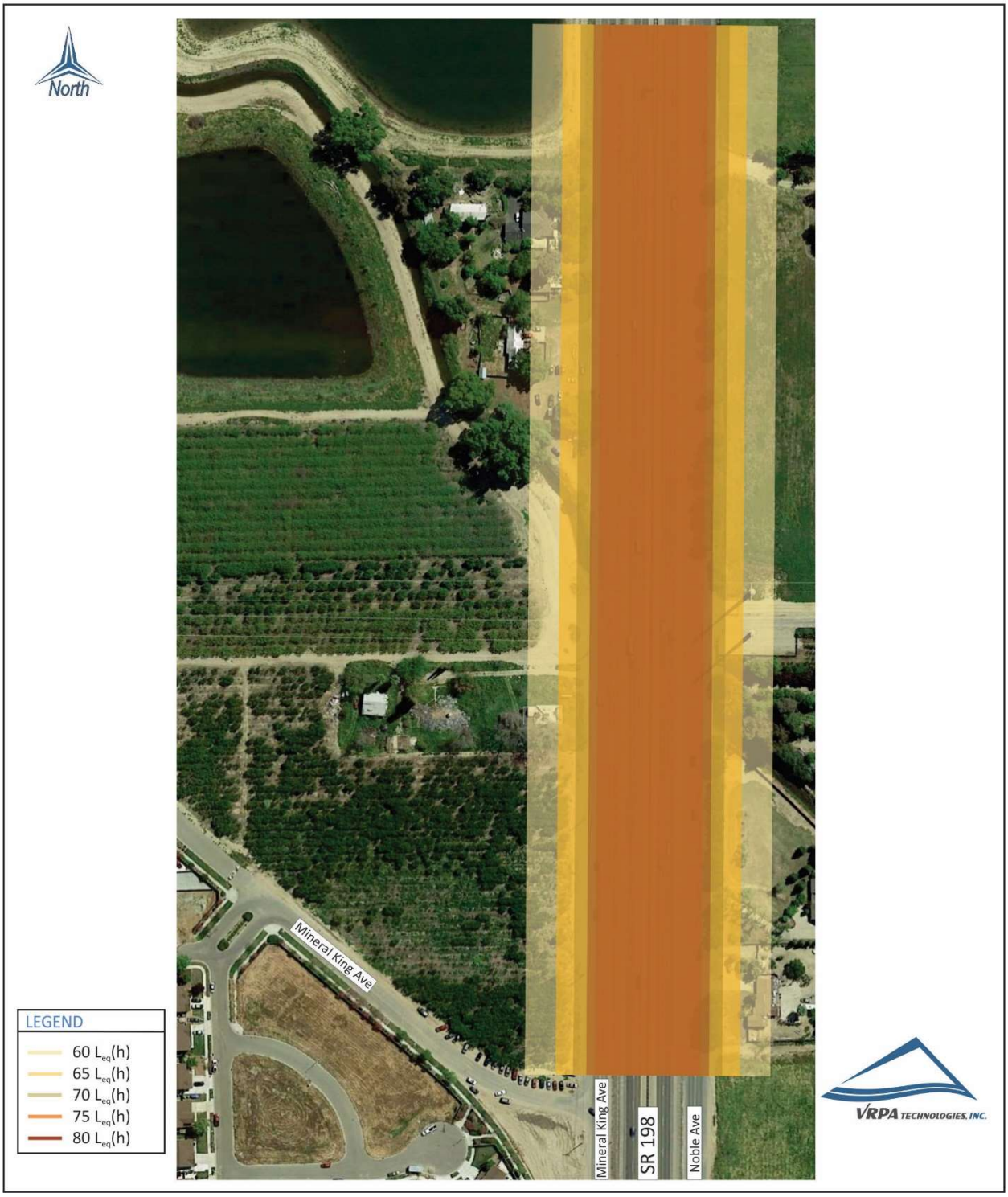
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year Without Project Traffic Noise Contours - Road 152

Figure 15



East Side Regional Park & Groundwater Recharge Project EIR — Figure 16

Near-Term Opening Year Without Project Traffic Noise Contours - Mineral King Avenue



East Side Regional Park & Groundwater Recharge Project EIR **Figure 17**

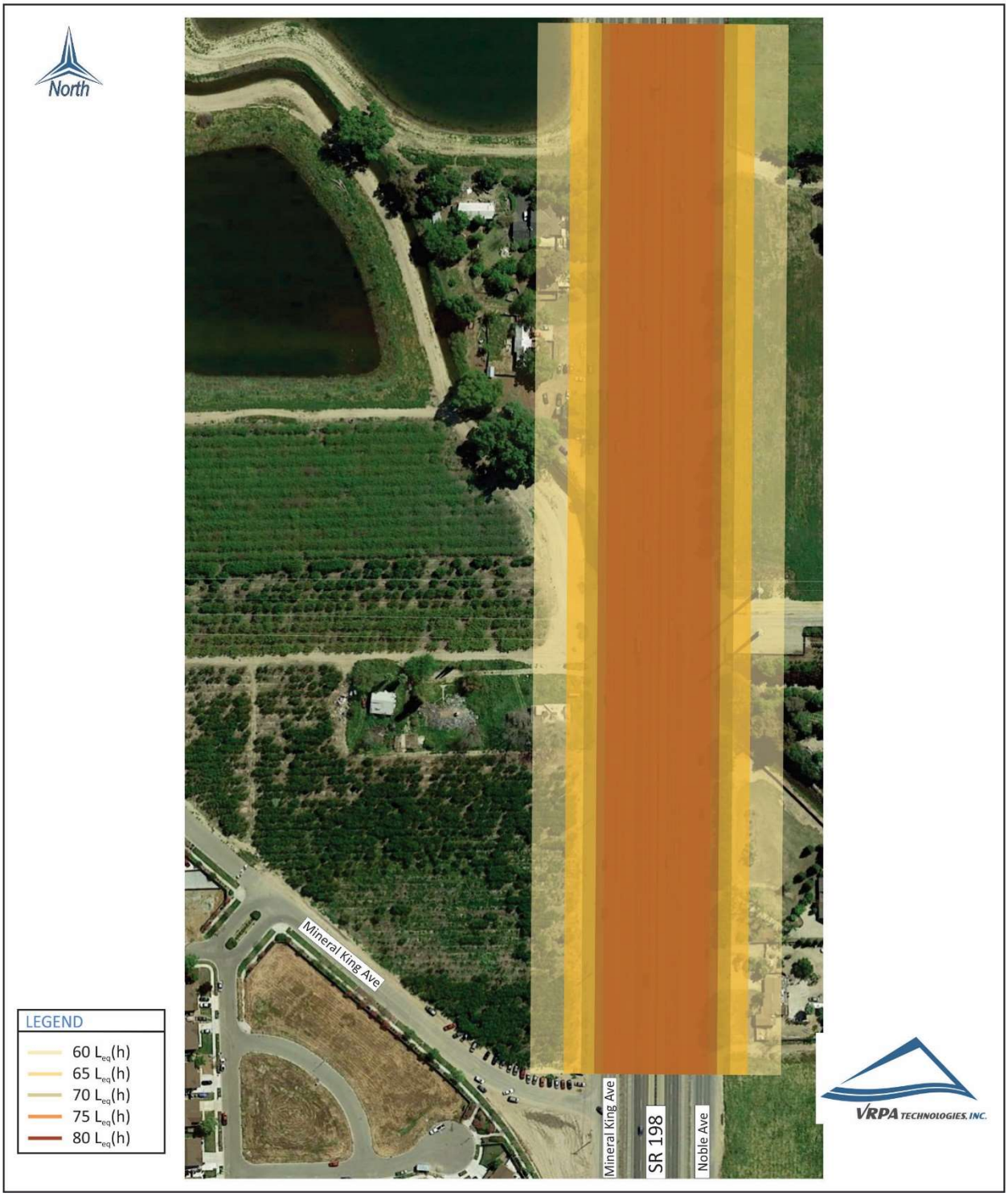
Near-Term Opening Year Plus Project Traffic Noise Contours - Houston Avenue (SR 216)

East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year Plus Project Traffic Noise Contours - Road 152

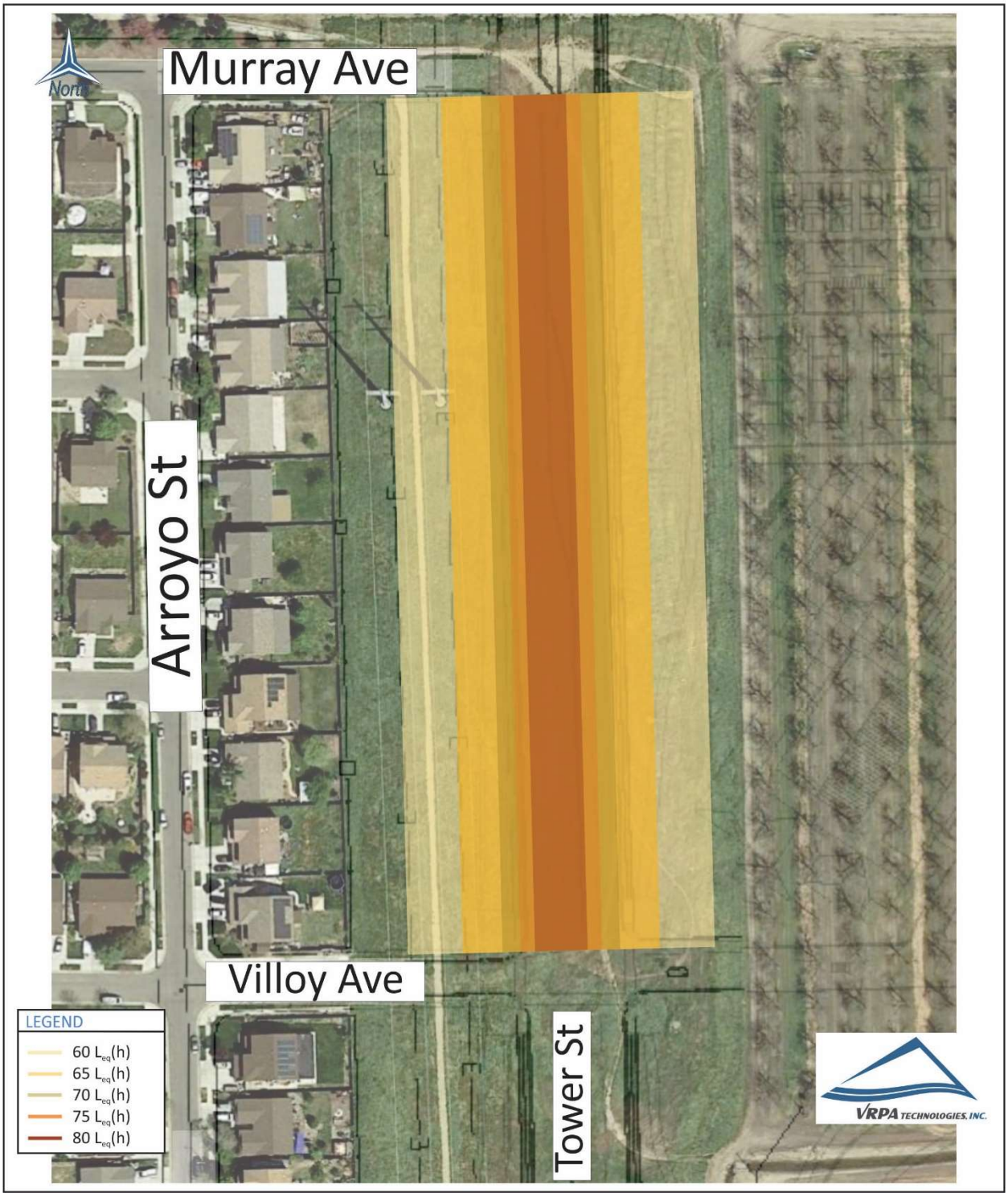
Figure 18

East Side Regional Park & Groundwater Recharge Project EIR **Figure 19**

Near-Term Opening Year Plus Project Traffic Noise Contours - Mineral King Avenue



East Side Regional Park & Groundwater Recharge Project EIR **Figure 20**
Near-Term Opening Year Plus Project Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year Plus Project Traffic Noise Contours - Murray Avenue

Figure 21

Cumulative Year 2040 Conditions

This section provides an assessment of the anticipated noise conditions in the future as it relates to Phase 3 (Full Buildout) of the Project and the impact of noise generated by the Project on the surrounding land uses within the study area. The noise impacts from Phase 3 of the Project was analyzed considering Cumulative Year 2040 Conditions as a result of the City of Visalia General Plan. Future development within the planning area will result in increased traffic volumes, thus increasing noise levels in some areas. While there will be increases in some noise levels, efforts can be taken to help minimize such instances. For example, siting noise sensitive uses away from high-noise areas (e.g., major traffic routes) and buffering noise through design will help minimize future noise-related land use conflicts.

The levels of traffic expected in the year 2040 relate to the cumulative effect of traffic increases resulting from the implementation of the general plans of local agencies and pending development projects. Traffic conditions considering the adopted general plan in the City of Visalia for the Year 2040 were estimated using the Tulare County Association of Governments (TCAG) regional travel model. In addition, the Cumulative Year 2040 scenario included the analysis of approved or pending developments that have not yet been built in the vicinity of the Project. The proposed Sequoia Drive-In Business Park is located off of Road 156 and Noble Avenue in Tulare County. Project applicants have prepared and submitted a Notice of Preparation (NOP) to Tulare County for the proposed Sequoia Drive-In Business Park. Estimated traffic from the Sequoia Drive-In Business Park was manually distributed to the study area considering prevailing travel patterns and engineering judgment and is included in all Cumulative Year 2040 study scenarios.

Traffic volumes, truck mix, and vehicle speeds were used as inputs to the TNM 2.5 model for the Cumulative Year 2040 modeled scenarios consistent with the traffic study prepared for the Project. It should be noted that the Tower Street Interchange is a potential future Caltrans project and is not a component of the Project. The Cumulative Year 2040 scenarios include the following:

- ✓ Cumulative Year 2040 With and Without Project
- ✓ Cumulative Year 2040 With and Without Project With Tower Street Interchange at SR-198
- ✓ Cumulative Year 2040 With and Without Project With Tower Street Interchange at SR-198 with an alternative roadway configuration at Mineral King Avenue
- ✓ Cumulative Year 2040 With and Without Project With Tower Street Interchange at SR-198 with an alternative roadway configuration at the Project driveway

Traffic volumes and truck mix were determined by the traffic study prepared for the Project. Tables 13, 14, 15, and 16 show the predicted noise levels at the modeled receivers evaluated in the study area for the Cumulative Year 2040 With and Without Project conditions. Results of the analysis show that for the Cumulative Year 2040 scenarios (with and without Tower Street Interchange), one of the sensitive receivers will exceed the City of Visalia's Transportation Noise

Source criteria. Receiver 7 (residence) is anticipated to exceed the 65 dB DNL/CNEL criteria for residential homes. It should be noted that the existing noise level at Receiver 7 currently exceeds the City of Visalia criteria due to the close proximity of SR 198. As a result, the Project will not create a significant impact at Receiver 7. It should be noted that the noise levels presented in Table 13, 14, 15, and 16 do not account for noise attenuation caused by buildings or tree/shrubs that break the line of sight from the sound source to the receiver. A decibel reduction of 3 to 5 dBA is plausible when buildings or trees/shrubs break the line of sight according to FHWA.

The results shown in Tables 13, 14, 15, and 16 were used to develop the traffic noise exposure levels at various setbacks to achieve 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major roadways within the study area. Tables 17, 18, 19, 20, 21, and 22 show the anticipated noise levels for each roadway evaluated within the study area. Figures 22 through 51 graphically display the results included in Tables 17, 18, 19, 20, 21, and 22.

Table 13
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	52.0	55.0	3.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	57.0	58.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	59.0	60.0	1.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	60.0	60.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	56.0	57.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	59.0	60.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	80	76.0	76.0	0.0	65.0	None
8	Residential area located along Murray Avenue, west of Arroyo Street	100	52.0	53.0	1.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	57.0	57.0	0.0	65.0	None

Source: VRPA Technologies, 2017
a: Distance from Tower Street for Plus Project scenario

Table 14
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	62.0	0.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	63.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	60.0	0.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	56.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	60.0	0.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Table 15
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange
With Alternative Roadway Configuration at Mineral King Avenue Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	63.0	1.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	64.0	1.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	61.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	55.0	-1.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	61.0	1.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Table 16
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange
With Alternative Roadway Configuration at Project Driveway Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 2 Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	62.0	0.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	63.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	60.0	0.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	56.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	60.0	0.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Table 17
Cumulative Year 2040 Without Project Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	6	10	17	28	46
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	6	10	16	26	43
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	33	55	91	149
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	19	31	50	83	137
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	--	7	11	19

Source: VRPA Technologies, 2017

Table 18
Cumulative Year 2040 Plus Project Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	7	11	18	30	49
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	6	10	17	27	45
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	34	55	91	151
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	20	32	54	88	146
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	--	7	12	19

Source: VRPA Technologies, 2017

Table 19
Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	8	14	23	38	62
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	6	10	17	28	47
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	33	54	89	146
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	34	56	93	153	252
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	6	10	17	28

Source: VRPA Technologies, 2017

Table 20
Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	9	14	24	39	64
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	7	11	18	30	49
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	33	54	89	146
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	30	49	81	134	221
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	6	10	17	28

Source: VRPA Technologies, 2017

Table 21
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	9	16	26	42	70
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	7	11	19	31	50
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	33	54	89	146
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	30	49	81	134	221
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	5	9	14	24

Source: VRPA Technologies, 2017

Table 22
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours

STREET SEGMENT	SEGMENT DESCRIPTION	DISTANCE TO CONTOUR (feet)				
		80 L_{eq} (h) dBA	75 L_{eq} (h) dBA	70 L_{eq} (h) dBA	65 L_{eq} (h) dBA	60 L_{eq} (h) dBA
Houston Avenue (SR 216)						
Comstock Street to Road 152	2 lanes Undivided	9	14	24	39	64
Road 152						
Houston Avenue (SR 216) to Mineral King Avenue	2 lanes Undivided	7	11	18	30	49
Mineral King Avenue						
West of Road 152	2 lanes Undivided	20	33	54	89	146
Tower Street						
Houston Avenue (SR 216) to Mineral King Avenue	4 lanes Divided	30	49	81	133	219
Murray Avenue						
East of McAuliff Street	2 lanes Undivided	--	6	10	17	28

Source: VRPA Technologies, 2017

East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project Traffic Noise Contours - Houston Avenue (SR 216)

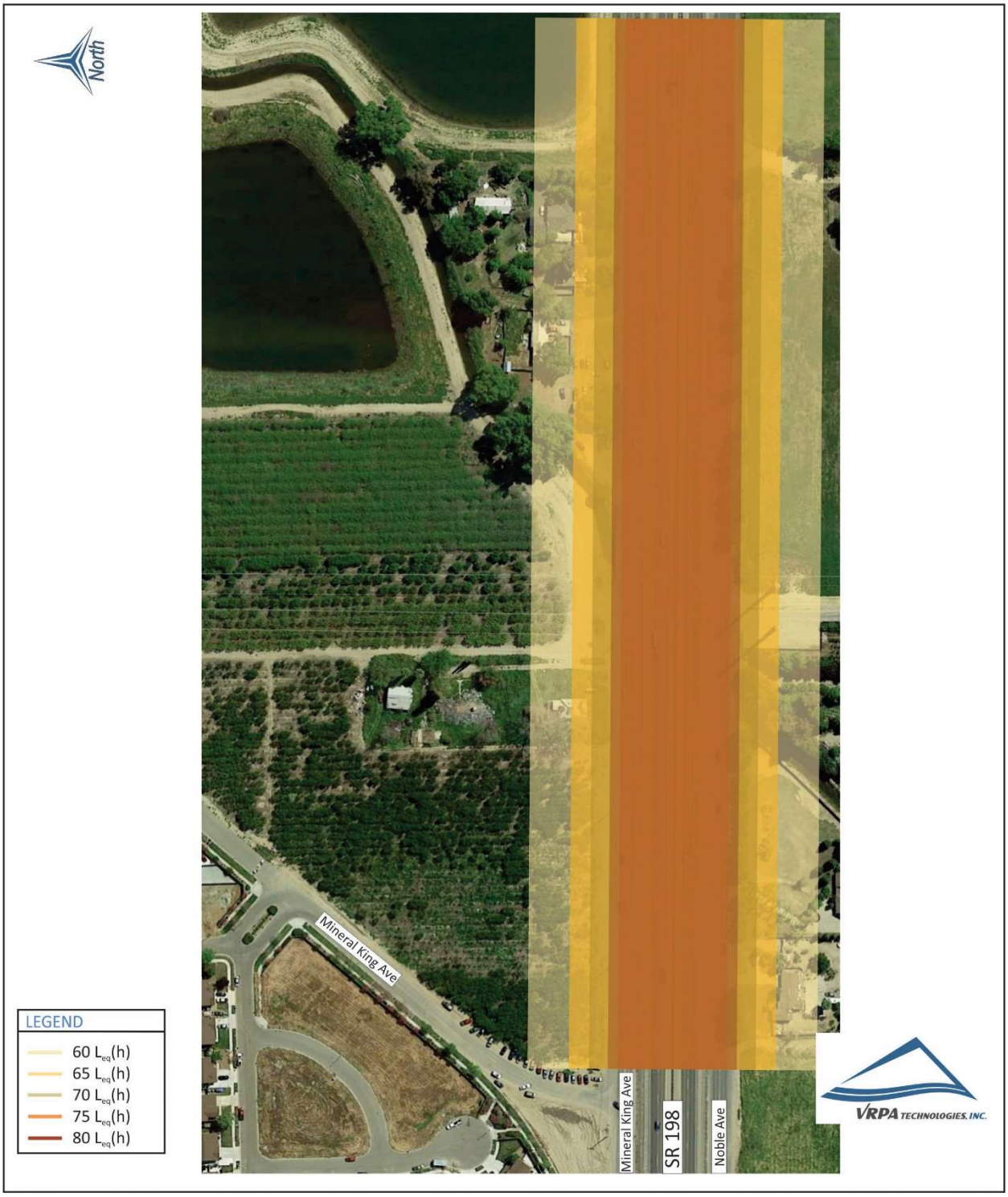
Figure 22

East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project Traffic Noise Contours - Road 152

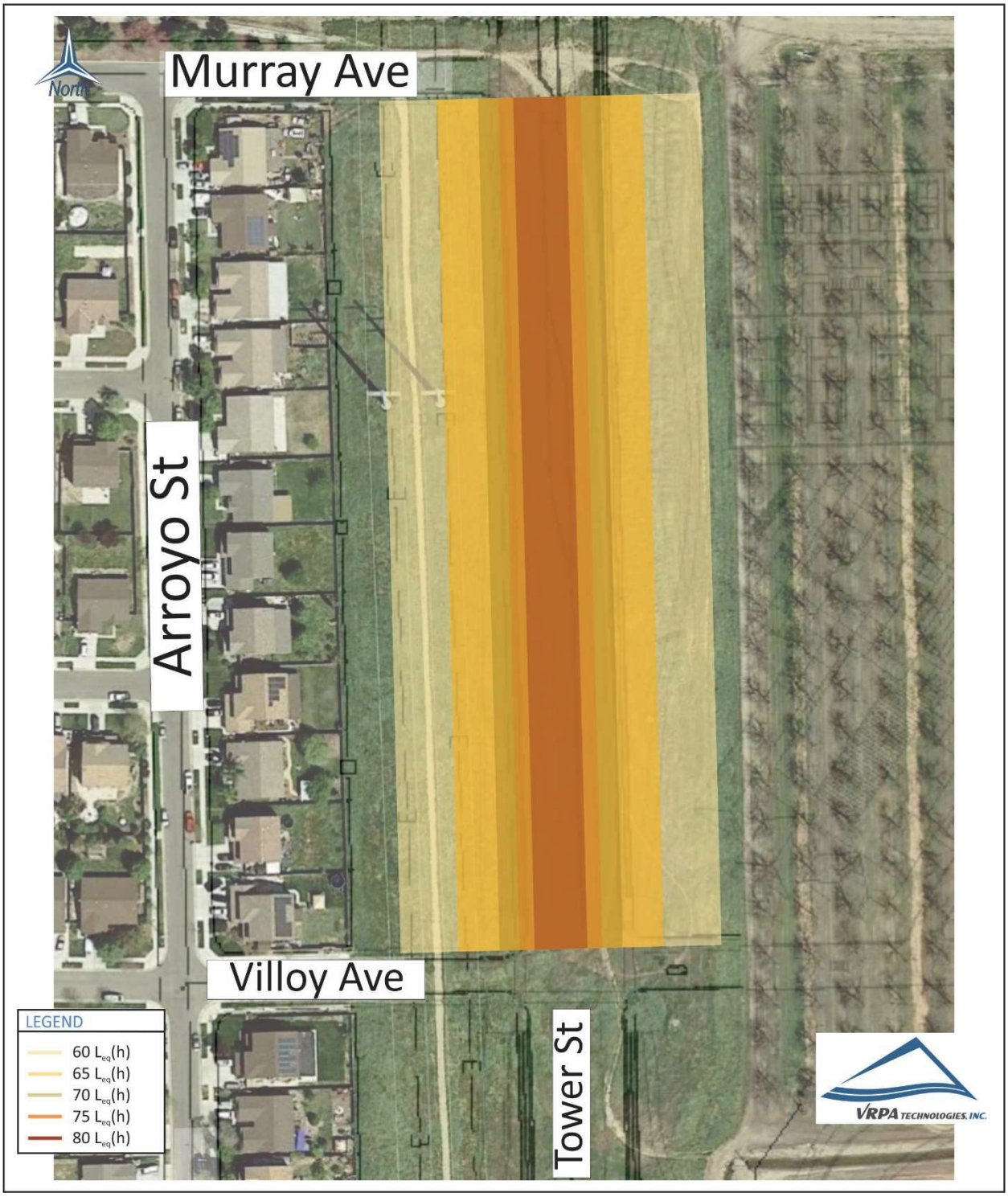
Figure 23

East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project Traffic Noise Contours - Mineral King Avenue

Figure 24

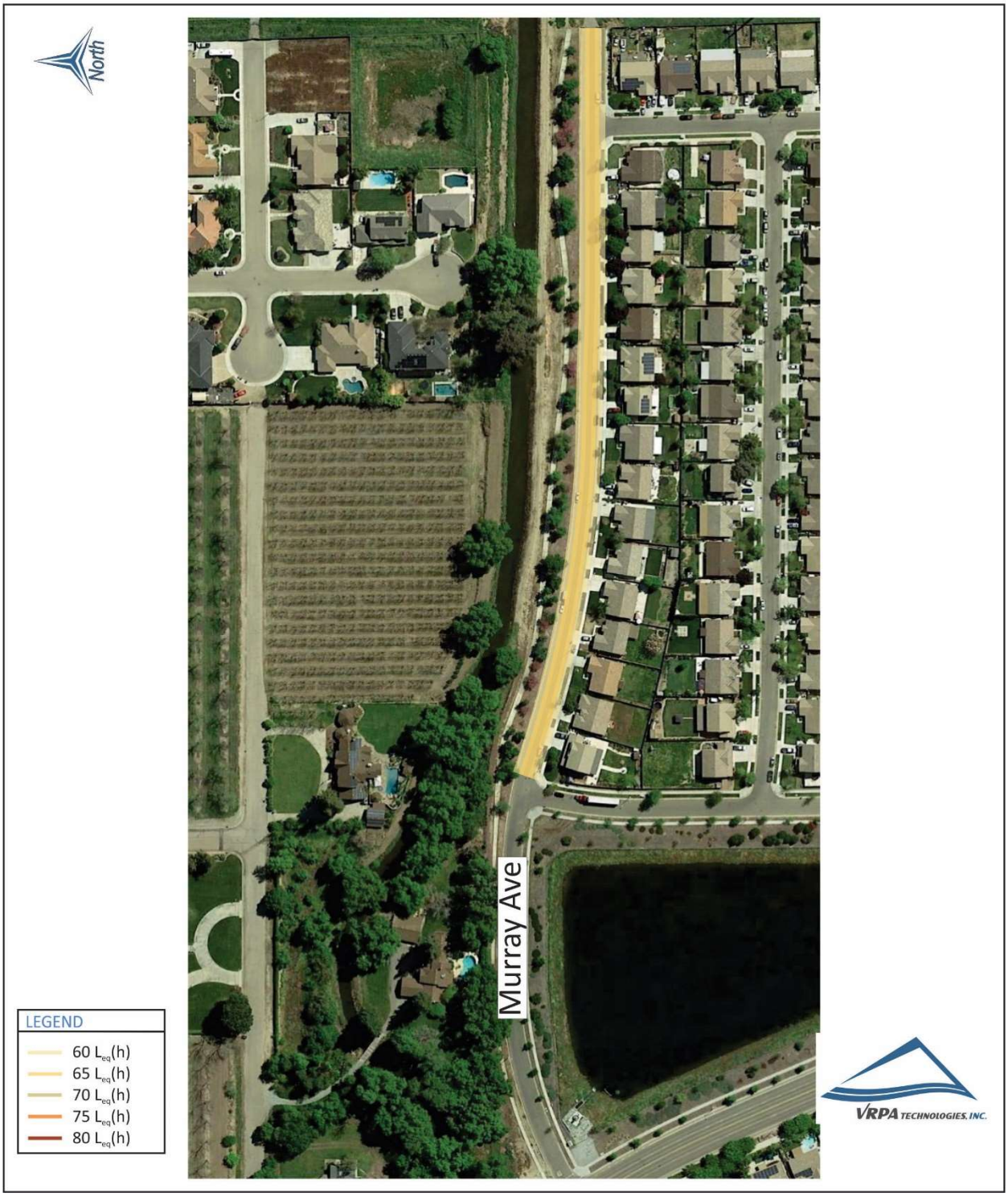


East Side Regional Park & Groundwater Recharge Project EIR Figure 25
Cumulative Year 2040 Without Project Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project Traffic Noise Contours - Murray Avenue

Figure 26

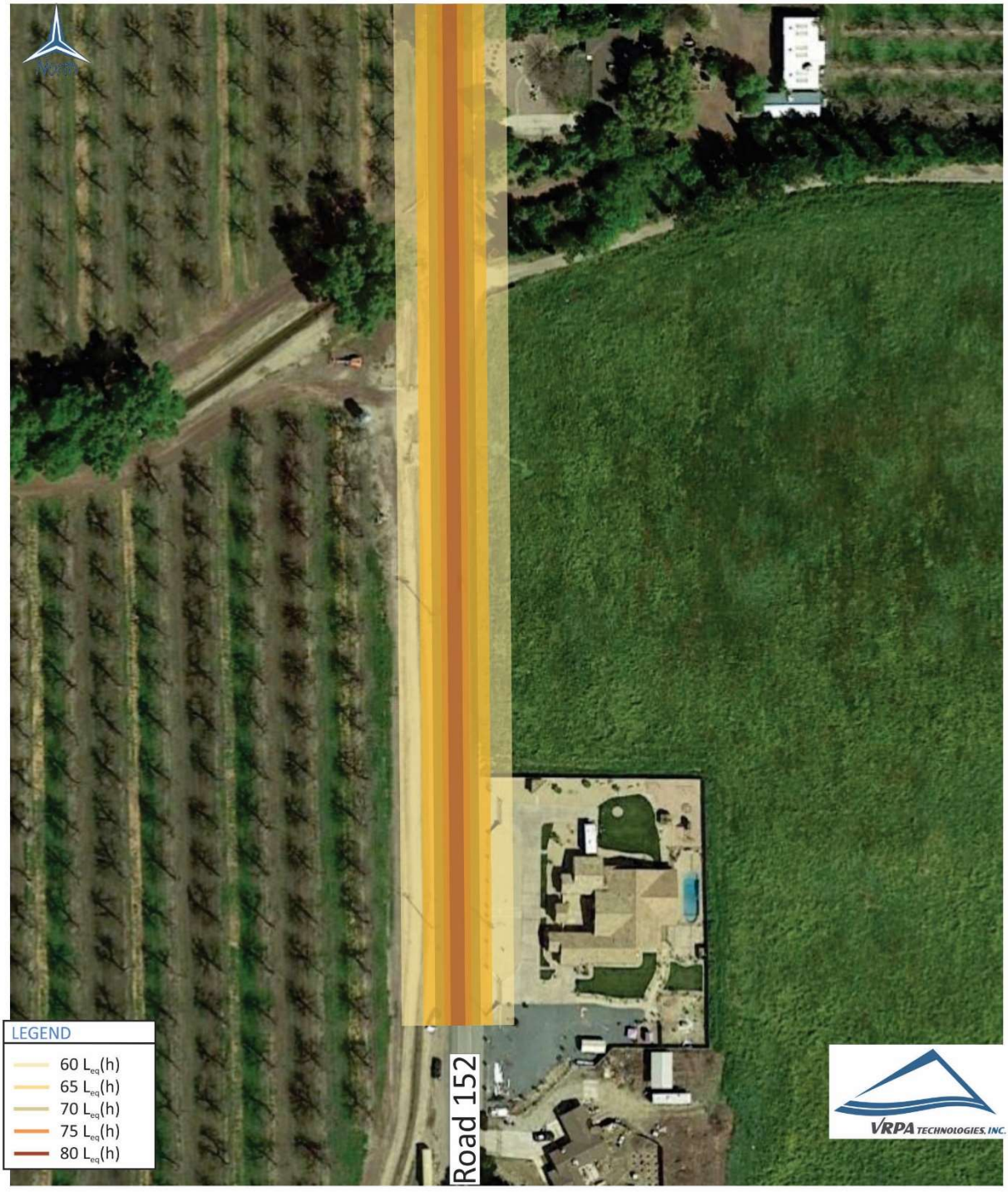


East Side Regional Park & Groundwater Recharge Project EIR **Figure 27**

Cumulative Year 2040 Plus Project Traffic Noise Contours - Houston Avenue (SR 216)

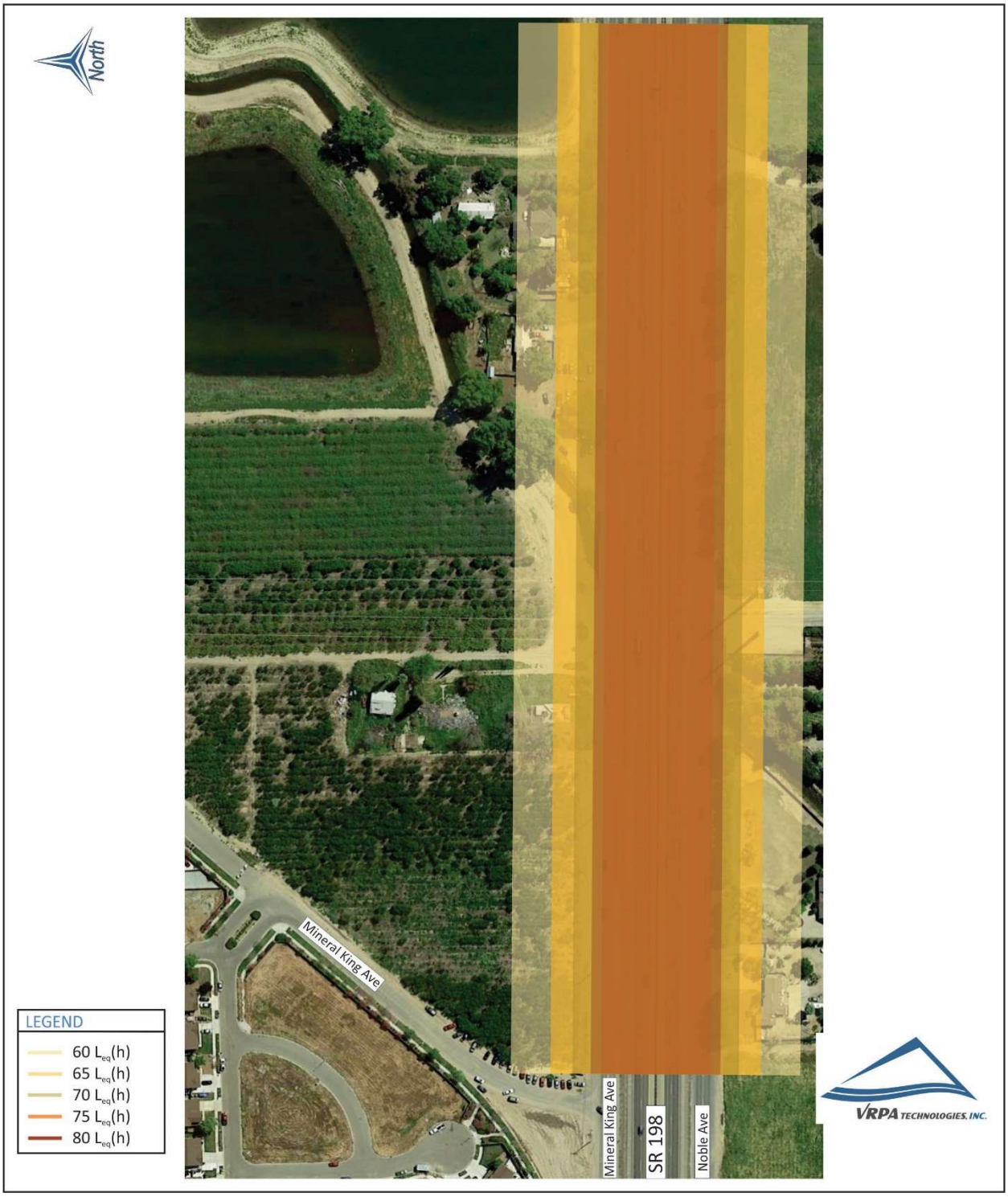
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Traffic Noise Contours - Road 152

Figure 28

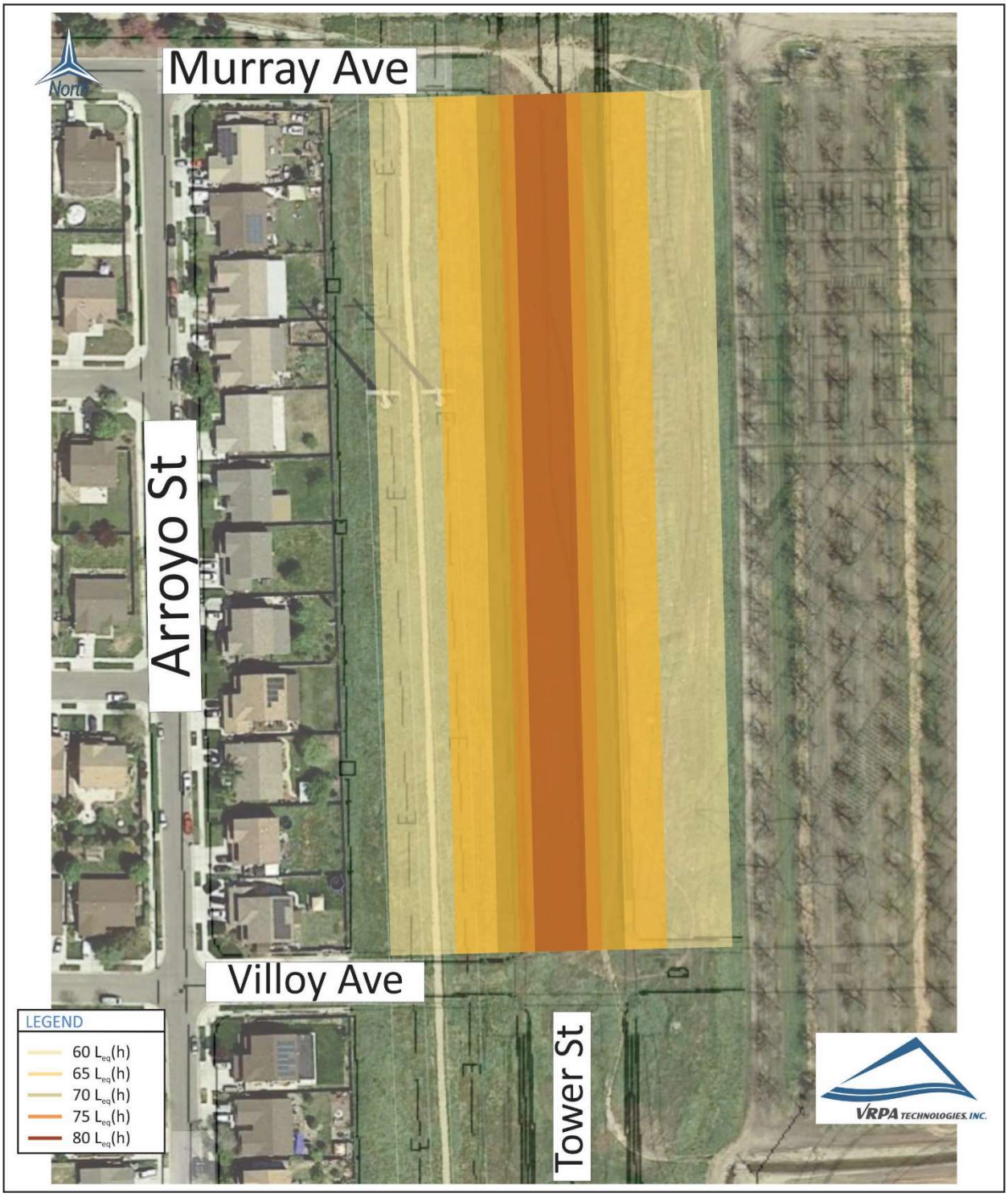


East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Traffic Noise Contours - Mineral King Avenue

Figure 29

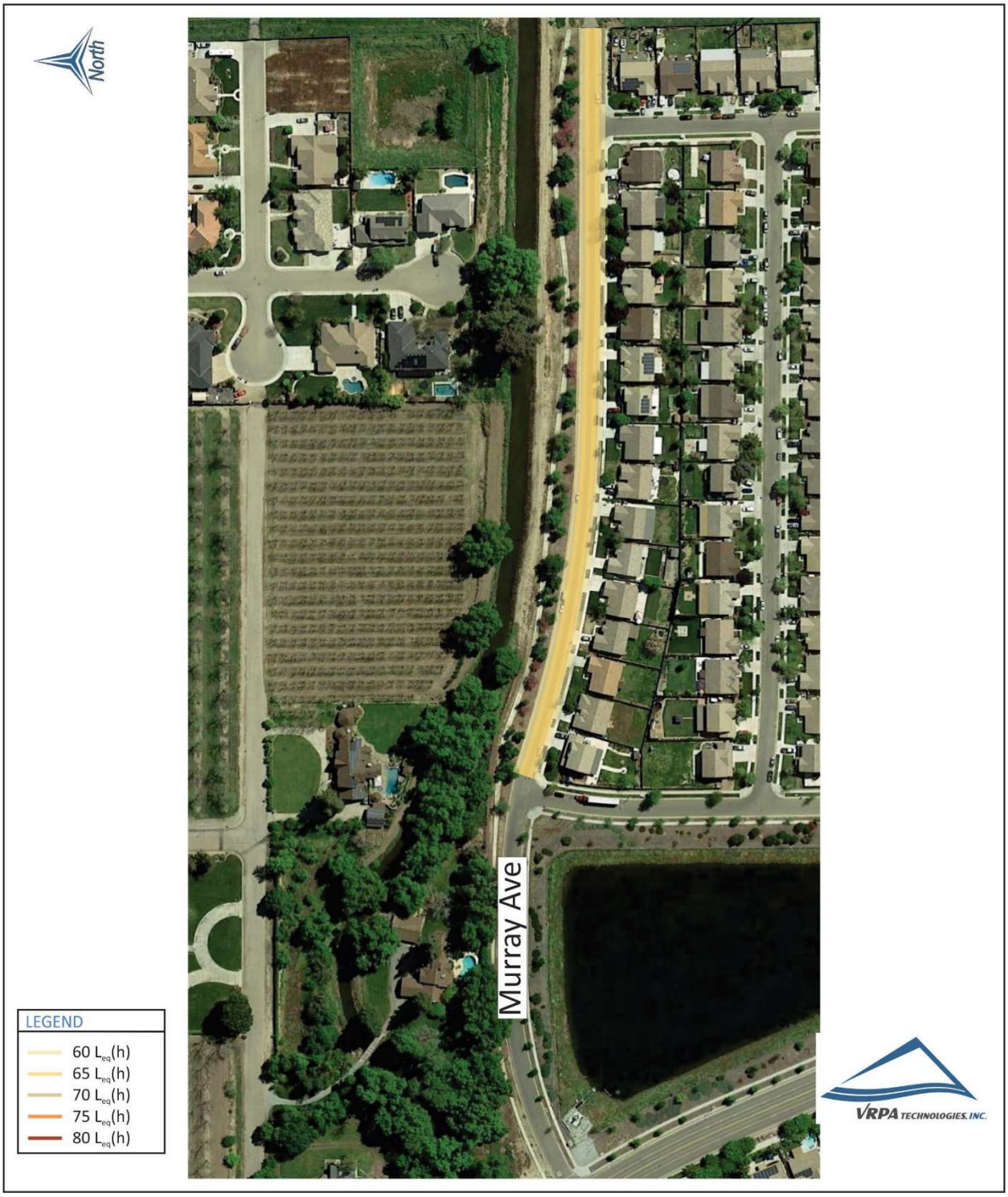


East Side Regional Park & Groundwater Recharge Project EIR Figure 30
Cumulative Year 2040 Plus Project Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Traffic Noise Contours - Murray Avenue

Figure 31



East Side Regional Park & Groundwater Recharge Project EIR **Figure 32**

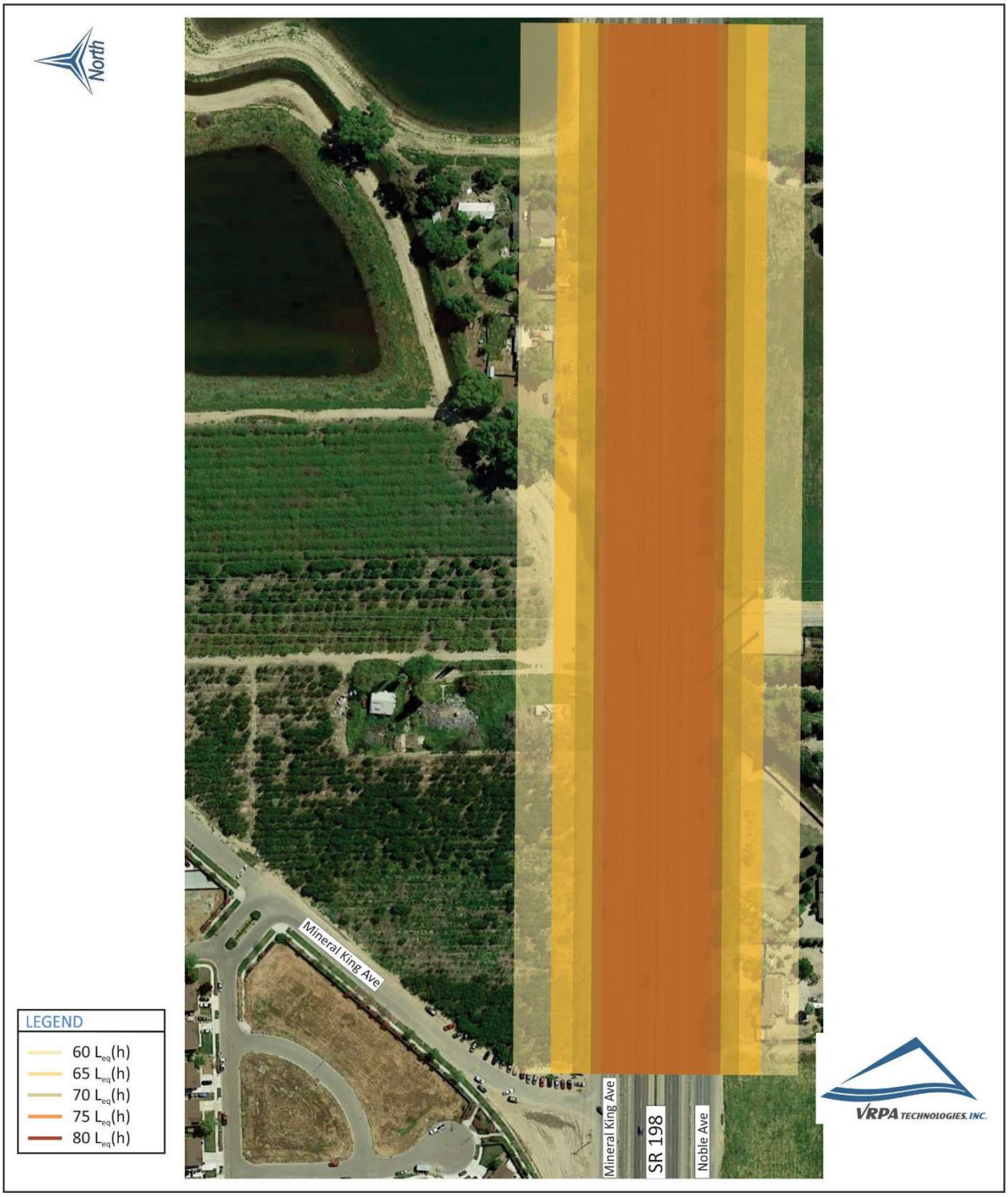
Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours - Houston Avenue (SR 216)

East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours - Road 152

Figure 33

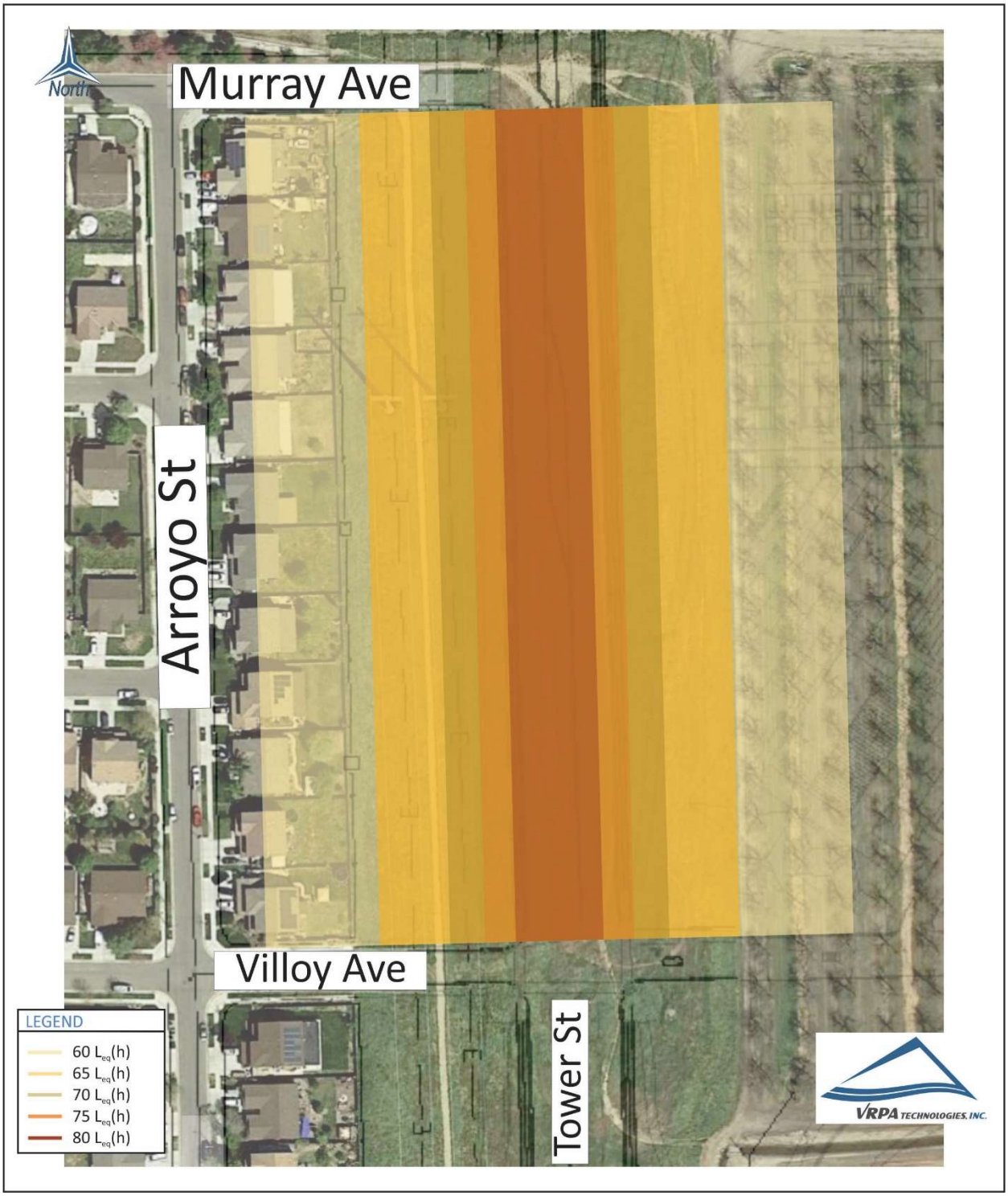
East Side Regional Park & Groundwater Recharge Project EIR — Figure 34

Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours - Mineral King Avenue



East Side Regional Park & Groundwater Recharge Project EIR — Figure 35

Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR — Figure 36

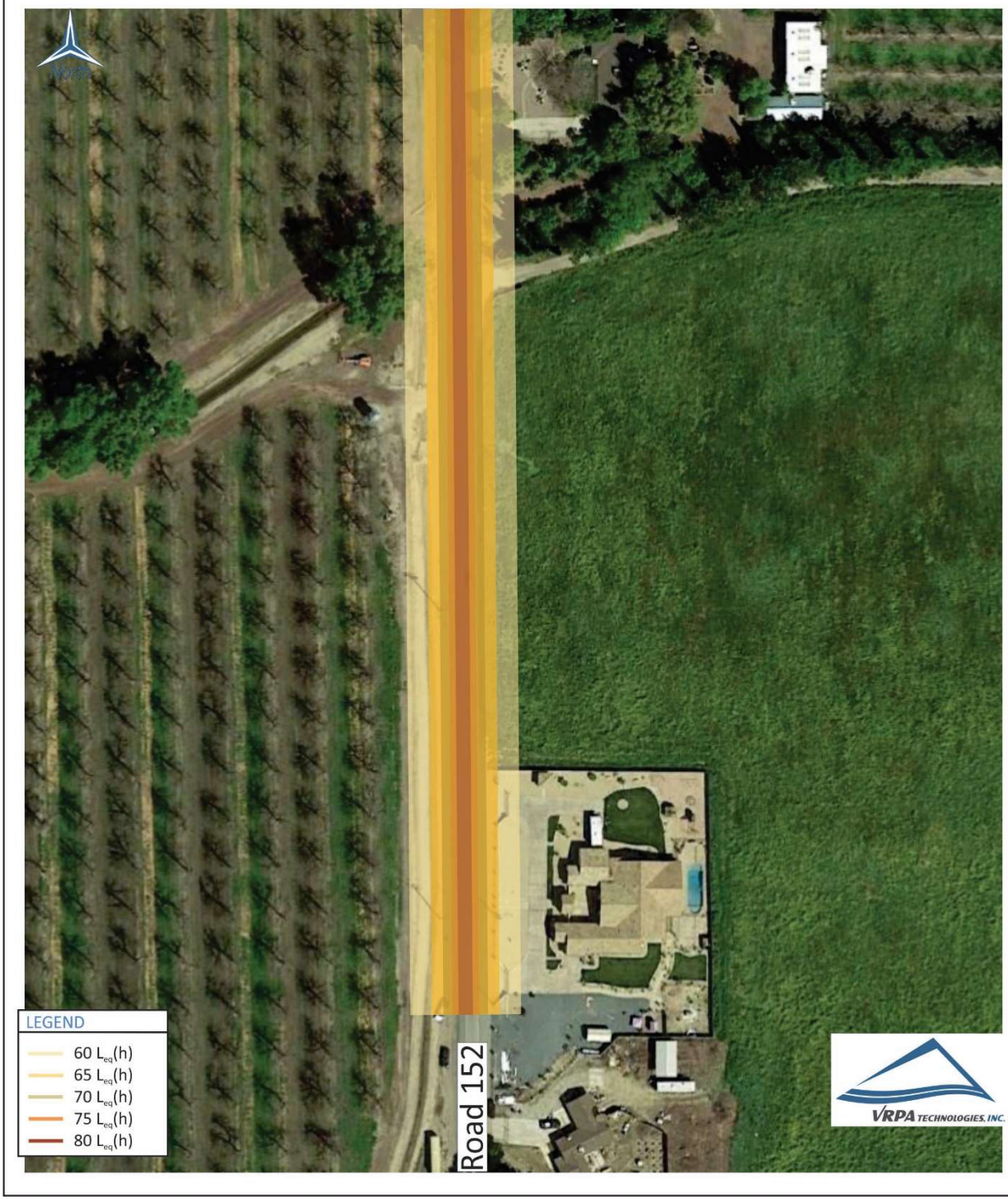
Cumulative Year 2040 Without Project With Interchange Traffic Noise Contours - Murray Avenue

East Side Regional Park & Groundwater Recharge Project EIR **Figure 37**

Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours - Houston Avenue (SR 216)

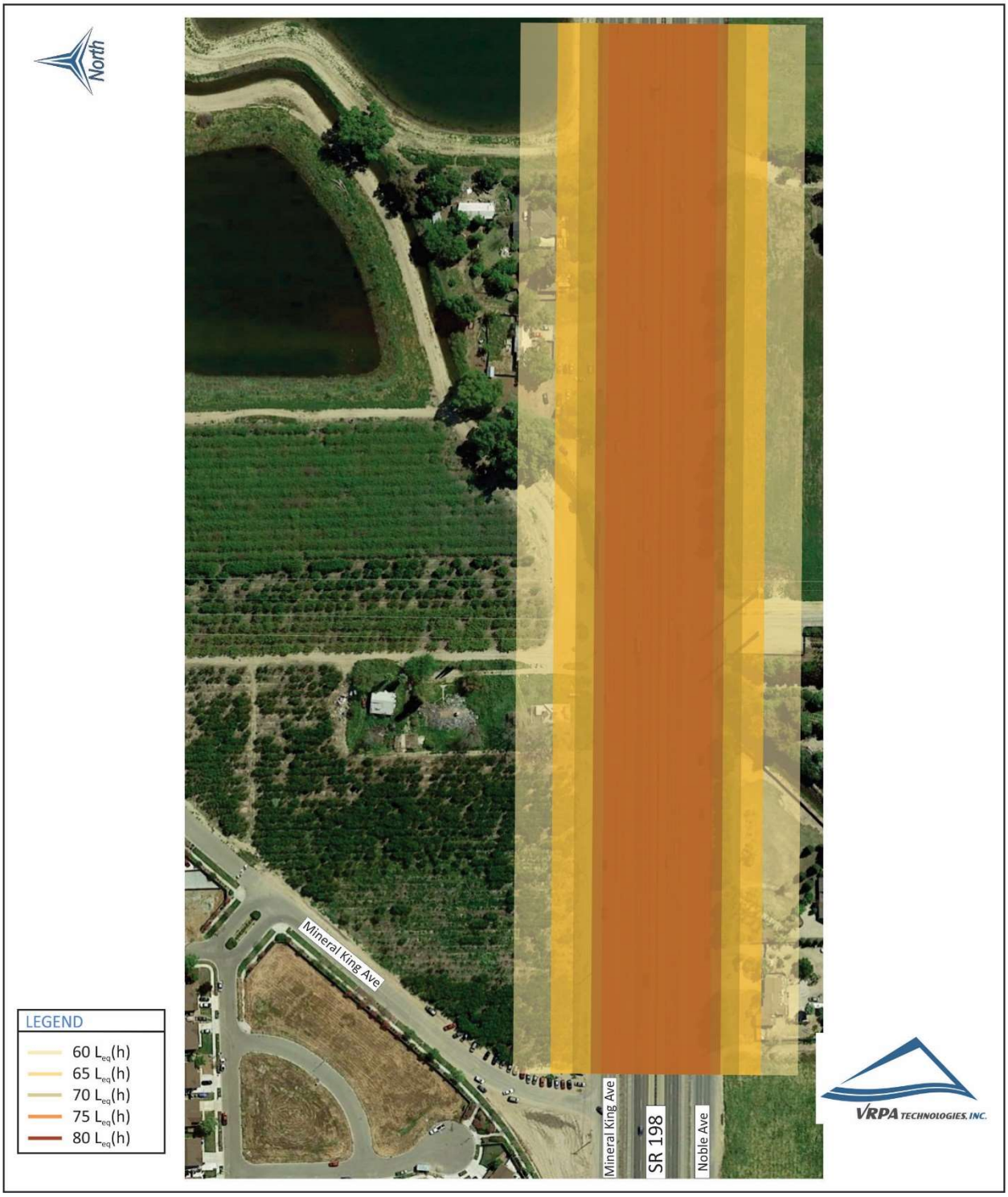
East Side Regional Park & Groundwater Recharge Project EIR — Figure 38

Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours - Road 152



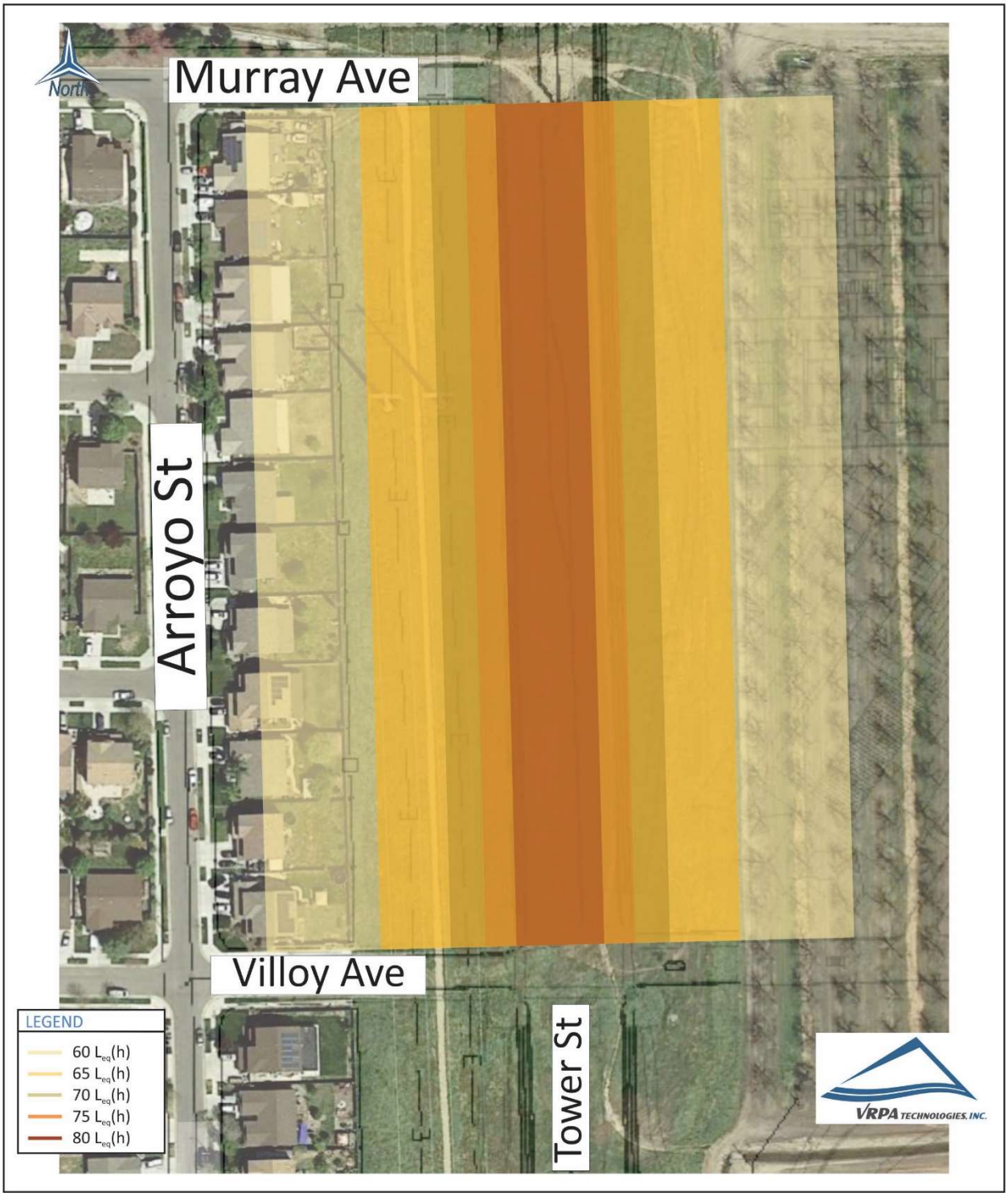
East Side Regional Park & Groundwater Recharge Project EIR — Figure 39

Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours - Mineral King Avenue



East Side Regional Park & Groundwater Recharge Project EIR **Figure 40**

Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours - Tower Street



East Side Regional Park & Groundwater Recharge Project EIR — Figure 41

Cumulative Year 2040 Plus Project With Interchange Traffic Noise Contours - Murray Avenue

East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours - Houston Avenue (SR 216)

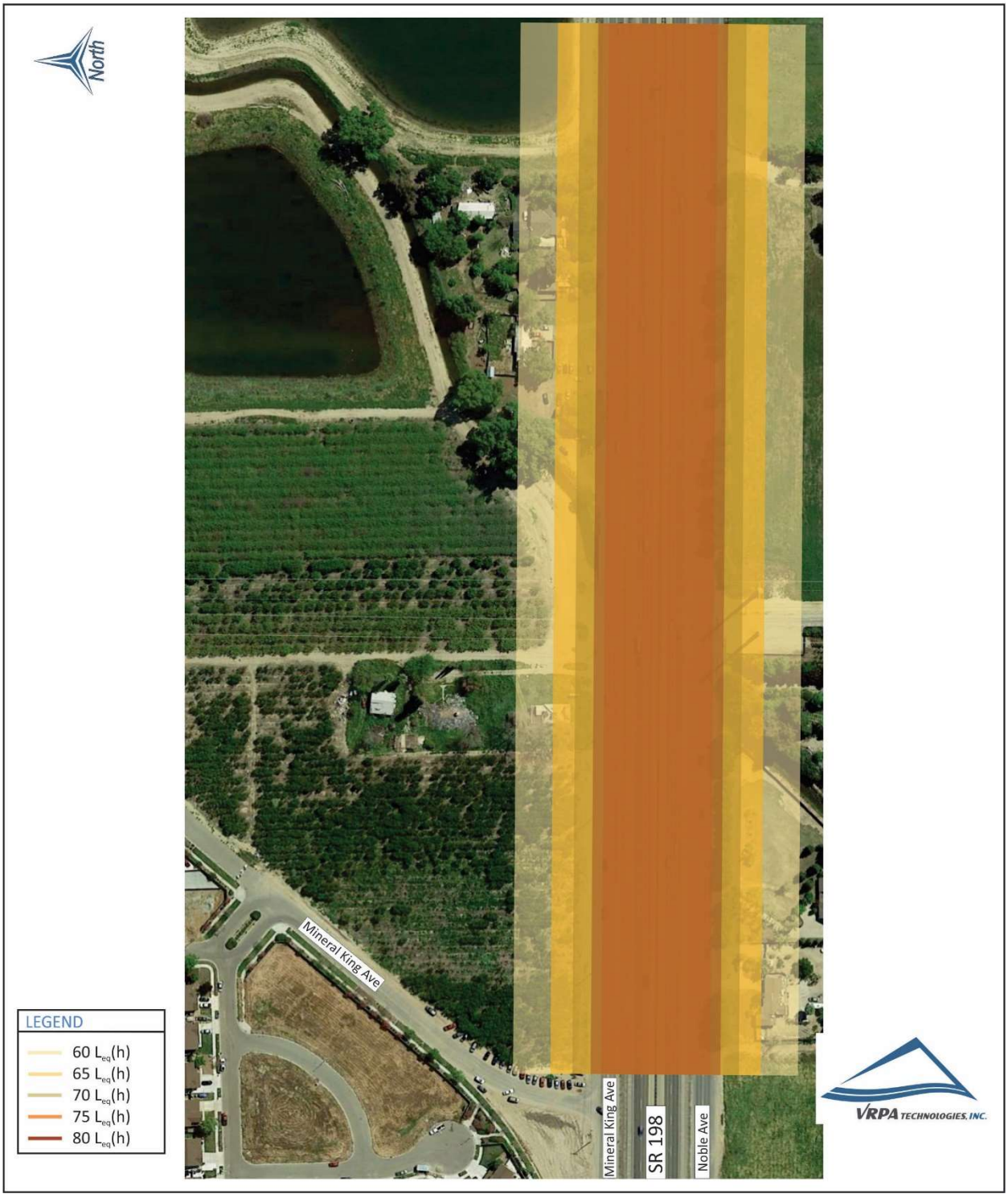
Figure 42

East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours - Road 152

Figure 43

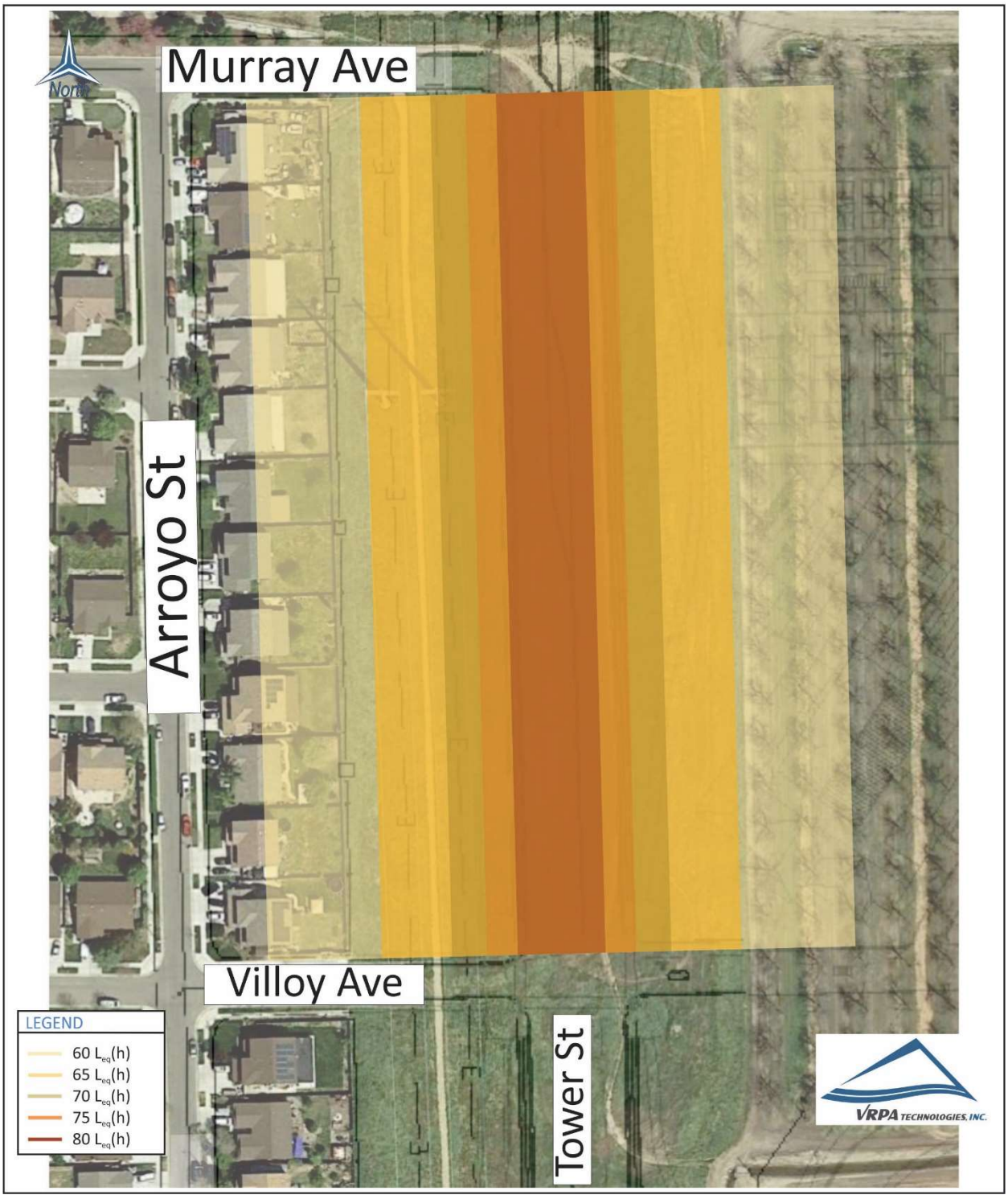
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours - Mineral King Avenue

Figure 44



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours - Tower Street

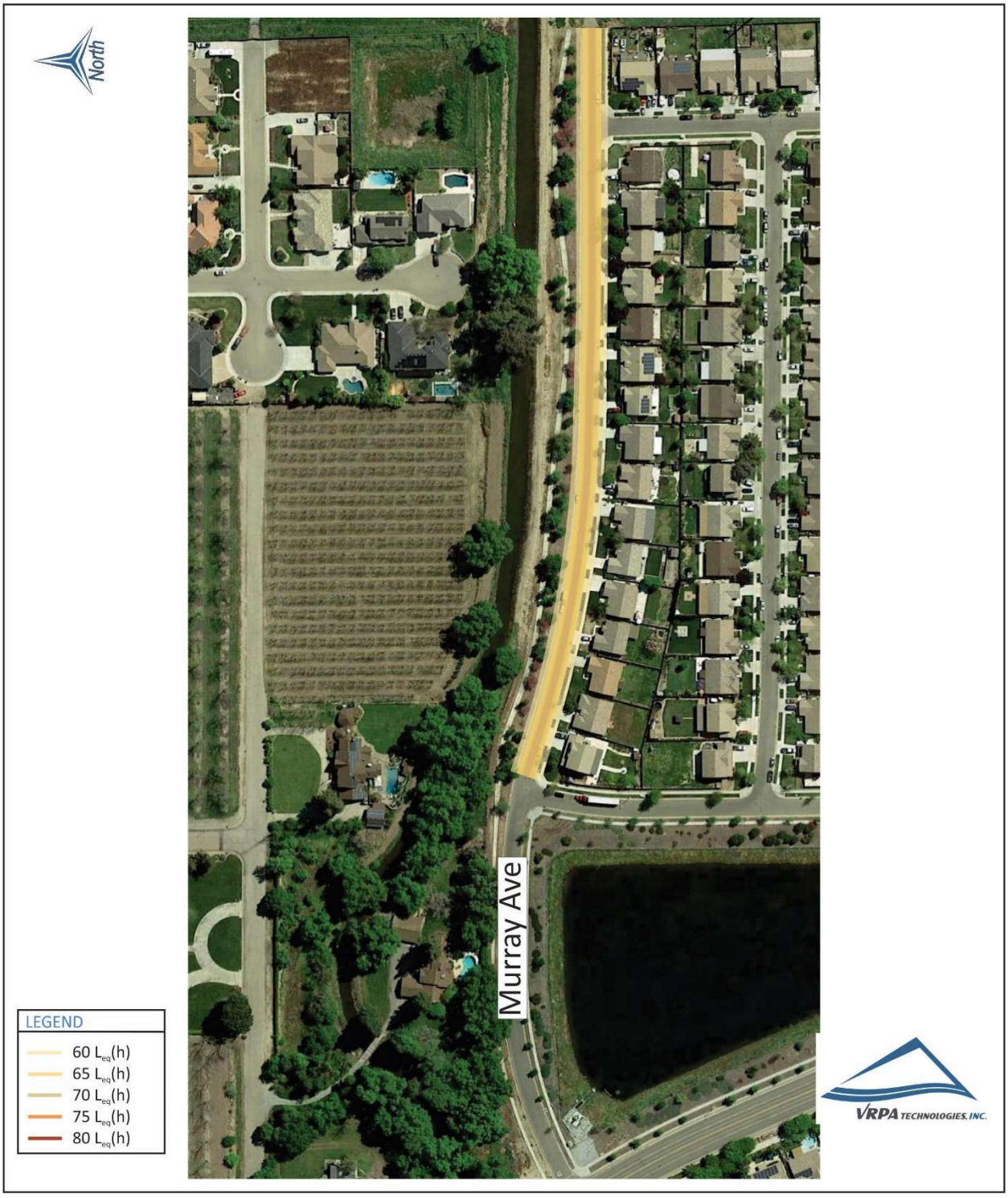
Figure 45



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Mineral King Avenue Traffic Noise Contours - Murray Avenue

Figure 46



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours - Houston Avenue (SR 216)

Figure 47

East Side Regional Park & Groundwater Recharge Project EIR

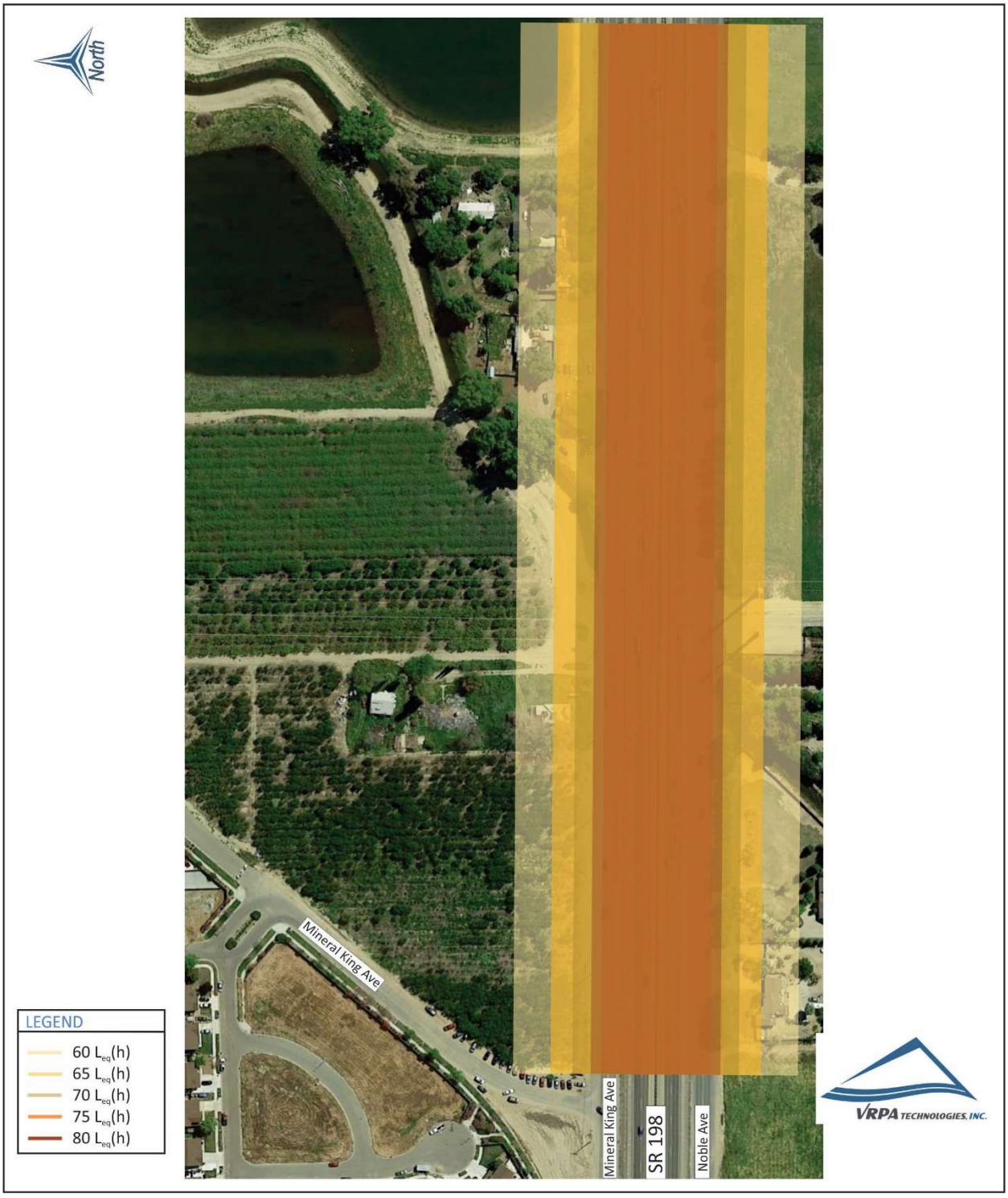
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours - Road 152

Figure 48

East Side Regional Park & Groundwater Recharge Project EIR

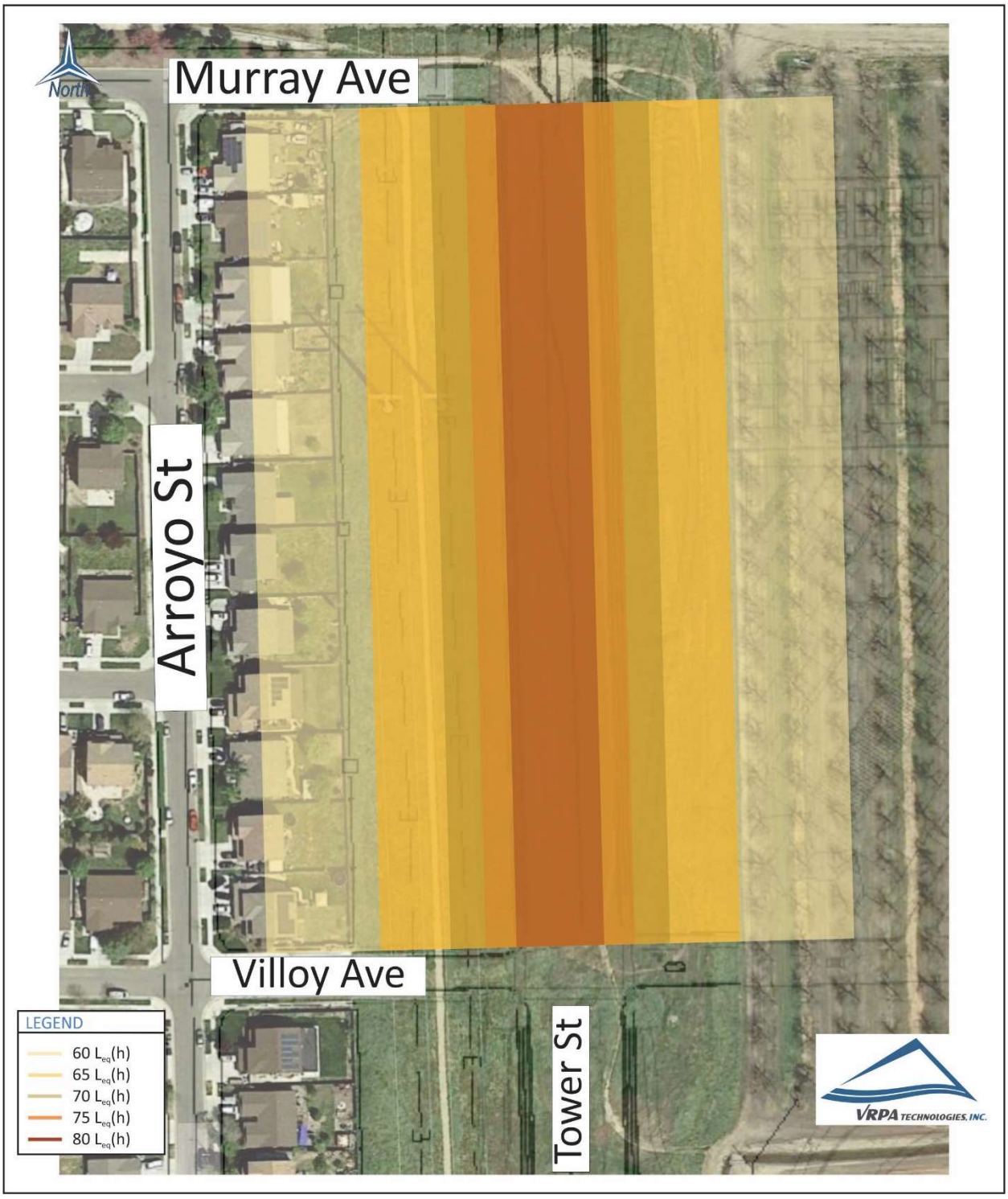
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours - Mineral King Avenue

Figure 49



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours - Tower Street

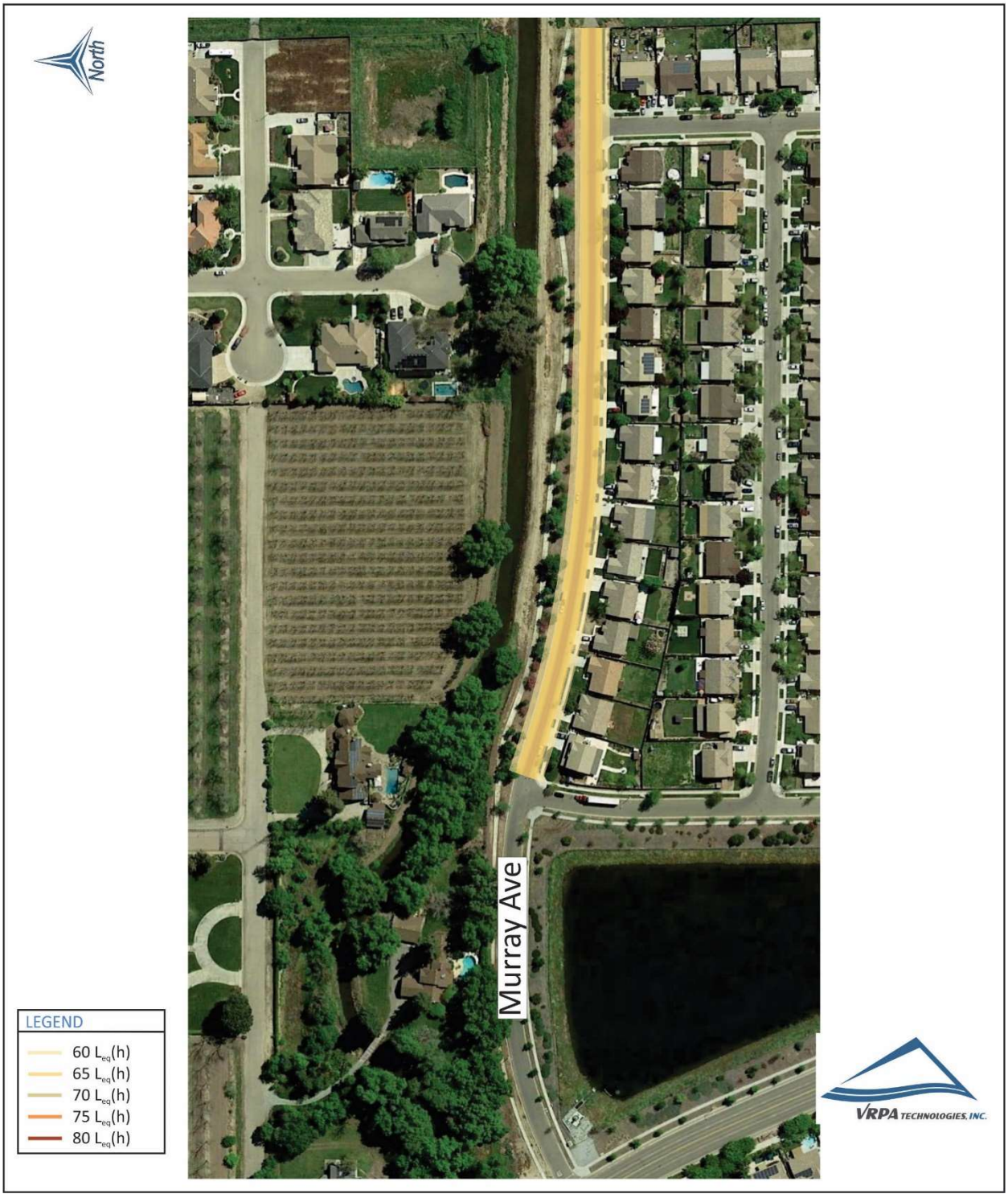
Figure 50



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project With Interchange With Alternative Roadway Configuration at Project Driveway Traffic Noise Contours - Murray Avenue

Figure 51



4.2 Stationary Noise Impacts

The City of Visalia's maximum allowable noise exposure from Stationary Noise Sources is reflected in Table 2. The hourly and maximum sound level allowed during daytime (6:00am to 7:00pm) hours is 50 dBA and 70 dBA respectively. This section evaluates the noise generated by on-site uses and its impact on adjacent sensitive receivers. It should be noted that the existing audible noise (buzz) from the power lines to the west of the Project would be obscured by noise generated by Project on-site activities based on the results presented below.

4.2.1 *Phase 1 Operations*

Phase 1 of the Project includes development of the groundwater recharge-basins and storm-water layoff facilities. Considering the very limited on-site operational activity associated with the Recharge and Storm-water Layoff Basins, it is not anticipated that the operations of Phase 1 will result in any significant adverse impacts to nearby sensitive noise receptors.

4.2.2 *Phase 2 Operations*

This section provides an assessment of the anticipated on-site noise impacts that could result from long -term operation of Phase 2 of the Project on the surrounding land uses within the study area. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits.

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Based upon data provided in the Noise Study Reports for the City of Citrus Heights Stock Ranch Guide for Development, the Nipomo Park Master Plan EIR, and the Salinas Regional Soccer Complex, hourly noise levels at ball fields reach approximately 65 dBA L_{eq} at a distance of 100 feet with maximum noise levels reaching 75 dBA. Figure 52 shows the approximate distances of the ball fields relative to the sensitive receivers (residences) to the west of the Project site. The residences to the west of the Project site are the closest sensitive receivers to the ball fields. It should be noted that the residences to the west of the Project site were divided into four (4) distinct areas as shown in Figure 52.

For purposes of this analysis, it was assumed that the thirteen ball fields (softball, baseball, and soccer) were occupied at the same time, which reflects a worse-case scenario. Caltrans' Technical Noise Supplement provides methodology (Figure 53) for determining the approximate noise level at sensitive receivers considering multiple noise sources (i.e. 13 ball fields). Results of the analysis shows that the sensitive receivers directly to the west of the Project site will be impacted by the ball fields assuming that games are being played on all 13 ball fields at the same time. Table 23 shows that Area 1, Area 2, and Area 3 would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Table 23 also shows that Area 1, Area 2, and Area 3 would experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. Mitigation Measure 3 is recommended in Section 5.0 to attenuate noise exposure from on-site operations of the Project.

It should be noted that the noise levels presented in Table 23 do not account for noise attenuation that would be caused by planned tree/shrubs along the Project boundary that will break the line of sight from the sound source to the receiver. A decibel reduction of 3 to 5 dBA is plausible when buildings or trees/shrubs break the line of sight according to FHWA. However, it is unlikely that planned trees/shrubs will be mature and dense enough to attenuate noise generated by ball fields at project opening day.

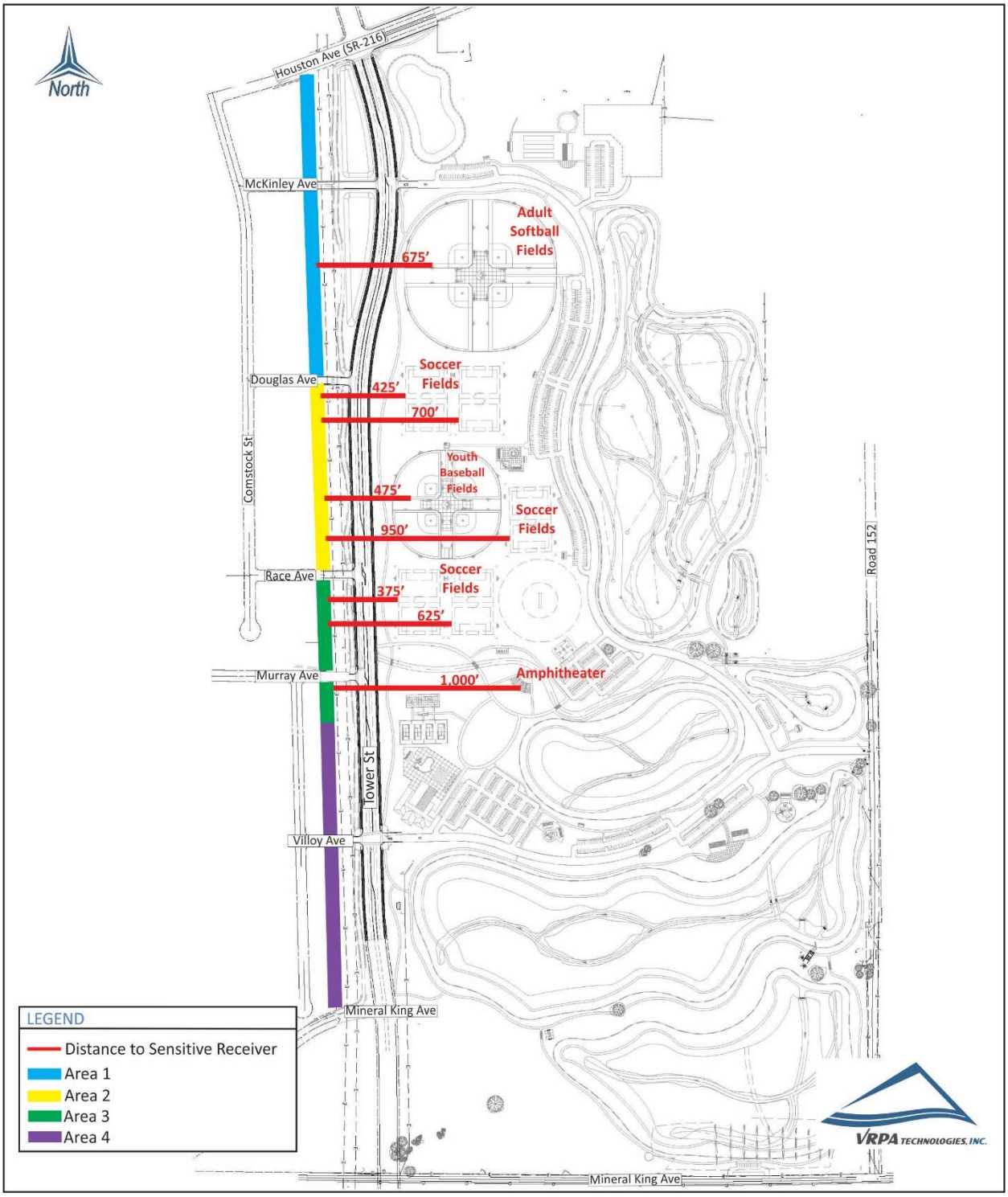
4.2.3 *Phase 3 Operations*

This section provides an assessment of the anticipated on-site noise conditions related to Phase 3 (Full Buildout) of the Project and the impact of noise generated by the Project on the surrounding land uses within the study area. The only significant noise source that Phase 3 of the Project will add to the previous phases is the amphitheater amenity.

Figure 52 shows the approximate distance of the amphitheater relative to the sensitive receivers (residences) to the west of the Project site. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. It is anticipated that several events will take place within the amphitheater area of the Project site throughout the year. The exact types of events are unknown at this time. It should be noted that amplified events (i.e. music concerts) would generate more noise than a non-amplified event. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet[2] from speaker equipment, which would generate maximum noise levels of approximately 65 - 70 dBA at sensitive receivers directly west of the amphitheater. Though the City of Visalia's Stationary Noise Source criteria for maximum noise may not be exceeded, sustained noise levels of 85-90 dBA at the amphitheater would cause hourly noise levels at sensitive receivers directly to the west of the Project to exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level as depicted in Table 23. Potential noise levels associated with amplified events at the amphitheater are considered significant given the lack of information related to events to be held at the amphitheater. Recommended mitigation measures are provided in Section 5.0.

2 Source: Bollard Acoustical Consultants, Inc. Saint James Park Concerts Environmental Noise Analysis

East Side Regional Park & Groundwater Recharge Project EIR — Figure 52
Sensitive Receiver Boundary vs On-Site Noise Sources



East Side Regional Park & Groundwater Recharge Project EIR **Figure 53**
Decibel Addition

When Two Decibel Values Differ By:	Add This Amount to the Higher Value:	Example:
0 or 1 dB	3 dB	70+69 = 73
2 or 3 dB	2 dB	74+71 = 76
4 to 9 dB	1 dB	66+60 = 67
10 dB or more	0 dB	65+55 = 65

Source: Caltrans Technical Noise Supplement

VRPA TECHNOLOGIES, INC.

Table 23
Phase 2 and 3 On-Site Noise Source Impacts

Area	Hourly Equivalent Sound Level Leq dBA	Maximum Sound Level, dBA	City of Visalia's Stationary Noise Source Criterion	Impact
1	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
2	60.0	70.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
3	58.0	68.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
4	65.0	70.0	50 L_{eq} (h) / 70 L_{max}	Yes / No

Source: VRPA Technologies, 2017

5.0 Impact Determinations and Recommended Mitigation

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in significant adverse impacts on the environment. The criteria used to determine the significance of a noise impact are based on the following thresholds of significance, which come from Appendix G of the CEQA Guidelines. Accordingly, noise impacts resulting from the Project are considered significant if the Project would result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b) Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Each of these thresholds are evaluated individually below to determine whether the Project will cause a significant effect on the environment. Where impacts are found to be significant, mitigation measures are recommended that would avoid or reduce the impact to less than significant.

5.1 Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies

5.1.1 Short-Term Impacts

Implementation of the Project has the potential to result in short-term construction noise impacts to surrounding land uses due to construction activities. Construction noise represents a short-term impact on ambient noise levels. Although most of the types of exterior construction activities associated with the general plan update will not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible. Table 6 depicts typical construction equipment noise. Construction equipment noise is controlled by the EPA's Noise Control Program (Part 204 of Title 40, Code of Federal Regulations).

During the construction phase of any future development projects, noise from construction activities will add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85dB at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity will not result in significant adverse impacts to nearby sensitive receptors.

> ***MM Noise 1*** **-** *Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

5.1.2 Long-Term Impacts

Traffic Noise

Future development within the planning area will result in increased traffic volumes, thus increasing noise levels in some areas. Tables 13, 14, 15, and 16 and Figures 22 through 51 show the predicted noise levels at the modeled receivers evaluated in the study area for the Cumulative Year 2040 With and Without Project conditions. Results of the analysis show that noise at sensitive receptors will not exceed the City of Visalia's Transportation Noise Source criteria for the Cumulative Year 2040 Plus Project scenarios. There will be minimal changes in the traffic noise exposure levels with the Project at various setbacks of 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area as shown in Tables 17, 18, 19, 20, 21, and 22. Implementation of the Project will not result in significant adverse impacts from traffic noise levels within the Project study area. Therefore, no mitigation measures are needed.

Stationary Noise

Section 4.2 above indicates that Phase 2 on-site operations will impact sensitive receptors directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site will be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time. Table 23 shows that Area 1, Area 2, and Area 3, as shown on Figure 52 above, would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 10 dBA would be needed to meet City of Visalia's noise criteria.

Table 23 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

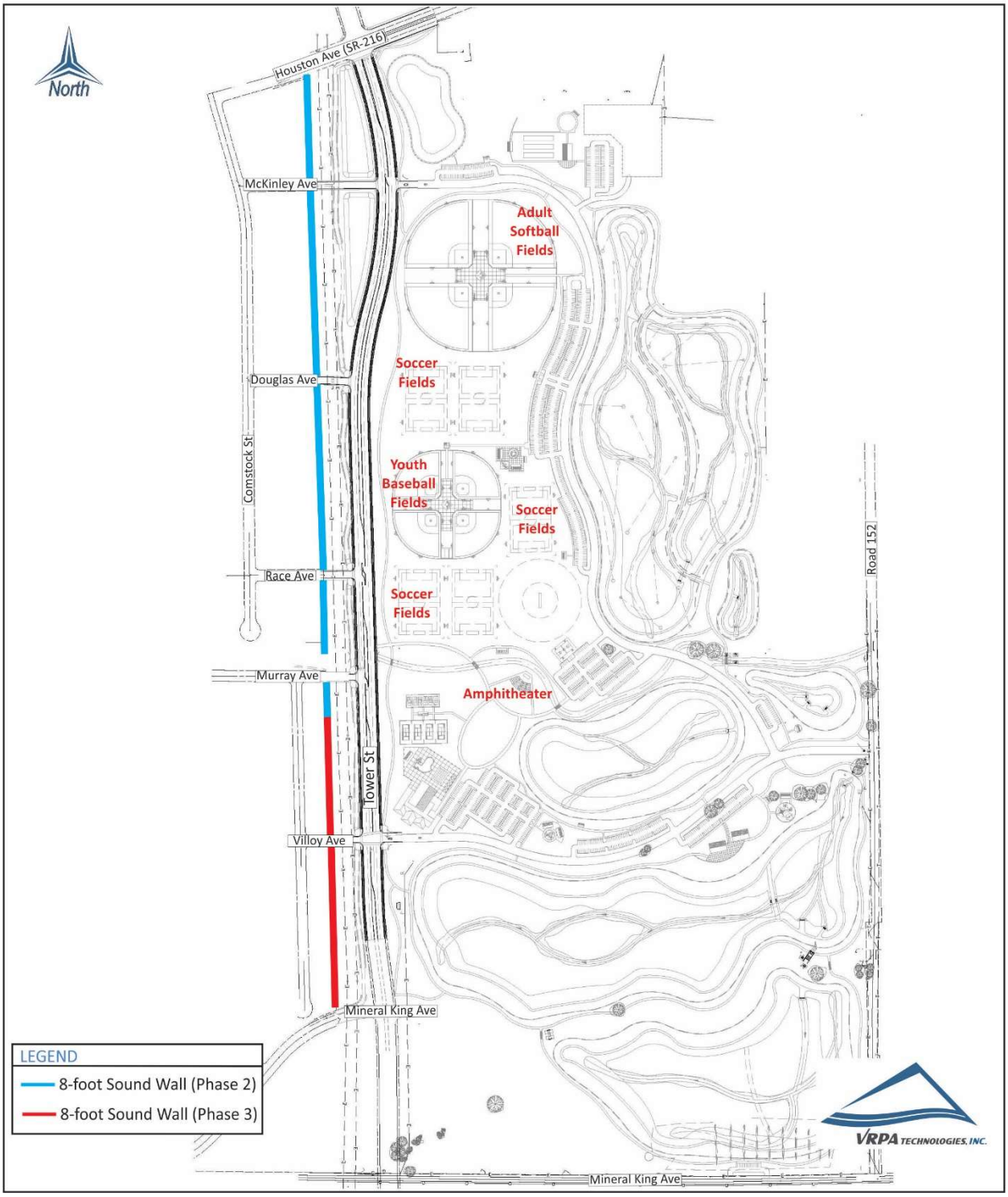
In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the following recommended mitigation measures:

> ***MM Noise 2 –*** *Use of softball, baseball, and soccer fields shall be limited to the hours of 7:00am – 10:00pm.*
> ***MM Noise 3 –*** *Construction of the specified portion of an 8-foot sound wall along the residential boundary of homes directly to the west of Project site (see Figure 54 for approximate location). The sound wall material should consist of concrete block (8in. x 8in. x 16in.), dense concrete (4in. thick), or light concrete (4in. to 6in. thick).*

Mitigation Measures MM Noise 2 and MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design.

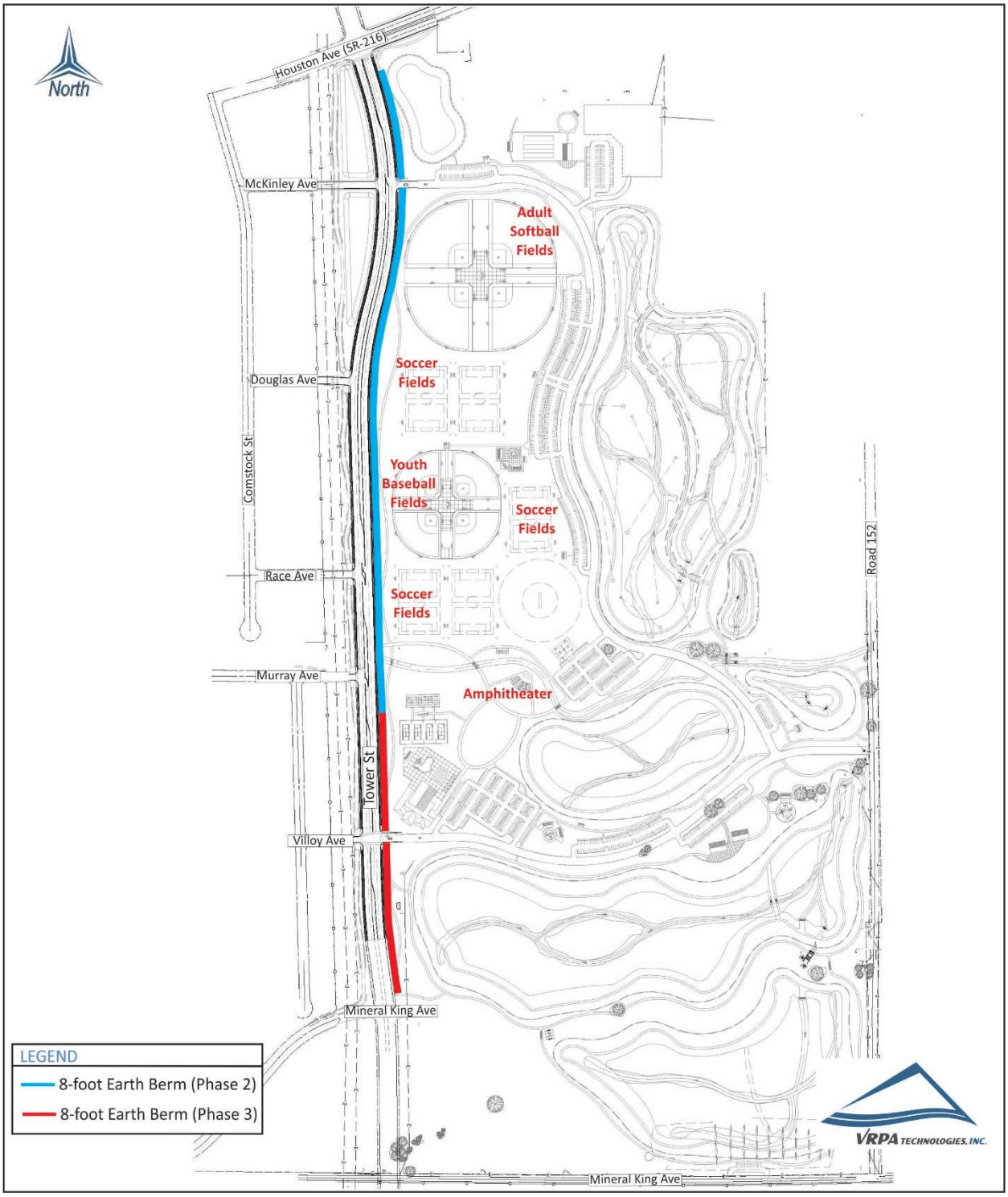
An alternative to the recommended 8-foot sound wall along the residential boundary of homes directly to the west of the Project site is an 8-foot earth berm (2:1 slope). The earth berm would be located along the western boundary of the Project site as depicted in Figure 55. This mitigation alternative would alleviate noise impacts from the Project in relation to the residential homes directly west of the Project.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 54**
Sound Barrier Location



East Side Regional Park & Groundwater Recharge Project EIR
Earth Berm Location

Figure 55



Section 4.2 above also indicates that Phase 3 on-site operations will impact sensitive receivers directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate hourly noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the **MM Noise 3**. The following mitigation measure can be implemented in lieu of an 8-foot sound wall (see Figure 54 – Phase 3):

MM Noise 4 – *Reorient the amphitheater to the northeast.*

Mitigation Measure MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design. Mitigation Measure MN Noise 4 will eliminate the Project's impacts to sensitive receivers to the west of the Project.

5.2 Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels?

Ambient vibration levels in residential areas are typically 50 VdB, which is well below human perception. The operation of heating/air conditioning systems and slamming of doors produce typical indoor vibrations that are noticeable to humans but not considered adverse or significant.

Construction activity can result in ground vibration, depending upon the types of equipment used and proximity to receptors. Operation of construction equipment causes ground vibrations, which spread through the ground and diminish in strength with distance from the source generating the vibration. Building structures that are founded on the soil in the vicinity of the construction site respond to these vibrations, with varied results. Ground vibrations as a result of typical construction activities very rarely reach vibration levels that will damage structures, but can cause low rumbling sounds and detectable vibrations for buildings very close to the site. Construction activities that generally create the most severe vibrations are blasting and impact pile driving. Neither of these activities will be needed to construct the Project.

Vibration levels from various types of construction equipment are shown in Table 7. The primary concern with construction vibration is building damage. Therefore, construction vibration is generally assessed in terms of PPV. Using the vibratory roller vibration level shown in Table 7 (Lv 94) and the formula shown above, the anticipated vibration levels at 100 feet, 150 feet, and 200

feet are 82, 78, and 76 VdB, respectively. Using the large bulldozer vibration level shown in Table 7 (Lv 87) and the formula shown above, the anticipated vibration levels at 100 feet, 150 feet, and 200 feet are 75, 71, and 69 VdB, respectively.

Construction activities associated with Phases 1, 2, and 3 of the Project would likely require the use of various types of equipment including bulldozers, vibratory rollers, and dump trucks. Based on the vibration levels provided in Table 7, ground vibration generated by common construction equipment would be between 75 and 82 VdB or less at a distance of 100 feet or more. The single-family residences located adjacent to Receiver 6 and Receiver 9 may be subject to vibration levels greater than 75 VdB depending on the location of bulldozers, vibratory rollers, and dump trucks operating on the Project site.

In order to reduce potential construction vibration impacts to sensitive receivers to less than significant, all construction phases of the Project should comply with the following recommended mitigation measures:

> ***MM Noise 5 –*** *Vibration Monitoring will be conducted during construction of Phases 1, 2, and 3 of the Project when directly adjacent to a sensitive receptor. Vibration will be monitored along the perimeter of the construction area and at varying distances.*
>
> *A vibration criterion of 0.5 inches per second (in/sec) peak particle velocity (PPV) is proposed as the applicable action threshold criteria for ground-borne vibration measurement during proposed remedial construction activities. The 0.5 in/sec PPV criterion has been established by the United States Bureau of Mines (USBM) as the threshold above which damage to interior plaster walls may occur. This criterion has become recognized by industry as the threshold for the onset of vibration damage to typical residential structures. Collected vibration monitoring results will be compared to the vibration criterion. The results will also be tabulated and reviewed on a weekly basis to assess trends and formulate the basis for mitigation measures, if required.*

5.3 A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Traffic Noise

Tables 3, 8, and 10 shows the impact of the Project to the modeled sensitive receivers evaluated in the study area. The results indicate that the changes in noise levels, as a result of the Project, are insignificant. The Project will result in a maximum increase of eight (8) decibels when comparing Existing and Existing Plus Project Conditions (Receivers 1 and 2). This increase is primarily due to the construction of Tower Street and the adjustments to existing travel patterns in the study area as a result of Tower Street.

There will be minimal changes in the traffic noise exposure levels at various setbacks of 60, 65, 70, 75, and 80 L_{eq}(h) dBA for the major streets and roads within the study area as shown in Tables 17, 18, 19, 20, 21, and 22. Implementation of the Project will not result in significant adverse impacts from traffic noise levels within the Project study area. Therefore, no mitigation measures are needed.

Stationary Noise

Section 4.2 above indicates that Phase 2 on-site operations will impact sensitive receptors directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site will be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time. Table 23 shows that Area 1, Area 2, and Area 3 as shown on Figure 52 above would experience hourly noise levels of 58 dBA, 60 dBA, and 58 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Noise reductions of 8 to 10 dBA would be needed to meet City of Visalia's noise criteria.

Table 23 also shows that Area 1, Area 2, and Area 3 could experience a maximum sound level of 68 dBA, 70 dBA, and 68 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with mitigation measures **MM Noise 2 and MM Noise 3**.

Mitigation Measures MM Noise 2 and MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design.

Section 4.2 above also indicates that Phase 3 on-site operations will impact sensitive receivers directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with mitigation measures **MM Noise 3 or MM Noise 4**.

Mitigation Measure MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design. Mitigation Measure MN Noise 4 will eliminate the Project's impacts to sensitive receivers to the west of the Project.

5.4 A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Implementation of the Project has the potential to result in short-term noise impacts to surrounding land uses due to construction activities. Construction noise represents a short-term impact on ambient noise levels. Although most of the types of exterior construction activities associated with the general plan update will not generate continually high noise levels, occasional single-event disturbances from grading and construction activities are possible. Table 6 depicts typical construction equipment noise. Construction equipment noise is controlled by the EPA's Noise Control Program (Part 204 of Title 40, Code of Federal Regulations).

During the construction phase of any future development projects, noise from construction activities will add to the ambient noise environment in the immediate area. Activities involved in construction would generate maximum noise levels, as indicated in Table 6, ranging from 77 to 85dB at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours in compliance with the City Noise Ordinance. Therefore, noise resulting from short-term, transient construction activity will not result in significant adverse impacts to nearby sensitive receptors.

> ***MM Noise 1*** **-** *Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

5.5 For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The Project is not located within five miles of a public airport or public use airport. Therefore, the Project will not result in the stated impact. No Mitigation is needed.

5.6 For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The Project is not located within the vicinity of a private airstrip. Therefore, the Project will not result in the stated impact. No Mitigation is needed.

6.0 Master Plan Concept A1 Analysis

This section provides an analysis of the Master Plan Concept A1 to the proposed Project, which identified impacts related to the selected Master Plan (Concept B1). A layout of Master Plan Concept A1 is provided in Figure 55.

6.1 Construction Noise Impacts

Master Plan Concept A1 would be developed in a similar manner to the proposed Project (Concept B1). Though the various components of the Project are arranged differently between the two concepts, overall construction noise impacts would be similar. Section 3.0 above provides an analysis of short-term impacts associated with the Project that would be anticipated for the development of Master Plan Concept A1.

6.2 Traffic Noise Impacts

Master Plan Concept A1 would be developed in a similar manner to the proposed Project (Concept B1). Though the various components of the Project are arranged differently between the two concepts, overall noise impacts associated with Project traffic would be similar. Section 4.0 above provides an analysis of traffic noise impacts associated with the Project that would be expected for the development of Master Plan Concept A1.

6.3 Stationary Noise Impacts

This section evaluates the noise generated by on-site uses and its impact on adjacent sensitive receivers considering Master Plan Concept A1. It should be noted that the existing audible noise (buzz) from the power lines to the west of the Project would be obscured by noise generated by Project on-site activities based on the results presented below.

6.3.1 *Phase 1 Operations*

Phase 1 of Master Plan Concept A1 would include development of the groundwater recharge-basins and storm-water layoff facilities. Considering the very limited on-site operational activity associated with the Recharge and Storm-water Layoff Basins, it is not anticipated that the operations of Phase 1 would result in any significant adverse impacts to nearby sensitive noise receptors.

6.3.2 *Phase 2 Operations*

This section provides an assessment of the anticipated on-site noise impacts that could result from long-term operation of Phase 2 of Master Plan Concept A1 on the surrounding land uses within the study area. Phase 2 would include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and entrances/exits.

Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Based upon data provided in the Noise Study Reports for the City of Citrus Heights Stock Ranch Guide for Development, the Nipomo Park Master Plan EIR, and the Salinas Regional Soccer Complex, hourly noise levels at ball fields reach approximately 65 dBA L_{eq} at a distance of 100 feet with maximum noise levels reaching 75 dBA. The residences to the west of the site are the closest sensitive receivers to the ball fields. It should be noted that the residences to the west of the Project site were divided into four (4) distinct areas as shown in Figure 52 above.

For purposes of this analysis, it was assumed that the thirteen ball fields (softball, baseball, and soccer) were occupied at the same time, which reflects a worse-case scenario. Caltrans' Technical Noise Supplement provides methodology (Figure 53) for determining the approximate noise level at sensitive receivers considering multiple noise sources (i.e. 13 ball fields). Results of the analysis shows that the sensitive receivers directly to the west of the Project site will be impacted by the ball fields assuming that games are being played on all 13 ball fields at the same time. Table 24 shows that Area 1, Area 2, and Area 3 would experience hourly noise levels of 56 dBA, 59 dBA, and 59 dBA respectively, which exceeds the City of Visalia's Stationary Noise Source Criteria of 50 dBA. Table 24 also shows that Area 1, Area 2, and Area 3 would experience a maximum sound level of 66 dBA, 69 dBA, and 69 dBA respectively. The estimated maximum noise levels anticipated for Areas 1, 2, and 3 do not exceed the City of Visalia's Stationary Noise Source Criteria of 70 dBA.

Mitigation Measure 3 in Section 5.0 above would be required for purposes of attenuating noise exposure from Phase 2 on-site operations of Master Plan Concept A1.

6.3.3 *Phase 3 Operations*

This section provides an assessment of the anticipated on-site noise conditions related to Phase 3 (Full Buildout) of Master Plan Concept A1 and the impact of noise generated by Master Plan Concept A1 on the surrounding land uses within the study area. The only significant noise source that Phase 3 of the Master Plan Concept A1 would add to the previous phases is the amphitheater amenity.

As shown in Figure 56, the amphitheater is positioned closer to the eastern boundary of the site and is oriented to the northwest for Master Plan Concept A1. The stage for the amphitheater is located approximately 2,000 feet from the nearest sensitive receptor adjacent to Master Plan Concept A1. It is anticipated that several events would take place within the amphitheater area throughout the year. It should be noted that amplified events (i.e. music concerts) would generate more noise than a non-amplified event. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate maximum noise levels of approximately 65 - 70 dBA at sensitive receivers directly west of the amphitheater. Though the City of Visalia's Stationary Noise Source criteria for maximum noise may not be exceeded, sustained noise levels of 85-90 dBA at the amphitheater could cause hourly noise levels at sensitive receivers to the west of the site to exceed the City of Visalia's Stationary Noise

Source criteria for the hourly equivalent sound level. However, mitigation measures identified for Phase 2 operations would be sufficient for attenuating noise from amplified events at the amphitheater given the orientation of the amphitheater and distance to sensitive receivers. The 8-foot sound wall (see Figure 54) associated with Phase 3 of the Project (Concept B1) would not be required to attenuate on-site noise sources.

East Side Regional Park & Groundwater Recharge Project EIR **Figure 56**
Master Plan Concept A1 Layout

Table 24
Master Plan Concept A1 Phase 2 and 3 On-Site Noise Source Impacts

Area	Hourly Equivalent Sound Level Leq dBA	Maximum Sound Level, dBA	City of Visalia's Stationary Noise Source Criterion	Impact
1	56.0	66.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
2	59.0	69.0	50 L_{eq} (h) / 70 L_{max}	Yes / No
3	59.0	69.0	50 L_{eq} (h) / 70 L_{max}	Yes / No

Source: VRPA Technologies, 2017

Appendix A
Acoustical terminology

The following terminology has been used for purposes of this NSR:

Ambient Noise Level: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7 p.m. to 10p.m. and ten decibels to sound levels in the night before 7 a.m. and after 10 p.m.

Decibel, dBA: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micro-newtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition often decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

$L_{eq}(h)$: The hourly value of L_{eq}.

L_{max}: The maximum noise level recorded during a noise event

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). L_{10} equals the level exceeded 10 percent of the time.

$L_n(h)$: The hourly value of L_n.

Noise Exposure Contours: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to the duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and the reference duration of one second

Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighing filter network. The A-weighing filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

Note: *CNEL and DNL represent daily levels of noise exposure averaged on an annual basis,* while L_n *represents the average noise exposure for a shorter time period, typically one hour.*

Appendix B

City of Visalia General Plan – Noise

8 SAFETY AND NOISE

The purpose of the Safety and Noise Element is to identify the natural and man-made public health and safety hazards that exist within the City, and to establish preventative and responsive policies and programs to mitigate their potential impacts. This Element addresses geologic hazards, flood hazards, hazardous materials, wildfire hazards, and safety services. It also includes policies on natural hazards mitigation planning, which respond to the Federal Disaster Mitigation Act of 2000 and the Federal Emergency Management Agency's implementing regulations and support the County's Multi-Jurisdictional Local Hazard Mitigation Plan. Airport safety is addressed in the Land Use and Circulation Elements, as well as in the Noise section of this chapter.

The purpose of the Noise section is to identify the noise sources that exist within the City, and to establish policies and programs to mitigate their potential impacts through both preventative and responsive measures. The regulation of some noise sources such as railroad operations and aircraft operations is overseen by state and federal agencies. This element has a direct correlation with the land use, circulation, and housing elements. It guides the location of industrial land uses and transportation facilities, since they are common sources of excessive noise levels. This element also guides the location of particularly noise–sensitive uses, such as residences, schools, churches, and hospitals, so that they may be less affected by noise.

8.1 SEISMIC AND GEOLOGIC HAZARDS

Geologic and soils hazards include steep slopes and landslides, subsidence, expansive soils, and soils with naturally-occurring asbestos. Additional information on soils and erosion within the Planning Area is in the Open Space & Conservation Element. Seismic hazards related to earthquakes include groundshaking and ground failures, such as liquefaction, lateral spreading, ground lurching, seiches, mudslides, landslides, and soil slumping.

Geology

The Planning Area is in a basin bounded by the Sierra Nevada foothills and mountains to the east and the Coast Ranges to the west, and filled with deep layers of sediment from the Sierra Nevada. The St. Johns River flows through the northeastern portion of the Planning Area, along with smaller streams and canals. The area is basically flat, lying at an elevation of approximately 330 feet above sea level. As described in Chapter 6, surface soils in the Planning Area range from fine sandy loam and loam to alkali soils. Some soils have the potential to present moderate geologic hazards to building, due to their susceptibility to erosion or to expansion and contraction.

The Safety Element identifies natural and manmade hazard and establishes preventative and responsive policies.

Expansive Soils

Expansive soils have the potential to shrink or swell significantly with changes in moisture content, which can limit the development capacity of an area. The type and amount of the silt and clay content in the soil will determine the amount of shrink or swell associated with the various levels of water content. Soils comprised of sand and gravel are not expansive soils.

Expansive soils are most likely to be found in basins and basin rims. Any structure located on expansive soils can be significantly damaged should the soil suddenly shrink or swell. Structural damage may result over a long period of time, usually from inadequate soils and foundation engineering or the placement of structures directly on expansive soils. Construction in areas of expansive soils may require major subexcavation and replacement of existing materials with more stable soils.

Soil types considered to have a moderate "shrink-swell" potential underlie about 2,480 acres in the Planning Area, and are located near the Highway 99/198 interchange, north of the St. Johns River, and in the northwest near the intersection of Road 80 and Avenue 328. See **Figure 6-3**: Erosion Susceptibility and Shrink-Swell Potential, in Chapter 6.

Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. Some areas in the Central Valley have subsided more than 20 feet during the past 50 years.[1] Subsidence may occur in the Planning Area, particularly in areas with high clay content soils or due to groundwater withdrawal.

Seismic Hazards

There are no known active earthquake faults in the Planning Area. The closest active faults are Owens Valley fault group and Sierra Nevada Fault Zone, 75 miles to the east of the Planning Area, the San Andreas Fault Zone (60 miles to the west), and an unnamed fault group north of Bakersfield (60 miles to the south).[2] Major earthquakes such as the 1906 San Francisco, 1952 Kern County, and 1983 Coalinga quakes were felt and caused some minor to moderate property damage in Visalia. It is possible, but unlikely, that previously unknown faults could become active in the area. The State Geologist has not delineated any Alquist-Priolo Earthquake Fault Zones within or near the Planning Area.

Groundshaking

The most significant hazard associated with earthquakes for the Visalia area is ground shaking caused by earthquakes along the San Andreas fault to the west or Owens Valley fault to the east. However, the hazards due to groundshaking are considered to be low, according to the California Geological Survey and US Geological Survey's Probabalistic Seismic Hazard Analysis. The analysis is based on historic

1 Tulare County, General Plan Background Report, October 2004. pg. 8-11.

2 USGS Fault Maps, http://quake.wr.usgs.gov/info/faultmaps

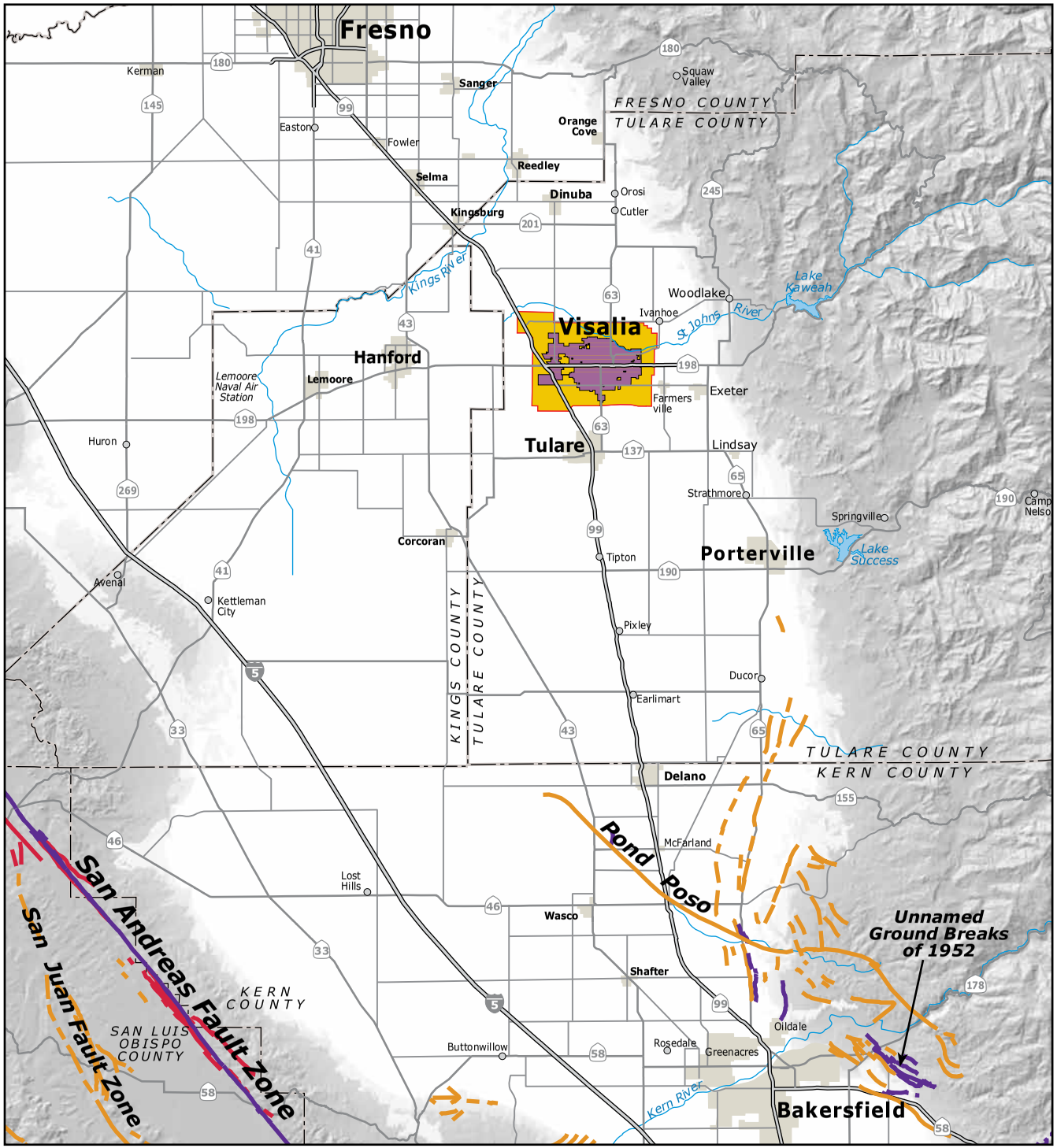


Figure 8-1: Regional Faults

- Active Fault with Historic (last 200 years) Displacement
- Active Fault with Holocene (last 11,000 years) Displacement
- Potentially Active Fault with Quaternary (last 1,600,000 years) Displacement
- Visalia City Limits
- Planning Area
- County

Source: Department of Conservation, California Geological Survey, 2005.

0 5 10 20
MILES

New structures are required to adhere to current California Uniform Building Code (CUBC) standards. (Top)

In the Planning Area, hazards due to ground shaking are considered to be low. Damage is most likely to occur to older masonry buildings. (Bottom)

earthquakes, slip rates on major faults and deformation throughout the region and the potential for amplification of seismic waves by near-surface geologic materials. The resulting earthquake shaking potential is used in developing building code design values, estimating future earthquake losses and prioritizing earthquake retrofit. In the Planning Area, low levels of shaking, with less frequency, are expected to damage only weaker masonry buildings. However, very infrequent earthquakes could still cause strong shaking.[3]

Ground Failure

Earthquake-induced ground failures, such as ruptures, lateral spreading, ground lurching, seiches, or mudslides, are unlikely to occur in the Planning Area because of its relatively stable geologic formation and lack of active faults.

Seismic Safety

Existing structures in the Planning Area could be affected by the types of earthquake-induced effects listed above, but to varying degrees based on length, intensity, and distance of the earthquake from a given building. New structures are required to adhere to current California Uniform Building Code (CUBC) standards for Seismic Zone 3, and provide adequate design, construction and maintenance of structures to prevent exposure of people and structures to major geologic hazards. In particular, any critical facilities such as hospitals, fire and police stations, and emergency communications and operations centers must be adequately designed, constructed and maintained with the goal of remaining functional after a large seismic event. The use of flexible utility connections, building anchors, and adequately reinforced concrete can reduce the loss of life and damage to buildings for human occupancy.

3 California Geological Survey and US Geological Survey, Earthquake Shaking Potential for California, Map Sheet 48 Revised 2008). 2008. http://www.conservation.ca.gov/cgs/information/publications/ms/Documents/MS48_revised.pdf

Objectives

S-O-1 Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

Policies

S-P-1 Work with Caltrans to seismically retrofit or replace local ramps and freeway overpass bridges that are categorized as structurally deficient by Caltrans, are located in high ground shaking areas, and/or are necessary for first responders to use during and/or immediately after a disaster or emergency.

S-P-2 Seismically retrofit or replace public works and/or emergency response facilities that are necessary during and/or immediately after a disaster or emergency.

S-P-3 Update the City's Emergency Preparedness Plan to include an Earthquake Disaster Plan, and coordinate procedures with the County Emergency Services.

S-P-4 Establish a public relations and education program to increase community awareness for emergency preparedness, including "community emergency preparedness teams."

Involving residents and having voluntary programs to help people prepare is the key to an effective program.

S-P-5 Update subdivision and zoning ordinance review criteria to include seismic considerations.

S-P-6 Continue to inspect unoccupied existing unreinforced masonry structures and "critical facilities" constructed prior to 1948 and develop condemnation procedures to be included in a dangerous building ordinance.

S-P-7 Consult with a qualified engineering geologist to periodically review the Safety Element.

8.2 FLOOD HAZARDS

Visalia is subject to flood hazards, but not inundation hazards related to dam failure. Since the climate is relatively arid and development continues to increase the amount of impervious surfaces, surface run-off and storm drainage must be managed. The average annual precipitation in the Visalia area is approximately 11 inches. However, portions of the Kaweah watershed which contributes to flooding in Visalia have a mean annual precipitation of 40 inches. Eighty–five percent of the annual precipitation occurs between November and April.

In the Planning Area, waterways and surface runoff generally flow from east to west, terminating in the Tulare Lake Basin. Channels include the St. John's River, Modoc Ditch, Mill Creek Ditch, Mill Creek, Tulare Irrigation District (TID) Canal, Packwood Creek, Cameron Creek, Deep Creek, Evans Creek, Persian Ditch (See **Figure 8-2**). Most watercourses are intermittent drainages that receive a significant portion of flow from storm water runoff during the rainy season. This intermittent flow is typically supplemented from water released from Terminus Dam on the Kaweah River.

Historically, runoff was disposed of by directing it to the natural creeks, rivers and irrigation ditches that flow through the city. (Top)

Approximately 25 percent of the total Planning Area is located within the 100-year floodplain and another 60 percent is within the 500-year floodplain. (Bottom)

Monthly mean outflows from Lake Kaweah, the reservoir created by Terminus Dam, range from 81 cubic feet per second (cfs) in October to 1,747 cfs in June. In general, outflows are highest in the late spring and early summer and lowest in the fall. The lake is maintained for flood control, and water is allowed to drain as quickly as possible after heavy rains. At times, the reservoir's capacity has not been sufficient to handle flows, resulting in flooding downstream. Outflow from Lake Kaweah drains down into the Kaweah River Delta system and through the many drainages and creeks that meander through the City of Visalia.

The City's municipal storm drainage system consists of drainage channels, 23 detention and retention basins, 33 pump stations and 250 miles of pipe. Historically, runoff was disposed of by directing it to the natural creeks, rivers and irrigation ditches that flow through the city. To mitigate the increased runoff due to urbanization, the City has invested thousands of dollars in the purchase of land and the construction of permanent retention basins. See the Parks, Schools, Public Facilities, and Utilities Element for more information about storm drainage facilities.

Flood Zones

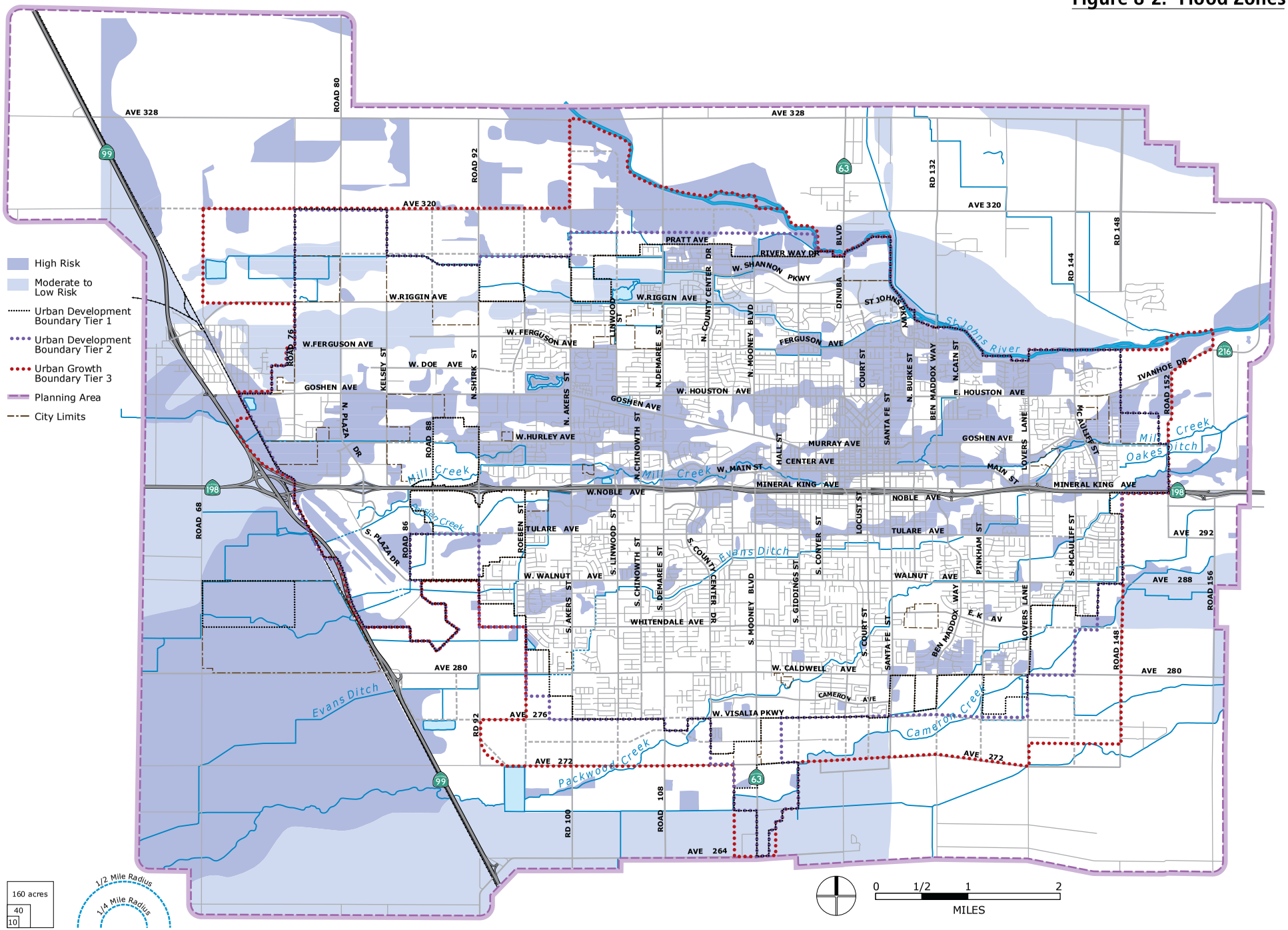
Flood zone mapping by the Federal Emergency Management Authority (FEMA) indicates that approximately 25 percent of the total Planning Area is located within high risk areas within the 100-year floodplain and another 60 percent is in moderate risk areas within the 500-year floodplain (see **Table 8-1**). FEMA updated the Flood Insurance Rate Map panels for Visalia in June 2009 to reflect the infrastructure improvements made to capture and convey storm water within the city. As shown in **Figure 8-2**, some areas of the City, in particular in the Northeast and Northwest, are at risk of flooding from a 100-year storm event. Most of the rest of the City is within the 500-year floodplain.

Table 8-1: Floodplains in Planning Area

Type	*Acres*	*Percent of Planning Area*
100 Year Floodplain	16,145	25%
500 Year Floodplain	39,027	60%
Area Outside Floodplain	9,949	15%
Farmland of Local Importance	1,630	2%

Source: FEMA, 2009.

Figure 8-2: Flood Zones



Objectives

S-O-2 Protect the community from risks to life and property posed by flooding and stormwater runoff.

Policies

Flood Hazards

S-P-8 Reinforce the City's transportation infrastructure for protection from flooding through activities such as elevating the road, installing culverts beneath the road, or constructing a higher bridge across an area that experiences regular flooding.

S-P-9 Implement post-fire debris flow and channel treatments, such as seeding, mulching, and checking dams and debris racks, as needed.

S-P-10 Implement recommendations contained in the County Flood Control Master Plan that are within the City's jurisdiction.

S-P-11 Create and implement a public outreach program that informs property owners located in flood hazard and levee inundation areas about voluntary flood insurance.

S-P-12 Increase participation in the National Flood Insurance Program by enhanced floodplain management activities that may allow property owners to receive a discount on their flood insurance.

S-P-13 Work with State and federal agencies to create a program to acquire, relocate, or elevate critical facilities and residential structures, in particular those that have been identified as Repetitive Loss properties that are located within the 100-year floodplain.

S-P-14 Work with FEMA Region IX to address any floodplain management issues that may have arisen/arise from the countywide Digital Flood Insurance Rate Map, Community Assessment Visits, and/or the California Department of Water Resources oversight.

8.3 HAZARDOUS MATERIALS

The California Code of Regulations defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed.[4] Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. A hazardous materials incident involves the uncontrolled release of a hazardous substance during storage, use or transport.

4 California Code of Regulations, Title 22, Division 4.5, Chapter 10, Article 2, Section 66260.10

Laws and Regulations

Federal and State laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, transported and disposed of, and in the event that such materials are accidentally released, to prevent or mitigate injury to health or the environment. Laws and regulations require hazardous materials users to train employees to manage them safely. The primary Federal agencies with responsibility for hazardous materials management include the U.S. Environmental Protection Agency (EPA), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the U.S. Department of Transportation (DOT). In many cases, California State law mirrors or is more restrictive than federal law, and enforcement of these laws has been delegated to the State or a local agency.

The State Water Resources Control Board (SWRCB) administers the aboveground storage tank (AST) program and the underground storage tank (UST) program. The AST program covers facilities that store petroleum in a single tank, or multiple tanks with an aggregate capacity in excess of 1,320 gallons, and requires that tank owners or operators file a storage statement, pay a facility fee, and prepare and implement a Federal Soil Prevention, Control and Countermeasure (SPCC) Plan. The SPCC Plan must identify procedures, methods, and equipment in place at the facility to prevent discharges of petroleum from reaching navigable waters. State laws governing USTs specify requirements for permitting, construction, installation, leak detection monitoring, repairs, release reporting requirements, corrective actions, cleanup, and closure.

In Visalia, the Tulare County Environmental Health Division (TCEHD) is the local agency responsible for the implementation of the state-mandated Unified Hazardous Waste and Hazardous Materials Management Regulatory Program. Tulare County has prepared a Hazardous Materials Business Plan and a Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) which serves as the County's emergency response plan for hazardous materials emergency incidents. In addition, the TCEHD acts as lead agency to ensure proper remediation of leaking underground petroleum storage tank sites and certain other contaminated sites. TCEHD provides three permanent Household Hazardous Waste (HHW) drop-off facilities in the County including one in Visalia, and operates mobile collection events throughout the year. These services are available free of charge to any Tulare County resident.

The City of Visalia Fire Department provides some oversight of hazardous materials. The Fire Department is responsible for conducting inspections for code compliance and fire-safe practices and for investigation of fire and hazardous materials incidents. The Fire Department regulates explosive and hazardous materials under the Uniform Fire Code, and permits the handling, storage and use of any explosive or other hazardous material.

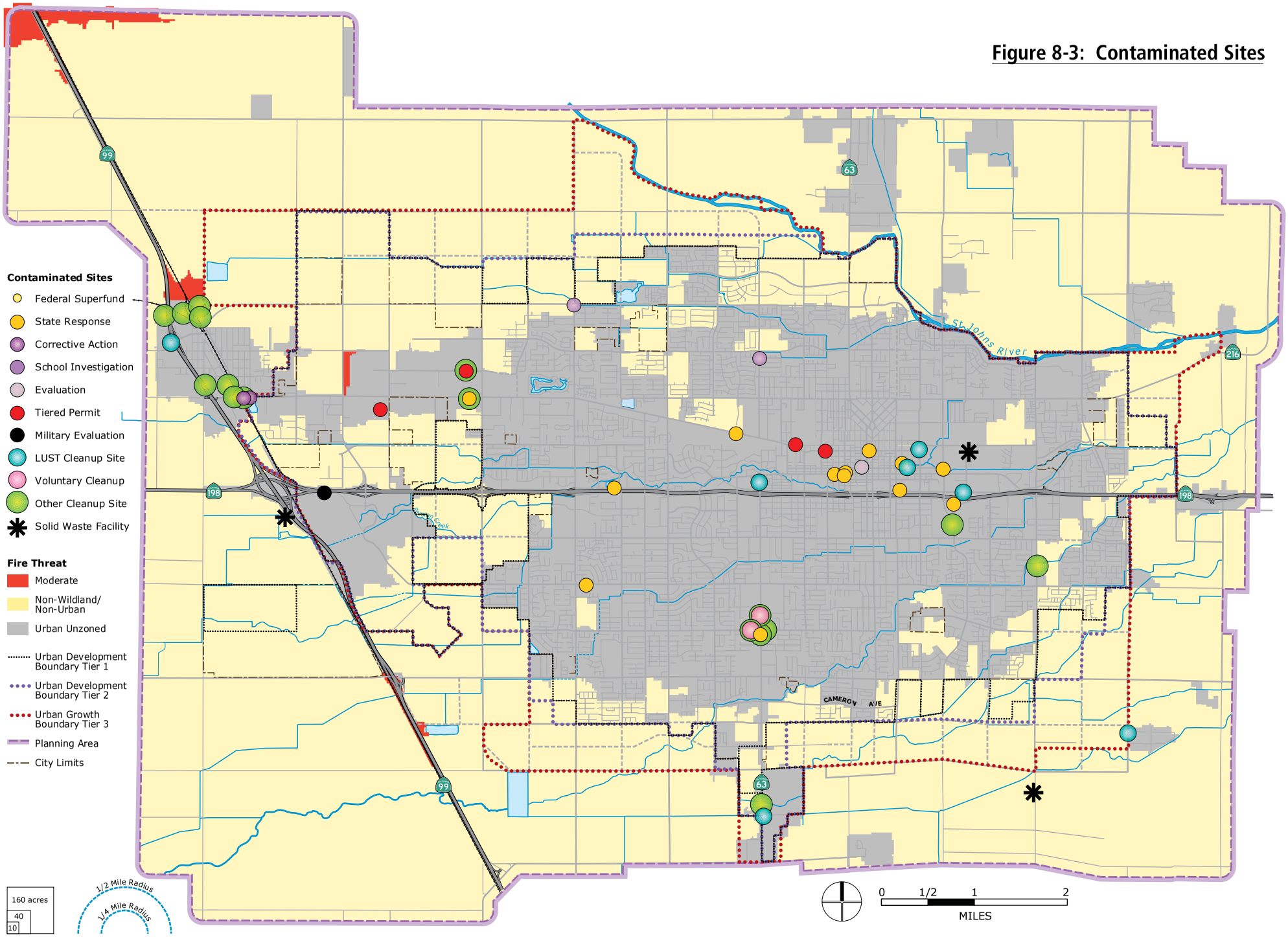
Hazardous Materials Sites

Areas where historic or on-going activities have resulted in the known or suspected release of hazardous materials into the soil and groundwater are identified by the Department of Toxic Substances Control and State Water Resources Control Board. Many contaminated sites are associated with leaking under-

Many contaminated sites are associated with leaking underground storage tanks which have caused groundwater infiltration by gasoline and related compounds. (Top)

State and federal legislation requires every business that handles hazardous materials report their inventories to the local fire department. This helps the City handle emergency incidents more effectively. (Bottom)

Figure 8-3: Contaminated Sites



ground storage tanks which have caused groundwater infiltration by gasoline and related compounds, or operations which have resulted in groundwater contamination by PCE. Sites with ongoing or active cleanup programs are shown on **Figure 8-3,** and detailed in Table A-1 in Appendix A. Most sites are associated with retail and commercial uses (e.g., gas stations, convenience stores, car washes, etc.) or dry cleaners, and some are associated with local industrial uses.

The Planning Area contains one Superfund site, where electrical poles were treated between the 1920s and the 1980s. The Regional Water Quality Control Board (RWQCB) initiated cleanup in 1976, and the site was placed on the National Priorities List (NPL) in 1987, with the Department of Toxic Substances Control as lead agency. Work was completed in 2006, and achievement of water and soil standards was certified in 2009. Land use restrictions on the site prevent residential use, hospitals, schools, daycare facilities, or any use which disturbs the soil below a depth of ten feet.

Not including cleanup sites at current or former dry cleaners, the Department of Toxic Substances Control has led state efforts at three other contaminated sites in Visalia. Agricultural chemicals were detected on the 20-acre former site of Green Acres Airport on West Goshen Avenue. Site remediation involving soil excavation and removal and extensive water sampling was certified complete in 2009. Future residential use, day care centers, hospitals, schools, agriculture, or any soil excavation are not permitted without agency approval.

At the So. Cal. Gas/Visalia MGP site on North Tipton Street, site investigations in 1988 found petroleum-based soil contamination and groundwater contamination with heavy metals and Volatile Organic Compounds (VOCs). The site was remediated and capped with asphalt, and was certified in 1998. A deed restriction requires that the present commercial/industrial use designation remain.

Wastes containing VOCs were found to be contaminating groundwater from two adjacent parcels at Goshen Avenue and Shirk Road where various industrial activities had taken place. Remedial investigations began in 1991, and are still underway.

Objectives

S-O-3 Protect soils, surface water, and groundwater from contamination from hazardous materials.

Policies

S-P-15 Require remediation and cleanup of sites contaminated with hazardous substances.

The level of remediation and cleanup will be determined based on the intended use and health risk to the public. At the minimum, remediation will be in compliance with federal and State standards. Clean up shall be required in conjunction with new development, reconstruction, property transfer of ownership, and/or continued operation after the discovery of contamination.

S-P-16 Promote the reduction, recycling, and safe disposal of household hazardous wastes

through public education and awareness. Collection programs should be reviewed annually and expanded where appropriate. The City will also coordinate with hazardous waste recyclers to increase the frequency of hazardous waste collection events under this program.

S-P-17 Ensure that all specified hazardous facilities conform to the Tulare County Hazardous Materials Business Plan.

S-P-18 Coordinate enforcement of the Hazardous Material Disclosure Law and the implementation of the Hazardous Material Emergency Response Plan with the Tulare County Health and Human Service Agency.

State and federal legislation requires every business that handles hazardous materials report their inventories to the local fire department. The program's primary function is to identify, monitor, and assist businesses using or storing hazardous materials and allow the City to handle emergency incidents more effectively. The City will maintain and share this information with police, fire, and emergency services.

S-P-19 Coordinate with the Tulare County Environmental Health Division and other appropriate regulatory agencies during the review process of all proposals for the use of hazardous materials or those involving properties that may have toxic contamination, such as petroleum hydrocarbons, CAM 17 metals, asbestos, and lead.

S-P-20 Require applicants of projects in areas of known or suspected hazardous materials occurrences such as petroleum hydrocarbon contamination, CAM 17 metals, USTs, location of asbestos rocks and other such contamination to perform comprehensive soil and groundwater contamination assessments in accordance with regulatory agency testing standards, and if contamination exceeds regulatory action levels, require the project applicant to undertake remediation procedures prior to grading and development under the supervision of appropriate agencies, such as Tulare County Department of Environmental Heath, Department of Toxic Substances Control, or Regional Water Quality Control Board.

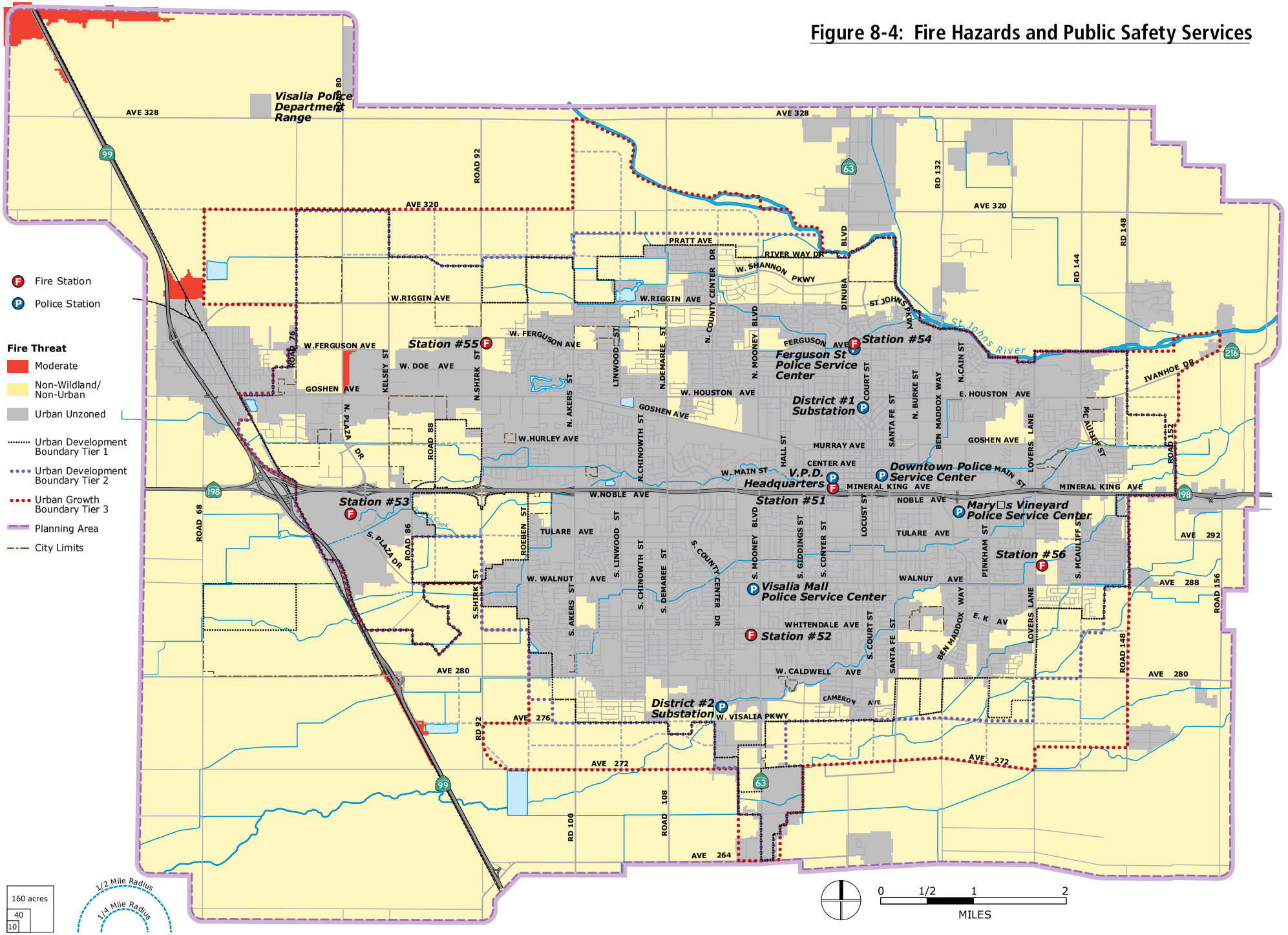
8.4 FIRE HAZARDS

Wildland Fires

Fire hazard potential is largely dependent on the extent and type of vegetation, known as surface fuels, that exists within a region. Fire hazards are typically highest in heavily wooded, undeveloped areas as trees are a greater source of fuel than low-lying brush or grassland. Suburban, urban areas or rocky barren areas have minimal surface fuels and therefore typically have the lowest fire hazard.

The California Department of Forestry and Fire Protection (CDF) maps areas of significant fire hazards in the state. These areas are identified based on weather, terrain, fuels (e.g. type of ground vegetation), and other factors. As **Figure 8-4** illustrates, very small portions of the Planning Area are classified by CDF as having moderate fire hazards. In general, the threat

Figure 8-4: Fire Hazards and Public Safety Services



of wildland fires in Visalia is very small because of the area's flat topography and relative absence of grassland, forest, and brush. The Planning Area is classified as a Local Responsibility Area (LRA), meaning that the City and County are responsible for incorporated and unincorporated areas, respectively.

Urban Fires

Even though Visalia is not considered to be a fire-prone city, structural fires pose a greater risk to life and property than wildland fires. The City of Visalia requires all new development and subdivisions to meet or exceed Uniform Fire Code provisions, and reviews all development applications during the plan check process. Fire services are discussed further in the following section.

Objectives

S-O-4 Protect Visalia's residents and businesses from potential fire hazards.

Policies

S-P-21 Develop a community wildfire mitigation plan that identifies and prioritizes areas for hazard fuel reduction treatments, and recommend the types of methods of treatments.

S-P-22 Manage vegetation in areas within and adjacent to public rights-of-way and in close proximity to critical facilities in order to reduce the risk of tree failure and property damage and avoid creation of wind acceleration corridors within vegetated areas.

S-P-23 Continue to offer a free annual tree chipping and tree pick-up day that encourages residents living in wind hazard areas to manage trees and shrubs at risk to falling on nearby structures.

S-P-24 Continue to bolt down the roofs of critical facilities in wind gust hazard areas in order to prevent wind damage.

S-P-25 Implement a fuel reduction program, such as the collection and disposal of dead fuel, within publicly-owned open spaces and around critical facilities located within a high and very high wildfire zones.

S-P-26 Implement a program that provides vegetation management services to elderly, disabled, or low-income property owners who lack the resources to remove flammable vegetation from around their homes.

S-P-27 Implement a fuel modification program, which also includes residential maintenance requirements and enforcement, plan submittal and approval process, guidelines for planting, and a listing of undesirable plant species. Require builders and developers to submit their plans, complete with proposed fuel modification zones, to the Fire Department for review and approval prior to beginning construction.

S-P-28 Assist in solving the incendiary problem by improving law enforcement and investigation equipment, adapting equipment available in other fields; and purchasing new equipment where needed. Implement "no-burn" programs, particularly in areas outside of immediate response zones of fire stations.

S-P-29 Ensure availability of adequate water supplies to meet public health and safety needs, and for resource protection, by maintaining the following order of priority for water use:

- Potable water supply, fire protection, and domestic use
- Resource protection and preservation
- Industrial, irrigation and commercial uses
- Water-oriented or water-enhanced recreation
- Air conditioning.

8.5 SAFETY SERVICES AND EMERGENCY RESPONSE

Police Services

Law enforcement services in Visalia are provided by the Visalia Police Department (VPD). The Department currently has 143 sworn officers, as well as seven reserve sworn officers, 64 civilian officers, and 65 volunteers. Operations personnel are supported by dispatch, records, crime analysis, and other essential law enforcement units. Police headquarters is at 303 South Johnson Street in downtown Visalia. In 2007, the Department opened substations on the City's north and south sides and shifted to district-based operations. These facilities are intended to facilitate contact with the community and support robust incident response, and are shown on **Figure 8-4**.

VPD does not adhere to service standards in terms of officers per thousand residents or incident response time. The Department's response times were under 15 minutes for 85 percent of all calls in 2008, and the average response time for Priority 1 calls was 4.2 minutes.[5] Response times and the ability of the Police Department to provide acceptable levels of service are contingent on growing staffing levels, sworn and civilian, consistent with resident population and the population of visitors, merchants, schools, and shoppers in the service area. The Police Department has identified a new headquarters as a critical need, and this is anticipated to be part of the Civic Center Master Plan. Growth will impact service delivery over time, and there may be the need for additional substations within the 20-year planning period, located to serve growth areas.

The Police Department collaborates with other law enforcement agencies and the District Attorney's office on crime prevention. VPD works with City and County agencies and education and social service providers on a variety of outreach and youth programs. The Department is engaged in gang prevention efforts ranging from school presentations to intensive management of high-risk probation cases to injunctions against two gangs and the establishment of a "safe zone" in north Visalia.

5 Visalia Police Department, General Plan Update Service Provider Response Form, 2010.

Police Department substations on the City's north and south sides are intended to facilitate contact with the community and support robust incident response. (Top)

The ability of the Police Department to provide acceptable levels of service are contingent on growing staffing levels consistent with population growth. (Bottom)

VFD follows the National Fire Protection Association (NFPA) response time standard, aiming to respond to 95 percent of calls within 5 minutes. (Top)

VFD staffs five paramedic engine companies, one truck company and a Battalion Chief daily, from five fire station locations. Additional stations are likely to be required to serve the growing city. (Bottom)

The Tulare County Sheriff's Department provides police protection services and investigates crimes in unincorporated areas of the County, including rural and semi-rural areas within the Planning Area. The Department is headquartered on the County administrative campus in Visalia. As Visalia grows, the Police Department will need to work closely with the Sheriff's Office.

Fire Services

Visalia Fire Department

The Visalia Fire Department (VFD) provides fire and life safety services for residents located within the city limits while the Tulare County Fire Department provides additional services for unincorporated areas within the Planning Area. VFD staffs five paramedic engine companies, one truck company and a Battalion Chief daily, from five fire station locations. The engines and truck are staffed with three personnel, giving the VFD a daily minimum staffing of 19. All apparatus are staffed with a paramedic at all times. The locations of fire stations are illustrated in **Figure 8-4**, along with 1.5 mile radii from fire stations demonstrating fire coverage for Visalia residents.

FIRE RESPONSE STANDARD AND ISO RATING

The Insurance Service Office (ISO)—a private organization that surveys fire departments in cities and towns across the United States—awarded the Visalia Fire Department a Class 4 rating (1 being highest and 10 being lowest). This rating considers a community's fire defense capacity versus fire potential, and then uses the score to set property insurance premiums for homeowners and commercial property owners.

VFD follows the National Fire Protection Association (NFPA) response time standard, aiming to respond to 95 percent of calls within 5 minutes, including one minute of "turnout" and four minutes of driving. Currently, the Department has an average response time of 5 minutes 37 seconds. Areas of southwest Visalia and smaller areas in the northwest and northeast cannot reasonably be served within the Department's target response time. These needs would become more acute if growth were to occur in the northwest, northeast, and southwest. The Department notes that increasing population has historically been accompanied by an increasing number of service calls, and there will be a need to increase staffing. The Department currently has 0.48 responders per 1,000 residents, compared to the NFPA standard of 1 per 1,000.

FIRE PREVENTION

Fire prevention is an important part of the Fire Department's work. The Department conducts weed abatement, does public education programs in schools and other venues, and checks all development plans during the review process. The Fire Department's focus is on making sure that proposed projects will be adequately served by water, and accessible to emergency vehicles.

The Department enforces the City's Hydrant Ordinance, which determines minimum spacing for fire hydrants. Street dimensions are scrutinized to ensure that space will be preserved for ladder trucks to be stabilized, and for emergency vehicles to turn around. Basic requirements in the City's subdivision ordinance include 52-foot minimum right-of-way widths and a 53-foot turning radius for cul-de-sacs.

EMERGENCY RESPONSE

In 2008, the Department responded to over 10,000 alarms and calls. The great majority of these calls (94 percent) were not fire-related, with two-thirds of calls being for emergency medical or rescue services. Hazardous conditions, such as gas or oil spills and downed power lines, were the next most frequent source of alarms, at 11 percent.

MUTUAL AND AUTOMATIC AID

The City of Visalia actively participates in the California Master Mutual Aid Plan. Formal mutual aid agreements have been written between the City and surrounding jurisdictions. A broad automatic aid agreement encompassing 59 square miles surrounding Visalia exists between Tulare County and the City.

Tulare County Fire Department

The Tulare County Fire Department (TCFD) provides fire and emergency medical services in unincorporated areas. The Department's Emergency Fire Communications Center, or Fire Com, provides dispatch services for the County Fire Department along with seven other rural fire districts, handling an average of 14,000 incidents annually.[6] The County Fire Department is also engaged in fire prevention work. This includes inspecting buildings and enforcing fire safety codes, conducting plan review for new buildings and fire protection systems, and interpreting fire safety codes during the design phase of new buildings. It also includes ongoing public education programs. TCFD has six battalion chiefs, 72 fire captains and lieutenants, and 400 reserve fire fighters. The Department operates 28 fire stations including one in the Planning Area (Fire Station 1) on South Lovers Lane.

Emergency Planning

The California Emergency Services Act (Government Code Section 8550-8668) provides a framework for local jurisdictions to prepare and maintain an Emergency Plan for natural, manmade, or war-caused emergencies that result in conditions of disaster or in extreme peril to life. The Tulare County Emergency Operations Plan (EOP) includes planning and response scenarios for seismic hazards, extreme weather conditions, landslides, dam failure and other flooding, wildland fires, hazardous materials incidents, transportation emergencies, civil disturbance, and terrorist attacks. It is meant to work in conjunction with the State Emergency Plan.

The Fire Department is represented on the County's Emergency Council, which meets for regional coordination pruposes at least four times per year. The Fire Department also houses the City's Emergency Operations Center and lead emergency preparedness and planning for the City. In addition, the City Fire Department has specific procedures for hazardous materials emergency response.

Evacuation Routes and Potential Shelter Sites

Tulare County's Evacuation Plan, updated and adopted in 2011 and incorporated in the EOP, establishes responsibilities, threat levels and triggers for evacuation, evacuation areas, and evacuation routes to be used in case of catastrophic emergencies. The extent and the severity of a disaster will determine which routes and which direction people must take

Visalia will continue to upgrade preparedness strategies and techniques in all departments so as to be prepared when disaster, either natural or man-made, occurs.

6 Tulare County Fire Department, accessed at http://www.co.tulare.ca.us/government/fire/default.asp, 2010.

in order to escape or avoid the afflicted areas. The Evacuation Plan places Visalia in Zone 5, and identifies SR 198, SR 99, and SR 63 as evacuation routes. The Agriculture Center in Tulare is identified as a County shelter.

Visalia and other cities within the County are responsible for preparedness activities including identifying equipment, vehicles, and critical supplies; identifying locations outside of potential impact areas to move resources, and to keep contact information updated for the County and State database.

In the event of a natural or man-made disaster, the City will coordinate with the Red Cross, Salvation Army, and state and federal agencies responsible for providing emergency shelter for displaced residents. The sites most commonly used are schools, senior centers, community centers, public buildings, and churches. Kaweah Delta Health Care District provides emergency health care services.

Objectives

S-O-5 Provide a comprehensive program of safety services including police, fire and medical response in all parts of the Visalia Planning Area.

S-O-6 Provide comprehensive emergency response and evacuation routes for Visalia area residents.

Policies

S-P-30 Integrate the Tulare County Hazard Mitigation Plan, in particular the hazard analysis and mitigation strategy sections, into the development review process, the emergency operations plan, and capital improvement program, as appropriate.

S-P-31 Create a GIS-based pre-application review for new construction and major remodels of residential and/or non-residential structures in hazard areas.

Maps from the General Plan Update and the County's Hazard Mitigation Plan can be integrated into the City's GIS system.

S-P-32 Continue to make available fire alarm systems, as referred to in this Element, to be tied directly and automatically to the Visalia City Fire Chief's alarm-receiving center.

This policy would apply to private companies that wish to have better protection, as well as public buildings and other structures where the Fire Chief and/or the building inspector deem it necessary to have such protection.

S-P-33 Continue a program designed to eliminate unfit, unhealthy, dangerous, structurally unsafe, and fire hazardous housing units by rehabilitation or removal.

S-P-34 Continue the use of an "inspection team" to inspect all deteriorated and dilapidated housing units in the City.

This team carries out appropriate action such as giving instructions, red tagging, posting and removal of housing units when necessary. The team approach incorporates staff from departments having expertise in the area of inspection for safety, sanitation, and structural adequacy.

S-P-35 Continue to give those families that must remove or leave dilapidated units consideration in the allocation of housing units that are produced by publically-assisted housing programs.

S-P-36 Locate critical facilities, such as nursing homes, housing for the elderly, and other housing for the mentally and physically infirm, within a reasonable distance (3 miles or 3 minutes) from fire stations.

S-P-37 Continue to work with weather forecasting and public safety agencies to provide warning and protective information to residents, travelers, and visitors about severe valley fog conditions.

S-P-38 Continue to rely on the Tulare County Office of Emergency Services to maintain inventories of available resources to be used during disasters.

S-P-39 Continue to upgrade preparedness strategies and techniques in all departments so as to be prepared when disaster, either natural or man-made, occurs.

S-P-40 Continue to coordinate a public education program in order to foster public awareness of fire hazards with the intention of reducing injury and loss of life, damage to property, and degradation of the natural environment, particularly in conjunction with the public school system and "critical facility."

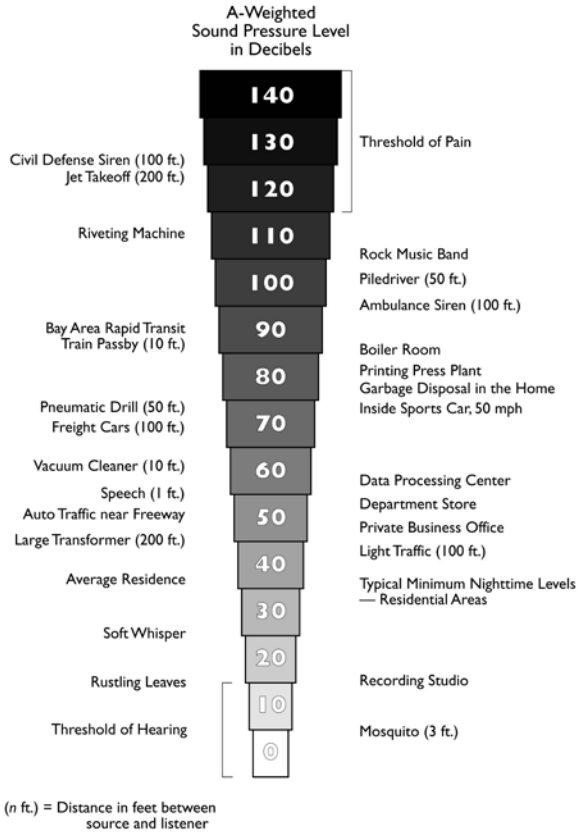
Education programs can be carried out through public and private schools, the libraries, police and fire department, the news media, civic organizations and on the City website. Programs should seek to reach all age groups, socio-economic classes, and both urban and rural residents. Education programs should be offered in both Spanish and English, as appropriate.

S-P-41 Periodically conduct joint training exercises with the County, State and federal agencies and others with the goal of developing the best possible coordinated action in fire suppression and crowd control.

S-P-42 Continue to keep geographically-indexed fire data in a GIS form that includes:

- Number of fires by activity and area
- Number of users in the activity
- Number of fires by ignition index in State responsibility areas
- Any other methods determined by the Safety Committee as necessary.

Figure 8-5: Typical Sound Levels



8.6 NOISE

The purpose of the Noise section is to identify the noise sources in the City, and to establish policies and programs to mitigate their potential impacts through both preventative and responsive measures. The regulation of noise sources such as traffic, railroad operations and aircraft operations is overseen by state and federal agencies; therefore, this element has a direct correlation with the land use, circulation, and housing elements. It guides the location of industrial land uses and transportation facilities, since they are common sources of excessive noise levels. This element also guides the location of particularly noise–sensitive uses, such as residences, schools, churches, and hospitals, so that they may be less affected by noise.

Noise Characteristics and Measurement

Noise is commonly defined as undesirable or unwanted sound. Noises vary widely in their scope, source, and volume, ranging from individual occurrences such as leaf blowers, to the intermittent disturbances of overhead aircraft, to the fairly constant noise generated by traffic on freeways.

Three aspects of community noise are used in assessing the noise environment:

- *Level* (e.g., magnitude or loudness). Sound levels are measured and expressed in decibels (dB) with 10 dB roughly equal to the threshold of hearing. **Figure 8-5** shows the decibel levels associated with different common sounds. Transient noise events may be described by their maximum A weighted noise level (dBA).
- *Frequency* composition or spectrum. Frequency is a measure of the pressure fluctuations per second, measured in units of hertz (Hz). The characterization of sound level magnitude with respect to frequency is the sound spectrum, often described in octave bands, which divide the audible human frequency range (e.g., from 20 to 20,000 Hz) into 10 segments.
- *Variation* in sound level with time, measured as noise exposure. Most community noise is produced by many distant noise sources that change gradually throughout the day and produce a relatively steady background noise having no identifiable source. Identifiable events of brief duration, such as aircraft flyovers, cause the community noise level to vary from instant to instant. A single number called the equivalent sound level or Leq describes the average noise exposure level over a period of time. Hourly L_{eq} values are called Hourly Noise Levels.

Reporting Noise Levels

Measuring and reporting noise levels involves accounting for variations in sensitivity to noise during the daytime versus nighttime hours. Noise descriptors used for analysis need to factor in human sensitivity to nighttime noise when background noise levels are generally lower than in the daytime and outside noise intrusions are more noticeable. Common descriptors include the Community Noise Equivalent Level (CNEL) and the Day-Night Average Level (DNL). Both reflect noise exposure over an average day with weighting to reflect the increased sensitivity to noise during the evening and night. The two descriptors are roughly equivalent. The CNEL descriptor is used in relation to major continuous noise sources, such

as aircraft or traffic, and is the reference level for the Noise Element under State planning law.

Knowledge of the following relationships is helpful in understanding how changes in noise and noise exposure are perceived:

- Except under special conditions, a change in sound level of 1 dB cannot be perceived;
- A 3 dB change is considered a just noticeable difference;
- A 5 dB change is required before any noticeable change in community response would be expected. A 5 dB increase is often considered a significant impact; and
- A 10 dB increase is subjectively heard as an approximate doubling in loudness and almost always causes an adverse community response.

According to common practice, maximum noise levels of 60 dB are considered "normally acceptable" for unshielded residential development. Noise levels from 60 dB to 70 dB fall within the "conditionally unacceptable" range, and those in the 70 to 75 dB range are considered "normally unacceptable."

Noise Generation in Visalia

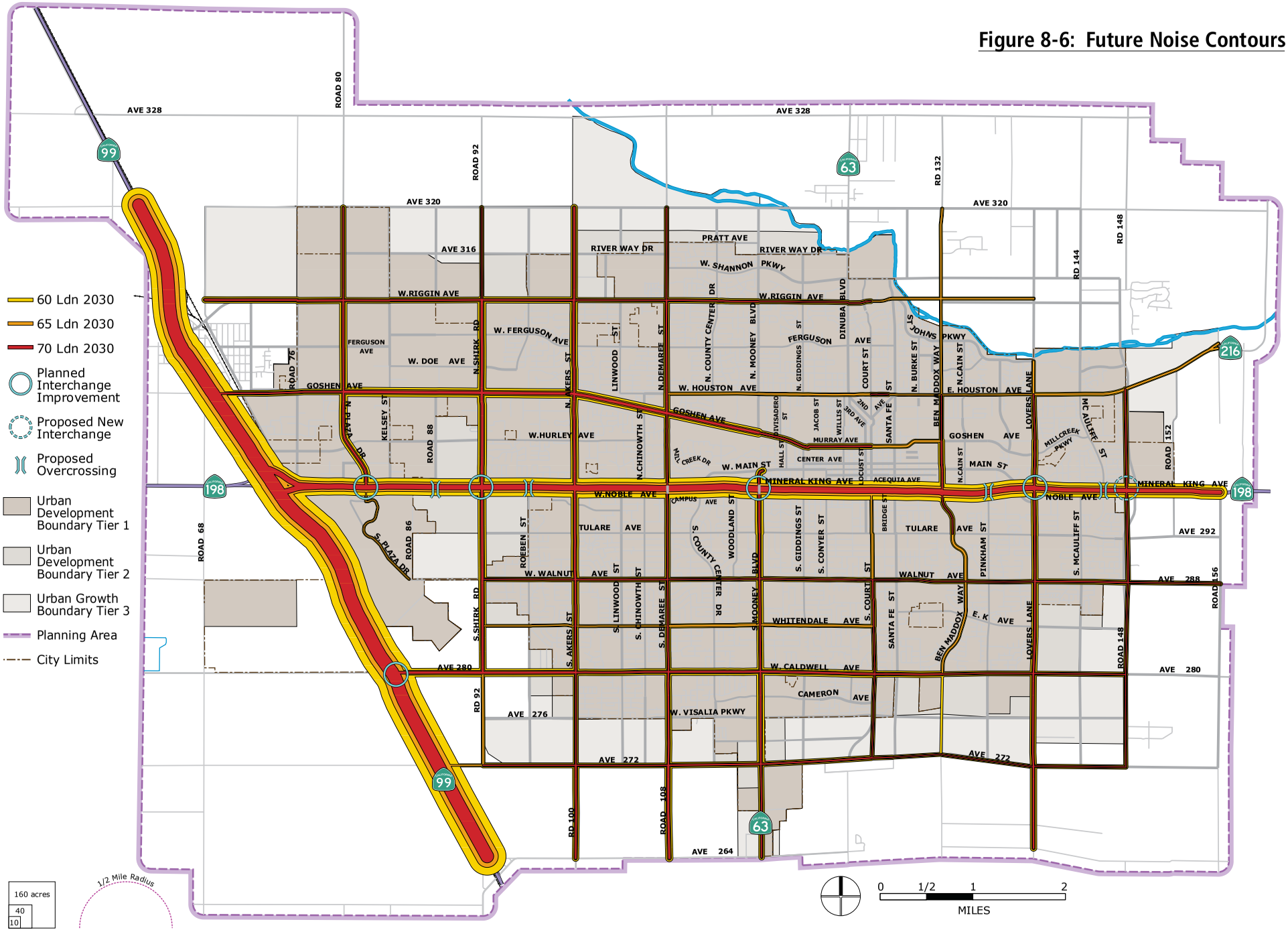
A community noise survey was conducted to document noise exposure in the city containing noise sensitive land uses and for major roadways. Noise monitoring sites were selected to be representative of typical residential, commercial, or recreational areas within the city. Short-term noise monitoring was conducted at eight sites on April 15 and 16, 2010. Community noise monitoring systems were calibrated with acoustical calibrators in the field prior to use. The systems comply with all pertinent requirements of the American National Standards Institute (ANSI)

Table 8-2: Short-Term Noise Measurements (2010)

				Measured Sound Level, dB		
Site	*Location*	*Date*	*Time*	L_{eq}	L_{min}	L_{max}
1	Community Campus, 220 NW 3rd Ave	4/15/10	15 minutes	53.5	45.1	65.1
2	Golden West High School 1717 N. McAuliff	4/15/10	15 minutes	49.8	42.2	62.1
3	Rec Park/Rawhide Stadium	4/15/10	15 minutes	50.7	45.2	60.8
4	College of the sequoias, 915 S. Mooney at Mineral King	4/15/10	15 minutes	50.3	47.1	58.9
5	Jefferson Park, Myrtle and S Watson	4/15/10	15 minutes	53.8	47.8	66.6
6	Willow Glen School, 310 N Akers	4/15/10	15 minutes	55.1	47.1	65.1
7	Crestwood School, 3001 W Whitendale Ave	4/15/10	15 minutes	54.9	46.3	70.2
8	Highway 198 and Lovers Lane	4/15/10	15 minutes	67.0	57.6	82.6

Source: ICF, 2010.

Figure 8-6: Future Noise Contours



for Type I sound level meters. Three continuous long-term 24-hour noise monitoring sites were also established in the city to record day-night statistical noise level trends and to develop CNEL values. The data collected included the hourly average (L_{eq}) the maximum level (L_{max}), and the minimum level (L_{min}) during the measurement period. Noise monitoring sites and the measured noise levels at each short-term site are summarized in **Table 8-2**.

The major noise sources in Visalia are related to roadways and vehicle traffic. Other noise sources include aircraft and rail transportation. Noise produced by industry has a negligible effect on the City's residential noise environment.

Traffic Noise

The level of highway traffic noise depends on three factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Vehicle noise is a combination of the noises produced by the engine, exhaust, tires, and wind generated by taller vehicles. Other factors that affect the perception of traffic noise include: distance from the highway, terrain, vegetation, and natural and structural obstacles. While tire noise from autos is generally located at ground level, truck noise sources can be located as high as ten to fifteen feet above the roadbed due to tall exhaust stacks and higher engines.

Noise exposure contours for Visalia's major roadways were modeled by applying the Federal Highway Administration's noise modeling procedure. Traffic data representing annual average traffic volumes and truck mix, for existing conditions, were obtained from the project traffic engineers (Omni Means, 2010) and Caltrans. Using these data and the FHWA methodology, traffic noise levels were calculated for existing traffic volumes. These noise contours are conservative, meaning that the contours are modeled with minimal noise attenuation by natural barriers, buildings, etc. Existing traffic noise contours are provided in Table B-1, in Appendix B.

Future development within the Planning Area will result in increased traffic volumes, thus increasing noise levels somewhat in some areas. Future noise contours are illustrated in **Figure 8-6**. In 2035, approximately 2,190 acres (about 3 percent of the Study Area) will be in areas with noises levels greater than 65 dBA. Approximately 3 percent of the Very Low and Low Density Residential acreage, 4 percent of Medium Density Residential acreage, and 7.5 percent of High Density Residential acreage will be within the 65 dBA contours. Increases in traffic levels can be counteracted by the implementation of alternate forms of transportation and land use design that factor in noise concerns. Locating noise-sensitive uses away from high-noise areas (e.g. major transportation routes) and buffering noise levels through design and landscaping features will help minimize future noise-related land use conflicts. Policies in this element establish review criteria for certain land uses to ensure that future noise levels will not exceed acceptable levels near noise-sensitive land uses.

Railroad Operations Noise

Railroad activity in the City occurs along two railroad lines: the Union Pacific Railroad and the Burlington Northern Santa Fe. Train movements occur on the Union Pacific Railroad approximately 5 times per week during daytime hours. Trains will usually have one engine and 20 cars. There are typically no train movements between the hours of 10:00 p.m. to

Vehicle noise is a combination of the noises produced by the engine, exhaust, tires, and wind generated by taller vehicles.

The Visalia Municipal Airport hosts an estimated 71 takeoffs and landings per day. The Tulare County Comprehensive Airport Land Use Plan (CALUP) aims to minimize the effects of aircraft noise on communities. (Top)

Other noise sources are associated with service commercial uses such as automotive repair facilities, wrecking yards, tire installation centers, car washes, and loading docks. (Bottom)

7:00 a.m., and train speeds are restricted to 10 mph. Train movements rarely occur on the Burlington Northern Santa Fe Railroad. To represent a worst-case scenario, the highest noise level measured for the 1991 General Plan was used to calculate rail noise along the Union Pacific line. Where grade crossings exist, and warning horns and crossing alarms are signaled, individual single event noise levels associated with a train generally will increase by approximately 10 dB. Warning horns generally are signaled within one-quarter mile of a grade crossing.

Visalia Municipal Airport Noise

The City recognizes the importance of Visalia Municipal Airport to the community and region. The Tulare County Airport Land Use Commission (ALUC), the agency that has jurisdictional authority over the airport, assesses adjacent land use. The Tulare County Comprehensive Airport Land Use Plan (CALUP) guides the ALUC in determining appropriate compatible land uses with detailed findings and policies. This includes minimizing the effects of aircraft noise on communities adjacent to airports. At the time of the Airport Master Plan (2004), the Visalia Municipal Airport hosted approximately 26,000 total aircraft operations (an estimated 71 takeoffs and landings per day).

Major Stationary Noise Sources

Noise can result from many industrial processes, even when the best available noise control technology is applied. Noise exposures within industrial facilities are controlled by federal and state employee health and safety regulations set by the Occupational Safety and Health Administration [OSHA] and Cal-OSHA, but exterior noise levels may exceed locally acceptable standards. Commercial, recreational and public service facility activities can also produce noise that affects adjacent sensitive land uses. These noise sources can be continuous and may contain tonal components that may be annoying to individuals who live nearby. In addition, noise generation from fixed noise sources may vary based upon climatic conditions, time of day and existing ambient noise levels.

Land use uses that may typically produce noise include wood processing facilities, pump stations, industrial facilities, trucking operations, tire shops, auto maintenance shops, metal fabricating shops, shopping centers, drive-up windows, car washes, loading docks, public works projects, batch plants, bottling and canning plants, recycling centers, electric generating stations, race tracks, landfills, sand and gravel operations, special events such as concerts, and athletic fields. Notable operations in the Visalia Planning Area are summarized below.

Manufacturing and Food Processing Plants

WALNUT DRYERS/HULLERS

Three walnut processing facilities are in Visalia: The Phil Moodey walnut huller at Road 156 and Avenue 280, the Blain Farming nut shelling operation at 1240 E. Caldwell Avenue, and the Sequoia Walnut Growers Association Facility at Ben Maddox Road and Goshen Avenue.

The dominant noise source is at the Phil Moodey facility where the blower separates the nuts from other materials. This facility operates a few hours per day. Noise levels of 77-78 dBA were measured at 100 feet from the blower. The Moodey plant is surrounded by

agricultural uses. Roof mounted fans were the dominant noise source at the Blain Farming facility. All other noise producing equipment is enclosed within the building. Noise levels of 76-78 dBA were measured at 100 feet west of the plant. Agricultural uses surround the plant.

The dominant noise source at the Sequoia Walnut Growers Association plant is a rubber conveyor belt. Noise levels ranged from 68-69 dBA at a distance of 100 feet from the north side of the building. The plant operates from 8:00 a.m. to 5:00 p.m. for approximately six weeks per year. The plant is currently surrounded by other businesses, including a used car lot and a fast food restaurant.

Agricultural Operations

AERIAL APPLICATION AIRCRAFT (CROP DUSTERS) AND OTHER FARMING OPERATIONS

Aerial application aircraft are frequently used to spray crops or to spread seed or fertilizers. The horsepower ratings of various aircraft used for aerial application generally ranges from 300 to 1200. Measurements conducted with a Piper Brave (300 hp/3-bladed propeller) show noise ranged from 85-88 dBA at about 600 feet, and 97-100 dBA at fifty feet. By contrast, measurements conducted with a Grumman Ag Cat (600 hp/2-bladed propeller indicated a maximum noise level of 103 dBA at 100 to 150 feet overhead. Finally, measurements taken at the Tulare Municipal Airport in 1998 showed noise from in the 90-95 dBA range at approximately 100 feet overhead.

Other Noise Sources

TULARE COUNTY LANDFILL, ROAD 80

Operations at the Tulare County Landfill have not changed since the 1995 General Plan. Noise monitoring for this solid waste landfill documented noise from refuse trucks and automobiles entering and leaving the landfill, and the heavy equipment use to manage and cover the refuse. Noise levels ranged from 63-68 dBA at a distance of 300 feet. The posted operating hours of the landfill are 8:00 a.m. to 4:00 p.m., seven days a week.

GENERAL SERVICE COMMERCIAL AND LIGHT INDUSTRIAL USES

Noise sources associated with service commercial uses such as automotive repair facilities, wrecking yards, tire installation centers, car washes, loading docks, etc., are found at various locations within the city. The noise emissions of these types of uses are dependent on many factors and are therefore difficult to quantify precisely. Nonetheless, noise generated by the these uses contributes to the ambient noise environment in the immediate vicinity of these uses and should be considered where either new noise-sensitive uses are proposed nearby or where similar uses are proposed in existing residential areas.

PARKS AND SCHOOL PLAYING FIELDS

There are numerous park and school uses within the city. Noise generated by these uses depends on the age and number of people utilizing the respective facility at a given time and the types of activities they are engaged in. School playing field activities tend to generate more noise than those of neighborhood parks, as the intensity of school playground usage tends to be higher. At a distance of 100 feet from an

Table 8-3: Transportation Noise Sources

Noise-Sensitive Land Use	*Outdoor Activity Areas*[1]		*Interior Spaces*
	DNL/CNEL[2]*, dB*	*DNL/CNEL*[2]*, dB*	*L_{eq} dB*[3]
Residential	65	45	–-
Transient Lodging	65	45	–-
Hospitals, Nursing Homes	65	45	–-
Theaters, Auditoriums, Music Halls	–-	–-	35
Churches, Meeting Halls	65	–-	45
Office Buildings	–-	–-	45
Schools, Libraries, Museums	–-	–-	45

Notes:

(1) Outdoor activity areas generally include backyards of single-family residences and outdoor patios, decks or common recreation areas of multi-family developments.

(2) The CNEL is used for quantification of aircraft noise exposure as required by CAC Title 21.

(3) As determined for a typical worst-case hour during periods of use.

Table 8-4: Stationary Noise Sources[1]

	Daytime (7:00 a.m. – 10:00 p.m.)	*Nighttime (10:00 p.m. – 7:00 a.m.)*
Hourly Equivalent Sound Level (L_{eq}), dBA	50	45
Maximum Sound Level (L_{max}), dBA	70	65

(1) As determined at the property line of the receiving noise-sensitive use.

elementary school playground being used by 100 students, average and maximum noise levels of 60 and 75 dB, respectively, can be expected. At organized events such as high-school football games with large crowds and public address systems, the noise generation is often significantly higher. As with service commercial uses, the noise generation of parks and school playing fields is variable.

Noise Sensitive Land Uses

Noise-sensitive land uses are generally defined as locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Places where people live, sleep, recreate, worship and study generally are considered to be sensitive to noise because intrusive noise can be disruptive to these activities.

City of Visalia Noise Ordinance

Section 8.36 of the City's Municipal Code contains the City's noise ordinance, which establishes exterior and interior noise level standards. Standards are measured in terms of the cumulative number of minutes in any one-hour time period during which a noise level may be exceeded. Lower noise levels (measured in dBA) may be exceeded for longer periods. Separate thresholds are established for daytime (6 a.m. to 7 p.m.) and nighttime (7 p.m. to 6 a.m.) hours.

Under the current Ordinance, interior noise levels should not exceed 70 dBA during evening and daytime and 65 dBA during the nighttime, for any period of time. Exterior noise levels should not exceed 55 dBA and 45 dBA, respectively.

The Noise Ordinance should be updated to be consistent with the General Plan. It should include specific maximum hourly noise levels of outdoor activity areas and indoor spaces for specified land use types; measurement standards; required noise mitigation standards for new residential development in noise-impacted environments; uniform guidelines for acoustical studies based on current professional standards; and enforcement procedures.

The Noise Ordinance may remain primarily oriented to limiting the generation of noise emissions, but should also include provisions for mandatory mitigation actions based on target hourly noise levels established in the General Plan.

Finally, the Noise Ordinance should establish performance standards for noise reduction for new housing that may be exposed to community noise levels above 65 dB DNL/CNEL, as shown on the Noise Contour Map, based on the target acceptable noise levels for outdoor activity levels and interior spaces in **Tables 8-2** and **8-3**. Noise mitigation measures that may be proposed to acheive these noise level targets include but are not limited to the following:

- All façades constructed with substantial weight and insulation;
- Sound-rated windows with enhanced noise reduction for habitable rooms;
- Sound-rated doors with enhanced reduction for all exterior entries at habitable rooms;
- Minimum setbacks and exterior barriers;
- Acoustic baffling of vents for chimneys, attic and gable ends;
- Installation of a mechanical ventilation system affording comfort and fresh air under closed window conditions is required.

Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified Acoustical Engineer Consultant submits information demonstrating that the specific targets for outdoor activity areas and interior spaces can be achieved and maintained.

Objectives

N-O-1 Strive to achieve an acceptable noise environment for present and future residents of Visalia.

N-O-2 Protect the City's economic base by preventing the encroachment of incompatible land uses near known noise producing industries, railroads, airports and other sources.

N-O-3 Protect noise sensitive land uses such as schools, hospitals, and senior care facilities from encroachment of and exposure to excessive levels of noise.

Policies

N-P-1 Update the City's Noise Ordinance as needed to be in conformance with the General Plan.

N-P-2 Promote the use of noise attenuation measures to improve the acoustic environment inside residences where existing single-family residential development is located in a noise-impacted environment such as along an arterial street or adjacent to a noise-producing use.

Locating noise-sensitive uses away from high-noise areas and buffering noise levels through design and landscaping features will help minimize future noise-related land use conflicts.

N-P-3 Establish performance standards for noise reduction for new housing that may be exposed to community noise levels above 65 dB DNL/CNEL, as shown on the Noise Contour Maps, based on the target acceptable noise levels for outdoor activity levels and interior spaces in **Tables 8-2** and **8-3.** Noise mitigation measures that may be considered to achieve these noise level targets include but are not limited to the following:

- Construct façades with substantial weight and insulation;
- Use sound-rated windows with enhanced noise reduction for primary sleeping and activity areas;
- Use sound-rated doors for all exterior entries at primary sleeping and activity areas;
- Use minimum setbacks and exterior barriers;
- Use acoustic baffling of vents for chimneys, attic and gable ends;
- Install a mechanical ventilation system that provides fresh air under closed window conditions.

Alternative acoustical designs that achieve the prescribed noise level standards may be approved, provided that a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces.

N-P-4 Where new development of industrial, commercial or other noise generating land uses (including roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by **Tables 8-2** and **8-3**, require a noise study to determine impacts, and require developers to mitigate these impacts in conformance with **Tables 8-2** and **8-3** as a condition of permit approval through appropriate means.

Noise mitigation measures may include but are not limited to:

- *Screen and control noise sources, such as parking and loading facilities, outdoor activities, and mechanical equipment;*
- *Increase setbacks for noise sources from adjacent dwellings;*
- *Retain fences, walls, and landscaping that serve as noise buffers;*
- *Use soundproofing materials and double-glazed windows;*
- *Use open space, building orientation and design, landscaping and running water to mask sounds; and*
- *Control hours of operation, including deliveries and trash pickup, to minimize noise impacts.*

Alternative acoustical designs that achieve the prescribed noise level reduction may be approved, provided a qualified Acoustical Consultant submits information demonstrating

that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces. As a last resort, developers may propose to construct noise walls along state highways and arterials when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility, with no City funding.

N-P-5 Continue to enforce applicable State Noise Insulation Standards (California Administrative Code, Title 24) and Uniform Building Code (UBC) noise requirements.

N-P-6 Establish noise level performance standards for new equipment and vehicles purchased by the City consistent with the best available control technology (BACT) to minimize noise and vibration.

N-P-7 Use the land use compatibility zone guidelines contained in the Airport Master Plan or more current information on airport noise to assess noise compatibility of airport operation with proposed land uses.

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Chapter 8.36
NOISE

Sections:

8.36.010 Purpose.

8.36.020 Definitions.

8.36.030 Noise measurement criteria.

8.36.040 Exterior noise standards--Fixed noise sources.

8.36.050 Exterior noise standards--Mobile noise sources prohibition against use.

8.36.060 Residential interior noise standards.

8.36.070 Noise source exemptions.

8.36.080 Warning signs in places of public entertainment.

8.36.090 Variances.

8.36.100 Violation--Enforcement.

8.36.110 Emergency equipment.

8.36.010 Purpose.

A. The city council of the city declares and finds that excessive levels of noise are detrimental to the public health, welfare and safety and are contrary to the public interest as follows:

1. By interfering with sleep, communication, relaxation and the full use of one's property;

2. By interfering with noise sensitive land uses;

3. By contributing to hearing impairment and a wide range of adverse physiological stress conditions; and

4. By adversely affecting the value of real property.

B. It is the intent of this chapter to protect persons from excessive levels of noise within or near noise sensitive land uses such as residences, schools, churches, hospitals or public libraries, or other uses as may be determined by the city council of the city. (Prior code § 5090.1)

8.36.020 Definitions.

The following words, phrases and terms as used in this chapter shall have the following meanings:

"Abutting" means physically adjacent to or coterminous with or separated by means of an alley or a private street less than thirty (30) feet in width.

"Ambient noise level" means the composite of noise from all sources excluding the alleged offensive noise. In this context it represents the normal or existing level of environmental noise at a given location for a specific time of the day or night.

"A weighted sound level" means the sound level in decibels as measured with a sound level meter using the A:P weighted network (scale) at slow meter response. The unit of measurement is referred to herein as dB(A).

"Construction" means construction, erection, enlargement, alteration, conversion or movement of any building, structures or land

together with any scientific surveys associated therewith.

"Cumulative period" means an additive period of time composed of individual time segments which may be continuous or interrupted.

"Decibel" means a unit for measuring the amplitude of a sound, equal to twenty (20) times the logarithm to the base ten of the ratio of the pressure of the sound measured to the reference pressure, which is twenty (20) micropascals.

"Emergency work" means the use of any machinery, equipment, vehicle, manpower or other activity in a short term effort to protect, or restore safe conditions in the community, or work by private or public utilities when restoring utility service.

"Fixed noise source" means a device, machine or combination thereof which creates sounds which is affixed or installed on real property, including but not limited to residential, agricultural, industrial and commercial machinery and equipment, pumps, fans, compressors, air conditioners and refrigeration equipment.

"Hospital" means any building or portion thereof used for the accommodation and medical care of sick, injured or infirm persons including rest homes and nursing homes.

"Impulsive noise" means a noise of short duration, usually less than one second, with an abrupt onset and rapid decay.

"Intruding noise level" means the sound level created, caused, maintained or originating from an alleged offensive source, measured in decibels, at a specified location while the alleged offensive source is in operation.

"Mobile noise source" means any source other than a fixed noise source.

"Noise disturbance" means any sound which violates the standards set forth in this chapter.

"Noise sensitive land use" means residential uses, churches, hospitals, schools, public library, or other such uses which are identified in the noise element of the general plan.

"Pure tone noise" means any noise which is distinctly audible as a single pitch (frequency) or set of pitches. For the purpose of this chapter, a pure tone shall exist if the one-third octave band sound pressure level in the band which the tone exceeds the arithmetic average of the sound pressure levels of the two continuous one-third octave bands by five dB for center frequencies of five hundred (500) Hz and above and by eight dB for center frequencies between one hundred sixty (160) and four hundred (400) Hz and by fifteen (15) dB for frequencies less than or equal to one hundred twenty-five (125) Hz.

"Residential property" means a parcel of real property which is zoned in whole or in part of residential purposes.

"School" means public or private institutions conducting regular academic instruction at preschool, kindergarten, elementary, secondary or collegiate levels.

"Sound level meter" means an instrument meeting American National Standard Institute (ANSI) Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data. (Prior code § 5090.2)

8.36.030 Noise measurement criteria.

A. Any noise measurement made pursuant to the provisions of this chapter shall be made with a sound level meter using the "A" weighted network (scale) at slow meter response. Fast meter response shall be used for impulsive type sounds. Calibration of the measurement equipment utilizing an acoustical calibrator certified by its manufacturer to be in compliance with National Bureau of Standards (NBS) reference calibration levels shall be performed immediately prior to recording noise level data.

B. Exterior noise levels shall be measured within fifty (50) feet of the affected residence, school, hospital, church or public library. Where practical, the microphone shall be positioned three to five feet above the ground and away from reflective surfaces.

C. Interior noise levels shall be measured within the affected dwelling unit, at points at least four feet from the wall, ceiling or floor nearest the noise source, with windows in the normal seasonal configuration. Reported interior noise levels shall be determined by taking the arithmetic average of the readings taken at the various microphone locations. (Prior code § 5090.3)

8.36.040 Exterior noise standards--Fixed noise sources.

A. It is unlawful for any person at any location within the city to create any noise, or to allow the creation of any noise, on property

owned, leased, occupied or otherwise controlled by such person which causes the exterior noise level, when measured at the property line of any affected noise sensitive land use, to exceed any of the categorical noise level standards as set forth in the following table:

NOISE LEVEL STANDARDS, dBA

Category	Cumulative Number of minutes in any one-hour time period	Evening and Daytime 6 a.m. to 7 p.m.	Nighttime 7 p.m. to 6 a.m.
1	30	50	45
2	15	55	50
3	5	60	55
4	1	65	60
5	0	70	65

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or for recurring impulsive noises.

D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards. (Prior code § 5090.4.1)

8.36.050 Exterior noise standards--Mobile noise sources prohibition against use.

It is unlawful to operate any of the below-listed devices, appliances, equipment or vehicles on public or private property abutting noise sensitive land uses between the weekday hours of seven p.m. and six a.m., and between the weekend hours of seven p.m. and nine a.m.

A. Power-assisted leaf blowers, lawn mowers, edgers or other power equipment used for the maintenance of property;

B. Vehicle equipment, which equipment is not expressly regulated by state or federal statute, such as car radios or sound amplification equipment which is audible more than twenty-five (25) feet from the exterior of the vehicle;

C. Construction equipment including jackhammers, portable generators, pneumatic equipment, trenchers, or other such equipment, except for emergency repair purposes as provided in Section 8.36.070;

D. Any other noises made by crying, shouting, or by means of whistle, rattle, bell, gong whether or not for the purpose of advertising or other such purposes. (Prior code § 5090.4.2)

8.36.060 Residential interior noise standards.

A. It is unlawful for any person, at any location within the city, to operate or cause to be operated, any source of sound or to allow the creation of any noise which causes the noise level when measured inside a dwelling unit to exceed any of the categorized noise level standards as set forth in the following table:

NOISE LEVEL STANDARDS, dBA

Category	Cumulative Number of minutes in any one-hour time period	Evening and Daytime 6 a.m. to 7 p.m.	Nighttime 7 p.m. to 6 a.m.
1	5	45	35
2	1	50	40
3	0	55	45

B. In the event the measured ambient noise level without the alleged offensive source in operation exceeds an applicable noise level standard in any category above, the applicable standard or standards shall be adjusted so as to equal the ambient noise level.

C. Each of the noise level standards specified above shall be reduced by five dB for pure tone noises, noises consisting primarily of speech or music, or four recurring impulsive noises.

D. If the intruding noise source is continuous and cannot reasonably be discontinued or stopped for a time period whereby the ambient noise level without the source can be measured, the noise level measured while the source is in operation shall be compared directly to the noise level standards.

E. If the source of noise is of an impulse or voluntary nature such as shouting, loud conversation, playing or operation of audio and video equipment and is audible in a dwelling unit, the noise level in the above table shall conclusively be determined to be exceeded. (Prior code § 5090.6)

8.36.070 Noise source exemptions.

The following activities shall be exempted from the provisions of this chapter:

A. Activities conducted in public parks, public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events during normal hours of instruction;

B. Any mechanical device, apparatus or equipment used, related to, or connected with emergency activities or emergency work;

C. Noise sources associated with the infrequent, occasional and unusual maintenance of residential property provided such activities take place between the hours of six a.m. and nine p.m. on any day except Saturday or Sunday, or between the hours of eight a.m. and nine p.m. on Saturday or Sunday;

D. Noise sources associated with a lawful commercial or industrial activity caused by installed mechanical devices or equipment, including air conditioning or refrigeration systems, installed prior to the effective date of this chapter; that this exception shall expire twelve months after the effective date of the chapter. This exception shall not apply to such mechanical devices which are not in good repair;

E. Noise sources associated with the collection of waste or garbage from commercially zoned or industrially zoned property by the city or its authorized franchisee;

F. Any activity to the extent regulation thereof has been preempted by state or federal law;

G. Notwithstanding the provisions of Sections 8.36.040 and 8.36.050, where the intruding noise source when measured as provided in Section 8.36.030 is an existing residential air conditioning or refrigeration system or associated equipment, the exterior noise level at the property line shall not exceed fifty-five (55) dBA. For residential air conditioning or refrigeration systems or associated equipment installed after the effective date of this chapter, the exterior noise level at the property line when measured as provided in Section 8.36.030 shall not exceed fifty (50) dBA;

H. Notwithstanding the provisions of Sections 8.36.040 and 8.36.050, the collection of waste or garbage from residentially zoned property or from persons authorized to engage in such activity, and who are operating truck-mounted loading or compacting equipment, shall not take place before six a.m. or after seven p.m. The noise level created by such activities when measured at a distance of fifty (50) feet in an open area shall not exceed the following standard:

1. Eighty-five (85) dBA for equipment in use, purchased or leased prior to the effective date of this chapter,

2. Eighty (80) dBA for new equipment purchased or leased after the effective date of this chapter;

I. Notwithstanding the provisions of Sections 8.36.040 and 8.36.050, noise sources associated with the operation of electrical substations shall not exceed fifty (50) dBA when measured as provided in Section 8.36.030. (Prior code § 5090.6)

8.36.080 Warning signs in places of public entertainment.

It is unlawful for any person to permit the operation or playing of any loudspeaker, musical instrument, motorized racing vehicle, or other source of sound for public entertainment within a building or structure wherein the noise level exceeds ninety-five (95) dBA as determined using the slow response of a sound level meter at any point normally occupied by a customer, without a conspicuous and legible sign stating "WARNING! SOUND LEVELS WITHIN MAY CAUSE HEARING IMPAIRMENT." (Prior code § 5090.7)

8.36.090 Variances.

A. The owner or operator of a noise source for which it has been determined violates any of the provisions of this chapter may file an application for variance from strict compliance with any particular provisions of this chapter where such variance will not result in a hazardous condition or a nuisance and strict compliance would be unreasonable in view of all the circumstances. The owner or operator shall set forth all actions taken to comply with such provisions, and the reasons why immediate compliance cannot be achieved. A separate application shall be filed for each noise source; provided, however, that several mobile sources under common ownership or fixed sources under common ownership on a single property may be combined into one application.

B. Upon receipt of the application and within thirty (30) days, the community development director shall either: (1) approve such request in whole or in part; (2) deny the request; or (3) refer the request directly to the city council for action thereon in accordance with the provisions of this chapter. In the event the variance is approved, reasonable conditions may be imposed which may include restrictions on noise level, noise duration and operating hours, an approved method of achieving compliance and a time schedule for its implementation. The decision of the community development director is subject to appeal to the city council upon recommendation of the planning commission by filing a written appeal not later than fifteen (15) days following the mailing of the decision to the applicant.

C. Factors which the community development director or city council must consider shall include but not be limited to the following:

1. Uses of property within the area affected by the noise;

2. Factors related to initiating and completing all remedial work;

3. Age and useful life of the existing noise source;

4. The general public interest, welfare and safety.

D. The city council may grant variances from provisions of this chapter subject to such term, conditions and requirement as may be deemed reasonable to achieve compliance with the provisions and intent of this chapter.

E. A fee may be charged to recover the actual costs in processing such variances.

F. The approved noise ordinance variance must be in the possession of any operator of mobile noise sources during otherwise prohibited by the provisions of this chapter. An approved noise ordinance variance shall also be in the possession of a fixed noise source which would otherwise violate the provisions of this chapter. Failure to have the variance in the possession of the operator or property occupant when the provisions of this chapter are violated, as indicated above, shall constitute a violation of this chapter, enforceable as provided in Section 8.36.100. (Prior code § 5090.8)

8.36.100 Violation--Enforcement.

A. The violation of any of the provisions of this chapter shall be a misdemeanor punishable as provided in Section 1.12.010. Each hour of activity which violated the provisions herein shall constitute a sole and separate violation. The provisions of this chapter may also be enforced by an injunction issued out of the court of jurisdiction. Any violation of the provisions of this chapter shall be deemed to be a public nuisance.

B. The community development director, or a designee, shall be responsible for the enforcement of Section 8.36.040 and Section 8.36.060(A) through (D) inclusive. The chief of police shall be responsible for the enforcement of Sections 8.36.050 and 8.36.060(E). (Prior code § 5090.9)

8.36.110 Emergency equipment.

The provisions of this chapter shall have no application to the sounding of a siren or the making of other usual signal or signals by any police or other peace officers in the performance of their duties, nor to the sounding of any siren or the making of any other usual signal upon any ambulance or firefighting equipment in the usual and customary manner. (Prior code § 5091)

Appendix C
TNM 2.5 Sound Level Worksheets

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: Existing Plus Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	53.7	65	53.7	10	----	53.7	0.0	8	-8.0
Receiver2	2	1	0.0	56.8	65	56.8	10	----	56.8	0.0	8	-8.0
Receiver3	3	1	0.0	58.7	65	58.7	10	----	58.7	0.0	8	-8.0
Receiver4	4	1	0.0	59.4	85	59.4	10	----	59.4	0.0	8	-8.0
Receiver5	5	1	0.0	52.8	65	52.8	10	----	52.8	0.0	8	-8.0
Receiver6	6	1	0.0	55.5	85	55.5	10	----	55.5	0.0	8	-8.0
Receiver7	7	1	0.0	73.9	85	73.9	10	----	73.9	0.0	8	-8.0
Receiver8	8	1	0.0	50.1	65	50.1	10	----	50.1	0.0	8	-8.0
Receiver9	10	1	0.0	56.3	66	56.3	10	----	56.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: Near-Term Without Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	46.2	65	46.2	10	----	46.2	0.0	8	-8.0
Receiver2	2	1	0.0	49.0	65	49.0	10	----	49.0	0.0	8	-8.0
Receiver3	3	1	0.0	57.9	65	57.9	10	----	57.9	0.0	8	-8.0
Receiver4	4	1	0.0	58.7	85	58.7	10	----	58.7	0.0	8	-8.0
Receiver5	5	1	0.0	51.2	65	51.2	10	----	51.2	0.0	8	-8.0
Receiver6	6	1	0.0	54.1	85	54.1	10	----	54.1	0.0	8	-8.0
Receiver7	7	1	0.0	73.8	85	73.8	10	----	73.8	0.0	8	-8.0
Receiver8	8	1	0.0	49.7	65	49.7	10	----	49.7	0.0	8	-8.0
Receiver9	10	1	0.0	55.5	66	55.5	10	----	55.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: Near-Term Plus Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	52.6	65	52.6	10	----	52.6	0.0	8	-8.0
Receiver2	2	1	0.0	55.5	65	55.5	10	----	55.5	0.0	8	-8.0
Receiver3	3	1	0.0	59.5	65	59.5	10	----	59.5	0.0	8	-8.0
Receiver4	4	1	0.0	60.2	85	60.2	10	----	60.2	0.0	8	-8.0
Receiver5	5	1	0.0	52.8	65	52.8	10	----	52.8	0.0	8	-8.0
Receiver6	6	1	0.0	55.4	85	55.4	10	----	55.4	0.0	8	-8.0
Receiver7	7	1	0.0	73.9	85	73.9	10	----	73.9	0.0	8	-8.0
Receiver8	8	1	0.0	50.0	65	50.0	10	----	50.0	0.0	8	-8.0
Receiver9	10	1	0.0	57.1	66	57.1	10	----	57.1	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: Cumulative Year 2040 Without Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	52.4	65	52.4	10	----	52.4	0.0	8	-8.0
Receiver2	2	1	0.0	57.0	65	57.0	10	----	57.0	0.0	8	-8.0
Receiver3	3	1	0.0	59.1	65	59.1	10	----	59.1	0.0	8	-8.0
Receiver4	4	1	0.0	59.9	85	59.9	10	----	59.9	0.0	8	-8.0
Receiver5	5	1	0.0	56.5	65	56.5	10	----	56.5	0.0	8	-8.0
Receiver6	6	1	0.0	59.3	85	59.3	10	----	59.3	0.0	8	-8.0
Receiver7	7	1	0.0	75.9	85	75.9	10	----	75.9	0.0	8	-8.0
Receiver8	8	1	0.0	52.4	65	52.4	10	----	52.4	0.0	8	-8.0
Receiver9	10	1	0.0	56.8	66	56.8	10	----	56.8	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: Cumulative Year 2040 Plus Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	54.7	65	54.7	10	----	54.7	0.0	8	-8.0
Receiver2	2	1	0.0	57.6	65	57.6	10	----	57.6	0.0	8	-8.0
Receiver3	3	1	0.0	59.8	65	59.8	10	----	59.8	0.0	8	-8.0
Receiver4	4	1	0.0	60.5	85	60.5	10	----	60.5	0.0	8	-8.0
Receiver5	5	1	0.0	57.1	65	57.1	10	----	57.1	0.0	8	-8.0
Receiver6	6	1	0.0	59.7	85	59.7	10	----	59.7	0.0	8	-8.0
Receiver7	7	1	0.0	76.0	85	76.0	10	----	76.0	0.0	8	-8.0
Receiver8	8	1	0.0	52.6	65	52.6	10	----	52.6	0.0	8	-8.0
Receiver9	10	1	0.0	57.4	66	57.4	10	----	57.4	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: CY 2040 w/out Project Interchange
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	57.8	65	57.8	10	----	57.8	0.0	8	-8.0
Receiver2	2	1	0.0	63.1	65	63.1	10	----	63.1	0.0	8	-8.0
Receiver3	3	1	0.0	62.2	65	62.2	10	----	62.2	0.0	8	-8.0
Receiver4	4	1	0.0	62.8	85	62.8	10	----	62.8	0.0	8	-8.0
Receiver5	5	1	0.0	57.4	65	57.4	10	----	57.4	0.0	8	-8.0
Receiver6	6	1	0.0	60.0	85	60.0	10	----	60.0	0.0	8	-8.0
Receiver7	7	1	0.0	75.8	85	75.8	10	----	75.8	0.0	8	-8.0
Receiver8	8	1	0.0	56.3	65	56.3	10	----	56.3	0.0	8	-8.0
Receiver9	10	1	0.0	59.6	66	59.6	10	----	59.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: CY 2040 Plus Project w/ Interchange
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	58.7	65	58.7	10	----	58.7	0.0	8	-8.0
Receiver2	2	1	0.0	64.0	65	64.0	10	----	64.0	0.0	8	-8.0
Receiver3	3	1	0.0	62.5	65	62.5	10	----	62.5	0.0	8	-8.0
Receiver4	4	1	0.0	63.1	85	63.1	10	----	63.1	0.0	8	-8.0
Receiver5	5	1	0.0	57.8	65	57.8	10	----	57.8	0.0	8	-8.0
Receiver6	6	1	0.0	60.3	85	60.3	10	----	60.3	0.0	8	-8.0
Receiver7	7	1	0.0	75.8	85	75.8	10	----	75.8	0.0	8	-8.0
Receiver8	8	1	0.0	56.4	65	56.4	10	----	56.4	0.0	8	-8.0
Receiver9	10	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: CY 2040 Plus Project Interchange Alt 1
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	58.6	65	58.6	10	----	58.6	0.0	8	-8.0
Receiver2	2	1	0.0	64.0	65	64.0	10	----	64.0	0.0	8	-8.0
Receiver3	3	1	0.0	63.3	65	63.3	10	----	63.3	0.0	8	-8.0
Receiver4	4	1	0.0	63.8	85	63.8	10	----	63.8	0.0	8	-8.0
Receiver5	5	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
Receiver6	6	1	0.0	60.7	85	60.7	10	----	60.7	0.0	8	-8.0
Receiver7	7	1	0.0	75.8	85	75.8	10	----	75.8	0.0	8	-8.0
Receiver8	8	1	0.0	54.7	65	54.7	10	----	54.7	0.0	8	-8.0
Receiver9	10	1	0.0	60.6	66	60.6	10	----	60.6	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

City of Visalia
VRPA Technologies, Inc.
7 October 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: East Side Regional Park
RUN: CY 2040 Plus Project Interchange Alt 2
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Noise Reduction Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
Receiver1	1	1	0.0	58.6	65	58.6	10	----	58.6	0.0	8	-8.0
Receiver2	2	1	0.0	63.9	65	63.9	10	----	63.9	0.0	8	-8.0
Receiver3	3	1	0.0	62.5	65	62.5	10	----	62.5	0.0	8	-8.0
Receiver4	4	1	0.0	63.1	85	63.1	10	----	63.1	0.0	8	-8.0
Receiver5	5	1	0.0	57.8	65	57.8	10	----	57.8	0.0	8	-8.0
Receiver6	6	1	0.0	60.3	85	60.3	10	----	60.3	0.0	8	-8.0
Receiver7	7	1	0.0	75.8	85	75.8	10	----	75.8	0.0	8	-8.0
Receiver8	8	1	0.0	56.4	65	56.4	10	----	56.4	0.0	8	-8.0
Receiver9	10	1	0.0	60.0	66	60.0	10	----	60.0	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Noise Reduction Avg	Noise Reduction Max
		dB	dB	dB
All Selected	9	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Appendix D

Noise Study Data from Similar Projects

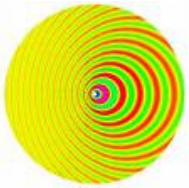
Nipomo Community Park Master Plan EIR
Nipomo, California

Noise Study Report

Prepared for:

Shawna Scott
SWCA Environmental Consultants
San Luis Obispo, CA 93402

Prepared by:



Karl Mikel, PE

November 25, 2010

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Figure 4: Traffic Measurement Location Map .....

I. INTRODUCTION

An outdoor noise assessment has been conducted for the Nipomo Park Master Plan Environmental Impact Report (EIR), in the community of Nipomo, CA (refer to Figure 1). Karl Mikel, PE, and approved County of San Luis Obispo acoustical noise consultant has prepared this report at the request of Ms. Shawna Scott of SWCA Environmental Consultants (SWCA). The project site is located in a semi-urban area of Nipomo, adjacent land uses consist of undeveloped lots, commercial, residential, and a school (Dana Elementary). This report has been prepared in support of the EIR for the proposed project to address the future noise environment of the area resulting from development of the proposed NCP facilities. Specifically this report presents collected noise measurements from similar proposed park facilities (i.e., local skate park, soccer field, etc.) to estimate stationary noise levels expected by the proposed project. This analysis includes noise data generated from existing peak-hour traffic on Tefft Street, Orchard Road, Pomeroy Road, Juniper Street, Camino Caballo, and Osage Street at potentially affected locations to compare to future noise levels due to project generated traffic. This acoustical analysis is required to determine if proposed facilities development would impact surrounding sensitive noise receptors (residential) located in close proximity to the NCP.

II. APPLICABLE NOISE STANDARDS

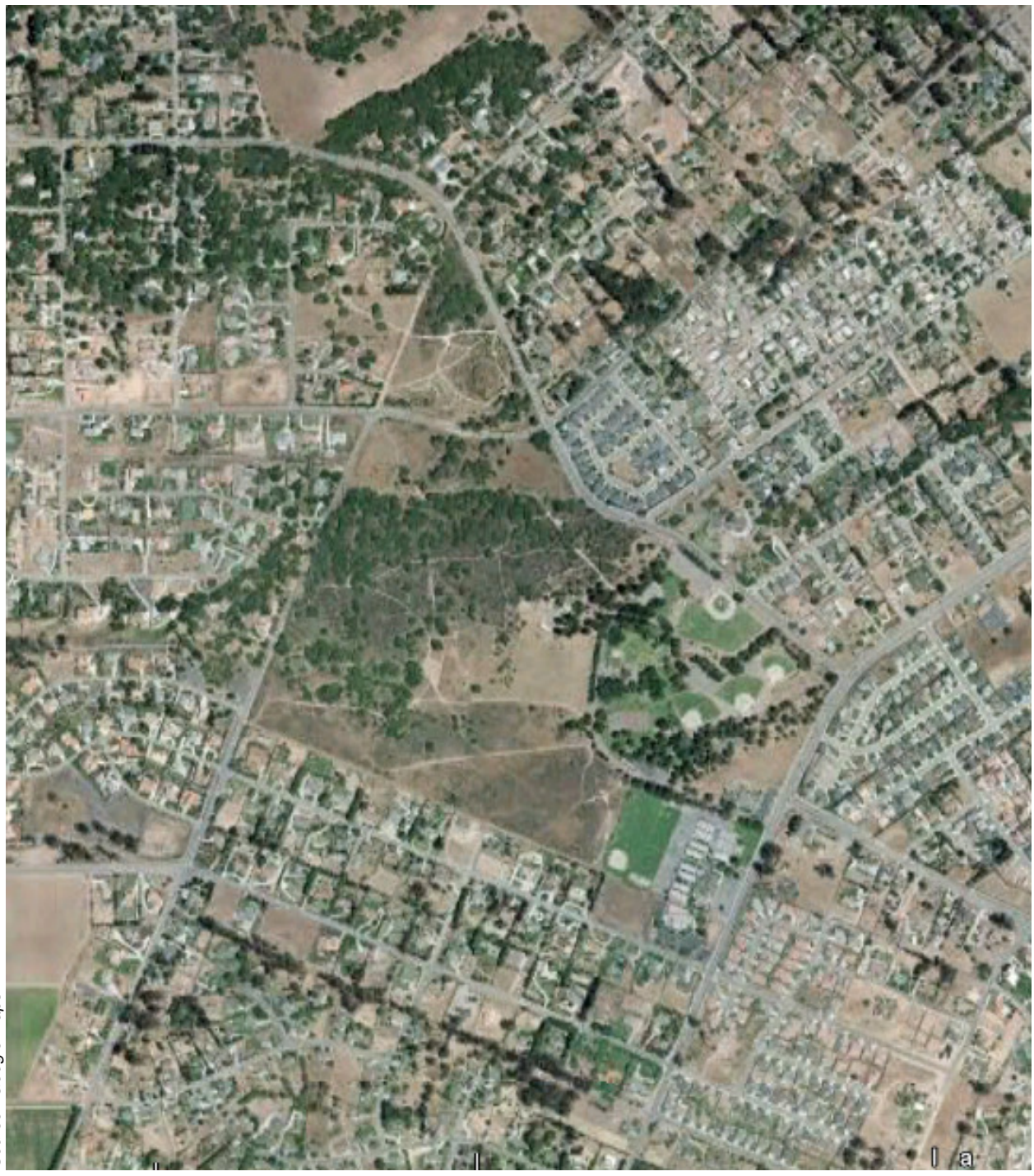
The County of San Luis Obispo Noise Element of the General Plan provides a policy framework for addressing potential and existing noise impacts during the planning process. Its purpose is to minimize future and existing noise conflicts. Among the most significant polices found in the Noise Element are numerical noise standards that limit noise exposure within noise-sensitive land uses resulting from transportation sources. An increase in the ambient stationary noise level surrounding the project site would result from the addition of the new facility, which could potentially result in a stationary noise impact that would exceed the thresholds defined in the County Noise Element.

A. TRANSPORTATION NOISE SOURCES

Policy 3.3.2 of the Noise Element states that "new development of noise-sensitive land uses shall not be permitted in areas exposed to existing or projected future levels of noise from transportation noise sources which exceed 60 dB Ldn or CNEL for outdoor activity areas and 45 Ldn or CNEL for interior spaces unless the project includes effective mitigation measures to reduce noise in outdoor activity areas and interior spaces to or below the levels for the given land use," (refer to Tables 1 and 2).

Policy 3.3.3 of the Noise Element states that "Noise created by new transportation noise sources, including roadway improvement project, shall be mitigated so as not to exceed the levels specified in Table 1 within the outdoor activity areas and interior spaces of existing noise sensitive land uses.

Figure 1: Nipomo Regional Park



Source: Google Maps

TABLE 1
Maximum Allowable Noise Exposure-Transportation Noise Sources

Land Use	Outdoor Activity Areas[1] L_{dn}/CNEL, dB	Interior Spaces L_{dn}/CNEL, dB	Interior Spaces L_{EQ}, dB[2]
Residential (Except Temporary)	60 [3]	45	–
Bed and Breakfast, Hotels, Motels	60 [3]	45	–
Hospitals, Nursing and Personal Care	60 [3]	45	–
Public Assembly and Entertainment	–	–	35
Offices	60 [3]	–	45
Churches, Meeting Halls	–	–	45
Schools, Libraries, Museums	–	–	45
Outdoor Sports and Recreation	70	–	–

Notes:
1. Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.
2. As determined for a typical worst-case hour during periods of use.
3. For other than residential uses, where an outdoor activity area is not proposed, the standard shall not apply. Where it is not possible to reduce noise in outdoor activity areas to 60 dB Ldn/CNEL or less using a practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB Ldn/CNEL may be allowed.

Source: Noise Element, County of San Luis Obispo, General Plan

TABLE 2
Land Use Compatibility For New Development Near Transportation Sources

Land Use	Exterior Noise Exposure, Ldn or CNEL (dB) 55	60	65	70	75	80
Residential, Public Assembly, Entertainment						
Bed and Breakfast, Hotel, Motel						
Schools, Libraries, Museums, Hospitals						
Outdoor Sports and Recreation						
Offices						

Acceptable, no mitigation required
Conditionally Acceptable, Mitigation required
Unacceptable, mitigation may not be feasible

Source: SLO County Noise Element, Policy Document

B. STATIONARY NOISE SOURCES

Policy 3.3.4 of the Noise Element states that "new development of noise-sensitive land uses shall not be permitted where the noise level due to existing stationary noise sources would exceed the noise level standards included in the Noise Element unless effective noise mitigation measures have been incorporated into the design of the development to reduce noise exposure to or below the levels specified." The hourly daytime stationary noise standard for a residential development is 50 dBA, while the maximum is 70 dBA. The hourly nighttime stationary noise standard for a residential development is 45 dBA, while the maximum is 60 dBA (refer to Table 3).

TABLE 3
Maximum Allowable Noise Exposure-Stationary Noise Sources[1]

Level	Daytime (7 a.m. to 9 p.m.)	Nighttime (9 p.m. to 7 a.m.)
Hourly Leq, dBA[2]	50	45
Maximum Level, dBA[2]	70	60
Maximum Level, Impulsive Noise dBA[3]	65	60
Notes: 1. As determined at the property line of the of the receiving land use. 2. Sound level measurements shall be made with slow meter response. 3. Sound level measurements shall be made with fast meter response.		
Source: SLO County Noise Element, Policy Document		

Policy 3.3.5 of the Noise Element states that "new proposed stationary noise sources or existing stationary noise sources that undergo modifications that may increase noise levels shall be mitigated as follows and shall be the responsibility of the developer of the stationary noise source. Policy 3.3.5 can be found in its entirety on page 3-3 of the County Noise Element, applicable standards from Policy 3.3.5 are provided below as follows:

b) Noise levels shall be reduced to or below the noise level standards in Table 3-2 (refer to Table 1 in this report) where the stationary noise source will expose an **existing** noise-sensitive land use (which is listed in the Land Use Element as an allowable use within its existing land use category) to noise levels that exceed the standards in Table 3-2.

c) Noise levels shall be reduced to or below the noise level standards in Table 3-2 where the stationary noise source will expose **vacant** land in the Agriculture, Rural Lands, Residential Rural, Residential Suburban, Residential Single Family, Residential Multi-Family, Recreation, Office and Professional, and Commercial Retail land use categories to noise levels that exceed the standards in Table 3-2.

Note: This policy may be waived when the Director of Planning and Building determines that such vacant land is not likely to be developed with a noise sensitive land-use.

III. STUDY METHOD

A. STATIONARY NOISE ASSESSMENT

The procedure used to assess noise resulting from this project focused on measuring noise levels at similar events and facilities such as soccer games at multi-use sports fields and skate parks to estimate noise levels that could be expected by these types of uses at the NCP. Ambient pre-project noise levels are measured at select locations to determine if recreational development would result in a stationary noise impact. The expected noise levels are then compared to published threshold values in the County's Noise Element to determine if a significant change in the noise environment would occur and if an exceedance of the threshold value would be expected. The one-hour Leq threshold outlined in the Noise Element is 50 dBA at the property line of the nearest sensitive receptor location, with a maximum noise level of 70 dBA allowed for short periods of time so long as the hourly average is maintained at 50 dBA Leq.

B. TRAFFIC NOISE ASSESSMENT

The procedure for assessing vehicular traffic noise impacts included measuring the peak-hour noise levels at select locations around the NCP while counting the traffic generating the noise during the period of measurement. The measured peak-hour noise levels are then adjusted logarithmically to determine the "future" noise levels by using the estimated traffic volume predictions for various road segments. Logarithms are used because they produce linear correlations, which can then be used to more readily evaluate future noise levels. Generally speaking, doubling the traffic volume will produce a 3 dB increase in the ambient noise environment.

From a practical standpoint, the peak-hour Leq noise level is essentially equivalent to the Ldn noise level (generally yielding results within 1-2 dBA of each other). The Ldn is the standard measure used for evaluating community noise impacts in the County Noise Element. For most situations involving noise originating from vehicular traffic, the peak-hour Leq can be used as the Ldn level in situations where there is little nighttime traffic or significant heavy truck volumes. Peak hour Leq was the methodology used in evaluation of traffic noise impacts for the proposed project. Noise measurements were taken for a duration of 15 minutes at each location. Further analysis is based on the average noise levels (Leq) as discussed in this report.

General guidelines for determining community noise impacts typically include:

- A three-dB change is barely perceptible, and is the minimum most people will notice in most environments.
- A five-dB change is a readily perceptible increase or decrease in sound level.
- A ten-dB increase in sound level is perceived as an approximate doubling of the loudness of the sound and represents a substantial change in loudness.

IV. MEASURED NOISE LEVELS

A. GENERAL INFORMATION

The subject noise investigation was conducted using a Bruel and Kjaer (B & K) Model 2231 precision integrating sound level meter. The meter internally computes a new Leq from the sound pressure level and updates the digital display once each second. The meter was calibrated externally at the beginning of each period of measurement using a B & K Model 4230 acoustic calibrator. In combination, these instruments yield sound level measurements accurate to within 0.1 decibel (dB). All models fulfill standards of relevant sections of IEC (International Electrotechnical Commission) 651 and ANSI (American National Standard) S1.4.1971 for Type 1 (precision) integrating sound level meters. All noise readings were conducted in the A-weighted decibel range. The A-weighting correlates well with how humans hear sounds, de-emphasizing very high and low frequencies.

B. STATIONARY NOISE MEASUEMENTS AT SIMILAR FACILITIES

To help assess expected stationary noise levels resulting from development due to the project, similar noise sources and events were monitored. Noise was measured on November 19, 2010 at the Damon Garcia Sports Complex during a youth soccer tournament, and at the Templeton Skate Park on November 21, 2010 (Figures 2 & 3).

The measurement set conducted at Damon Garcia consisted of a multi-game youth soccer tournament. Three games were being played at the same time, measurement Location 3 was the combination of all three games being played at once. There was no amplified sound at any of the games; most of the noise measured from the games resulted from the crowd cheering during exciting plays. Very little noise is actually generated by participants or action on the field. Table 4 presents the results of the monitoring conducted during the soccer event.

TABLE 4
Noise Summary, Damon Garcia Sports Complex

Location	Distance from Center of Field (Feet)	Noise Levels (dBA)	
		Leq	Max
1	25	66.5	76.6
2	50	59.1	75.1
3	100	54.0	73.1
4	10	66.4	79.1

Figure 2: Damon Garcia Sports Complex

Noise Measurement Location: Damon Garcia Sports Complex

Figure 3: Templeton Skate Park

Noise Measurement Location: Templeton Skate Park

The skaters primarily generate the skate park noise when they are actively skating within the confines of the concrete at the facility. The noise environment around the park is subject to multiple impulsive types of episodes when the skaters fall off their boards and the boards bang around on the concrete. When the skaters are on their boards and skating through the facility, the sound of the skate wheels and trucks are quite noticeable in close proximity to the park. Table 5 presents the results of the monitoring conducted at the skate park.

TABLE 5
Noise Summary, Templeton Skate Park

Location	Distance from Center of Field (Feet)	Noise Levels (dBA)	
		Leq	Max
1	25	73.5	82.9
2	50	68.4	79.6
3	100	62.2	74.4

C. TRAFFIC NOISE MEASUEMENTS AROUND THE NCP

The level of traffic noise depends on the following three factors: (1) the volume of traffic; (2) the speed of the traffic; and, (3) the number of trucks in the traffic flow. Generally, heavier traffic volumes, higher speeds, and the greater numbers of trucks increase the loudness of traffic noise. Any condition (such as a steep incline) that causes heavy laboring of motor vehicle engines will also increase the resultant traffic noise levels. Vehicle noise around the NCP is a combination of the noise produced by the engines, exhausts, and tires.

Higher levels of existing noise resulting from automobile and truck traffic characterize the perimeter portions of the existing NCP site, especially adjacent to the West Tefft Street and Pomeroy Road corridors. Although higher levels of noise are found along the existing transportation corridors surrounding the NCP; noise levels rapidly attenuate as one moves towards the interior of the site because of the varying topography and in some locations the presence of dense thick wooded vegetation. A field investigation was conducted on November 23, 2010, noise measurements were conducted from approximately 3:30 PM to 5:45 PM to determine traffic related ambient noise levels around the perimeter and within the proposed NCP site (refer to Figure 4). Each of the short-term sites was measured for a duration of 15 minutes while vehicle volumes were classified. The hourly counts are then normalized from the data generated.

Generally speaking, the loudest traffic noise levels are associated with sites monitored adjacent to West Tefft Street and Pomeroy Road, which are the primary noise sources in the general area. There are a variety of commercial and retail areas to the north and east of the NCP (including Highway 101), which are additional noise generators in the immediate area. Most other areas surrounding the NCP are residential and do not have significant traffic volumes or excessive traffic noise levels. Table 6 presents the results of the sites monitored.

Figure 4: Nipomo Regional Park

Traffic Noise Measurement Locations: Nipomo Regional Park

TABLE 6
Measured Traffic Noise Levels

Location*	Period of Measurement	Noise Levels (dBA)	Traffic Volume, Measured	
		Leq	Number	Vehicles/ Hr
1	3:30-3:45 pm	63.8	228	912
2	4:00-4:15 pm	64.5	240	960
3	4:30–4:45 pm	61.0	150	600
4	5:00–5:15 pm	57.1	118	472
5	5:15–5:30 pm	55.6	70	280
6	5:30–5:45 pm	63.0	195	780

*Refer to Figure 4 for Measurement Locations

V. PROJECT IMPACTS

A. STATIONARY SOURCES

The project area is a mix of hardscaped surfaces, undeveloped fields, commercial/retail uses, and residential development. The topography surrounding the NCP is characterized as a "hard", which means that it would tend to be more reflective than absorptive of sound pressure waves. Hard sites generally do not have absorptive ground surfaces such as soft dirt, grass, or bushes and trees to attenuate noise levels.

Existing vegetation at the NCP consists of annual grassland, scattered herbaceous vegetation, and small clumps of brush and oak woodland habitat. The existing project site would be characterized as a "soft site", meaning that excess attenuation of sound pressure levels would be observed due to the ground cover and vegetation. After project development, more of the site would be hardscaped, decreasing the project areas natural noise attenuation capabilities. When added to the natural geometric spreading of sound pressure waves, this would result in an overall noise drop-off rate of approximately 6.0 dBA/(doubling distance) for a stationary source.

If one were to assume a conservative drop-off rate of 6 dBA per distance doubled, a safe-distance offset could be estimated in order to determine how far way from the nearest sensitive noise receptor location new facilities must be sited. Referring to Table 4, for a hypothetical non-amplified multi-game soccer event, the nearest field would need to be no closer than 200 feet from the closet receptor location to meet County exterior noise thresholds. Referring to Table 5, for a skate park, the active skating area should be no closer than 400 feet from the nearest receptor location. This evaluation is based on average conditions, with no loud music playing, and assumes only the sounds from voices and skateboards.

B. TRAFFIC SOURCES

To determine the traffic noise level increase due to project generated trips, the Traffic Impact Analysis (March 2010) was used in order to determine buildout traffic conditions with the additional NCP Master Plan uses included for future traffic conditions. Expected noise increases resulting from implementation of the NCP Master Plan resulting from additional vehicle trips are presented in Table 7. All estimated noise increases have been rounded to one decimal place.

TABLE 7
Estimated Future Traffic Noise Level Increase

Location*	Baseline Buildout ADT	Buildout Plus Project ADT	Estimated Noise Level Increase (dBA) Leq
1	8,400	8,602	0.1
2	19,200	19,510	0.1
3	9,350	9,564	0.1
4	3,100	3,122	0.0
5	1,300	1,322	0.1
6	6,700	6,764	0.0

*Refer to Figure 4 for Measurement Locations

As seen in Table 7, due to the relatively low number of expected additional trips, estimated noise level increases due to project generated traffic are expected to be negligible. Under controlled conditions in an acoustics laboratory, the trained healthy human ear is able to discern changes in sound levels of 1 dBA when exposed to steady single-frequency (pure tone) signals in the mid-frequency range. Outside such controlled conditions, the trained ear can detect changes of 2 dBA in normal environmental noise. It is widely accepted that the average healthy ear, however, can barely perceive noise level changes of 3 dBA (Caltrans Technical Noise Supplement, 2009). Since the expected noise level increase would be less than 1 dBA, traffic noise impacts are not expected to occur due to buildout of the NCP uses.

Issue	Impact				Source *(Refer to Section 3: Source List)*
	No Impact	**Less Than Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Potentially Significant Impact**	
12. NOISE. *Would the proposal result in:*					
(a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	✓	☐	☐	☐	1,2,4,31
(b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	✓	☐	☐	☐	5,6
(c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	✓	☐	☐	1,2,4,5,31
(d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	✓	☐	☐	5,6,31
(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	✓	☐	☐	1,2,5,6
(f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	✓	☐	☐	☐	1,2

Discussion

The discussion of noise impacts is based upon the *San Salinas Regional Soccer Complex Final Environmental Noise Assessment Salinas, California* (hereinafter "noise assessment") prepared by Illingworth & Rodkin, Inc. in 2011. The noise assessment is included as Appendix K, found on CD on the inside back cover of this initial study.

The existing noise environment at the project site and in the vicinity is most influenced by traffic on Constitution Boulevard and East Laurel Drive. In order to quantify existing ambient noise levels, Illingworth & Rodkin conducted noise monitoring. Two long-term noise measurements were taken: one at the nearest single-family residences located on Oyster Bay Court (LT-1) approximately 350 feet from the nearest portion of the project site, and one in the parking lot of the existing adjacent soccer complex approximately 110 feet from the edge of the nearest proposed new soccer field (LT-2). At LT-1, hourly average noise levels typically ranged from 48 to 58 weighted decibels (dBA) average level (L_{eq}) during the day, and from 41 to 54 dBA L_{eq} at night. The calculated day-night average noise level (L_{dn}) at this location ranged from 56 to 59 dBA L_{dn}. Hourly average noise levels at LT-2 typically ranged from 55 to 64 dBA L_{eq} during the day, and from 47 to 55 dBA L_{eq} at night. The calculated day-night average noise level at this location ranged from 58 to 62 dBA L_{dn}.

CEQA does not define noise level increases that are considered substantial. Typically, project-generated noise level increases of three dBA L_{dn} over the Community Noise Equivalent Level (CNEL) or greater would be considered significant where exterior noise levels at a particular receptor exceed the normally acceptable noise level standard. Where noise levels would remain at or below the normally acceptable noise level standard with the project, noise level increases of five dBA L_{dn}/CNEL or greater would be considered significant.

Normally accepted noise levels are typically described by local jurisdictions in terms of noise compatibility standards. As described in general plan Table N-3, Noise/Land Use Compatibility Matrix, uses such as outdoor spectator sports/arenas are "conditionally acceptable" in noise environments of up to 75 Ldn/CNEL. For more noise sensitive residential, school, or transient lodging uses, exterior noise exposure levels of up to 60 Ldn CNEL are normally acceptable.

With regard to noise producing land uses, as identified in zoning code section 37-50.180, the maximum acceptable exterior noise level at the property line of noise sensitive residential land uses that can be created by noise from new development is 60 dBA Ldn/CNEL. Note (5) in section 37-50.180 states, "Sporting events and the like shall be exempt from these noise standards." This exemption is deemed to apply to a subset of the proposed project activities – the limited number of larger scale regional/local soccer tournaments at the site, including at the outdoor soccer stadium.

(a) A significant impact would occur if the proposed project would expose people to, or generate permanent noise levels in excess of noise standards contained in the general plan or zoning code.

The existing noise environment at the site and in the vicinity results primarily from traffic on Constitution Boulevard and East Laurel Drive. As described above, existing noise levels in the project area as measured in the noise assessment are significantly below the maximum conditionally acceptable noise exposure level for the type of use proposed. Further, general plan Figure N-1, Future Noise Contours and Impact Areas, indicates that noise levels at the project site would range from approximately 60 dBA to 65 dBA CNEL with the buildout of the general plan, also well within the maximum conditionally acceptable noise exposure level for the type of use proposed. In short, the proposed project would have a less-than-significant impact from potential exposure of project users to noise levels that exceed the city's noise compatibility standards.

Please refer to item "c" below for information on the noise generating effects of the proposed project and potential related impacts.

(b) Pile driving, the most common source of construction causing elevated vibration levels, is not proposed with the project, and there are no existing or planned sources of groundborne vibration that would be perceptible on or beyond the project's boundaries. Therefore, there is no impact.

(c) A significant impact would occur if the proposed project would result in a substantial permanent increase in ambient noise levels that has potential to adversely impact noise sensitive uses. The proposed project would result in permanent increases in noise levels due to traffic noise and project operations. Each of these noise sources is evaluated below.

Traffic Noise

Traffic data for area roadways, provided by Hexagon Transportation Consultants, Inc., were reviewed to calculate the relative increase in traffic noise levels expected with the operation of the project. Please refer to the Traffic and Transportation section of this initial study for more information on traffic effects. Fifteen study area intersections were evaluated in the analysis. PM peak hour traffic volumes under the existing plus project traffic scenario were compared to existing conditions to calculate the noise increase attributable to project traffic.

The data indicate that traffic volumes in the site vicinity would slightly increase as a result of the proposed project. Traffic noise levels due to the proposed project are expected to increase existing traffic noise levels by less than 1.0 dBA L_{eq} during the PM peak traffic hour. This increase would not be perceptible. On a 24-hour average basis, the CNEL will not be measurably increased (less than 1.0

dBA). A change in the CNEL of less than 1.0 dBA is not substantial and would not be expected to cause a change in community response to the noise environment. Impacts from traffic noise increases would be less than significant.

Noise from Facility Use

Use of the proposed project will generate noise, primarily from use of the eight turf fields, the two synthetic soccer fields with stadium seating, and on-site vehicle use. The fields would be used for practice from 4:00 pm to 8:00 pm Monday through Thursday by most of the leagues expected to use the facility. Two leagues are assumed to also practice on Friday. This schedule would occur during late spring, summer and early fall. At other times of the year, the leagues would either start earlier or practice times would only be two hours, or they would utilize the two lighted fields during the 4:00 pm to 8:00 pm timeframe. Two operational scenarios are evaluated in the noise assessment, league play/ tournaments, and a stadium event.

League Play and Tournaments. During league play and tournaments, the fields would be utilized for practice as described above and games would occur on weekends. A credible worst-case scenario assumes that all of the fields would be in use. Noise levels are highest during games when spectators are present and the spectators and players are cheering. Noise sources include the cheering and referee whistles. As identified in the noise assessment, soccer games typically generate “worst-case” noise levels of about 68 dBA Leq at a distance of 50 feet from the center of the field. Maximum noise levels of about 68 to 73 dBA typically result from whistles and shouting from players and spectators.

As indicated in the noise assessment, the closest noise sensitive receptors are residences located across Constitution Boulevard to the northeast of the project site. The existing day-night average noise level at the nearest residential property boundary ranged from 56 to 59 dBA Ldn. The nearest proposed soccer field is designated as Field 7. Play on Field 7 would only occur during daytime hours as this field would not be lit, and would result in maximum instantaneous noise level ranging from 54 to 61 dBA Lmax and an average level of 52 dBA Leq at the nearest residential property boundary. The cumulative hourly average noise level from play on all of the fields is calculated to be 55 dBA Leq. The 24-hour average noise level is calculated to be 53 dBA CNEL at the nearest residential property. This noise level is substantially below the absolute noise levels limits set forth in the general and the zoning code. Noise generated by soccer field use would have a less-than-significant impact.

Stadium Events. As previously noted, sports events are exempted from municipal code section 37-50.180 standards which state that new development projects may not result in noise generation that exceeds 60 dBA CNEL at the property line of residential uses. Activities at the project site are planned to include 9-10 larger scale, annual regional/local soccer tournaments of approximately 48 teams

each. These individual events are considered to be “sports events” pursuant to municipal code section 37-50.180 per note (5) in that section. These tournaments would include the use of the soccer stadium. Consequently, noise from these events is exempt from the noise standards. Nevertheless, an analysis of the noise effects of the infrequent use of the stadium when significant spectator numbers are expected is provided for disclosure purposes.

An event at the stadium could result in the attendance of up to 2,000 seated spectators. The primary source of noise from a stadium event would be the cheering from the crowd and the public address system. The noise from a crowd is proportional to the number of people in attendance. At an attendance of 2,000 people, the hourly average noise level is calculated to be up to 58 dBA L_{eq} at a reference distance of 450 feet from the center of the stadium bleachers. Maximum instantaneous noise levels are calculated to range from 60 to 65 dBA at the 450 feet reference distance. The stadium bleachers are proposed to be located on the west side of Field 1 which would be approximately 1,500 feet from the nearest residential property.

Taking into account the reduction in noise due to the distance to the receptor, a stadium event is calculated to result in an hourly average noise level of 48 to 51 dBA L_{eq} at the nearest residence and maximum instantaneous noise levels of up to 55 dBA L_{max}. The existing day-night average Ldn noise level at the nearest residential property boundary ranges from 56 to 59 dBA Ldn. Therefore, noise levels from a stadium event would not result in a substantial increase in noise levels at the nearest residential receptors and would be below the 60 dBA CNEL noise level limits established in the general plan and the zoning code. Therefore, noise impacts from stadium events would be less than significant.

Note that significant numbers of spectators are only likely to be present as part of the 9-10 tournaments per year that are anticipated at the project site. Consequently, noise from tournament/stadium use would occur infrequently during any given year.

Parking Lot Activities. The proposed project includes 421 new parking spaces that would be contained within the proposed project site (these are in addition to the 368 spaces existing/planned at the existing adjacent soccer fields). Autos would access the new parking lot from Constitution Boulevard. The sound of a passing car at 15 mph typically ranges from 46 to 56 dBA at 50 feet. The noise of an engine start is similar. Door slams create noise levels lower than engine starts. At its closest point, the new parking lot would be about 500 feet from the nearest single-family residences, resulting in noise levels ranging from 26 to 36 dBA. Expected noise levels would be substantially below existing ambient traffic noise levels resulting from local traffic. These activities would not cause a measurable increase in hourly average or daily average noise levels. Therefore, noise resulting from parking lot sources would result in a less-than-significant noise impact at adjacent residential land uses.

(d) Noise impacts resulting from construction depend on the noise generated by various pieces of construction equipment, the timing and duration of noise generating activities, and the distance between construction noise sources and noise sensitive receptors. Construction noise impacts primarily occur when construction activities occur during noise-sensitive times of the day (early morning, evening, or nighttime hours), the construction occurs in areas immediately adjoining noise sensitive land uses, or when construction durations last over extended periods of time.

Where noise from construction activities exceeds 60 dBA L_{eq} and exceeds the ambient noise environment by at least five dBA L_{eq} at noise-sensitive uses in the project vicinity for a period of one year or more, the impact would be considered significant. Typically, significant noise impacts do not result when standard construction noise control measures are enforced at the project site and when the duration of the noise generating construction period is limited to one construction season (typically one year) or less. Noise generated by grading, infrastructure improvements and the construction of proposed project facilities would not be expected to result in noise levels exceeding 60 dBA L_{eq} and the ambient noise environment by 5.0 dBA L_{eq} for a period greater than one year at the nearest sensitive receptors. Therefore, construction related noise impacts would be less than significant.

The following standard controls are assumed to be included in the project as a condition of project approval:

- Construction or demolition work will be limited to the hours between 7:00 a.m. and 7:00 p.m.

- All powered construction equipment would be equipped with intake and exhaust mufflers recommended by the manufacturers thereof. All mufflers shall be maintained in good condition or replaced as necessary

- Pavement breakers and jackhammers would also be equipped with acoustical attenuating shields or shrouds recommended by the manufacturers.

- Stationary noise generating equipment would be located as far as possible from adjacent sensitive land uses.

- Stationary equipment located near sensitive land uses would be acoustically shielded with temporary noise barriers.

- "Quiet" air compressors and other stationary noise sources would be used where technology exists.

- The applicant would designate a "disturbance coordinator" who would be responsible for responding to any complaints about construction noise. The disturbance coordinator would determine the cause of the noise complaint (e.g., bad muffler, etc.) and would require that reasonable measures be implemented to correct the problem.

(e) The project site is located outside the Salinas Municipal Airport 55 dBA CNEL noise contour for future buildout conditions (general plan Figure N-2). Occasional aircraft overflights are intermittently audible at the site, but these infrequent events do not substantially contribute to hourly average or daily average noise levels at the site. The proposed project users would not be significantly affected by aircraft noise and the impact would be less than significant.

(f) The project is not located in the vicinity of a private airstrip; therefore, there is no impact.

Mitigation Measures

No mitigation measures are required.

Arcadia Park Softball Fields

San Jose, CA

Draft Environmental Noise Impact Assessment

7 October 2014

DRAFT

Prepared for:

Denise Duffy & Associates, Inc.
Leianne Humble
947 Case Street, Suite 5
Monterey, CA 93940
Email: lhumble@ddaplanning.com

Prepared by:

Charles M. Salter Associates, Inc.
Greg R. Enenstein
Joshua M. Roper, PE, LEED AP
100 W. San Fernando, Suite 430
San Jose, CA 95113
Email: josh.roper@cmsalter.com

CSA Project Number: 14-0394

INTRODUCTION

This report summarizes our environmental noise impact assessment for the Arcadia Park Softball Fields located southwest of the intersection of Quimby Road and Capitol Expressway in San Jose, California. The 18-acre field complex will include four softball fields with a central public address system, a restroom and concession building, and two parking lots. It is part of a larger 81-acre parcel with prior planning approval for a mix of retail commercial use, residential, and a sports complex.[1] For readers less familiar with the fundamental concepts with acoustics, please refer to Appendix A, attached.

Following is a summary of our findings:

1. Environmental noise at the site falls into the City's *normally* and *conditionally acceptable* categories for land use compatibility with parks.
2. Estimated noise levels from softball activities are DNL 46 to 52 at the nearest planned residences. This is consistent with the City's DNL 55 dB criterion, and does not significantly increase environmental noise at the residences.
3. Stationary noise sources, including the public address system and mechanical equipment, must be selected and designed to meet the Municipal Code limit of 55 dB at adjacent residences.
4. Traffic noise associated with the project is estimated to increase environmental noise by less than 1 dB, which is considered less than significant.

PROJECT DESCRIPTION

The proposed field complex, south of Quimby Road, will contain four softball fields as shown on Figure 1, attached. Following is a summary of anticipated operational characteristics:

- Parking lots, with a combined total of 244 parking spaces, will be located north and east of the fields. The northern lot will be accessed via Quimby Road, and the eastern lot will be access the site via a new roadway as part of the larger parcel. This new roadway will extend from Quimby Road to Capitol Expressway.
- Existing residences are located to the west of the larger parcel, and future residences are planned for a separate site between the field complex site and existing residences (see Figure 1).
- The project will include a concession building between the four fields, and spectator seating along the sides of the fields.
- Fields will primarily be used for evening (5:30 PM to 10:00 PM) and weekend (8:00 AM to 10:00 PM) softball games. A secondary use will be afternoon Little League practices and games (4:00 PM to 5:30 PM).
- Schedules will accommodate up to three weeknight games, and nine weekend games, per field per day.
- Average attendance for softball games is 24 to 30 players with 10 to 15 spectators per field.
- Average attendance for little league practices and games is 15 to 20 players and coaches on each field.
- A central public address system will be used to make announcements to all fields. However, this system will not be used for game commentary.

[1] Evergreen East Hills Vision Strategy Project DEIR, dated February 2006. For reference, the noise assessment prepared for the DEIR, dated September 2005, indicates the four fields and public address system will have no adverse effect on residences off-site, but potential intra-project impacts.

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ACOUSTICAL CRITERIA

Acoustical criteria are included in the Envision San Jose 2040 General Plan and the San Jose Municipal Code, which are summarized as follows:

- Policy EC-1.1 provides land use compatibility guidelines for environmental noise, based on exterior noise levels. It identifies Day/Night Average Sound Levels[2] (DNL) of up to 65 dB[3] as *normally acceptable*, and DNL 65 to 80 dB as *conditionally acceptable*, for parks. For reference, the *normally acceptable* level for residences is DNL 60 dB or lower.
- Policy EC-1.2 of the General Plan considers noise impacts to be significant if a project would increase noise levels on adjacent sensitive land uses, including residences, as follows:
  - Cause the DNL at noise sensitive receptors to increase by five dB or more where the noise levels would remain *normally acceptable*; or
  - Cause the DNL at noise sensitive receptors to increase by three dB or more where noise levels would equal or exceed the *normally acceptable* level.
- Policy EC-1.3 of the General Plan limits noise generation of new nonresidential land uses to DNL 55 dB at adjacent residential properties.
- Policy EC-1.6 of the General Plan limits operational noise to the noise standards in the City's Municipal Code. Section 20.40.700 of the San Jose Municipal Code limits noise to 55 dB at residential properties.

NOISE ENVIRONMENT

On-Site Environmental Noise

The Evergreen Visioning Project EIR Noise Report, dated 9 September 2005, identifies noise levels along Quimby Road and at the terminus of Brahms Avenue. In summary, the identified noise level along Quimby Road in DN?L 67 dB at a distance of 100 feet from the roadway centerline. At the terminus of Brahms Avenue, near the southern end of the site, the noise level is DNL 57 dB.

Softball Activity Noise

Noise from softball activity will include the bat hitting the ball, players communicating, and spectator or crowd noise. To quantify noise from these types of activities, noise levels were measured during softball games at the Twin Creeks Sports Complex in Sunnyvale on 19 September 2014. This site was chosen due its similar field layout and usage to the proposed fields. Measurements were taken between approximately 7:00 and 9:00 PM with a Rion NL-22 Class 2 sound level meter. The meter was located between two outfields, approximately 300 feet from the home plate of the nearest field. The location is similar to the outfield between Fields 1 and 2 in Figure 1, attached. During the measurement period, two back-to-back softball games were played on each of the nearest two fields, with additional games on one

[2] Day-Night Average Sound Level (DNL) – A descriptor established by the U.S. Environmental Protection Agency to describe the average day-night level with a penalty applied to noise occurring during the nighttime hours (10 pm - 7 am) to account for the increased sensitivity of people during sleeping hours.
[3] A-Weighted sound pressure level (dB) represents the noisiness or loudness of a sound by weighting the amplitudes of various acoustical frequencies to correspond more closely with human hearing. A 10-dB (decibel) increase in noise level is perceived to be a doubling of loudness. A-Weighting is specified by the U.S. EPA, OSHA, Caltrans, and others for use in noise measurements.

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of the two fields directly behind these. Each of these games had approximately 20 players and about 6 to 10 spectators.

The average sound level (L_{eq})[4] during the measurement period was L_{eq} 51 dB. For reference, the loudest noise level measured, during energetic play, was 71 dB. With the exception of this play, nearly all observed sources fell within the range of typical noise levels shown in Table 1 below.

Table 1: Measured Typical Noise Levels from Softball Activities

Source	Typical Noise Level
Bat hitting ball	48 – 60 dB
Players	45 – 65 dB
Spectators Cheering	50 – 64 dB

Noise from Project Generated Traffic

Hexagon Transportation Consultants prepared a memo, dated 2 September 2014, summarizing peak hour traffic volumes for vehicles associated with the softball fields. These volumes, as well as overall traffic volumes, are summarized for three roadways in the project vicinity as follows:

- Quimby Road – The project will add 71 peak-hour trips to the existing 2,346
- Capitol Expressway – The project will add 47 peak-hour trips to the existing 5,719
- Future roadway between the fields and planned residences to the east – The project will add 35 peak-hour trips to the estimate of 797

In summary, project-generated trips will increase peak-hour volumes along local roadways by 4-percent or less. This corresponds with an increase in environmental noise of 1 dB or less.

ANALYSIS AND FINDINGS

The site, as well as noise associated with the project are compared with the noise criterion in the San Jose General Plan and Municipal Code as follow.

Land Use Compatibility

As indicated above, the noise environment at the project site ranges between approximately DNL 57 to 67 dB, depending on the distance to Quimby Road. This falls into the City's *normally* and *conditionally acceptable* land use categories for environmental noise. For reference, the portions of the site where transportation noise will exceed DNL 65 dB are the northern parking lot and outfields of Fields 1 and 3.

[4] L_{eq}--The equivalent steady-state A-weighted sound level that, in a stated period of time, would contain the same acoustic energy as the time-varying sound level during the same period.

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Softball Activity Noise

As indicated above, the reference noise level measured at the Sunnyvale fields was L_{eq} 51 dB with three games played concurrently. Adjusting this reference level for the additional players and spectators identified in the Project Description section above, as well as distance, results in average estimated noise levels of approximately L_{eq} 50 to 52 dB during softball games, and L_{eq} 45 to 48 dB during Little League play, at the nearest planned residences. Corresponding DNL is 46 to 52 dB at the residences, which will increase existing levels by 1 dB or less. This is consistent with the City's DNL 55 dB criterion, and the increase is not considered significant.

Complying with the City's noise goals does not imply that softball activity will be inaudible at the nearest adjacent residences. Table 2, below, summarizes typical estimated noise levels from individual noise sources, at the nearest planned residences.

Table 2: Estimated Typical Noise Levels from Softball Activities

Source	Typical Noise Level
Bat hitting ball	45 – 57 dB
Players	46 – 68 dB
Spectators cheering	50 – 65 dB

Stationary Noise Sources

Stationary noise sources are subject to the San Jose Municipal Code limit of 55 dB at adjacent residences. This may include noise from the planned public address system, and rooftop mechanical equipment. Detailed information for these systems is not available at this time. The design should include equipment selection, location, and if necessary, mitigation measures, to reduce radiated noise to the 55 dB criterion.

Traffic Noise Associated with the Project

As indicated in the Noise from Project Generated Traffic section above, project-generated traffic will increase the noise environment (DNL) by 1 dB or less in the project vicinity. This is considered a less than significant impact.

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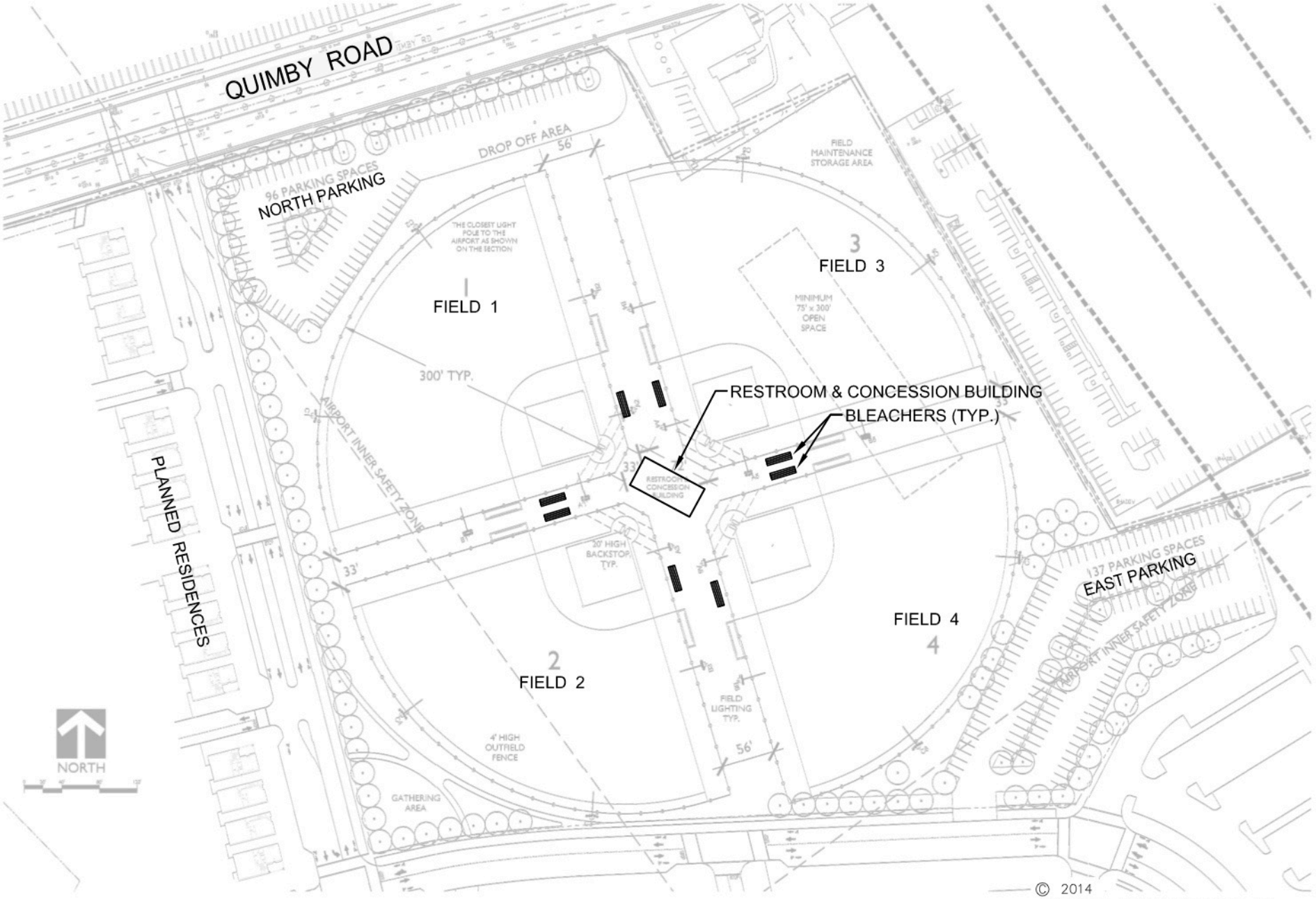
Charles M Salter Associates Inc 130 Sutter Street San Francisco California 94104 Tel: 415 397 0442 Fax: 415 397 0454



ARCADIA SOFTBALL FIELDS: RESIDENCES ADJACENT TO SOFTBALL FIELDS

FIGURE 1

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Appendix A

FUNDAMENTAL CONCEPTS OF ENVIRONMENTAL NOISE

This section provides background information to aid in understanding the technical aspects of this report. Three dimensions of environmental noise are important in determining subjective response. These are:

a) The intensity or level of the sound;
b) The frequency spectrum of the sound; and
c) The time-varying character of the sound.

Airborne sound is a rapid fluctuation of air pressure above and below atmospheric pressure. Sound levels are usually measured and expressed in decibels (dB), with 0 dB corresponding roughly to the threshold of hearing.

The "frequency" of a sound refers to the number of complete pressure fluctuations per second in the sound. The unit of measurement is the cycle per second (cps) or hertz (Hz). Most of the sounds which we hear in the environment do not consist of a single frequency, but of a broad band of frequencies, differing in level. The name of the frequency and level content of a sound is its sound spectrum. A sound spectrum for engineering purposes is typically described in terms of octave bands, which separate the audible frequency range (for human beings, from about 20 to 20,000 Hz) into ten segments.

Many rating methods have been devised to permit comparisons of sounds having quite different spectra. Surprisingly, the simplest method correlates with human response practically as well as the more complex methods. This method consists of evaluating all of the frequencies of a sound in accordance with a weighting that progressively de-emphasizes the importance of frequency components below 1000 Hz and above 5000 Hz. This frequency weighting reflects the fact that human hearing is less sensitive at low frequencies and at extreme high frequencies relative to the mid-range.

The weighting system described above is called "A"-weighting, and the level so measured is called the "A-weighted sound level" or "A-weighted noise level." All sound levels in this report are A-weighted. In practice, the sound level is conveniently measured using a sound level meter that includes an electrical filter corresponding to the A-weighting characteristic. All U.S. and international standard sound level meters include such a filter.

Although a single sound level value may adequately describe environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise is a conglomeration of distant noise sources, which results in a relatively steady background noise having no identifiable source. These distant sources may include traffic, wind in trees, industrial activities, etc. and are relatively constant from moment to moment. As natural forces change or as human activity follows its daily cycle, the sound level may vary slowly from hour to hour. Superimposed on this slowly varying background is a succession of identifiable noisy events of brief duration. These may include nearby activities such as single vehicle passbys, aircraft flyovers, etc. which cause the environmental noise level to vary from instant to instant.

To describe the time-varying character of environmental noise, statistical noise descriptors were developed. "L_{10}" is the A-weighted sound level equaled or exceeded during 10 percent of a stated time period. The L_{10} is considered a good measure of the maximum sound levels caused by discrete noise events. "L_{50}" is the A-weighted sound level that is equaled or exceeded 50 percent of a stated time period; it represents the median sound level. The "L_{90}" is the A-weighted sound level equaled or exceeded during 90 percent of a stated time period and is used to describe the background noise.

As it is often cumbersome to quantify the noise environment with a set of statistical descriptors, a single number called the average sound level or "L_{eq}" is now widely used. The term L_{eq} originated from the concept of a so-called equivalent sound level which contains the same acoustical energy as a varying sound level during the same time period. In simple but accurate technical language, the L_{eq} is the average A-weighted sound level in a stated time period. The L_{eq} is particularly useful in describing the subjective change in an environment where the source of noise remains the same but there is change in the level of activity. Widening roads and/or increasing traffic are examples of this kind of situation.

In determining the daily measure of environmental noise, it is important to account for the different response of people to daytime and nighttime noise. During the nighttime, exterior background noise levels are generally lower than in the daytime; however, most household noise also decreases at night, thus exterior noise intrusions again become noticeable. Further, most people trying to sleep at night are more sensitive to noise.

To account for human sensitivity to nighttime noise levels, a special descriptor was developed. The descriptor is called the DNL (Day/Night Average Sound Level), which represents the 24-hour average sound level with a penalty for noise occurring at night. The DNL computation divides the 24-hour day into two periods: daytime (7:00 am to 10:00 pm); and nighttime (10:00 pm to 7:00 am). The nighttime sound levels are assigned a 10 dB penalty prior to averaging with daytime hourly sound levels. For highway noise environments, the average noise level during the peak hour traffic volume is approximately equal to the DNL.

The effects of noise on people can be listed in three general categories:

a) Subjective effects of annoyance, nuisance, dissatisfaction;
b) Interference with activities such as speech, sleep, and learning; and
c) Physiological effects such as startle, hearing loss.

The sound levels associated with environmental noise usually produce effects only in the first two categories. Unfortunately, there has never been a completely predictable measure for the subjective effects of noise nor of the corresponding reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and habituation to noise over time. Thus, an important factor in assessing a person's subjective reaction is to compare the new noise environment to the existing noise environment. In general, the more a new noise exceeds the existing, the less acceptable the new noise will be judged.

With regard to increases in noise level, knowledge of the following relationships will be helpful in understanding the quantitative sections of this report:

a) Except in carefully controlled laboratory experiments, a change of only 1 dB in sound level cannot be perceived.
b) Outside of the laboratory, a 3 dB change is considered a just-noticeable difference.
c) A change in level of at least 5 dB is required before any noticeable change in community response would be expected.
d) A 10 dB change is subjectively heard as approximately a doubling in loudness, and would almost certainly cause an adverse community response.

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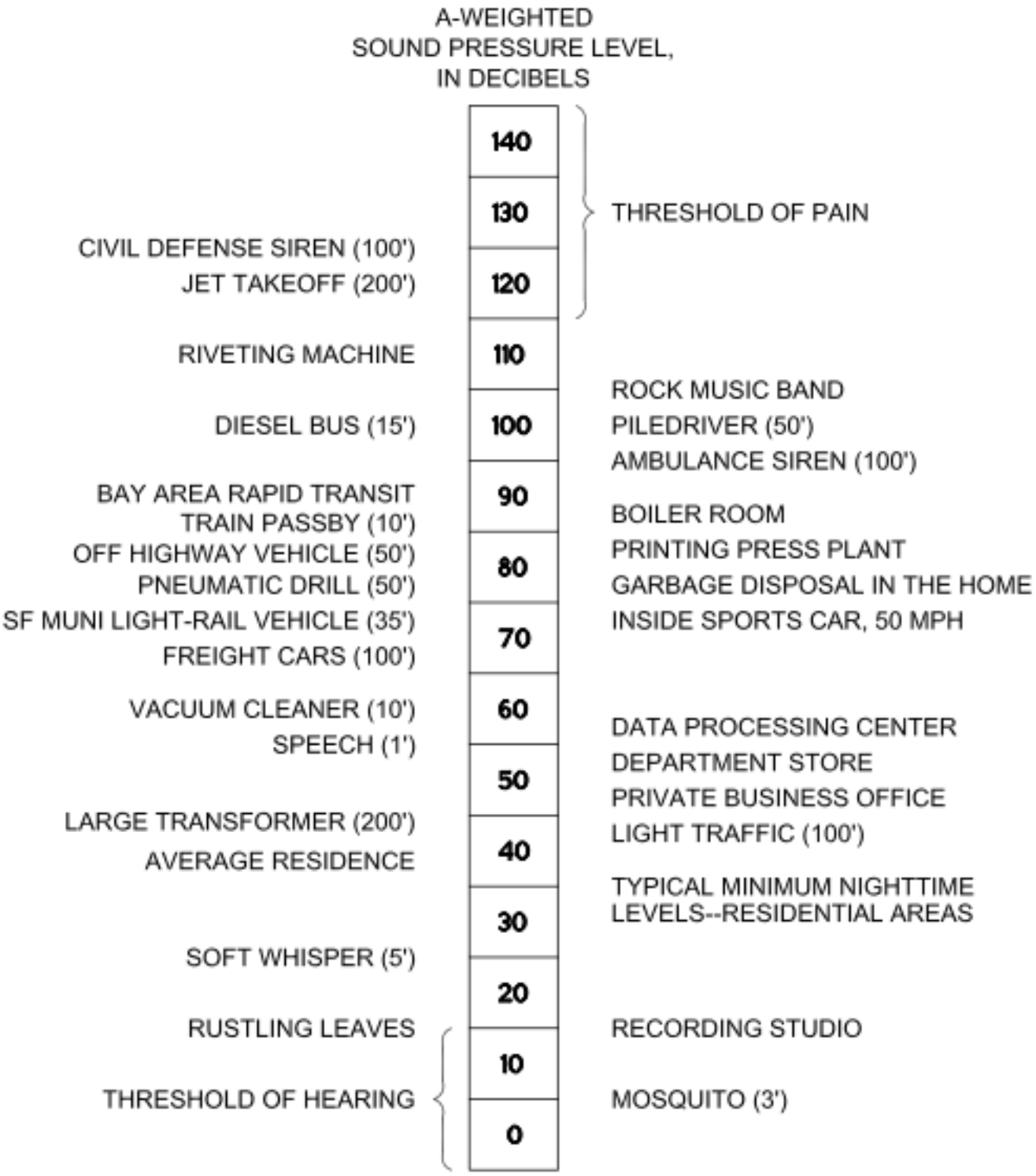

(100') = DISTANCE IN FEET BETWEEN SOURCE AND LISTENER

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TYPICAL SOUND LEVELS MEASURED IN THE ENVIRONMENT AND INDUSTRY

FIGURE 2

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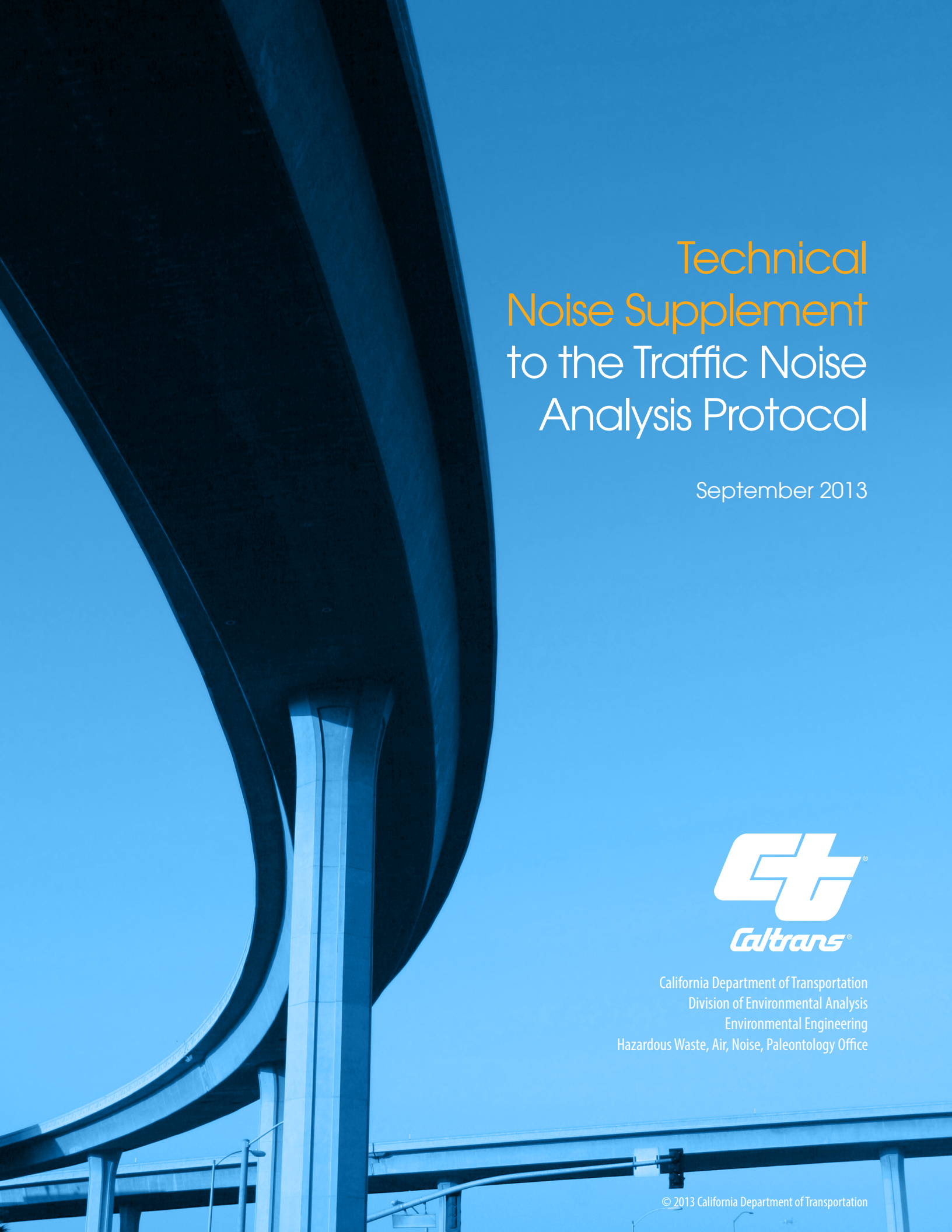
Appendix E

Caltrans' Technical Noise Supplement



Technical Noise Supplement to the Traffic Noise Analysis Protocol

September 2013

California Department of Transportation
Division of Environmental Analysis
Environmental Engineering
Hazardous Waste, Air, Noise, Paleontology Office

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2.1.3.8 White and Pink Noise

White noise is noise with a special frequency spectrum that has the same amplitude (level) for each frequency interval over the entire audible frequency spectrum. It is often generated in laboratories for calibrating sound level measuring equipment, specifically its frequency response. One might expect that the octave or one-third-octave band spectrum of white noise would be a straight line, but this is not true. Beginning with the lowest audible octave, each subsequent octave spans twice as many frequencies than the previous ones, and therefore contains twice the energy. This corresponds with a 3-dB step increase for each octave band, and 1 dB for each one-third-octave band.

Pink noise, in contrast, is defined as having the same amplitude for each octave band (or one-third-octave band), rather than for each frequency interval. Its octave or one-third-octave band spectrum is truly a straight "level" line over the entire audible spectrum. Therefore, pink noise generators are conveniently used to calibrate octave or one-third-octave band analyzers.

Both white and pink noise sound somewhat like the static heard from a radio that is not tuned to a particular station.

2.1.4 Sound Propagation

From the source to receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on the following important factors.

- Geometric spreading from point and line sources.
- Ground absorption.
- Atmospheric effects and refraction.
- Shielding by natural and manmade features, noise barriers, diffraction, and reflection.

2.1.4.1 Geometric Spreading from Point and Line Sources

Sound from a small localized source (approximating a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates or drops off at a rate of

6 dBA for each doubling of the distance (6 dBA/DD). This decrease, resulting from the geometric spreading of the energy over an ever-increasing area, is referred to as the inverse square law. Doubling the distance increases each unit area, represented by squares with sides "a" in Figure 2-7, from a^2 to $4a^2$.

Because the same amount of energy passes through both squares, the energy per unit area at 2D is reduced four times from that at distance D. Therefore, for a point source the energy per unit area is inversely proportional to the square of the distance. Taking $10\log_{10}(1/4)$ results in a 6-dBA/DD reduction. This is the point source attenuation rate for geometric spreading.

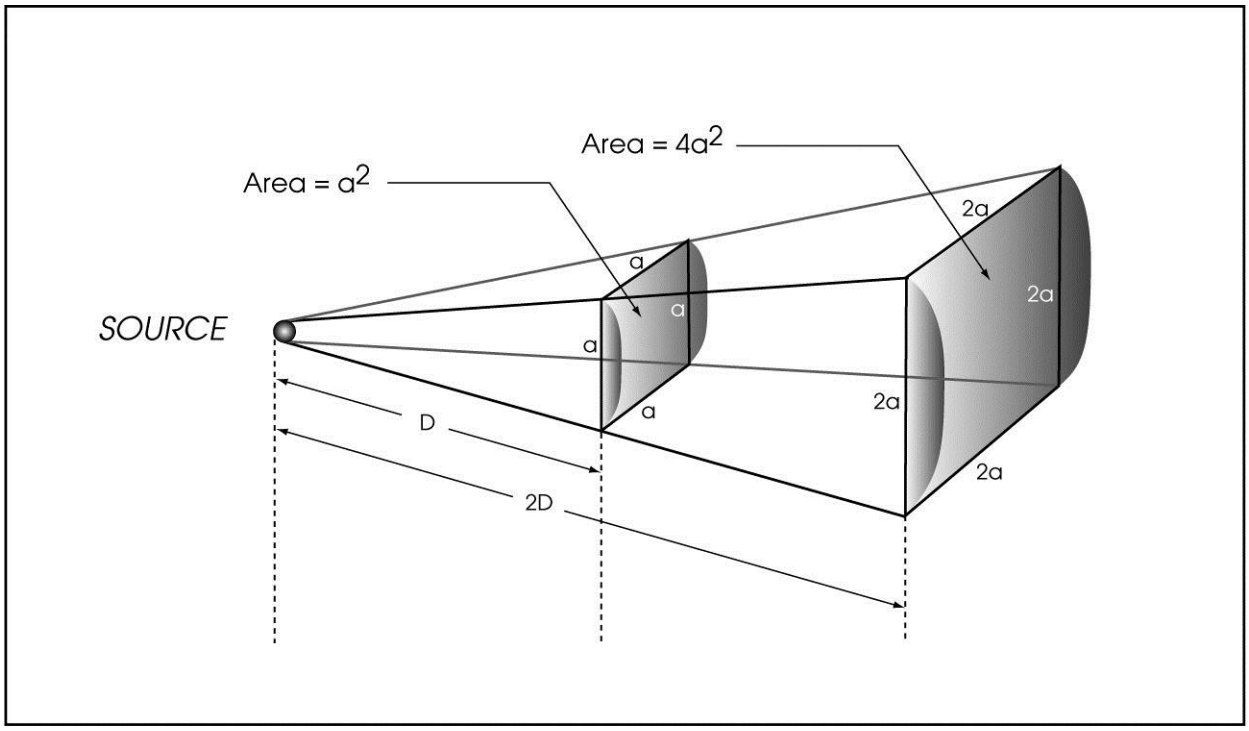

Figure 2-7. Point Source Propagation (Spherical Spreading)

As seen in Figure 2-8, based on the inverse square law the change in noise level between any two distances because of spherical spreading can be found using the following equation:

$$dBA_2 = dBA_1 + 10\log_{10}[(D_1/D_2)]^2 = dBA_1 + 20\log_{10}(D_1/D_2) \quad \textbf{(2-13)}$$

Where:

dBA_1 = noise level at distance D_1

dBA_2 = noise level at distance D_2

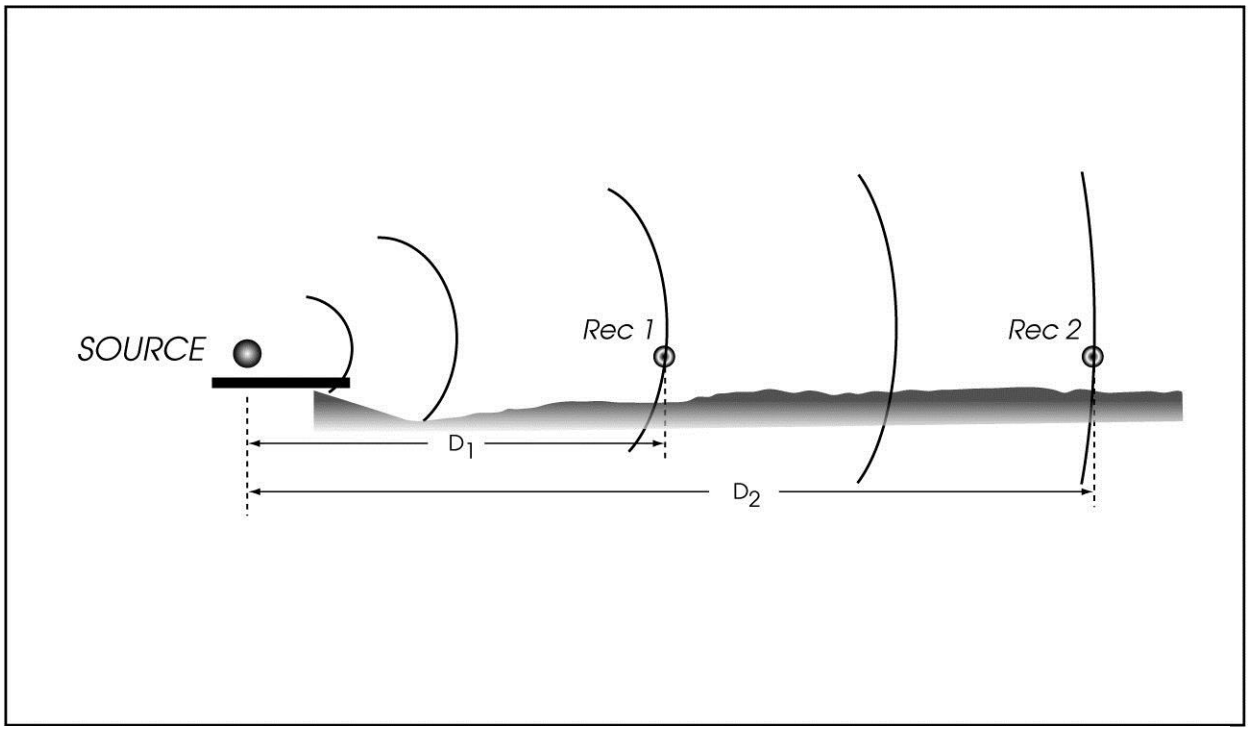

Figure 2-8. Change in Noise Level with Distance from Spherical Spreading

However, highway traffic noise is not a single, stationary point source. The movement of the vehicles makes the source of the sound appear to emanate from a line (line source) rather than a point when viewed over a time interval (Figure 2-9). This results in cylindrical spreading rather than spherical spreading. Because the change in surface area of a cylinder only increases by two times for each doubling of the radius instead of the four times associated with spheres, the change in sound level is 3 dBA/DD. The change in noise levels for a line source at any two different distances from cylindrical spreading is determined using the following equation:

$$dBA_2 = dBA_1 + 10\log_{10}(D_1/D_2) \quad \textbf{(2-14)}$$

Where:

dBA_1 = noise level at distance D_1 and conventionally the known noise level

dBA_2 = noise level at distance D_2 and conventionally the unknown noise level

Note

The expression $10\log_{10}(D_1/D_2)$ is negative when D_2 is more than D_1 and positive when D_1 is more than D_2. Therefore, the equation automatically accounts for the receiver being farther or closer with respect to the source—$\log_{10}$ of a number less than 1 gives a negative result, $\log_{10}$ of a number more than 1 is positive, and $\log_{10}(1) = 0$.

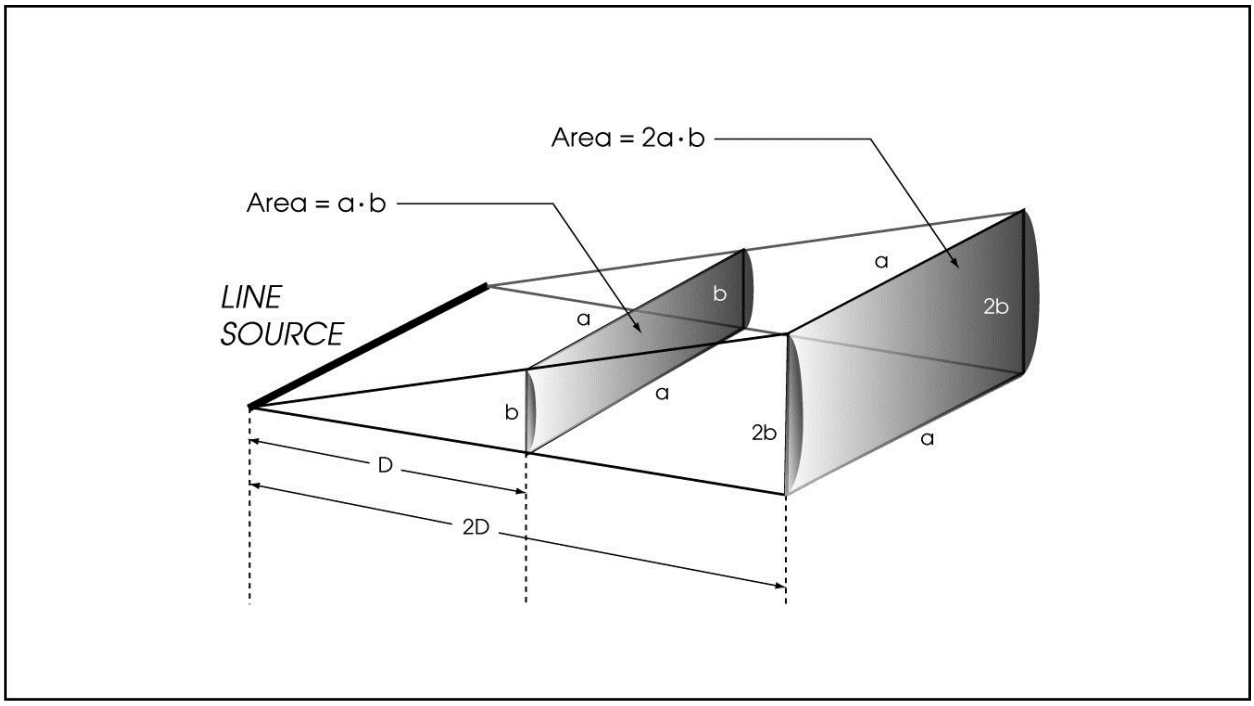

Figure 2-9. Line Source Propagation (Cylindrical Spreading)

2.1.4.2 Ground Absorption

Most often, the noise path between the highway and observer is very close to the ground. Noise attenuation from ground absorption and reflective wave cancellation adds to the attenuation from geometric spreading. Traditionally, this excess attenuation has been expressed in terms of decibels of attenuation per doubling of distance. This approximation is done for simplification only; for distances of less than 200 feet, the prediction results based on this scheme are sufficiently accurate. The sum of the geometric spreading attenuation and excess ground attenuation (if any) is referred to as the attenuation or dropoff rate. For distances of 200 feet or more, the approximation causes excessive inaccuracies in predictions. The amount of excess ground attenuation depends on the height of the noise path and characteristics of the intervening ground or site. In practice, excess ground attenuation may vary from 0 to 8–10 dBA/DD or more. In fact, it varies as the noise path height changes from the source to receiver and with vehicle type because the source heights are different. The complexity of terrain also influences the propagation of sound by potentially increasing the number of ground reflections.

The FHWA TNM is the model that is currently approved by FHWA for use in noise impact studies. The TNM has complex algorithms that directly calculate excess ground attenuation based on ground type and site geometry.

Section 5
Noise Barrier Design Considerations

The primary function of highway noise barriers is to shield receivers from excessive noise generated by highway traffic. Although there are other strategies for attenuating transportation-related noise, noise barriers are the most common noise attenuation option used by Caltrans.

Many factors need to be considered in the proper design of noise barriers. First, barriers must be acoustically adequate. They must reduce the noise as described by policies or standards. Acoustical design considerations include barrier material, locations, dimensions, shapes, and background noise levels. Acoustical considerations, however, are not the only factors leading to proper design of noise barriers.

A second set of design considerations, collectively labeled non-acoustical design considerations, is equally important. Noise barriers can have secondary effects related to security in surrounding areas, aesthetics, community continuity, and other non-acoustical factors. With appropriate planning and design these potential effects from noise barriers can be reduced or avoided.

The current edition of the *Highway Design Manual* Chapter 1100 should be consulted for specific noise barrier design criteria. Because these may change in the future, the discussion in this section will focus on general applications and consequences of the design criteria, not on the criteria themselves. The Caltrans Headquarters Division of Environmental Analysis should be consulted for the latest status.

The acoustical and non-acoustical design considerations in this section conform to the *FHWA Highway Noise Barrier Design Handbook* (Fleming et al. 2011).

5.1 Acoustical Design Considerations

The FHWA TNM described in Section 4 is used for determining proper heights and lengths of noise barriers. The models assume that the noise

barriers do not transmit any sound through the barrier. Only the noise diffracted by the barrier and any unshielded segments are considered. Therefore, the material of the barrier must be sufficiently dense or thick to ensure that the sound transmission through the barrier will not contribute to the total noise level calculated by the model at the receiver.

The material, location, dimensions, and shape of a noise barrier all affect its acoustical performance. The various effects associated with these factors are discussed in Sections 2 and 4.5.

Figure 5-1 is a simplified sketch showing what happens to vehicle noise when a noise barrier is placed between the source and receiver. The original straight path from the source to receiver is now interrupted by the barrier. Depending on the barrier material and surface treatment, a portion of the original noise energy is reflected or scattered back toward the source. Another portion is absorbed by the material of the barrier, and another is transmitted through the barrier. The reflected (scattered) and absorbed noise paths never reach the receiver.

The transmitted noise continues on to the receiver with a loss of acoustical energy (redirected and some converted into heat). The common logarithm of energy ratios of the noise in front of the barrier and behind the barrier, expressed in decibels, is the TL. The TL of a barrier depends on the barrier material, primarily its weight, and the frequency spectrum of the noise source.

The transmitted noise is not the only noise from the source reaching the receiver. The straight line noise path from the source to the top of the barrier, originally destined in the direction of “A” without the barrier, now is diffracted downward toward the receiver (Figure 5-2). This process also results in a loss of acoustical energy.

Therefore, the receiver is exposed to both the transmitted and diffracted noise. Whereas the transmitted noise only depends on barrier material properties, the diffracted noise depends on the location, shape, and dimensions of the barrier. These factors will be discussed in the following sections.

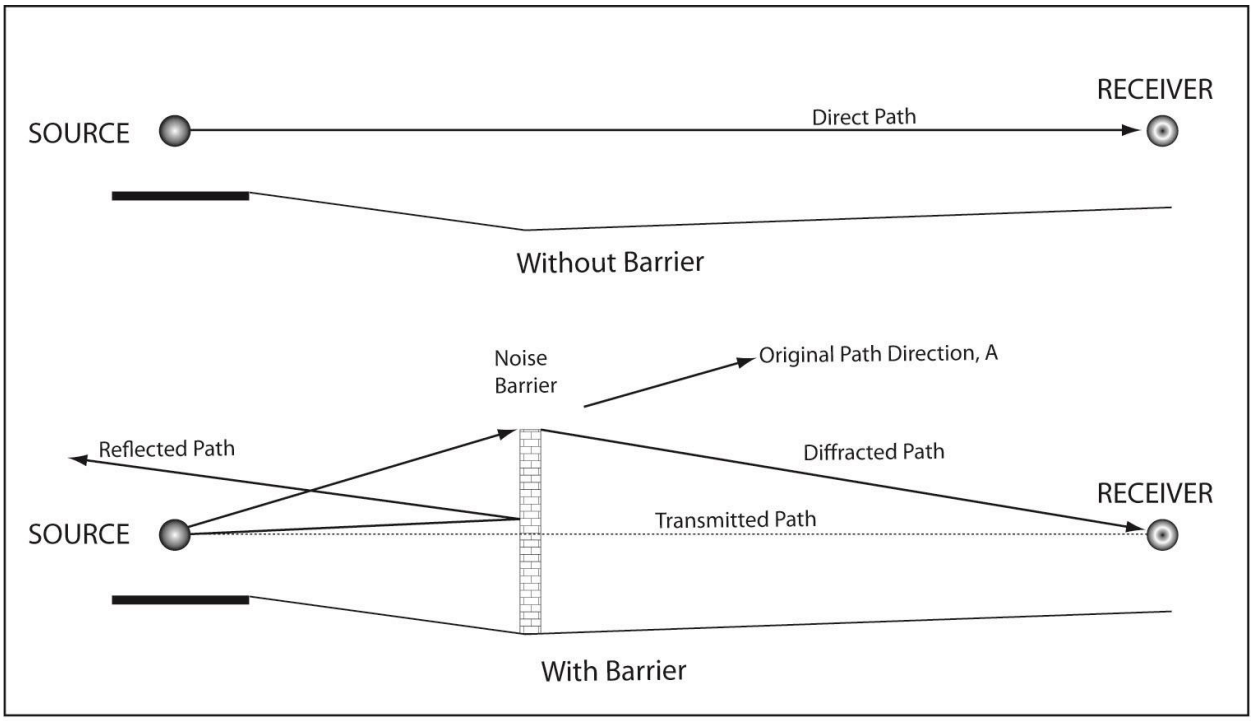

Figure 5-1. Alteration of Noise Paths by a Noise Barrier

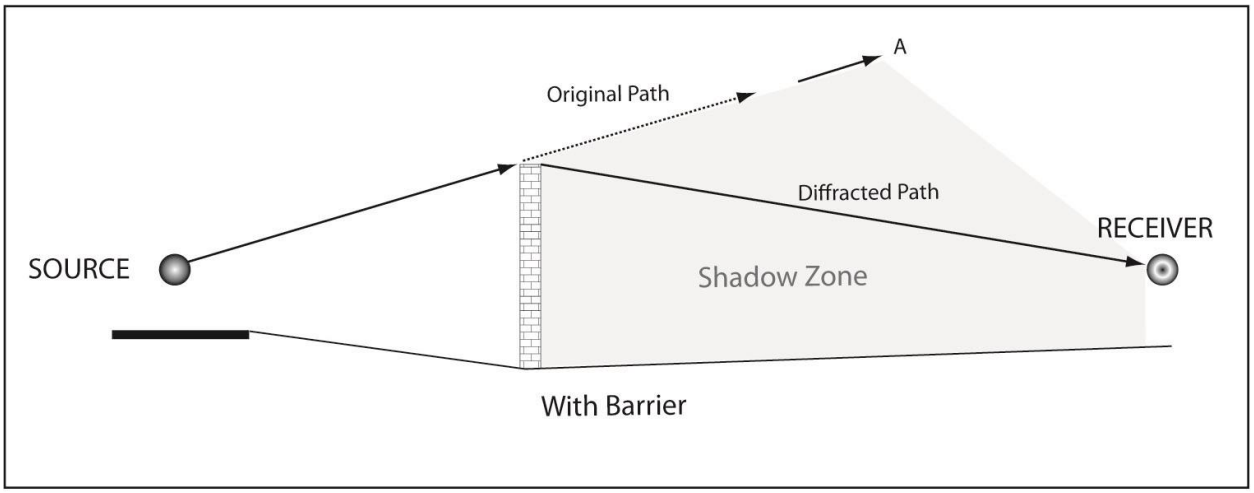

Figure 5-2. Barrier Diffraction

5.1.1 Barrier Material and Transmission Loss

For acoustical purposes, any material may be used for a barrier between a noise source and a noise receiver as long as it has a TL of at least 10 dBA more than the desired noise reduction. This ensures that the only noise path to be considered in the acoustical design of a noise barrier is the

diffracted noise path. For example, if a noise barrier is designed to reduce the noise level at a receiver by 8 dBA, the TL of the barrier must be at least 18 dBA. The transmitted noise may then be ignored because the diffracted noise is at least 10 dBA more.

As a general rule, any material weighing 4 pounds per square foot or more has a transmission loss of at least 20 dBA. Such material would be adequate for a noise reduction of at least 10 dBA due to diffraction. Please note that this weight can be attained by a variety of material types. The denser a material is, the thinner it may be. TL also depends on the stiffness of the barrier material and frequency of the source.

In general the maximum noise reduction that can be achieved from a barrier is about 20 dBA for thin screens (walls) and 23 dBA for berms. Therefore, a material that has a TL of 33 dBA (23 + 10) or more would be adequate for a noise barrier in most situations.

Table 5-1 gives approximate TL values for some common materials, tested for typical A-weighted traffic frequency spectra. They may be used as a rough guide in acoustical design of noise barriers. For accurate values, material test reports by accredited laboratories should be consulted. These product specifications can usually be provided by the manufacturer.

Table 5-1. Approximate Transmission Loss Values for Common Materials

Material	Thickness (Inches)	Weight (Pounds per Square Foot)	Transmission Loss (dBA)
Concrete block, 8 by 8 by 16 inches, light weight	8	31	34
Dense concrete	4	50	40
Light concrete	6	50	39
Light concrete	4	33	36
Steel, 18 gage	0.050	2.00	25
Steel, 20 gage	0.0375	1.50	22
Steel, 22 gage	0.0312	1.25	20
Steel, 24 gage	0.025	1.00	18
Aluminum, sheet	0.0625	0.9	23
Aluminum, sheet	0.125	1.8	25
Aluminum, sheet	0.25	3.5	27
Wood, fir	0.5	1.7	18
Wood, fir	1	3.3	21
Wood, fir	2	6.7	24

Material	Thickness (Inches)	Weight (Pounds per Square Foot)	Transmission Loss (dBA)
Plywood	0.5	1.7	20
Plywood	1	3.3	23
Glass, safety	0.125	1.6	22
Plexiglas	0.25	1.5	22

Table 5-1 assumes no openings or gaps in the barrier material. However, some materials such as wood are prone to develop openings or gaps because of shrinkage, warping, splitting, or weathering. These openings decrease the TL values. The TL of a barrier material with openings can be calculated if the ratio of area of openings to total barrier area and TL of the material are known. The following formula can be used to calculate the transmission loss with the openings (TL_o):

$$TL_o = TL - 10\log_{10}(A_o * 10^{TL/10} + A_c) \quad \textbf{(5-1)}$$

Where:

TL_o = transmission loss of material with openings

TL = transmission loss of material without openings

A_o = area of openings as a fraction of the total area of the barrier

A_c = area of closed portion as a fraction of the total area of the barrier = $1 - A_o$

This method of calculation assumes that the openings or gaps are distributed uniformly over the surface of a barrier. For example, a barrier made of 2-inch-thick fir planks has openings that make up about 5% of the total area and are about equally distributed. The transmission loss of the material with these gaps can then be determined. From Table 5-1, the TL for 2-inch fir is 24 dBA. A_o is 5%, or 0.05; A_c is 1 – 0.05 = 0.95. Therefore:

$$TL_o = 24 - 10\log_{10}(0.05 * 10^{2.4} + 0.95) = \textbf{12.7, or about 13 dBA}$$

The reduced TL could affect the barrier's performance. For example, it is assumed that before the barrier the noise level was 75 dBA and the intention was to reduce noise levels by 10 dBA (i.e., the diffracted noise was to be 65 dBA, and the transmitted noise was to be 75 – 24 = 51 dBA). The total noise level would have been 65 + 51 = 65 dBA. With the gaps, however, the transmitted noise is now 75 – 13 = 62 dBA, and the total noise level is 65 + 62 = 66.8 dBA. The effectiveness of the barrier is reduced by almost 2 dBA. Instead of a designed noise reduction of 10 dBA, an actual noise reduction of only 8 dBA will be realized in this case.

Properly treated materials will reduce or eliminate noise leakage. For example, lumber should be treated with preservatives that provide proper penetration and do not interfere with any protective coatings (e.g., paint) to be applied later. The wood also should have a low moisture content, requiring kiln drying after waterborne preservatives have been used. Wood planks should have tongue-and-groove deep enough to allow for shrinkage without gaps to maintain a high TL. Such tongue-and-groove is usually non-standard.

Several other ratings are used to express the ability of materials in specific construction configurations to resist sound transmission. Two of these are the Sound Transmission Class (STC) and Exterior Wall Noise Rating (EWNR). Both are most often used in conjunction with indoor acoustics.

STC is universally accepted by architects and engineers. The rating uses a standard contour against which the TL values in one-third-octave bands are compared in the frequency range between 125 and 4,000 Hz. The standard contour is moved up or down relative to the test curve until the sum of the differences between them is 32 dB or less, and the maximum difference at each one-third-octave center frequency is no more than 8 dB. The STC is the TL value of the standard contour at the 500-Hz center frequency.

The disadvantage of this rating scheme is that it is designed to rate noise reductions in frequencies of normal office and speech noises, not for the lower frequencies of highway traffic noise. The STC can still be used as a rough guide, but it should be pointed out that for frequencies of average traffic conditions, the STC is 5 to 10 dBA more than the TL. For example, material with an STC rating of 35 has a TL of about 25 to 30 dBA for traffic noise.

The EWNR rating scheme is different from the STC in that it uses a standard contour developed from typical highway noise frequencies. Therefore, it agrees closely with the A-weighted TL for traffic noise. The FHWA *Highway Traffic Noise: Analysis and Abatement Guidance* (Federal Highway Administration 2011) provides further useful information for calculating outdoor to indoor traffic noise reductions.

5.1.2 Barrier Location

The previous section indicated that by selecting materials with sufficient TL, noise transmitted through a barrier may be ignored because its contribution to the total noise level is negligible. The only remaining noise of concern is diffracted noise. Sections 2 and 4 discuss the basics of diffraction and barrier attenuation. The principal factor determining barrier

Appendix M. Traffic

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR

Traffic Impact Study Report

March 2019

Prepared for:
Provost & Pritchard
130 N Garden Street
Visalia, CA 93291

Prepared by:
VRPA Technologies, Inc.
4630 W. Jennifer, Suite 105
Fresno, CA 93722
Project Manager: Georgiena Vivian

City of Visalia East Side Regional Park & Groundwater Recharge Project EIR Traffic Impact Study

Study Team

- ✓ Georgiena Vivian, President, VRPA Technologies, Inc., gvivian@vrpatechnologies.com, (559) 259-9257
- ✓ Erik Ruehr, Dir. of Traffic Engineering, VRPA Technologies, Inc., eruehr@vrpatechnologies.com, (858) 566-1766
- ✓ Jason Ellard, Transportation Engineer, VRPA Technologies, Inc., jellard@vrpatechnologies.com, (559) 271-1200

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Executive Summary

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

IMPACTS

Intersections

Results of the analysis show that the proposed Project will cause or contribute to an unacceptable LOS at 2 of the 25 study intersections (Lovers Lane and Mineral King Avenue and SR 198 WB Ramps and Mineral King Avenue) when comparing the Existing and Existing Plus Project scenarios. Results of the analysis also shows that the proposed Project will cause or contribute to an unacceptable LOS at 10 of the 25 study intersections when comparing the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios. The proposed Project will cause or contribute to an unacceptable LOS at 8 of the 27 study intersections when comparing the Cumulative Year 2040 Without Project With Tower Street

Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios. Tables E-1 and E-2 show intersections that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 scenarios.

Intersection level of service analysis was also provided for study intersections at the Project driveways along Tower Street during a special event. Results of the analysis show that Project Driveway #1 aligning with Villoy at Tower Street will exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 (elimination of Mineral King Avenue from Tower Street to Road 152) scenarios. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

Intersection level of service analysis conducted for study intersections at the Project driveways along Tower Street during the Saturday peak hour show that the Project driveways will meet acceptable levels of service.

Segments

Results of the analysis show that all of the study roadway segments will meet acceptable levels of service for the Existing Plus Project (Full Build Out) and Near-Term Opening Year 2018 scenarios. It should be noted that the Near-Term Opening Year 2018 scenario evaluated Year 2018 conditions Plus Phase 2 of the Project. Results of the analysis also show that the Project will contribute to an unacceptable LOS at 1 of the 32 study roadway segments (Road 156 south of Noble Avenue) when evaluating all Cumulative Year 2040 scenarios. Tables E-3, E-4, E-5, and E-6 show roadway segments that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 scenarios.

Merge/Diverge Analysis

The ramp merge/diverge analysis for the SR 198 at Lovers Lane, Road 156, and Tower Street interchanges were based on the Highway Capacity Manual (HCM). Results of the analysis indicate that the Project will contribute to an unacceptable LOS at 2 of the 14 merge/diverge points along SR-198 (EB Off Ramp to Lovers Lane and WB On Ramp from Lovers Lane) when evaluating the Cumulative Year 2040 With Tower Street Interchange scenarios.

Table E-1
Cumulative Year 2040 Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	44.1	D	44.9	D	41.8	D	42.4	D
			PM	34.7	C	34.4	C	32.3	C	33.3	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	33.0	C	**35.3**	**D**	21.1	C	25.7	C
			PM	**>80.0**	**F**	**>80.0**	**F**	**68.2**	**E**	**72.4**	**E**
4. Lovers Lane / Noble Avenue	Signalized	D	AM	48.3	D	49.9	D	41.6	D	42.0	D
			PM	47.2	D	54.9	D	43.5	D	44.3	D
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
			PM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	29.5	C	29.7	C	25.9	C	26.1	C
			PM	30.9	C	31.5	C	30.8	C	30.9	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	26.8	D	26.8	D	15.3	C	15.3	C
			PM	31.5	D	32.0	D	16.4	C	16.5	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	13.4	B	13.4	B	14.8	B	14.9	B
			PM	20.8	C	20.8	C	26.2	D	26.9	C
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	29.7	D	33.3	D	10.2	B	10.2	B
			PM	**37.7**	**E**	**38.7**	**E**	10.1	B	10.2	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	17.1	C	17.9	C	--	A	--	A
			PM	19.6	C	24.5	C	--	A	--	A
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.7	B	11.8	B	13.4	B	13.4	B
			PM	11.3	B	11.5	B	14.2	B	14.2	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	**>50.0**	**F +**	**>50.0**	**F +**	**49.9**	**E +**	**>50.0**	**F +**
			PM	21.7	C	28.0	D	33.5	D	**38.9**	**E +**
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	**29.6**	**D**	**29.9**	**D**	19.5	C	19.5	C
			PM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A	--	A	--	A
			PM	--	A	--	A	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
16. Road 156 / Noble Avenue	Signalized	D	AM	51.3	D	52.1	D	44.4	D	44.4	D
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	**70.5**	**E**	**>50.0**	**F**	23.5	C	23.8	C
			PM	**30.0**	**D**	**33.8**	**D**	20.4	C	21.1	C

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table E-2
Cumulative Year 2040 Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	14.3	B	14.6	B	22.0	C	22.8	C
		PM	13.4	B	14.4	B	**>50.0**	**F**	**>50.0**	**F**
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.5	A	8.7	A	8.9	A	8.9	A
		PM	8.5	A	8.8	A	9.4	A	9.5	A
20. Tower Street / Douglas Avenue	D	AM	8.6	A	8.6	A	8.9	A	8.9	A
		PM	8.5	A	8.5	A	9.4	A	9.5	A
21. Tower Street / Race Avenue	D	AM	8.6	A	8.6	A	8.9	A	8.9	A
		PM	8.5	A	8.5	A	9.4	A	9.4	A
22. Tower Street / Murray Avenue	D	AM	8.5	A	8.6	A	9.3	A	9.4	A
		PM	8.4	A	8.5	A	10.1	B	10.1	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	8.6	A	8.8	A	9.5	A	9.6	A
		PM	8.5	A	9.5	A	10.2	B	11.2	B
24. Tower Street / Mineral King Avenue	D	AM	24.9	C	28.5	D	12.4	B	12.8	B
		PM	24.6	C	**42.7**	**E**	20.6	C	25.6	D
25. Road 152 / Project Driveway #3	D	AM	--	A	8.7	A	--	A	8.9	A
		PM	--	A	8.7	A	--	A	8.7	A
26. Tower Street / SR 198 WB Ramps	C	AM					6.4	A	6.3	A
		PM					10.9	B	10.1	B
27. Tower Street / SR 198 EB Ramps	C	AM					10.1	B	10.5	B
		PM					11.5	B	12.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table E-3
Cumulative Year 2040 Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040 PLUS PROJECT		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	11,500	0.29	C	11,800	0.30	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	6,600	0.37	C	7,100	0.40	C
East of Road 152	2 Lanes Undivided	C	17,700	4,000	0.23	C	4,100	0.23	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	17,100	0.48	C	17,200	0.48	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	24,500	0.68	C	24,600	0.69	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,800	0.64	C	23,400	0.65	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	11,700	0.33	C	11,800	0.33	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	11,900	0.35	C	11,900	0.35	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	12,000	0.35	C	12,000	0.35	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	800	0.05	C	900	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	3,400	0.21	C	3,700	0.23	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	8,300	0.52	C	8,400	0.53	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	12,100	0.76	C	13,400	0.84	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	9,400	0.59	C	9,500	0.60	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	8,500	0.53	C	8,900	0.56	C
East of Road 156	2 Lanes Undivided	D	15,930	7,000	0.44	C	7,000	0.44	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**17,100**	**1.07**	**F**	**17,200**	**1.08**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Mineral King Avenue (North)									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	700	0.04	C	700	0.04	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	1,300	0.09	C	1,400	0.10	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,300	0.46	C	7,300	0.46	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	8,000	0.50	C	8,100	0.51	C
West of Road 156	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,000	0.25	C
East of Road 156	2 Lanes Undivided	D	15,930	4,700	0.30	C	4,900	0.31	C
SR 198									
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	49,600	0.62	C	49,600	0.62	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table E-4
Cumulative Year 2040 Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	1,500	0.04	C	2,100	0.06	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	1,500	0.04	C	3,000	0.08	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	1,700	0.05	C	3,200	0.09	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table E-5
Cumulative Year 2040 With Tower Street Interchange Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	10,300	0.26	C	10,600	0.27	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	8,200	0.46	C	8,700	0.49	C
East of Road 152	2 Lanes Undivided	C	17,700	6,800	0.38	C	6,900	0.39	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	16,200	0.45	C	16,300	0.46	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	23,500	0.66	C	23,600	0.66	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,900	0.64	C	23,100	0.64	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	12,000	0.34	C	12,100	0.34	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,200	0.21	C	7,200	0.21	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	7,800	0.23	C	7,800	0.23	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	900	0.06	C	1,000	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,300	0.27	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	9,200	0.58	C	9,300	0.58	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	10,000	0.63	C	10,300	0.65	C
McAuliff Street to Tower Street	2 Lanes Undivided	D	15,930	2,300	0.14	C	2,300	0.14	C
Tower Street to Road 152	2 Lanes Undivided	D	15,930	8,600	0.54	C	8,600	0.54	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	9,800	0.62	C	10,100	0.63	C
East of Road 156	2 Lanes Undivided	D	15,930	5,300	0.33	C	5,300	0.33	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**16,000**	**1.00**	**F**	**16,100**	**1.01**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	3,500	0.25	C	3,600	0.26	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,200	0.45	C	7,200	0.45	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	6,800	0.43	C	6,900	0.43	C
West of Road 156	2 Lanes Undivided	D	15,930	3,200	0.20	C	3,200	0.20	C
East of Road 156	2 Lanes Undivided	D	15,930	4,600	0.29	C	4,800	0.30	C
SR 198									
Tower Street to Road 156	4 Lanes Divided	C	79,900	52,200	0.65	C	52,400	0.66	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table E-6
Cumulative Year 2040 With Tower Street Interchange
Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	6,200	0.17	C	6,800	0.19	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	8,800	0.25	C	10,400	0.29	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	11,800	0.33	C	13,200	0.37	C
South of SR 198 EB Ramps	4 Lanes Divided	D	35,820	5,700	0.16	C	6,200	0.17	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

MITIGATION

This section describes potential improvements to mitigate the traffic impacts of the Project. Described below are potential improvements at study area intersections and segments for various scenarios that would, in most cases, result in acceptable levels of service. In order to mitigate the Project's impacts, the Project may be required to build improvements that are identified under the 'Existing Plus Project' and 'Near-Term Opening Year 2018 Plus Project' conditions to improve identified LOS deficiencies. In addition, the proposed Project will be required to contribute a fair-share towards the costs of improvements that are identified for the Cumulative Year 2040 scenarios.

Existing Plus Project Mitigation Measures

INTERSECTIONS

MM TR-1. Lovers Lane at Mineral King Avenue

- Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
- Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)

The improvements identified above for the Existing Plus Project (Full Build Out) scenario is sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-1.

MM TR-2. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
- Widen the eastbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)
- Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The intersection is forecasted to operate at unacceptable levels of service under the Existing Plus Project scenario despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-2.

Near-Term (Year 2018) Mitigation Measures

INTERSECTIONS

MM TR-3. Lovers Lane at Mineral King Avenue

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-1

The improvements identified above for the Near-Term Opening Year 2018 Without Project, and Near-Term Opening Year 2018 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-3.

MM TR-4. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-2

The intersection is forecasted to operate at unacceptable levels of service under the Near-Term

Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-4.

Cumulative Year 2040 Mitigation Measures

INTERSECTIONS

MM TR-5. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
  - Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-5.

MM TR-6. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 through lanes and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 2 left turn lanes and 1 right turn lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and

Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-6.

MM TR-7. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
  - Widen the eastbound approach to 1 through lane and 1 right turn lane with overlap phasing (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-7.

MM TR-8. McAuliff Street and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 1 through and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-8.

MM TR-9. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the southbound approach to 1 left turn and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The intersection is forecasted to operate at unacceptable level of service 'E' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization.

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-9.

MM TR-10. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-10.

MM TR-11. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's

acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-11.

MM TR-12. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-12.

MM TR-13. SR 198 WB Off Ramp and Mineral King Avenue (between Road 156 and Road 158)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 2 through lanes (adding 1 through lane)

The intersection is forecasted to operate at unacceptable level of service 'D' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. The projected volumes at the intersection satisfy peak hour signal warrants and a traffic signal would alleviate level of service deficiencies. However, this intersection is less than 200 feet from the Road 156 and Mineral King Avenue intersection and is not recommended for signalization.

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-13.

ROADWAY SEGMENTS

MM TR-14. Road 156

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  South of Noble Avenue
  - Widen the segment from 2 to 4 travel lanes (adding 1 travel lane in each direction)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-14.

SR 198 RAMP JUNCTIONS

MM TR-15. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-15.

MM TR-16. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the westbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-16.

QUEUING

MM TR-17. Lovers Lane and Houston Avenue (SR 216)

- In the southbound left-turn lane, lengthen the storage pocket from 225 feet to 300 feet.

The Project's impact is considered less than significant with incorporation of MM TR-17.

MM TR-18. Lovers Lane and Mineral King Avenue

- In the northbound left-turn lane, lengthen the storage pocket from 100 feet to

325 feet.
- In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

The Project's impact is considered less than significant with incorporation of MM TR-18.

MM TR-19. Lovers Lane and SR 198 EB Ramps
- In the eastbound left-turn lane, lengthen the storage pocket from 225 feet to 375 feet.

The Project's impact is considered less than significant with incorporation of MM TR-19.

MM TR-20. Lovers Lane and Noble Avenue
- In the eastbound left-turn lane, lengthen the storage pocket from 125 feet to 275 feet.

The Project's impact is considered less than significant with incorporation of MM TR-20.

MM TR-21. McAuliff Street and Houston Avenue (SR 216)
- In the northbound left-turn lane, lengthen the storage pocket from 150 feet to 300 feet.

The Project's impact is considered less than significant with incorporation of MM TR-21.

MM TR-22. McAuliff Street and Mineral King Avenue
- In the southbound right-turn lane, lengthen the storage pocket from 250 feet to 300 feet.
- In the eastbound left-turn lane, lengthen the storage pocket from 200 feet to 275 feet.
- In the westbound right-turn lane, provide 300-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-22.

MM TR-23. Road 152 and Mineral King Avenue
- In the southbound right-turn lane, provide 125-foot storage pocket.
- In the eastbound left-turn lane, provide 100-foot storage pocket.
- In the westbound right-turn lane, provide 125-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-23.

MM TR-24. SR 198 EB Ramps and Noble Avenue

- In the westbound right-turn lane, provide 125-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-24.

MM TR-25. Road 156 and Noble Avenue
- In the northbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the eastbound right-turn lane, provide 150-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-25.

MM TR-26. Tower Street and Houston Avenue (SR 216)
- In the northbound left-turn lane, provide 200-foot storage pocket.
- In the northbound right-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-26.

MM TR-27. Tower Street and McKinley Avenue-Project Driveway #2
- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-27.

MM TR-28. Tower Street and Race Avenue
- In the northbound left-turn lane, provide 100-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-28.

MM TR-29. Tower Street and Murray Avenue
- In the northbound left-turn lane, provide 250-foot storage pocket.
- In the southbound right-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-29.

MM TR-30. Tower Street and Villoy Avenue-Project Driveway #1
- In the northbound left-turn lane, provide 150-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-30.

MM TR-31. Tower Street and Villoy Avenue-Project Driveway #1
- In the southbound left-turn lane, provide 250-foot storage pocket.
- In the eastbound left-turn lane, provide 175-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-31.

Cumulative Year 2040 With Tower Street Interchange Mitigation Measures

INTERSECTIONS

MM TR-32. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-5

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-32.

MM TR-33. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-6

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-33.

MM TR-34. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-7

The improvements identified above for the Cumulative Year 2040 Without Project With Tower

Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. Should Caltrans determine that this intersection cannot be signalized due to inadequate spacing, the intersection would continue to operate at LOS 'F' conditions. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-34.

MM TR-35. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-9

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-35.

MM TR-36. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-10

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-36.

MM TR-37. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-11

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-11.

MM TR-38. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-12

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-38.

MM TR-39. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-39.

Special Event Traffic Impacts

As noted in Section 3.1, the Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities that could occur as a special event (e.g. concerts, tournaments, weddings). Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation, and representative of a "worst case" example. The following scenario was agreed upon to represent special event traffic for worst-case analysis purposes:

1. Amphitheater weekday evening event at full capacity (all 1,500 seats filled)

2. Typical weekday evening activity for all other park uses

The Project Driveway #1 at Tower Street will exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange scenario. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

MM TR-40. Tower Street at Villoy Avenue-Project Driveway #1

- Cumulative Year 2040 Plus Project With Tower Street Interchange scenario:
  - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-40.

ROADWAY SEGMENTS

MM TR-41. Road 156

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios: *South of Noble Avenue*
  - Implementation of MM TR-14

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-41.

SR 198 RAMP JUNCTIONS

MM TR-42. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-15

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-42.

MM TR-43. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-16

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-43.

Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Mitigation Measures

INTERSECTIONS

MM TR-44. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-5

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-44.

MM TR-45. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-6

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-45.

MM TR-46. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-7

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-46.

McAuliff Street and Murray Avenue
No improvements are recommended to achieve acceptable levels of service.

This intersection is forecasted to operate at unacceptable LOS 'E' in the PM peak hour under Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 conditions; however, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. Therefore, no improvements are recommended for the Project's contribution of traffic at the intersection.

The Project's impact is considered significant and unavoidable.

MM TR-47. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario:
  - Implementation of MM TR-9

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-47.

MM TR-48. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-10

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-48.

MM TR-49. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-11

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-49.

MM TR-50. Road 156 and Noble Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-12

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-50.

MM TR-51. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-39

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-51.

Special Event Traffic Impacts

As noted in Section 3.1, the Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities. Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation. The Project Driveway #1 at Tower Street will exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario considering the traffic volumes shown in Figure 3-38b. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

MM TR-52. Tower Street at Villoy Avenue-Project Driveway #1

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario:
  - Implementation of MM TR-40

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-52.

ROADWAY SEGMENTS

MM TR-53. Road 156

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  South of Noble Avenue
  - Implementation of MM TR-14

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street

Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-53.

SR 198 RAMP JUNCTIONS

MM TR-54. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-15

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-54.

MM TR-55. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-16

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-55.

Equitable Fair-Share Responsibility

The Project will be required to build MM TR-1, TR-2, TR-3 and TR-4 improvements that are identified for the 'Existing Plus Project' and 'Near-Term Opening Year 2018 Plus Project' conditions to improve identified LOS deficiencies.

In addition to MM TR-1, TR-2, TR-3 and TR-4 discussed above, the proposed Project will also be required to contribute its calculated "fair-share" towards the costs of improvements that are identified for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios. The intent of determining the equitable responsibility for the improvements identified above for the Cumulative Year 2040 scenarios, is to provide a starting point for early discussions between the City and Caltrans to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts, in particular, for those that come about if/when the Tower Street Interchange is built by Caltrans.

The formulas used to calculate the equitable share responsibility to City of Visalia and Caltrans facilities is as follows:

Equitable Share = (Project Trips)/(Cumulative Year 2040 Plus Project Traffic – Existing Traffic)

Tables E-7, E-8, E-9 and E-10 show the equitable share responsibility for improvements to City of Visalia and Caltrans facilities as described above. The equitable share responsibility shown in Tables E-7, E-8, E-9 and E-10 is the result of LOS enhancements related to capacity.

Table E-7
Cumulative Year 2040 Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	41	4,421	3.0%
	PM	2,837	164	4,245	11.6%
Lovers Lane / SR 198 EB Ramps	AM	2,658	37	3,893	3.0%
	PM	2,759	147	4,177	10.4%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	45	2,203	8.2%
	PM	1,334	186	2,030	26.7%
McAuliff Street / Mineral King Avenue	AM	1,026	45	1,582	8.1%
	PM	820	186	1,724	20.6%
Road 152 / Mineral King Avenue	AM	647	16	1,168	3.1%
	PM	440	62	1,151	8.7%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	3	896	0.6%
	PM	536	13	1,236	1.9%
Road 156 / Mineral King Avenue	AM	999	16	1,747	2.1%
	PM	900	62	1,708	7.7%
Road 156 / Noble Avenue	AM	770	11	1,842	1.0%
	PM	911	42	2,300	3.0%
SR 198 WB Off Ramp / Mineral King Avenue (between Road 156 and Road 158)	AM	631	5	1,036	1.2%
	PM	601	20	935	6.0%
Tower Street / Houston Avenue (SR 216)	AM	283	17	621	5.0%
	PM	269	64	638	17.3%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	17,200	0.9%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	24	4,353	1.5%
	PM	3,649	92	5,798	4.3%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	4,001	0.5%
	PM	2,101	29	3,238	2.6%

Table E-8
Cumulative Year 2040 With Tower Street Interchange
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,081	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,734	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Road 152 / Mineral King Avenue	AM	647	11	1,035	2.8%
	PM	440	39	1,186	5.2%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	701	0.0%
	PM	536	0	1,091	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,709	0.9%
	PM	911	29	2,153	2.3%
Tower Street / Houston Avenue (SR 216)	AM	283	17	935	2.6%
	PM	269	64	1,385	5.7%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,001	1.7%
	PM	3,649	78	5,296	4.7%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,712	0.6%
	PM	2,101	29	3,038	3.1%

Table E-9
Cumulative Year 2040 With Tower Street Interchange – Alternative 1
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,080	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,733	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	915	0.0%
	PM	536	0	1,359	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,816	0.8%
	PM	911	29	2,287	2.1%
Tower Street / Houston Avenue (SR 216)	AM	283	17	1,075	2.1%
	PM	269	64	1,539	5.0%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,013	1.7%
	PM	3,649	78	5,342	4.6%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,721	0.6%
	PM	2,101	29	3,067	3.0%

Table E-10
Cumulative Year 2040 With Tower Street Interchange – Alternative 2
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,081	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,734	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Road 152 / Mineral King Avenue	AM	647	11	1,035	2.8%
	PM	440	39	1,186	5.2%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	701	0.0%
	PM	536	0	1,091	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,709	0.9%
	PM	911	29	2,153	2.3%
Tower Street / Houston Avenue (SR 216)	AM	283	17	935	2.6%
	PM	269	64	1,385	5.7%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,001	1.7%
	PM	3,649	78	5,296	4.7%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,712	0.6%
	PM	2,101	29	3,038	3.1%

1.0 Introduction

1.1 Description of the Region/Project

This Traffic Impact Study (TIS) has been prepared for the purpose of analyzing traffic conditions related to the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project), which seeks to develop a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The Project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west. Figures 1-1 and 1-2 show the location of the Project along with major roadways and highways. Figure 1-3 provides the locations of various components of the Project.

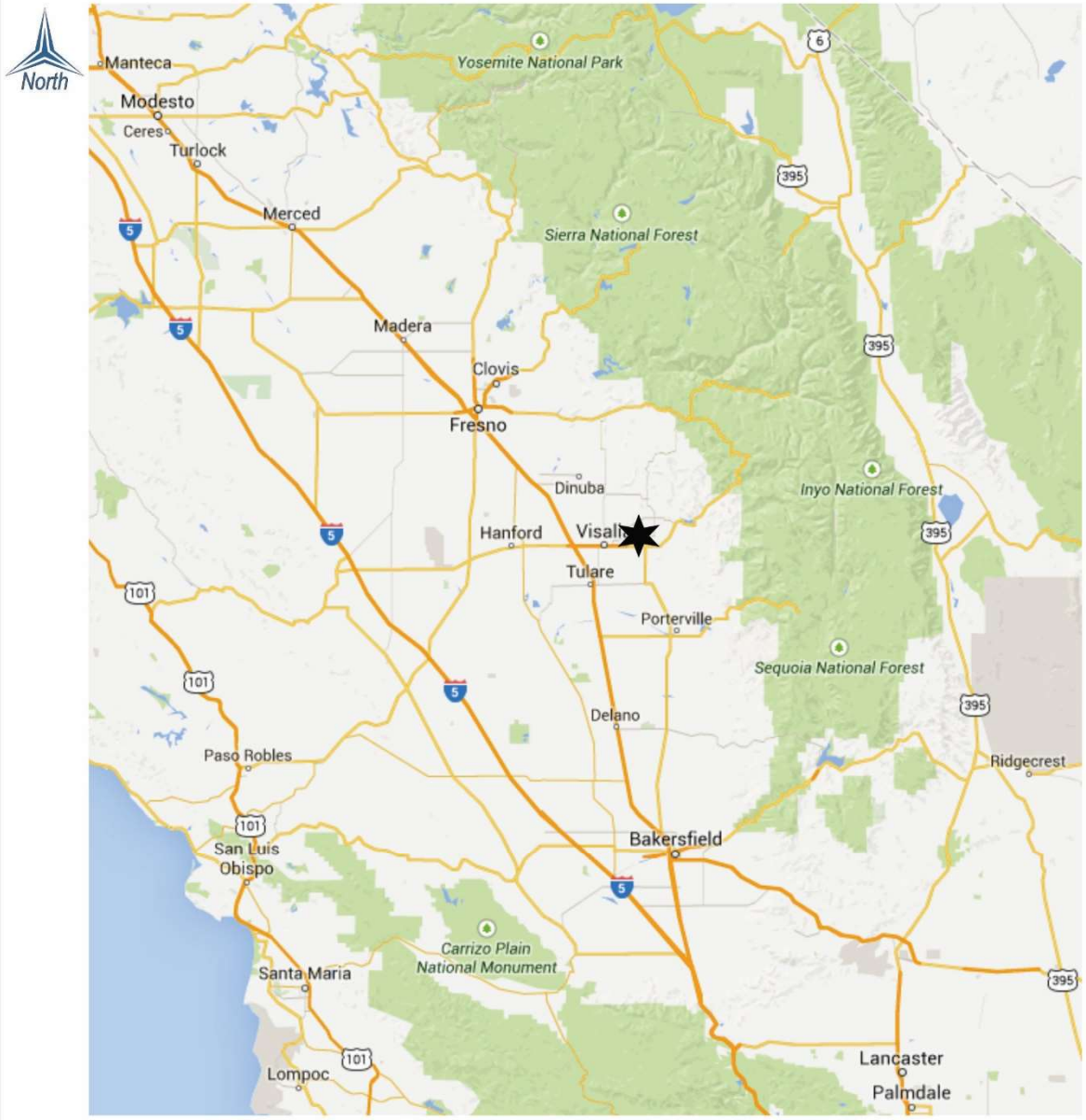
The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the Project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

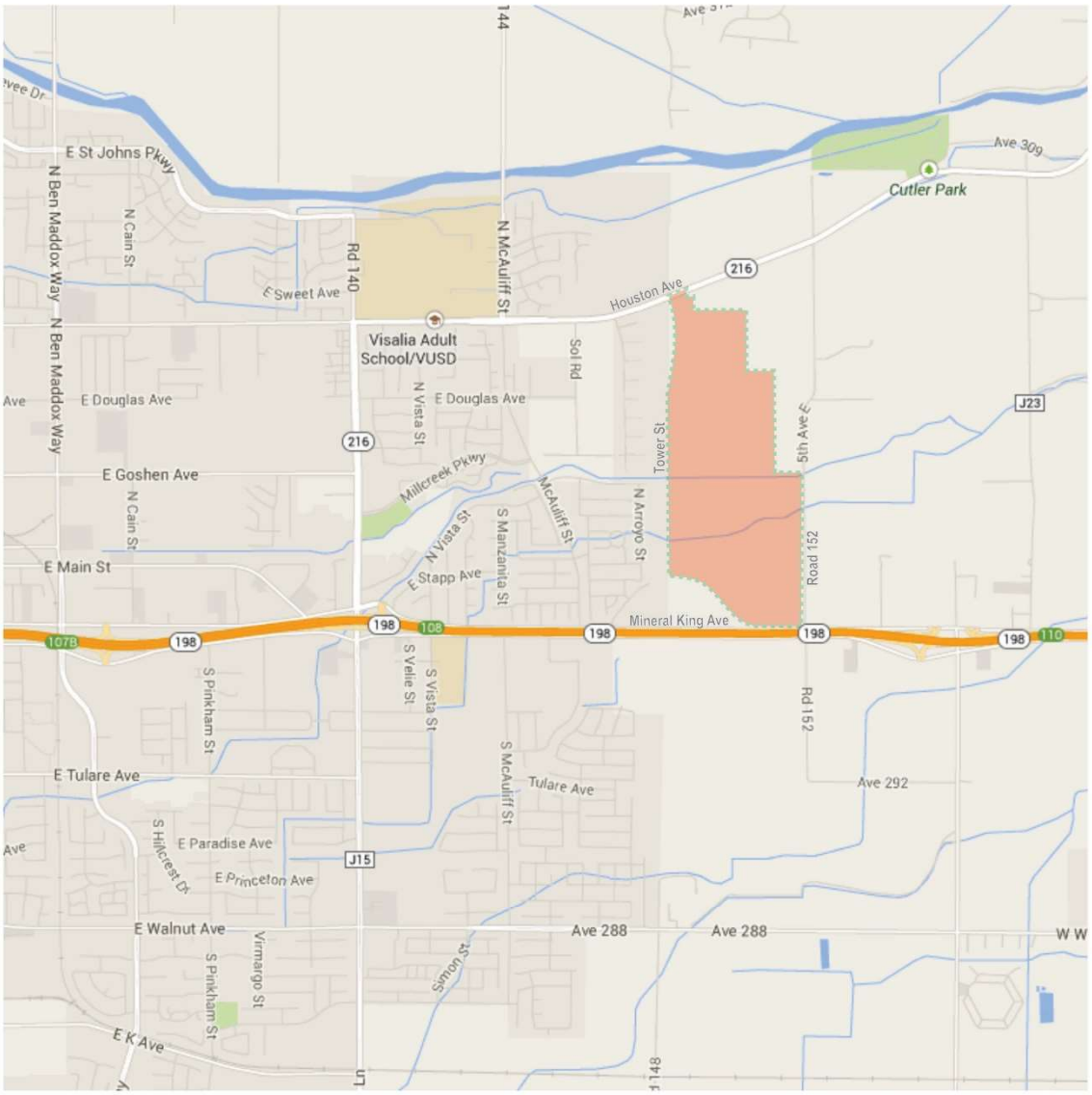
East Side Regional Park & Groundwater Recharge Project EIR
Regional Location

Figure 1-1



East Side Regional Park & Groundwater Recharge Project EIR
Project Location

Figure 1-2



LEGEND

Project Location

VRPA TECHNOLOGIES, INC.

East Side Regional Park & Groundwater Recharge Project EIR
Project Components

Figure 1-3

The approximately 148-acre regional park mentioned above will include individual components such as:

- Four (4) lighted and fenced Adult Softball Fields (325' to outfield)
- Four (4) lighted and fenced Youth Baseball Fields (225' to outfield)
- Five (5) lighted full-size Soccer Fields (210' X 330')
- Cricket Field
- Lighted Tennis Courts
- Lighted Pickleball Courts
- Lighted Full Basketball Court
- 18-hole disc golf course
- Amphitheater with seating capacity of 1,500
- Community Center Building (Approx. 30,000 sq. ft.) including outdoor swimming pools
- Dog Park (Approx. 3 acres)
- Multi-use trails with fitness equipment
- Event and Open space turf areas
- Children's Adventure play areas and splash pad
- Picnic Areas (formal and informal)
- Agriculture Education Barn
- Resource Center
- Maintenance Yard
- Parking Areas

The 100-acres of primary use recharge basins along the east and south areas will also be utilized for storm water lay-off as needed in very large storm events. The two basins west of the park on the west side of Tower Street will be utilized for park and street storm water runoff. The dog park area is also depressed to handle storm water runoff from the park. All three total 6 acres of basin area. Other low impact development techniques may be used throughout the park area to handle storm water. Ultimately, when not being utilized for recharge or flood lay-off purposes, and due to their large size, these recharge basin areas can be used for passive recreational activities. While noise will be generated during construction of these basins, they are not expected to generate significant noise levels during operation of the park.

1.1.1 *Project Access*

Currently, access to the Project site is via its frontages on Mineral King Avenue, Road 152 and Houston Avenue (SR 216). Primary access to the Project will be provided through the construction of Tower Street along the western border of the Project Site, together with two

entrance/exits aligning with the proposed extension of Villoy Avenue and the extension of McKinley Avenue. A secondary (3rd) entrance/exit will be provided to Road 152 approximately ½ mile north of its intersection with Mineral King Avenue.

Separate from this Project, the City and Caltrans are planning an interchange at Tower Street and SR 198, although the project is only in the planning stage and has not been officially authorized nor funding allocated for it. The interchange at Tower Street and SR-198 is not anticipated to be a constrained project in Tulare County Association of Government's (TCAG) 2018 RTP. Nevertheless, this traffic analysis includes assessment of traffic impacts both with and without the interchange.

1.1.2 *Study Area*

The study intersections and street and highway segments included in this TIS are listed below and shown in Figure 1-4. The study area outlined below was developed in consultation with City of Visalia and California Department of Transportation (Caltrans) staff. The Assumptions and Trip Generation document contained in Appendix A describes in more detail the proposed methodology for the traffic analysis.

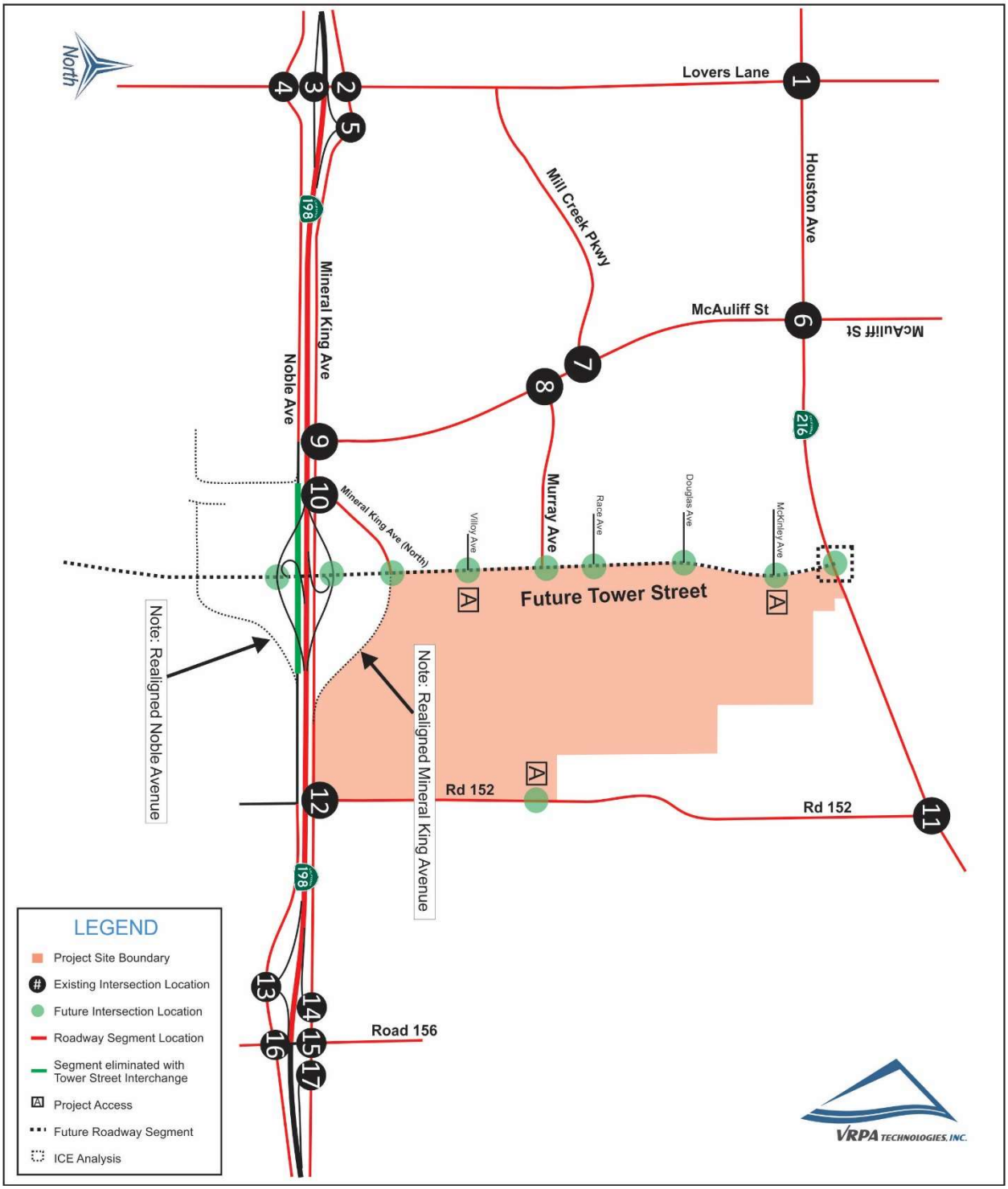
Intersections

- ✓ **Existing Intersections**
  1. Lovers Lane / Houston Avenue (SR 216)
  2. Lovers Lane / Mineral King Avenue
  3. Lovers Lane / SR 198 EB Ramps
  4. Lovers Lane / Noble Avenue
  5. SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)
  6. McAuliff Street / Houston Avenue (SR 216)
  7. McAuliff Street / Mill Creek Parkway
  8. McAuliff Street / Murray Avenue
  9. McAuliff Street / Mineral King Avenue
  10. Mineral King Avenue (North) / Mineral King Avenue
  11. Road 152 / Houston Avenue (SR 216)
  12. Road 152/ Mineral King Avenue
  13. Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)
  14. SR 198 WB On-Ramp / Mineral King Avenue (between Road 152 and Road 156)
  15. Road 156 / Mineral King Avenue
  16. Road 156/ Noble Avenue
  17. SR 198 WB Off-Ramp / Mineral King Avenue (between Road 156 and Road 158)

- ✓ **Future Intersections**
  18. Tower Street / Houston Avenue (SR 216)
  19. Tower Street / McKinley Avenue-Project Driveway #2

East Side Regional Park & Groundwater Recharge Project EIR
Study Area

Figure 1-4



20. Tower Street / Douglas Avenue
21. Tower Street / Race Avenue
22. Tower Street / Murray Avenue
23. Tower Street / Villoy Avenue-Project Driveway #1
24. Tower Street / Mineral King Avenue
25. Road 152 / Project Driveway #3
26. Tower Street / SR 198 WB Ramps
27. Tower Street / SR 198 EB Ramps

Roadway Segments

✓ **Existing Roadway Segments**

- Houston Avenue (SR 216)
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  East of Road 152
- Lovers Lane
  North of Houston Avenue (SR 216)
  Houston Avenue (SR 216) to Mill Creek Parkway
  Mill Creek Parkway to Mineral King Avenue
  South of Noble Avenue
- McAuliff Street
  North of Houston Avenue (SR 216)
  Houston Avenue (SR 216) to Murray Avenue
  Murray Avenue to Mineral King Avenue
- Road 152
  South of Houston Avenue (SR 216)
  North of Mineral King Avenue
- Mineral King Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  Road 152 to Road 156
  East of Road 156
- Road 156
  North of Mineral King Avenue
  South of Noble Avenue
- Mill Creek Parkway
  Lovers Lane to McAuliff Street
- Mineral King Avenue (North)
  North of Mineral King Avenue

- Murray Avenue
  East of McAuliff Street
- Noble Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  West of Road 156
  East of Road 156
- SR 198
  Lovers Lane to Road 156

✓ **Future Roadway Segments**

- Tower Street
  Houston Avenue (SR 216) to Douglas Avenue
  Douglas Avenue to Murray Avenue
  Murray Avenue to Mineral King Avenue

1.1.3 *Study Scenarios*

The TIS completed for the proposed Project includes level of service (LOS) analysis for the following traffic scenarios:

1. Existing Conditions (Baseline Condition Without Project / Without Future Interchange / With existing Mineral King Avenue
2. Existing Plus Recharge Basins Only - Trip Generation Analysis Only (Without Future Interchange / With existing Mineral King Avenue)
3. Existing Plus Project (Full Build Out) (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) - Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
4. Near-term Opening Year 2018 Projection Without Project (Without Future Interchange / With existing Mineral King Avenue)
5. Near-term Opening Year 2018 Projection Plus Phase 1 only of the Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower at Villoy), (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
6. 2040 Without Project (with the future year land use for the Project Site coded as already identified in the approved 2040 Tulare County Association of Governments (TCAG) Traffic Model) (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
7. 2040 Without Project (with the future year land use for the Project Site coded in the TCAG Traffic Model as agricultural use) - Analysis would consist of a Qualitative Assessment Only and, if necessary. If the Project Site is already coded in the 2040 Traffic Model as agricultural use, then this scenario will not be qualitatively assessed (Without Future Interchange / With

existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)

8. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) - Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
9. 2040 Without Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152)
10. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (both legs of realigned Mineral King remain) at Tower Street (solid median)
11. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (west leg of realigned Mineral King remains, east leg eliminated to Road 152) at Tower Street (solid median)
12. 2040 Plus Full Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152 / With Tower Street as a full access intersection at the Park entrance but with a cul-de-sac at east end of Villoy Avenue)

1.2 Methodology

When preparing a TIS, guidelines set by affected agencies are followed. In analyzing street and intersection capacities the Level of Service (LOS) methodologies are applied. LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. In addition, safety concerns are analyzed to determine the need for appropriate mitigation resulting from increased traffic near sensitive uses, the need for dedicated ingress and egress access lanes to the project, and other evaluations such as the need for signalized intersections or other improvements.

Caltrans' Traffic Operations Division implemented Policy Directive associated with evaluation procedures used to justify the installation of traffic signal systems, yield-control (roundabouts), and multi-way stop control at state highway intersections and interchanges. Caltrans' Intersection Control Evaluation (ICE) protocol requires the analysis of three intersection control strategies when a State Highway intersection or interchange requires full control. An ICE analysis was prepared for the future Tower Street at Houston Avenue (SR 216) intersection and is provided in Appendix A.

1.2.1 *Intersection Analysis*

Intersection LOS analysis was conducted using the Synchro 9 software program. Synchro 9 supports the Highway Capacity Manual (HCM) 2010 and 2000 methodologies and is an acceptable program by City of Visalia and Caltrans staff for assessment of traffic impacts. Levels of Service can be determined for both signalized and unsignalized intersections. Seven (7) of the existing study intersections are currently signalized while ten (10) of the intersections are

currently unsignalized.

Tables 1-1 and 1-2 indicate the ranges in the amounts of average delay for a vehicle at signalized and unsignalized intersections for the various levels of service ranging from LOS "A" to "F".

The signalized LOS standards applied to calculate intersection LOS are in accordance with the current edition of the Highway Capacity Manual (HCM). Intersection turning movement counts and roadway geometrics used to develop LOS calculations were obtained from field review findings and count data provided from the traffic count sources identified in Section 2.1.

When an unsignalized intersection does not meet acceptable LOS standards, the investigation of the need for a traffic signal shall be evaluated. The California Manual on Uniform Traffic Control Devices for Streets and Highways (California MUTCD) dated November 7, 2014 introduces standards for determining the need for traffic signals. The California MUTCD indicates that the satisfaction of one or more traffic signal warrants does not in itself require the installation of a traffic signal. In addition to the warrant analysis, an engineering study of the current or expected traffic conditions should be conducted to determine whether the installation of a traffic signal is justified. The California MUTCD Peak Hour Warrant (Warrant 3) was used to evaluate the need for traffic signalization at unsignalized intersections that fall below current LOS standards. It should be noted that the City of Visalia typically uses the 8-Hour Volume Signal Warrant to ultimately determine if a traffic signal is needed.

1.2.2 *Roadway Segment Analysis*

According to the HCM, LOS is categorized by two parameters of traffic: uninterrupted and interrupted flow. Uninterrupted flow facilities do not have fixed elements such as traffic signals that cause interruptions in traffic flow. Interrupted flow facilities do have fixed elements that cause an interruption in the flow of traffic, such as stop signs and signalized intersections along arterial roads. A roadway segment is defined as a stretch of roadway generally located between signalized or controlled intersections.

Segment LOS is important in order to understand whether the capacity of a roadway can accommodate future traffic volumes. Table 1-3 provides a definition of segment LOS. The performance criteria used for evaluating volumes and capacities on the road and highway system for this study were estimated using the Modified HCM-Based LOS Tables (Florida Tables). The tables consider the capacity of individual road and highway segments based on numerous roadway variables (design speed, passing opportunities, signalized intersections per mile, number of lanes, saturation flow, etc.). These variables were identified and applied to reflect segment LOS conditions. Additional information is included in Appendix B. Street segment capacity was determined using information shown in Table 1-4, which comes from the Modified Arterial Level of Service Tables included in Appendix B.

Table 1-1
Signalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

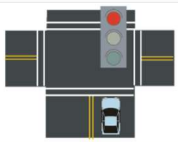
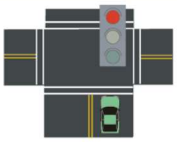
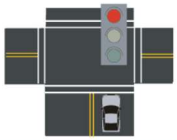
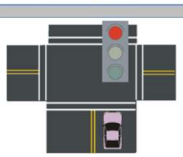
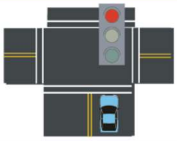
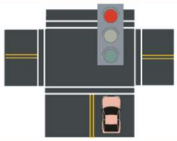
LEVEL OF SERVICE	DEFINITION		AVERAGE TOTAL DELAY (sec/veh)
A	Describes operations with very low delay. This level of service occurs when there is no conflicting traffic for a minor street.		≤ 10.0
B	Describes operations with moderately low delay. This level generally occurs with a small amount of conflicting traffic causing higher levels of average delay.		> 10.0 - 20.0
C	Describes operations with average delays. These higher delays may result from a moderate amount of minor street traffic. Queues begin to get longer.		> 20.0 - 35.0
D	Describes a crowded operation, with below average delays. At level D, the influence of congestion becomes more noticeable. Longer delays may result from shorter gaps on the mainline and an increase of minor street traffic. The queues of vehicles are increasing.		> 35.0 - 55.0
E	Describes operations at or near capacity. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor gaps for the minor street to cross and large queues.		> 55.0 - 80.0
F	Describes operations that are at the failure point. This level, considered to be unacceptable to most drivers, often occurs with over- saturation, that is, when arrival flow rates exceed the capacity of the intersection. Insufficient gaps of suitable size exist to allow minor traffic to cross the intersection safely.		> 80.0

Table 1-2
Unsignalized Intersections
Level of Service Definitions
(Highway Capacity Manual)

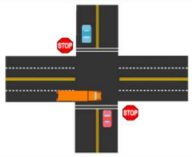
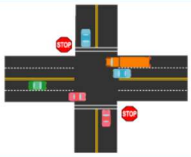
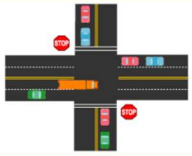
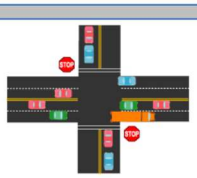
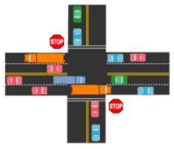
LEVEL OF SERVICE	DEFINITION	AVERAGE TOTAL DELAY (sec/veh)
A	No delay for stop-controlled approaches. 	0 - 10.0
B	Describes operations with minor delay. 	> 10.0 - 15.0
C	Describes operations with moderate delays. 	> 15.0 - 25.0
D	Describes operations with some delays.	> 25.0 - 35.0
E	Describes operations with high delays and long queues. 	> 35.0 - 50.0
F	Describes operations with extreme congestion, with very high delays and long queues unacceptable to most drivers. 	> 50.0

Table 1-3
Roadway Segment
Level of Service Definitions
(Highway Capacity Manual)

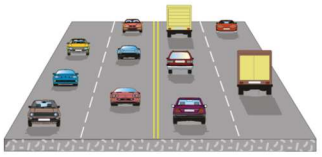
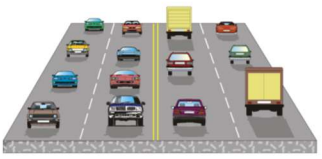
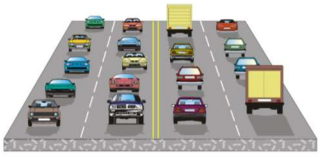
LEVEL OF SERVICE	DEFINITION	
A	Represents free flow. Individual vehicles are virtually unaffected by the presence of others in the traffic stream.	
B	Is in the range of stable flow, but the presence of other vehicles in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in the freedom to maneuver.	
C	Is in the range of stable flow, but marks the beginning of the range of flow in which the operation of individual vehicles becomes significantly affected by interactions with other vehicles in the traffic stream.	
D	Is a crowded segment of roadway with a large number of vehicles restricting mobility and a stable flow. Speed and freedom to maneuver are severely restricted, and the driver experiences a generally poor level of comfort and convenience.	
E	Represents operating conditions at or near the level capacity. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement.	
F	Is used to define forced or breakdown flow (stop-and-go gridlock). This condition exists when the amount of traffic approaches a point where the amount of traffic exceeds the amount that can travel to a destination. Operations within the queues are characterized by stop and go waves, and they are extremely unstable.	

Table 1-4
Annual Average Daily Volumes

Level of Service					
Lanes	Divided	B	C	D	E
Freeways					
4	Divided	45,800	61,500	74,400	79,900
6	Divided	68,100	93,000	111,800	123,300
8	Divided	91,500	123,500	148,700	166,800
State Class I Roadways					
2	Undivided	**	16,800	17,700	**
4	Divided	**	37,900	39,800	**
6	Divided	**	58,400	59,900	**
8	Divided	**	78,800	80,100	**
Non-State Class I Roadways					
2	Undivided	**	15,120	15,930	**
2	Divided	**	15,960	16,815	**
4	Undivided	**	32,215	33,830	**
4	Divided	**	34,110	35,820	**
6	Divided	**	52,560	53,910	**
8	Divided	**	70,920	72,090	**
Non-State Class II Roadways					
2	Undivided	**	6,570	13,320	14,040
2	Divided	**	6,935	14,060	14,820
4	Undivided	**	12,325	27,540	28,730
4	Divided	**	13,050	29,160	30,420
6	Divided	**	20,970	45,000	45,810
8	Divided	**	28,800	60,570	61,290

** Not applicable for that level of service letter grade. Volumes greater than level of service D become F because intersection capacities have been reached.

1.3 Policies to Maintain Level of Service

An important goal is to maintain acceptable levels of service along the highway, street, and road network. To accomplish this, affected agencies adopt minimum levels of service in an attempt to control congestion that may result as new development occurs. As noted previously, LOS standards are applied by transportation agencies to quantitatively assess a street and highway system's performance. The affected level of service standards applicable to the traffic analysis are described below.

City of Visalia

The City of Visalia General Plan states the City will plan for LOS "D" for street segments and intersections.

Tulare County

The Tulare County General Plan states the minimum LOS is "D" for street segments and intersections.

Caltrans

Based on guidance from Caltrans, the LOS for operating State highway facilities is based on Measures of Effectiveness (MOE) identified in the Highway Capacity Manual (HCM). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS, the existing MOE should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadways segments, and intersections is "D". For undeveloped or not densely developed locations, the goal may be to achieve LOS "C". As a result, the minimum level of service (LOS) standard will be LOS D within the Visalia city limits and LOS C outside city limits for Caltrans facilities.

Given the LOS standards of the affected agencies in the Project area, the goal of the Project was to provide LOS results that meet the goals of the individual agencies for intersections and street segments under their jurisdiction.

Table 1-5 shows the General Plan target LOS for each intersection based upon its jurisdictional location.

Table 1-5
General Plan Target LOS by Intersection

INTERSECTION	JURISDICTION	TARGET LOS[1]
1. Lovers Lane / Houston Avenue (SR 216) [2]	City of Visalia / Caltrans	D / C *
2. Lovers Lane / Mineral King Avenue [2]	City of Visalia / Caltrans	D / C *
3. Lovers Lane / SR 198 EB Ramps [2]	Caltrans	C *
4. Lovers Lane / Noble Avenue [2]	City of Visalia	D
5. SR 198 WB Ramps / Mineral King Avenue [3]	Caltrans	C *
6. McAuliff Street / Houston Avenue (SR 216) [2]	City of Visalia / Caltrans	D / C *
7. McAuliff Street / Mill Creek Parkway [3]	City of Visalia	D
8. McAuliff Street / Murray Avenue [3]	City of Visalia	D
9. McAuliff Street / Mineral King Avenue [4]	City of Visalia	D
10. Mineral King Avenue (North) / Mineral King Avenue [3]	City of Visalia	D
11. Road 152 / Houston Avenue (SR 216) [3]	Tulare County / Caltrans	D / C *
12. Road 152 / Mineral King Avenue [3]	Tulare County	D
13. Noble Avenue / SR 198 EB Ramps [3]	Caltrans	C *
14. SR 198 WB On-Ramp / Mineral King Avenue [5]	Caltrans	C *
15. Road 156 / Mineral King Avenue [2]	Tulare County	D
16. Road 156 / Noble Avenue [2]	Tulare County	D
17. SR 198 WB Off-Ramp / Mineral King Avenue [3]	Caltrans	C *

(1) Based on respective jurisdiction General Plan Standards
(2) Signalized Intersection.
(3) One-Way Stop Intersection.
(4) All-Way Stop Intersection.
(5) Uncontrolled Intersection.
* Caltrans identifies' a minimum LOS is C, except where the existing LOS is D or below

2.0 Existing Conditions

2.1 Existing Traffic Counts and Roadway Geometrics

The first step toward assessing Project traffic impacts is to assess existing traffic conditions. Existing AM and PM peak hour turning movements were collected at each study intersection by National Data and Surveying Services. Intersection turning movement counts were conducted for the peak hour periods of 7:00-9:00 AM and 4:00-6:00 PM for all key intersections on Thursday, November 6, 2014. Twenty-four hour street segment counts along Mineral King and Houston Avenue, were also taken on November 6, 2015. Other segment volumes were extrapolated from the PM turning movements and multiplied by ten (10). Volumes along State Route (SR) 198 were taken from the Caltrans 2014 count book. Traffic count data worksheets are provided in Appendix C. According to Caltrans staff, traffic counts from the year 2014 are acceptable for use in this traffic analysis since traffic conditions in the study area did not significantly increase between 2014 and 2017.

Existing lane geometry is shown in Figures 2-1a and 2-1b. Existing 2014 AM and PM peak hour traffic volumes are shown in Figures 2-2a, 2-2b, 2-3a and 2-3b. Existing Annual Average Daily Traffic (AADT) segment volumes are shown in Figure 2-4.

2.2 Existing Roadway System

Functional classification is the process by which streets and highways are grouped into classes, or systems, according to the type of service they are intended to provide. Fundamental to this process is the recognition that individual streets and highways do not serve travel independently in any major way. Rather, most travel involves movement through a network of roads.

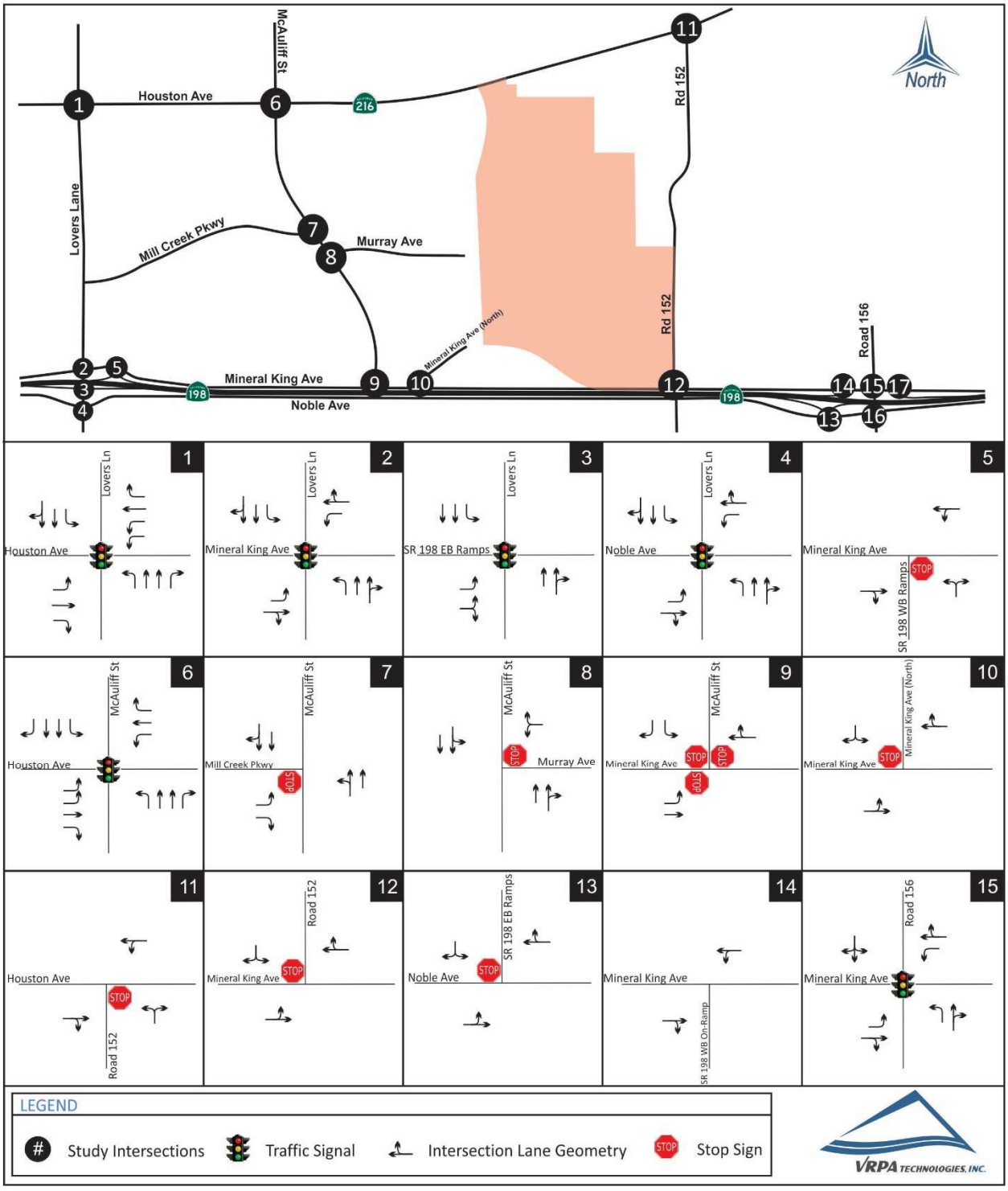
2.2.1 ***Freeways*** – provide for the ability to carry large traffic volumes at high speeds for long distances. Access points are fully controlled. Freeways connect points within the study area to other parts of the State.

- **State Route 198** – currently exists as a four-lane freeway with a posted speed limit of 65 miles per hour (mph) through the study area. According to the California Department of Transportation's (Caltrans) website, the AADT along SR 198 in 2014 is 31,000 trips.

2.2.2 ***Arterials*** – provide for mobility within study area, carrying through traffic on continuous routes and joining major traffic generators, freeways, and other arterials. According to the Visalia General Plan, "arterials collect and distribute traffic from freeways and expressways to collector streets and vice versa. On arterials, the optimum distance between intersections is approximately one quarter mile. Driveways to major traffic generators may be permitted within the quarter-mile spacing. Other intersections closer than one quarter mile should be restricted to right turn access. Based upon the Visalia Improvement Standards (2013), the arterial right-of-way widths range from 84 feet to 110 feet. Arterials feature two to three through lanes of traffic in each direction with a left turn channelization."

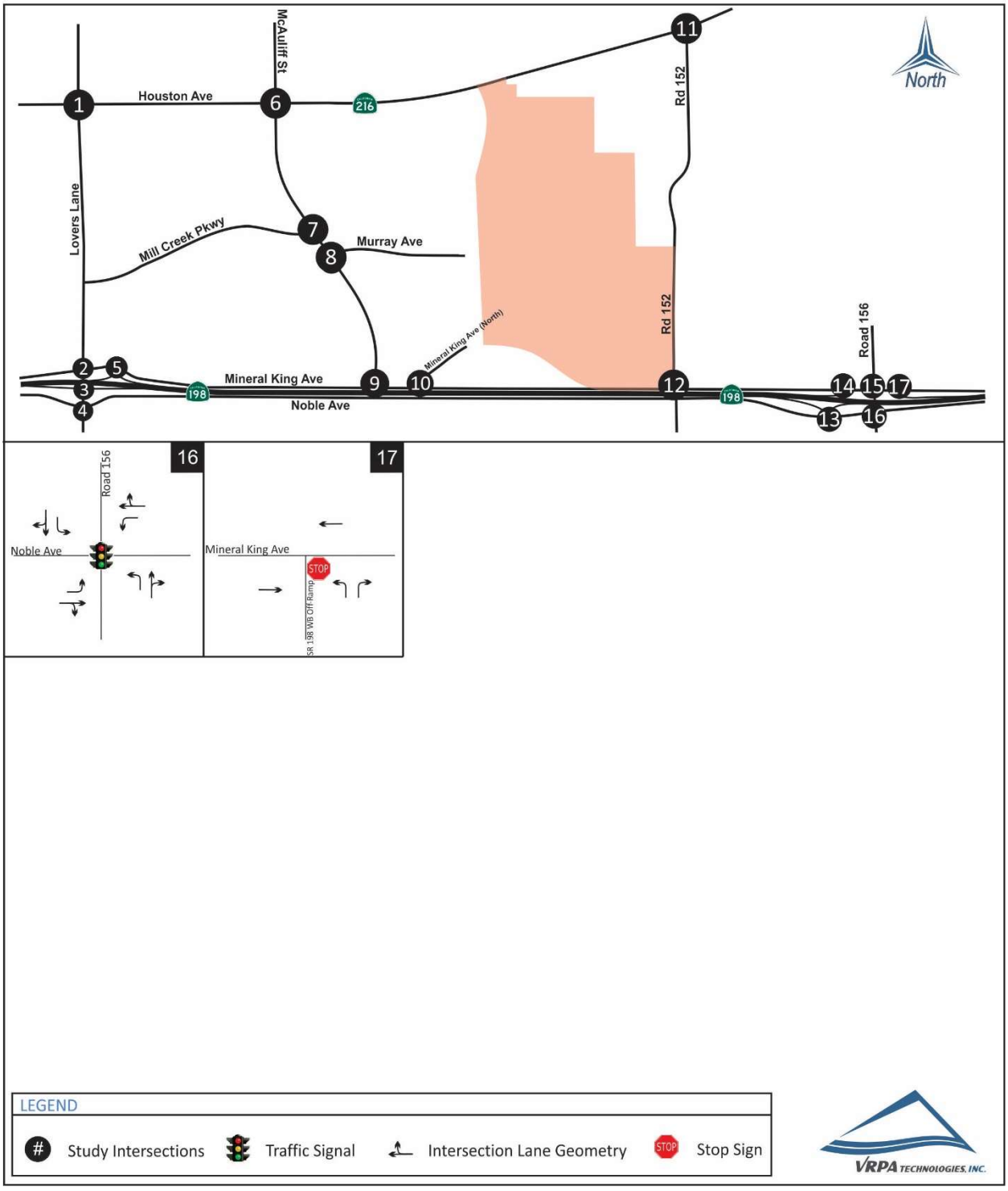
East Side Regional Park & Groundwater Recharge Project EIR
Existing Lane Geometry

Figure 2-1a



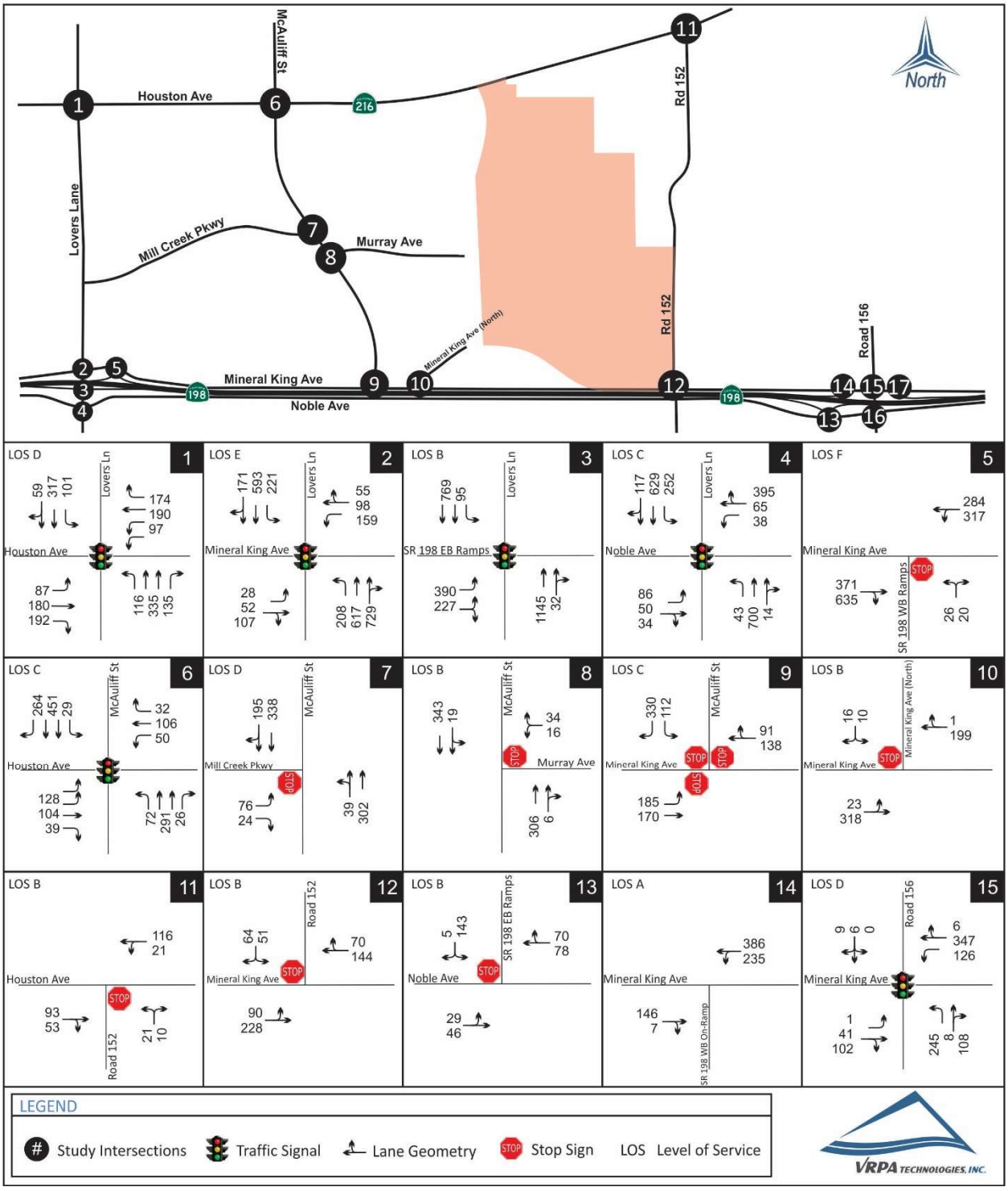
East Side Regional Park & Groundwater Recharge Project EIR
Existing Lane Geometry

Figure 2-1b



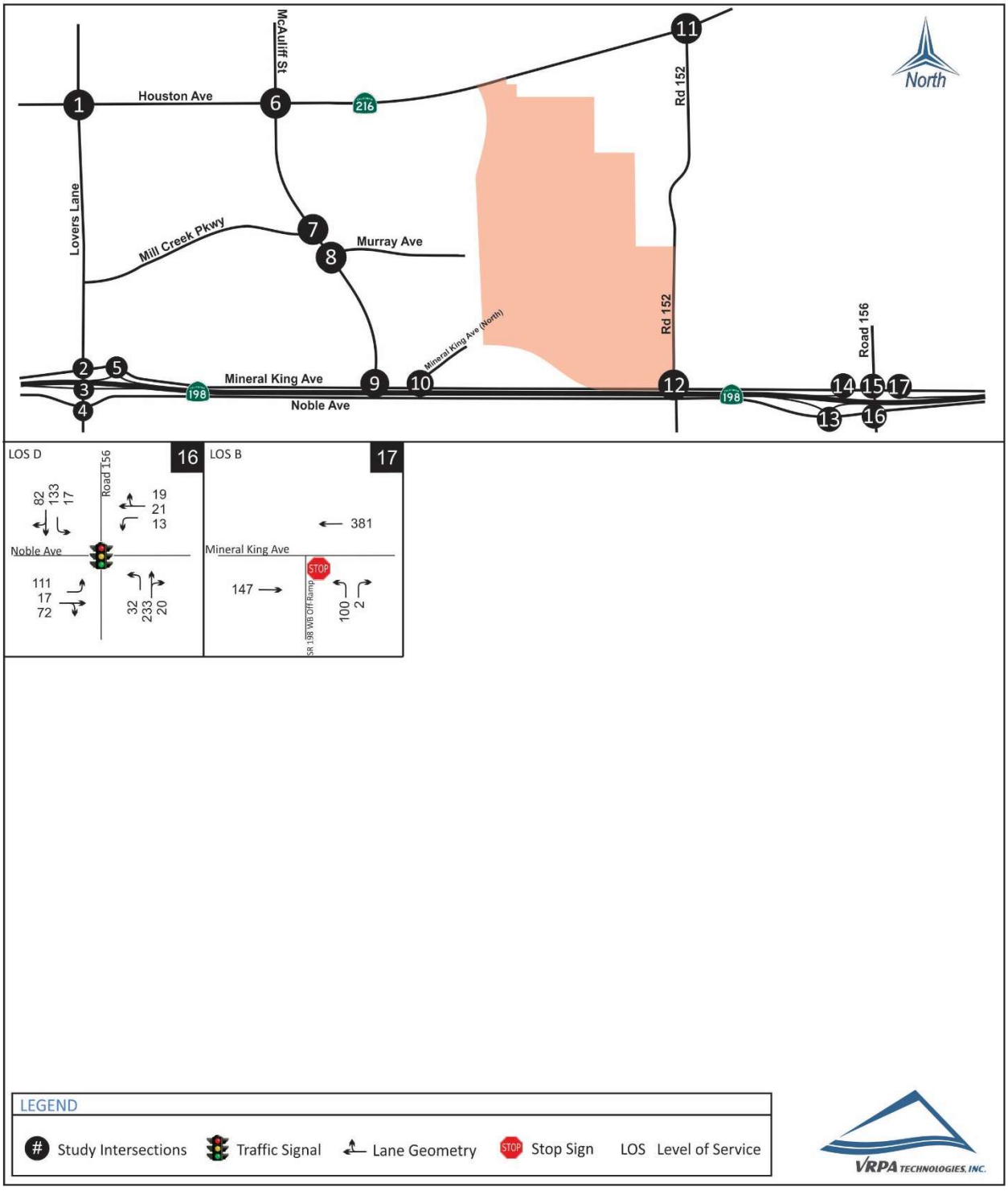
East Side Regional Park & Groundwater Recharge Project EIR
Existing AM Peak Hour Traffic

Figure 2-2a



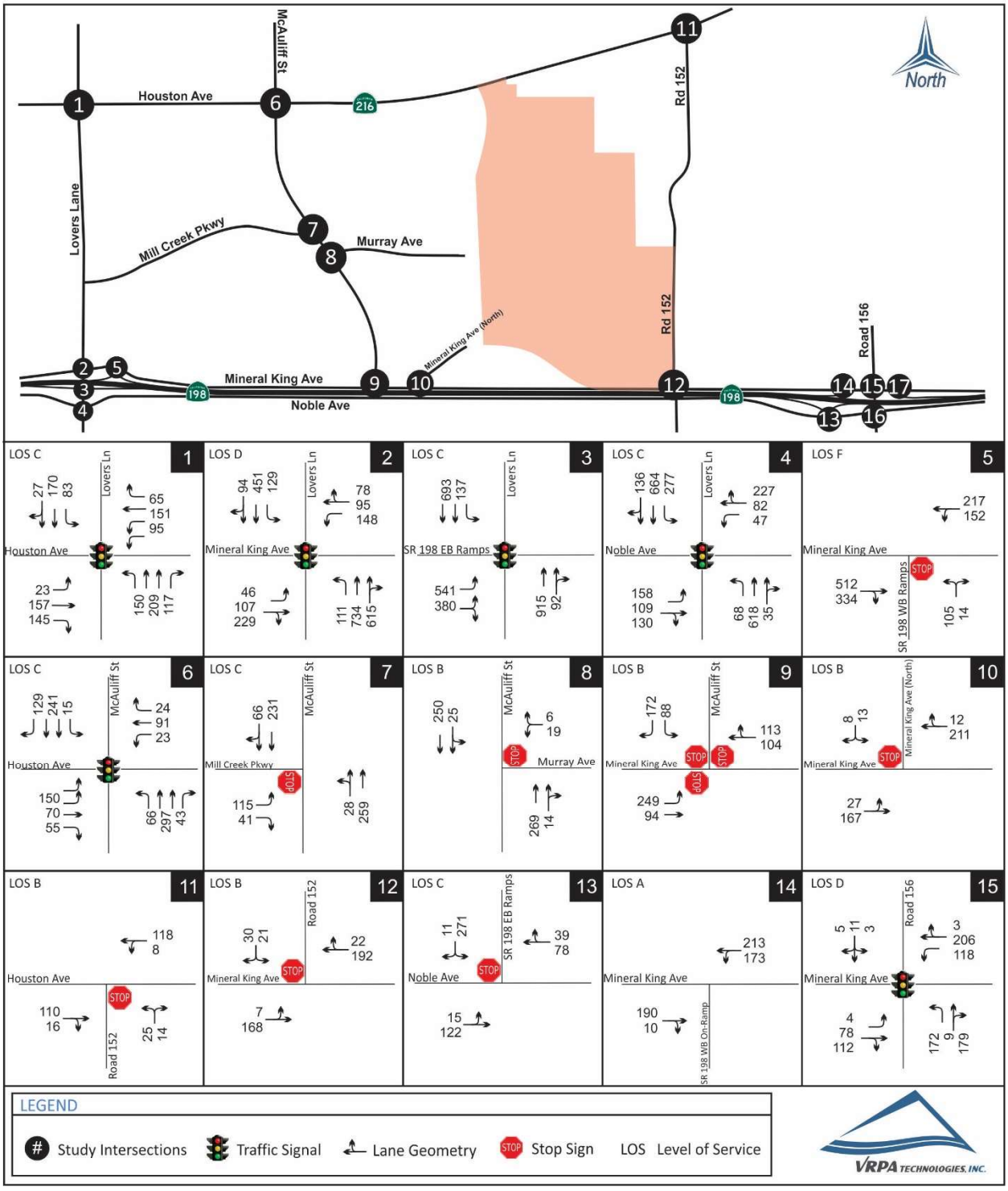
East Side Regional Park & Groundwater Recharge Project EIR
Existing AM Peak Hour Traffic

Figure 2-2b



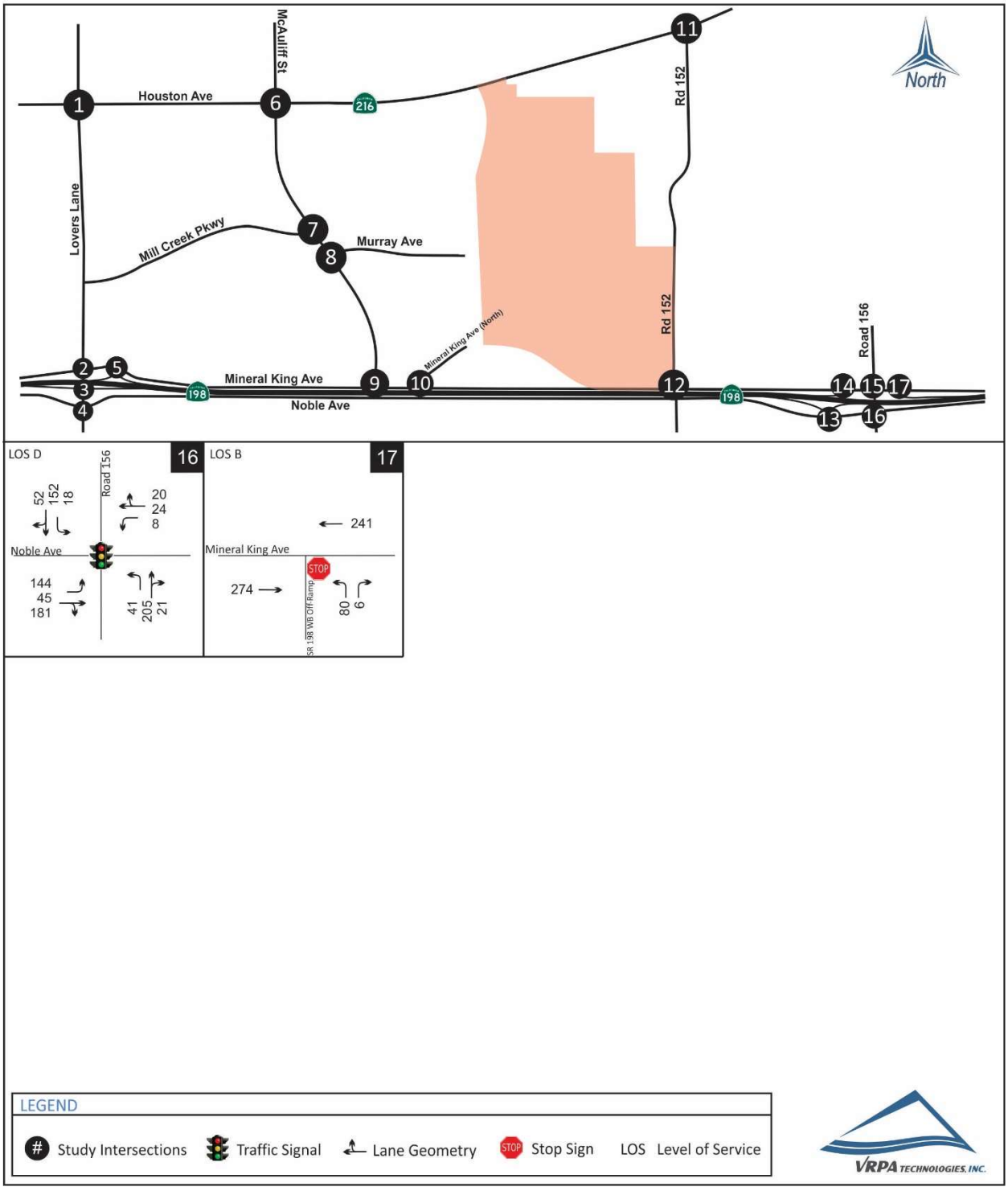
East Side Regional Park & Groundwater Recharge Project EIR
Existing PM Peak Hour Traffic

Figure 2-3a

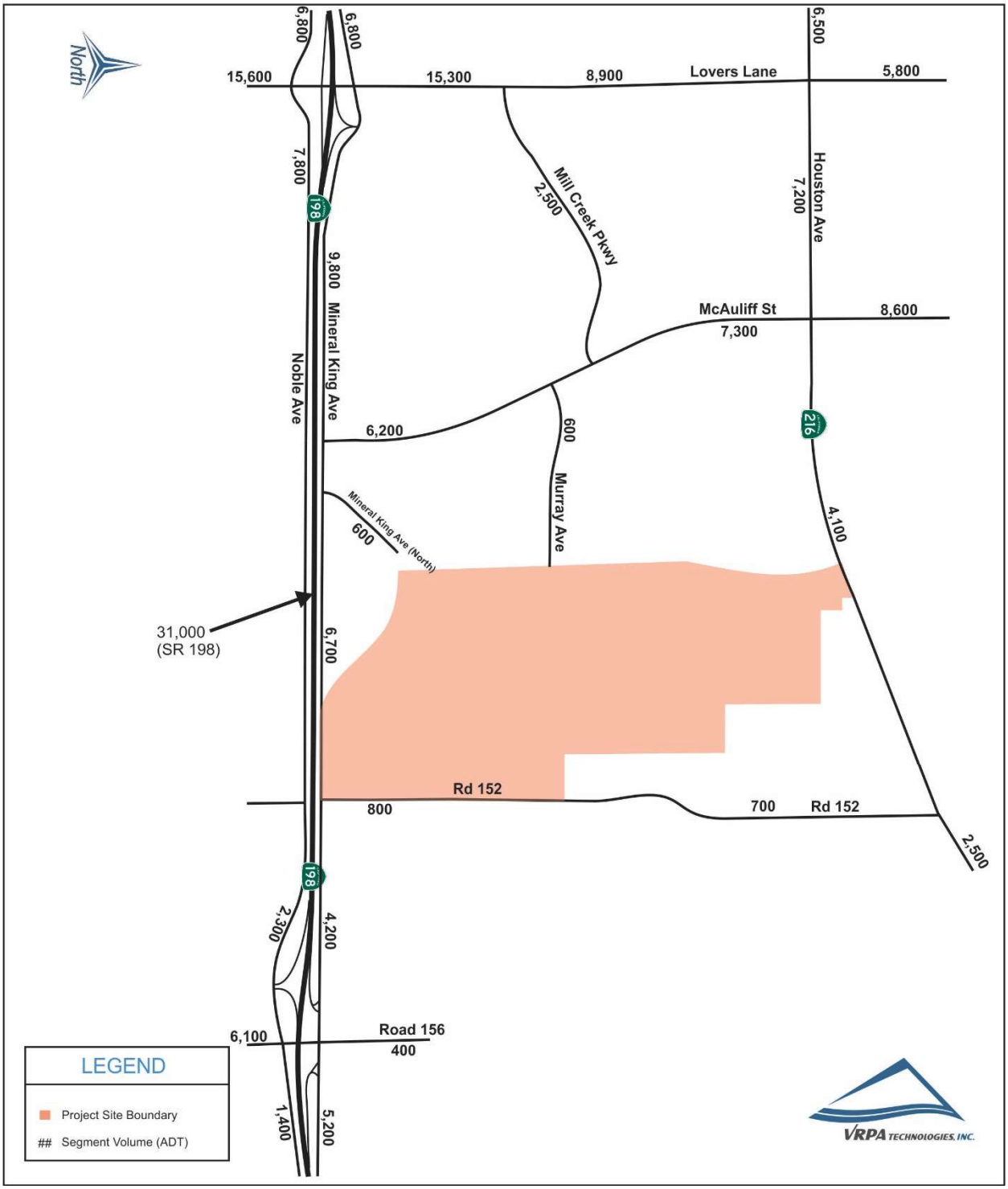


East Side Regional Park & Groundwater Recharge Project EIR
Existing PM Peak Hour Traffic

Figure 2-3b



East Side Regional Park & Groundwater Recharge Project EIR **Figure 2-4**
Existing 2014 Segment Volumes



- **Lovers Lane** – is designated as an Arterial facility and currently exists as a four-lane divided roadway between Noble and Houston within the study area. No bike lanes are present and the facility has a posted speed limit of 45 mph.
- **Houston Avenue (SR 216)** - is designated by the City General Plan as an 11-25 Year Arterial between Lovers Lane and Road 152 in the study area. This segment currently exists as a four-lane divided roadway between Lovers Lane and McAuliff Street and as a two-lane road between McAuliff Street and Road 152. Bike lanes are located along Houston Avenue between Lovers Lane and McAuliff Street. The facility has a posted speed limit of 40 mph between Lovers Lane and McAuliff Street, except for the school zone, which includes a posted speed limit of 25 mph. The posted speed between McAuliff Street and Road 152 is 55 mph.

2.2.3 Collectors – provide for internal traffic movement within communities and neighborhoods, and connect local roads to arterials. According to the Visalia General Plan, "Collectors also connect local and arterial streets and provide direct access to parcels. At major intersections, driveways on collector streets should be no closer than 100 feet to the intersection per the City of Visalia Improvement Standards. Non-residential driveways and/or intersecting streets on collector streets should be no closer than 300 to 400 feet apart. Major collectors carry four lanes of traffic within an 84-foot right-of-way and two bicycle lanes within an additional 10 feet of right-of-way. Collectors generally carry two lanes of traffic and are a minimum of 60 feet wide." The following collectors are identified in the Circulation Element as collectors:

- **McAuliff Street** – is a four-lane undivided roadway between Mineral King and Houston and a 4-lane divided roadway north of Houston. For purpose of LOS analysis, McAuliff was identified as an arterial roadway using the Modified HCM Segment LOS tables. Bike lanes are present along both sides of McAuliff Street except along the west side of the roadway between Willow Avenue and Mineral King Avenue. The posted speed along McAuliff Street is 45 mph.
- **Mill Creek Parkway** – is a two-lane divided roadway without bike lanes and with a posted speed limit of 45 mph.
- **Mineral King Avenue** – currently exists as a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Noble Avenue** - is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.
- **Road 152** – is a two-lane undivided roadway without bike lanes and with a posted speed limit of 45 mph through the study area.

2.2.4 Local Streets – provide direct access to abutting property and connect with other local roads, collectors, and arterials. Local roads are typically developed as two-lane undivided roadways. According to the City General Plan, "access to local streets is unrestricted and right-of-way widths vary between 48 and 66 feet depending on surrounding land uses (2013 City of Visalia Design and Improvement Standards). All roadways not identified in the City of Visalia or Tulare County General Plans as freeways, arterials, or collectors are designated as local streets."

2.3 Affected Streets and Highways

Street and highway intersections and segments near and adjacent to the Project site were analyzed to determine levels of service utilizing HCM-based methodologies described previously. The study intersections and street and highway segments included in this TIS are listed below. The study area outline below was developed in consultation with City of Visalia and Caltrans staff. VRPA prepared a scoping document that included the proposed methodology for the traffic analysis as well as the study area.

Intersections

✓ **Existing Intersections**

1. Lovers Lane / Houston Avenue (SR 216)
2. Lovers Lane / Mineral King Avenue
3. Lovers Lane / SR 198 EB Ramps
4. Lovers Lane / Noble Avenue
5. SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)
6. McAuliff Street / Houston Avenue (SR 216)
7. McAuliff Street / Mill Creek Parkway
8. McAuliff Street / Murray Avenue
9. McAuliff Street / Mineral King Avenue
10. Mineral King Avenue (North) / Mineral King Avenue
11. Road 152 / Houston Avenue (SR 216)
12. Road 152/ Mineral King Avenue
13. Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)
14. SR 198 WB On-Ramp / Mineral King Avenue (between Road 152 and Road 156)
15. Road 156 / Mineral King Avenue
16. Road 156/ Noble Avenue
17. SR 198 WB Off-Ramp / Mineral King Avenue (between Road 156 and Road 158)

Roadway Segments

✓ **Existing Roadway Segments**

- Houston Avenue (SR 216)
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  East of Road 152
- Lovers Lane
  North of Houston Avenue (SR 216)
  Houston Avenue (SR 216) to Mill Creek Parkway
  Mill Creek Parkway to Mineral King Avenue
  South of Noble Avenue

- McAuliff Street
  North of Houston Avenue (SR 216)
  Houston Avenue (SR 216) to Murray Avenue
  Murray Avenue to Mineral King Avenue
- Road 152
  South of Houston Avenue (SR 216)
  North of Mineral King Avenue
- Mineral King Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  McAuliff Street to Road 152
  Road 152 to Road 156
  East of Road 156
- Road 156
  North of Mineral King Avenue
  South of Noble Avenue
- Mill Creek Parkway
  Lovers Lane to McAuliff Street
- Mineral King Avenue (North)
  North of Mineral King Avenue
- Murray Avenue
  East of McAuliff Street
- Noble Avenue
  West of Lovers Lane
  Lovers Lane to McAuliff Street
  West of Road 156
  East of Road 156
- SR 198
  Lovers Lane to Road 156

The existing lane geometry at study area intersections is shown in Figures 2-1a and 2-1b. Seven (7) of the existing study intersections are currently signalized while ten (10) of the intersections are unsignalized. Figures 2-2a, 2-2b, 2-3a and 2-3b show existing traffic volumes for the AM and PM peak hours in the study area.

2.4 Level of Service

2.4.1 *Intersection Capacity Analysis*

All intersection LOS analyses were estimated using Synchro 9 Software. Various roadway geometrics, traffic volumes, and properties (peak hour factors, storage pocket length, etc) were input into the Synchro 9 Software program in order to accurately determine the travel delay and LOS for each Study scenario. The intersection LOS and delays reported represent the 2010 HCM

outputs. Synchro assumptions, listed below, show the various Synchro inputs and methodologies used in the analysis.

2.4.1.1 Lane Geometry

- Storage lengths for turn lanes for existing intersections were obtained from aerial photos and rounded to the nearest 25 feet.

2.4.1.2 Traffic Conditions

- The peak hour factor used for Existing conditions was determined from the existing counts.
- The Right Turn on Red parameter was set to 'Yes'.
- Heavy vehicle percentages were applied as follows and are based on the HCM default, traffic counts, or Caltrans' parameters:
  - SR-198 – 10%
  - SR-216 – 5%
  - All other roadways – 3%
- Queuing conditions for the left and right-turn lanes at all study intersections were conducted using the 95th percentile queue results from the Synchro software.

Results of the analysis show that three of the study intersections are operating worse than the minimum level of service including Lovers Lane at Houston Avenue (LOS D in the AM Peak Hour), Lovers Lane at Mineral King Avenue (LOS E in the AM Peak Hour), and SR 198 WB Ramps at Mineral King Avenue (LOS F in the AM and PM Peak Hours). Table 2-1 shows the intersection LOS for the existing conditions scenario. Synchro Worksheets are provided in Appendix D.

2.4.2 *Roadway Segment Capacity Analysis*

Results of the segment analysis along the existing street and highway system are reflected in Table 2-2. The performance criteria used for evaluating volumes and capacities on the road and highway system for this study were estimated using the Modified Arterial Level of Service Tables included in Table 1-4 and Appendix B. Results of the analysis show that all of the roadway segments are currently operating at acceptable levels of service.

2.5 Queuing Analysis

Table 2-3 provides a queue length summary for left and right turn lanes at the study intersections for the Existing scenario. The Synchro queuing analyses results for the study intersections are contained in the Synchro LOS worksheets found in Appendix D.

Synchro provides 50th and 95th percentile maximum queue lengths in feet. The 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes. The queues shown in Table 2-3 represent the 95th percentile queue lengths for the respective lane movements.

Table 2-1
Existing Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING	
				DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	**35.6**	**D ***
			PM	28.5	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**65.3**	**E ***
			PM	**36.8**	**D ***
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	17.0	B
			PM	26.6	C
4. Lovers Lane / Noble Avenue	Signalized	D	AM	34.5	C
			PM	28.7	C
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**> 50.0**	**F +**
			PM	**> 50.0**	**F +**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	24.8	C
			PM	23.2	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	25.2	D
			PM	15.8	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	12.3	B
			PM	12.5	B
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	15.5	C
			PM	12.0	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	11.8	B
			PM	11.4	B
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.2	B
			PM	10.6	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	14.5	B
			PM	11.3	B
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	12.4	B
			PM	16.0	C
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A
			PM	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	45.4	D
			PM	37.3	D
16. Road 156 / Noble Avenue	Signalized	D	AM	36.6	D
			PM	39.7	D
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	14.7	B
			PM	14.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

* The existing LOS is 'D' or worse. The minimum LOS shall reflect existing conditoins for future study scenarios.

+ Does not meet peak hour signal warrants.

Table 2-2
Existing Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	EXISTING		
				VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)						
West of Lovers Lane	2 Lanes Undivided	D	17,700	6,500	0.37	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	7,200	0.18	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	4,100	0.23	C
East of Road 152	2 Lanes Undivided	C	17,700	2,500	0.14	C
Lovers Lane						
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	5,800	0.17	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	8,900	0.25	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	15,300	0.43	C
South of Noble Avenue	4 Lanes Divided	D	35,820	15,600	0.44	C
McAuliff Street						
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	8,600	0.24	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,300	0.22	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	6,200	0.18	C
Road 152						
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	700	0.04	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	800	0.05	C
Mineral King Avenue						
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,800	0.43	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	9,800	0.62	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	6,700	0.42	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	4,200	0.26	C
East of Road 156	2 Lanes Undivided	D	15,930	5,200	0.33	C
Road 156						
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	6,100	0.38	C
Mill Creek Parkway						
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,500	0.15	C
Mineral King Avenue (North)						
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	600	0.04	C
Murray Avenue						
East of McAuliff Street	2 Lanes Undivided	D	14,040	600	0.04	C
Noble Avenue						
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,800	0.43	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	7,800	0.49	C
West of Road 156	2 Lanes Undivided	D	15,930	2,300	0.14	C
East of Road 156	2 Lanes Undivided	D	15,930	1,400	0.09	C
SR 198						
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	31,000	0.39	B

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 2-3
Existing Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING CONDITIONS	
			AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	142	187
	NB Right	300	16	22
	SB Left	225	180	118
	EB Left	200	167	47
	EB Right	200	46	44
	WB Left	2 @ 375	62	70
	WB Right	325	10	0
Lovers Lane / Mineral King Avenue	NB Left	100	**245**	89
	SB Left	175	**323**	**209**
	EB Left	150	37	50
	WB Left	150	**190**	**250**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**125**	**170**
	EB Left	225	**350**	**536**
Lovers Lane / Noble Avenue	NB Left	125	69	100
	SB Left	100	**317**	**300**
	EB Left	125	**185**	**225**
	WB Left	125	45	55
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	83	84
	NB Right	125	0	0
	SB Left	200	48	30
	SB Right	200	31	26
	EB Left	2 @ 375	70	81
	EB Right	200	0	0
	WB Left	375	68	40
	WB Right	375	0	0
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100
	EB Right	100	25	25
McAuliff Street / Mineral King Avenue	SB Left	250	100	75
	SB Right	250	**275**	150
	EB Left	200	150	200
Road 156 / Mineral King Avenue	NB Left	125	**257**	**194**
	EB Left	50	6	15
	WB Left	125	**144**	**133**
Road 156 / Noble Avenue	NB Left	175	51	62
	SB Left	150	18	25
	EB Left	350	125	151
	WB Left	325	29	21

Queue is measured in feet / **BOLD** denotes exceedance

2.6 Ramp Merge/Diverge Analysis

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges are reflected in Table 2-4 and indicate the interchanges are currently operating at acceptable levels of service. HCS 2010 Worksheets are provided in Appendix E.

2.7 Existing Bikeway Facilities

As noted above in Section 2.2, there are two existing bikeway facilities within the study area including a bikeway along both sides of McAuliff Street except along the west side of the roadway between Willow Avenue and Mineral King Avenue and a bikeway along Houston Avenue between Lovers Lane and Road 152 (reference Figure 2-5).

2.8 Existing Transit Systems

Visalia Transit currently serves the study area with its Routes 8A and 8B, which provide directional service along Lovers Lane between Mineral King to north of Houston Avenue with weekday service approximately every 45 minutes and Saturday service along both routes every 45 minutes and Sunday service along Route 8A only. Tulare County Area Transit (TCAT) provides transit service via its Northeast County Route including the intersection of Lovers Lane and Houston Avenue with weekday service approximately every 30 minutes and weekend service approximately every 60 minutes.

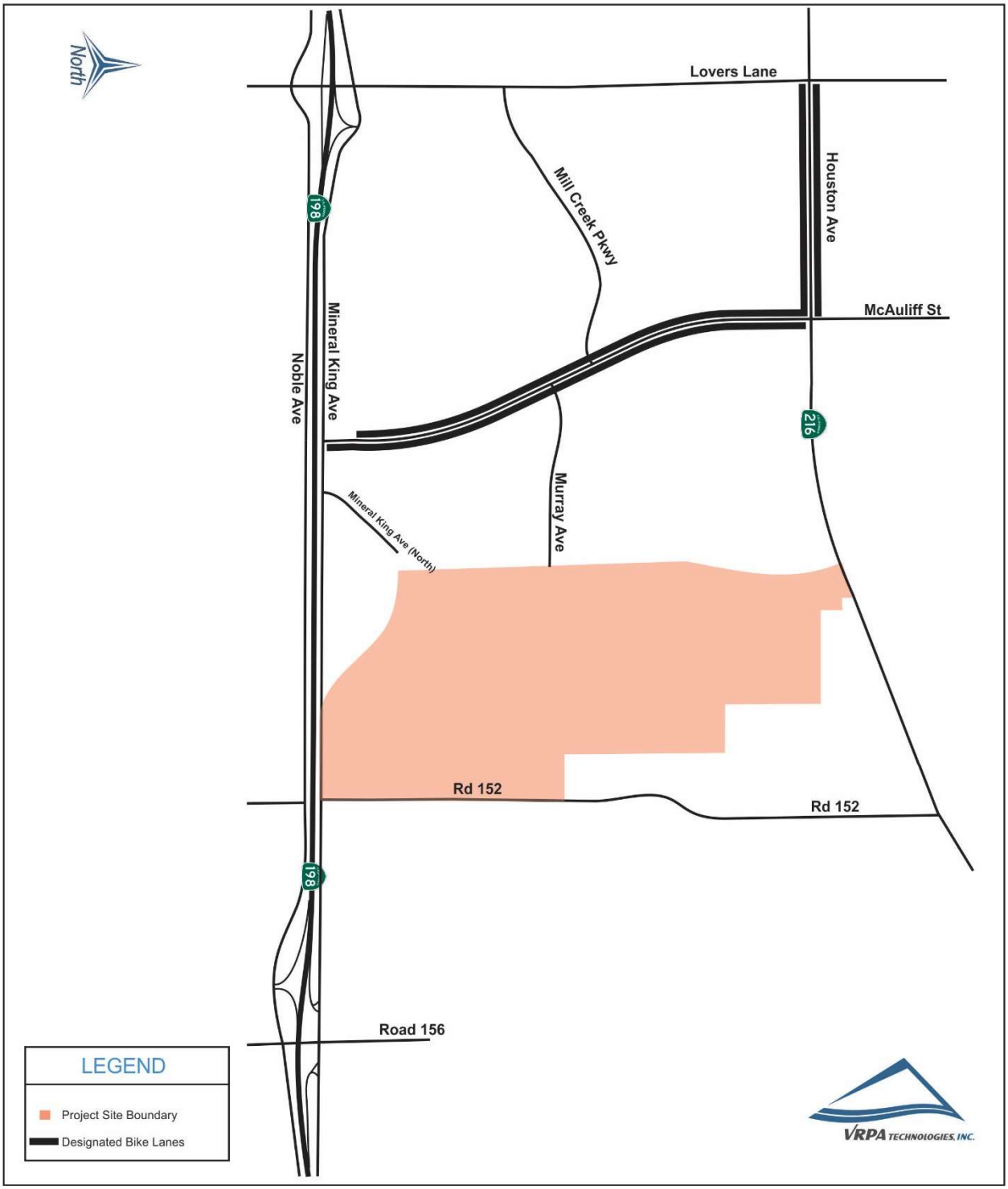
Table 2-4
Existing Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		TARGET LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	2160	617	2728	921	2	1	C	B	15.1	C	20.7
SR-198 EB On Ramp from Lovers Lane	Merge	1543	127	1807	229	2	1	C	B	12.6	B	15.8
SR-198 EB Off Ramp to Road 156	Diverge	1670	148	2036	282	2	1	C	A	9.2	B	12.8
SR-198 EB On Ramp from Road 156	Merge	1522	99	1754	54	2	1	C	B	15.2	B	16.9
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	1669	102	1637	86	2	1	C	A	8.3	A	8.0
SR-198 WB On Ramp from Road 156	Merge	1567	242	1551	183	2	1	C	B	14.6	B	13.9
SR-198 WB Off Ramp to Lovers Lane	Diverge	1809	46	1734	119	2	1	C	B	13.7	B	13.0
SR-198 WB On Ramp from Lovers Lane	Merge	1763	952	1615	486	2	1	C	C	23.8	B	18.6

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

East Side Regional Park & Groundwater Recharge Project EIR
Existing Bikeways

Figure 2-5



3.0 Traffic Impacts

This chapter provides an assessment of the traffic the Project is expected to generate and the impact of that traffic on the surrounding street system.

3.1 Trip Generation

To assess the impacts that the Project may have on the surrounding street and highway segments and intersections, the first step is to determine Project trip generation. Project trips are generally determined using trip generation rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition). The 9th Edition of the ITE Trip Generation Manual includes trip generation rates for a "Regional Park"; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. It is anticipated that the Project will be developed in three (3) phases as described below.

3.1.1 *Phase 1*

Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities only. The considerations described above led to the recommended trip generation for weekday AM (7-9am) and PM (4-6pm) peak hours shown in Table 3-1. This phase of the Project was not evaluated for impacts given the limited number of trips anticipated for Phase 1.

Table 3-1
ITE East Side Regional Park Phase 1 (Recharge Basins Only) Weekday Trip Generation

LAND USE	Quantity	WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
				IN	OUT	TOTAL			IN	OUT	TOTAL
Recharge Basin [1]	100 acres	0.02	50:50	1	1	2	0.02	50:50	1	1	2
TOTAL TRIP GENERATION				**1**	**1**	**2**			**1**	**1**	**2**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.
1: Assumes that two (2) maintenance workers would visit the site on a typical day and that they would make their trips in either the AM or PM peak hours

3.1.2 *Phase 2*

Phase 2 of the proposed East Side Regional Park & Groundwater Recharge Facility includes the Tower Street and Road 152 frontage improvements, Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits.

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

The 9th Edition of the ITE Trip Generation Manual includes trip generation rates for a "Regional Park"; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. Of the four (4) components listed above, Soccer Fields has a specific land use category listed in the ITE Trip Generation Manual. The softball fields and baseball fields were considered to generate trips similar to soccer fields. The considerations described above led to the recommended trip generation for weekday AM (7-9am) and PM (4-6pm) peak hours shown in Table 3-2.

In addition to the weekday AM (7-9am) and PM (4-6pm) peak hours, consideration was given to the Saturday peak hour. On Saturdays, traffic generated by the park recreational uses, peak around the 8am start time for most leagues. However, ambient traffic in the study area peaks during the mid-afternoon time period on Saturdays. Therefore, Saturday traffic was analyzed for the mid-afternoon peak hour at the proposed Project driveways along Tower Street. The ITE Trip Generation Manual includes trip generation rates for Saturday and Saturday peak hour conditions for the same land use categories as were analyzed for weekday AM (7-9am) and PM (4-6pm) peak hour conditions. This led to the recommended Saturday trip generation shown in Table 3-3. It should be noted that a swap meets operates on Thursdays and Sundays from 5:30am to 3:00pm adjacent to the southeast corner of the Project site. Traffic desiring to access the Project site from Road 152/Mineral King Avenue for special events, tournaments, etc. may experience some delay due to swap meet traffic/operations. However, background or ambient traffic on a Sunday is generally lower than weekday or Saturday peak hour traffic.

Table 3-2
ITE East Side Regional Park Phase 2 Weekday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Adult Softball Fields, Youth Baseball Fields and Soccer Fields (488)	13 Fields	71.33	927	1.12	57:43	9	6	15	17.70	67:33	154	76	230
TOTAL TRIP GENERATION			**927**			**9**	**6**	**15**			**154**	**76**	**230**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

Table 3-3
ITE East Side Regional Park Phase 2 Saturday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		SATURDAY PEAK HOUR OF GENERATOR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	117.43	1,527	T = 37.04(X) - 75.92	48:52	195	211	406
TOTAL TRIP GENERATION			**1,527**			**195**	**211**	**406**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

3.1.3 *Phase 3 (Full Build Out)*

Trips associated with full development of the Project (Phase 3) includes trips from Phases 1 and 2 of the Project as well as the remaining development of the site which includes the community center and amphitheater. The community center has a specific land use category listed in the ITE Trip Generation Manual and is included in the Phase 3 trip generation table below. Since the special uses (ball fields and community center) were analyzed using their own trip generation rates, the acreage of these uses was subtracted out of the total 139 acres, leaving approximately 67.5 acres to be used to generate trips for the remainder of the park. The considerations described above led to the recommended trip generation for weekday AM (7-9am) and PM (4-6pm) peak hours shown in Table 3-4.

Table 3-4
ITE East Side Regional Park Phase 3 (Build Out) Weekday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Regional Park (417)	67.5 acres	4.57	308	0.04 [1]	61:39 [2]	2	1	3	0.20	45:55	6	8	14
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	71.33	927	1.12	57:43	9	6	15	17.70	67:33	154	76	230
Community Center (495)	30,000 sq. ft.	33.82	1,015	2.05	66:34	41	21	62	2.74	49:51	40	42	82
TOTAL TRIP GENERATION			**2,250**			**52**	**28**	**80**			**200**	**126**	**326**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

1 Trip Rate based on AM/PM Peak hour ratio of Land Use 412 (County Park)
Calculation - County Park AM Trip Rate (0.02) / County Park PM Trip Rate (0.09) = 0.22 X Regional Park PM Trip Rate (0.2) = .04

2 In/Out Split based on AM Peak hour for Land Use 412 (County Park)

In addition to the weekday AM and PM peak hours, consideration was given to Saturdays and special event (amphitheater) traffic. Saturday traffic and special event traffic would be expected to occur outside the typical weekday AM and PM peak hours for non-park traffic. For that reason, the analysis of Saturday and special event traffic was limited to the following locations:

- ✓ Tower Street/Regional Park North Access Driveway
- ✓ Tower Street/Regional Park South Access Driveway
- ✓ SR 198 Westbound Ramps/Tower Street
- ✓ SR 198 Eastbound Ramps/Tower Street

On Saturdays, traffic generated by the park recreational uses peak around the 8am start time for most leagues. However, ambient traffic in the study area peaks during the mid-afternoon time period on Saturdays. Therefore, Saturday traffic was analyzed for the mid-afternoon peak hour. The ITE Trip Generation Manual includes trip generation rates for Saturday weekday and Saturday peak hour conditions for the same land use categories as were analyzed for weekday AM and PM peak hour conditions. This led to the recommended Saturday trip generation shown in Table 3-5. It should be noted that a swap meets operates on Thursdays and Sundays from 5:30am to 3:00pm adjacent to the southeast corner of the Project site. Traffic desiring to access the Project site from Road 152/Mineral King Avenue for special events, tournaments, etc. may experience some delay due to swap meet traffic/operations. However, background or ambient traffic on a Sunday is generally lower than weekday or Saturday peak hour traffic.

Table 3-5
ITE East Side Regional Park Phase 3 (Build Out) Saturday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		SATURDAY PEAK HOUR OF GENERATOR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL
Regional Park (417)	67.5 acres	5.65	381	0.34	48:52	11	12	23
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	117.43	1,527	T = 37.04(X) - 75.92	48:52	195	211	406
Community Center (495)	30,000 sq. ft.	9.10	273	1.07	54:46	17	15	32
TOTAL TRIP GENERATION			**2,181**			**223**	**238**	**461**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

The Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. In order to gain an understanding of the individual uses, VRPA staff participated in a meeting on February 11, 2016 that included various members of the Project Team and City staff members who had knowledge of the individual activities that would be expected to occur on the Project site. Some of the activity associated with these individual uses would be represented in the typical weekday and Saturday trip generation described above, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities. Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation.

After consideration of the discussion at the February 11, 2016 meeting and additional follow-up discussion with City staff members, the following scenario was agreed upon to represent special event traffic for worst-case analysis purposes:

1. Amphitheater weekday evening event at full capacity (all 1,500 seats filled)

2. Typical weekday evening activity for all other park uses

In order to analyze this scenario, the following assumptions were made:

1. It was considered important to analyze both inbound traffic conditions prior to the amphitheater event and outbound traffic conditions after the event

2. Information from the 2009 National Household Travel Survey Average Vehicle Occupancy Rate for Social and Recreational Purposes was used to estimate trips associated with the 1,500-seat amphitheater. This survey showed a total combined vehicle occupancy of 2.21 persons per vehicle for recreational purposes, which is equivalent to a trip generation rate of 0.45 trips per seat. Trips were assumed to be 95% inbound for the inbound event condition and 95% outbound for the outbound event condition

3. Trip generation for the remainder of the Project site was assumed to be the same as the weekday PM (4-6pm) peak hour for the rest of the park uses. The assumption was that there would typically be a relatively steady level of traffic during the evening for the remainder of the park

4. Although hours could vary, for traffic analysis purposes it was assumed that the inbound peak hour would occur from 6 PM to 7PM and the outbound peak hour would occur from 8 PM to 9 PM. While typical amphitheater events would be expected to last more than an hour, the time period for the outbound peak hour is considered to be a conservative assumption since prevailing traffic on local roadways would tend to decrease at later hours in the evening

This led to the recommended trip generation shown in Table 3-6.

Table 3-6
ITE East Side Regional Park Phase 3 (Build Out) Weekday Trip Generation with Special Event Traffic

LAND USE	Quantity	WEEKDAY SPECIAL EVENT INBOUND TRAFFIC					WEEKDAY SPECIAL EVENT OUTBOUND TRAFFIC				
		RATE [2]	IN:OUT SPLIT	VOLUME			RATE [2]	IN:OUT SPLIT	VOLUME		
				IN	OUT	TOTAL			IN	OUT	TOTAL
Regional Park (417)	67.5 acres	0.20	45:55	6	8	14	0.20	45:55	6	8	14
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	17.70	67:33	154	76	230	17.70	67:33	154	76	230
Community Center (495)	30,000 sq. ft.	2.74	49:51	40	42	82	2.74	49:51	40	42	82
Special Event Traffic [1] (Amphitheater)	1,500 Seats	0.45	95:5	641	34	675	0.45	5:95	34	641	675
TOTAL TRIP GENERATION				**841**	**160**	**1,001**			**234**	**767**	**1,001**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1 Although hours could vary, for traffic analysis purposes it was assumed that the inbound peak hour would occur from 6 PM to 7PM and the outbound peak hour would occur from 8 PM to 9 PM. While typical amphitheater events would be expected to last more than an hour, the time period for the outbound peak hour is considered to be a conservative assumption since prevailing traffic on local roadways would tend to decrease at later hours in the evening

2 PM peak hour trip rate for Land Use 417, 488, and 495 assumed to be equal to typical 4 - 6pm peak hour trip rate.

3.2 Trip Distribution

Project trip distribution is shown in Figures 3-1a and 3-1b and is based upon a select zone model run prepared by Tulare County Association of Government (TCAG) staff. The regional travel model was used to determine how Project trips are distributed to the surrounding roadway network. The Project's trip distribution along Tower Street was manually adjusted considering the proposed lane geometry and roadway configuration.

Currently, access to the Project site is via its frontages on Mineral King Avenue, Road 152 and Houston Avenue (SR 216). Primary access to the Project will be provided through the construction of Tower Street along the western border of the Project Site, together with two entrance/exits aligning with the proposed extension of Villoy Avenue and the extension of McKinley Avenue. A secondary (3rd) entrance/exit will be provided to Road 152 approximately ½ mile north of its intersection with Mineral King Avenue.

Separate from this Project, the City and Caltrans are planning an interchange at Tower Street and SR 198, although the project is only in the planning stage and has not been officially authorized nor funding allocated for it. The interchange at Tower Street and SR-198 is not anticipated to be a constrained project in Tulare County Association of Government's (TCAG) 2018 RTP. Nevertheless, this traffic analysis includes assessment of traffic impacts both with and without the interchange. Figure 3-1a reflects the Project trip distribution without the development of an interchange at Tower Street, while Figure 3-1b reflects the Project trip distribution with an interchange at Tower Street and SR 198.

3.3 Project Traffic

Project traffic as shown in Tables 3-2, 3-3, 3-4, 3-5, and 3-6 was distributed to the roadway system using the trip distribution percentages generated by the select zone model run prepared TCAG staff and are shown in Figures 3-1a and 3-1b. A graphical representation of the resulting AM and PM peak hour and Saturday peak hour Project trips used is shown in Figures 3-2a, 3-2b, 3-3a, 3-3b, 3-4, 3-5a, 3-5b, 3-6a, 3-6b, 3-7a, 3-7b, 3-7c, 3-8a, 3-8b, 3-9a, 3-9b, 310a, 3-10b, and 3-10c.

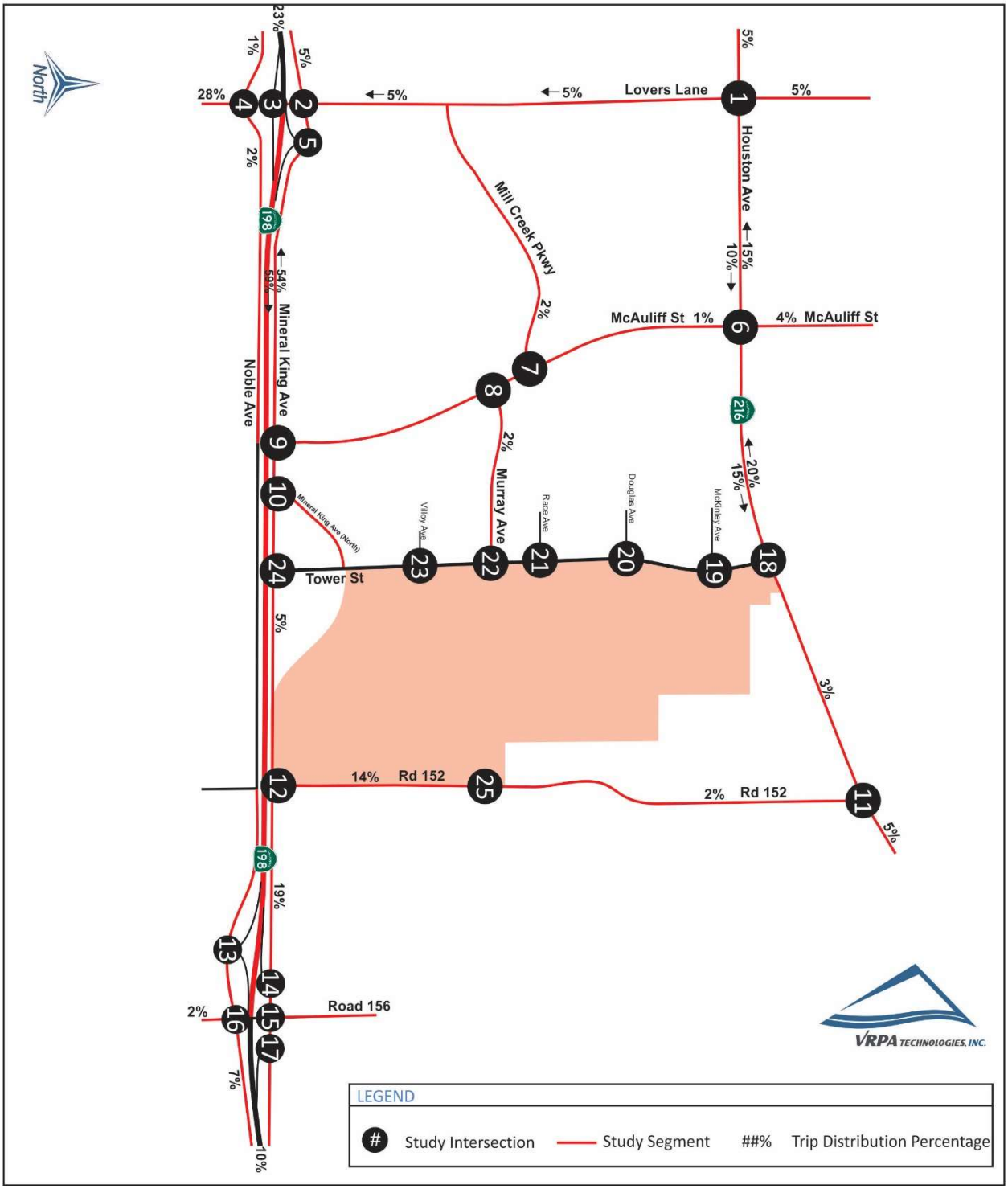
3.4 Existing Plus Project Traffic Conditions

An Existing Plus Project Scenario was analyzed to include existing traffic plus traffic generated by full development of the Project (Phase 3). The resulting traffic is shown in Figures 3-11a, 11b, 12a, 12b, 13a, 13b, and 13c. Figure 3-14 graphically displays Existing segment volumes (ADT) with the addition of the proposed Project.

It was assumed that construction of Tower Street would eliminate Comstock Street access to Houston Avenue (SR 216) in accordance with City of Visalia City Council Resolution No. 95-134 which is included in Appendix F. Traffic associated with the East Oak Estates residential development was manually redistributed to Tower Street connections at McKinley Avenue, Douglas Avenue, and Race Avenue.

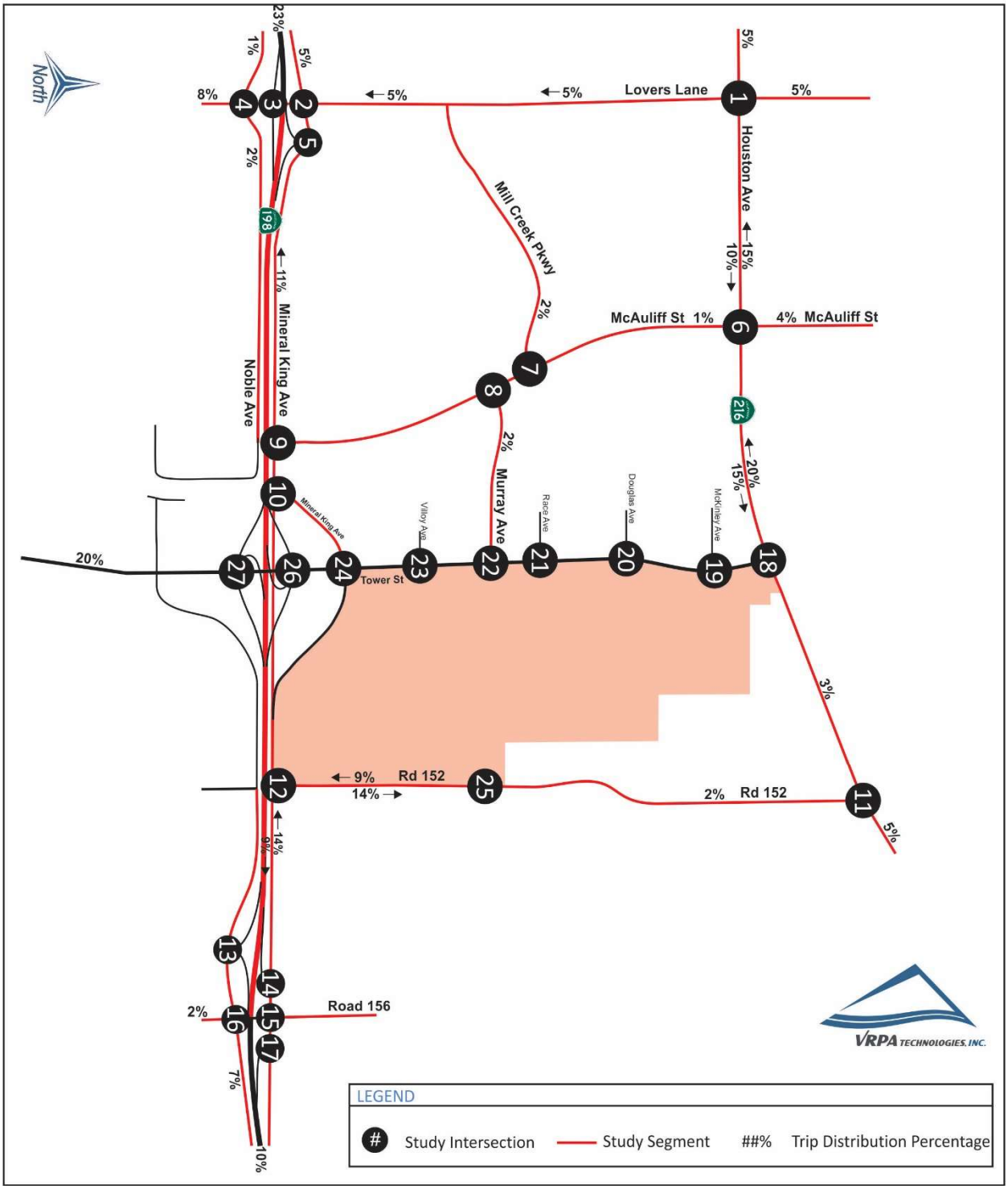
East Side Regional Park & Groundwater Recharge Project EIR
Project Peak Hour Trip Distribution Without Tower Street Interchange

Figure 3-1a



East Side Regional Park & Groundwater Recharge Project EIR
Project Peak Hour Trip Distribution With Tower Street Interchange

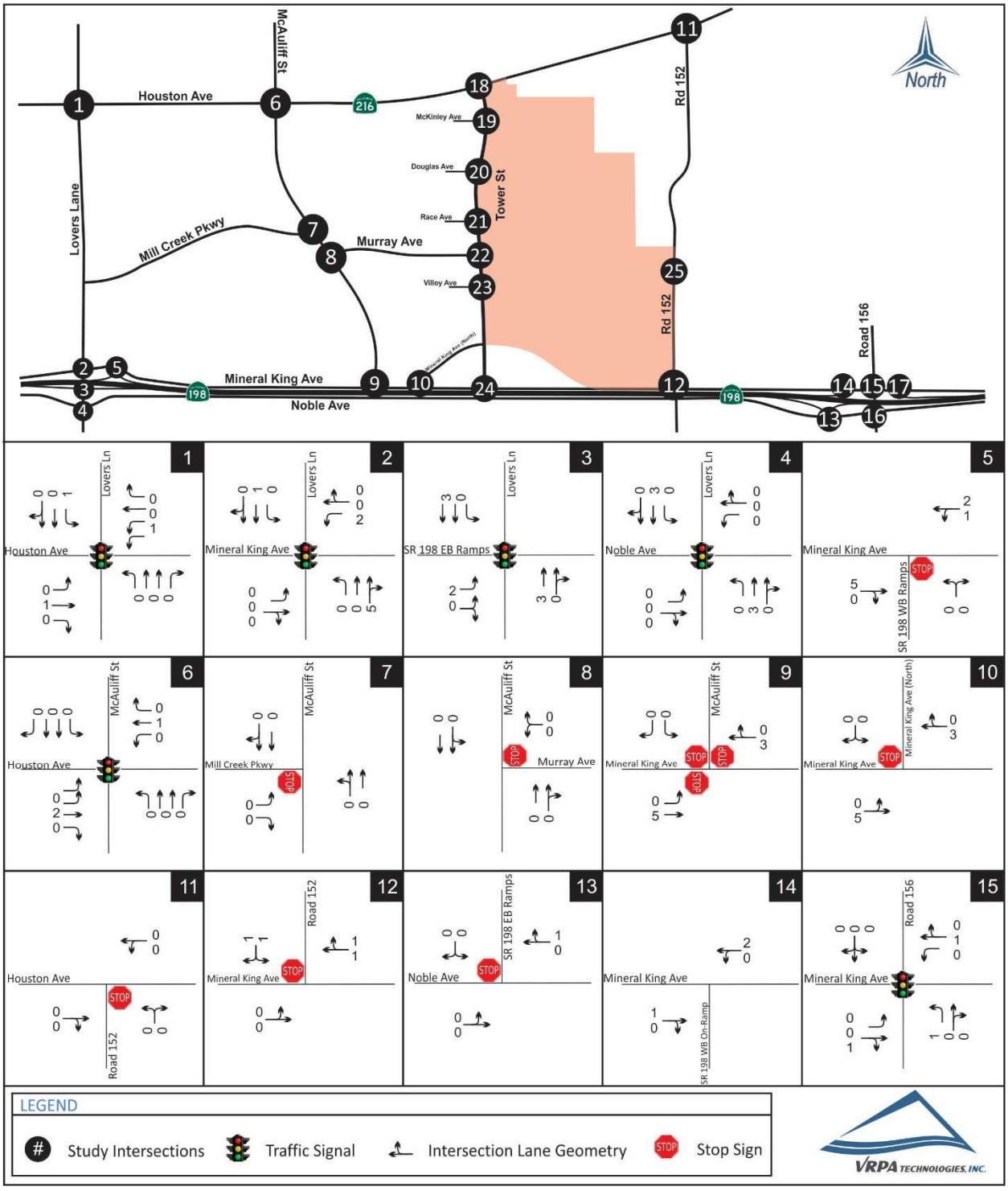
Figure 3-1b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 2 Weekday AM Peak Hour Trip Distribution Without Tower Street Interchange

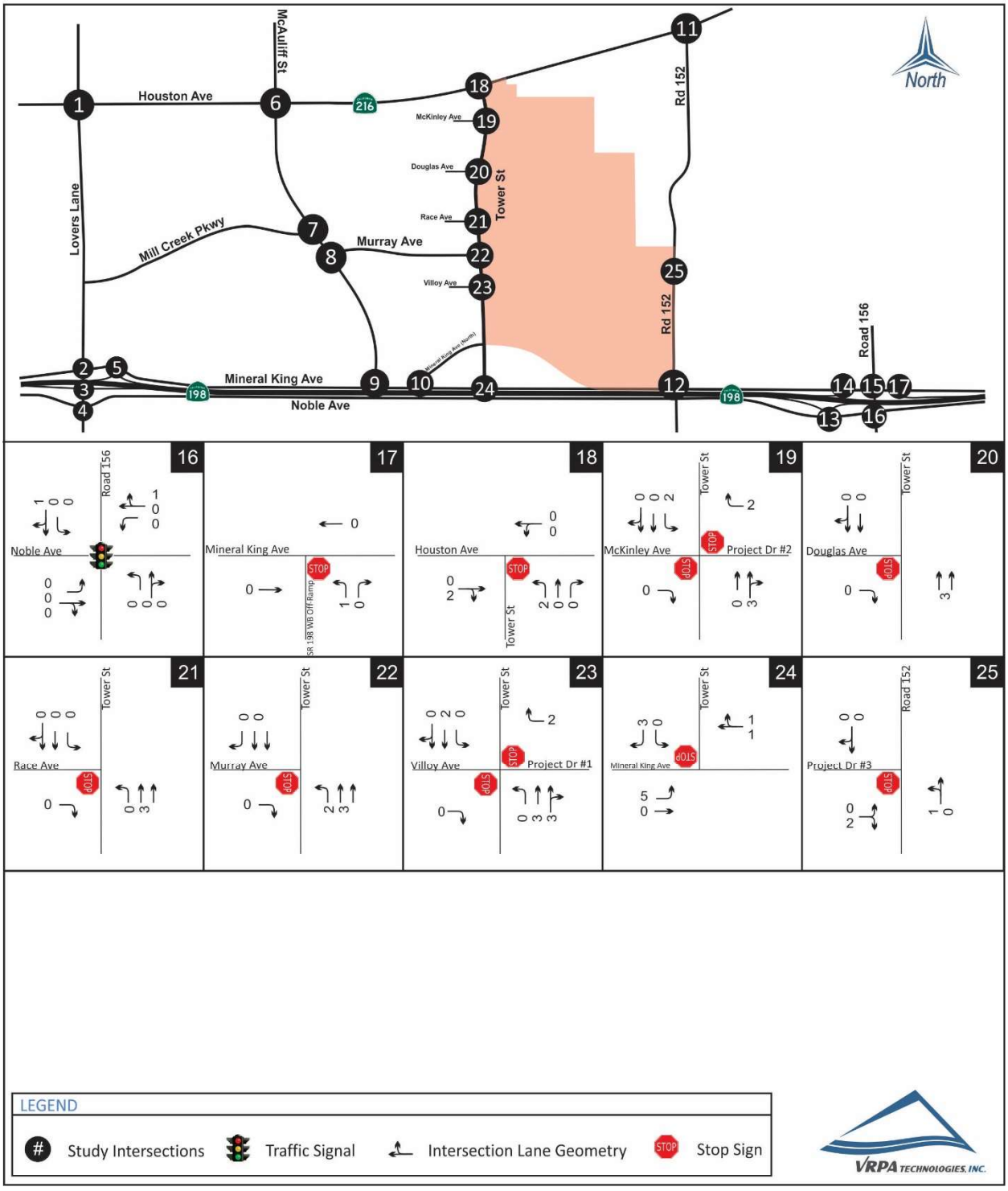
Figure 3-2a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 2 Weekday AM Peak Hour Trip Distribution Without Tower Street Interchange

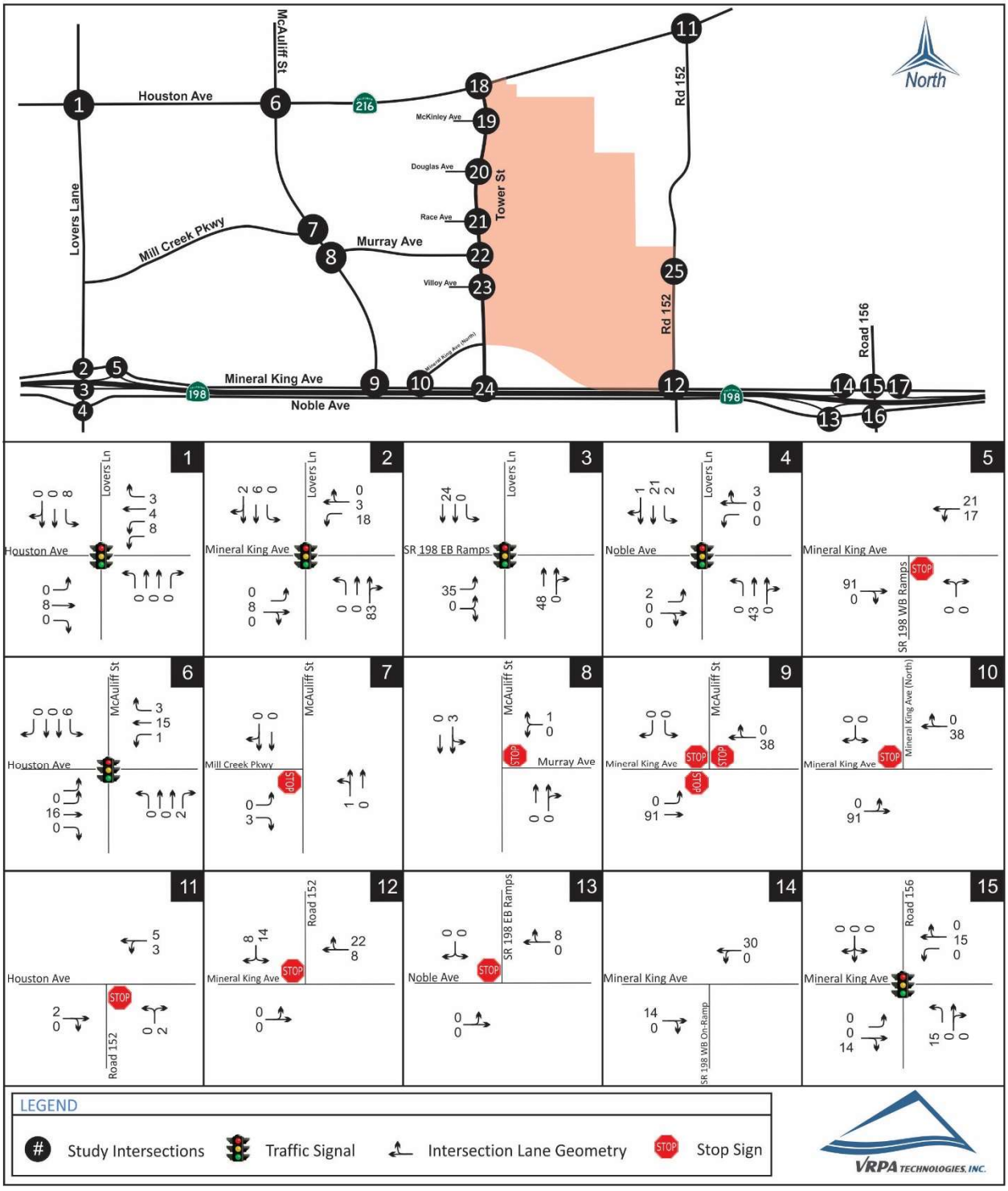
Figure 3-2b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 2 Weekday PM Peak Hour Trip Distribution Without Tower Street Interchange

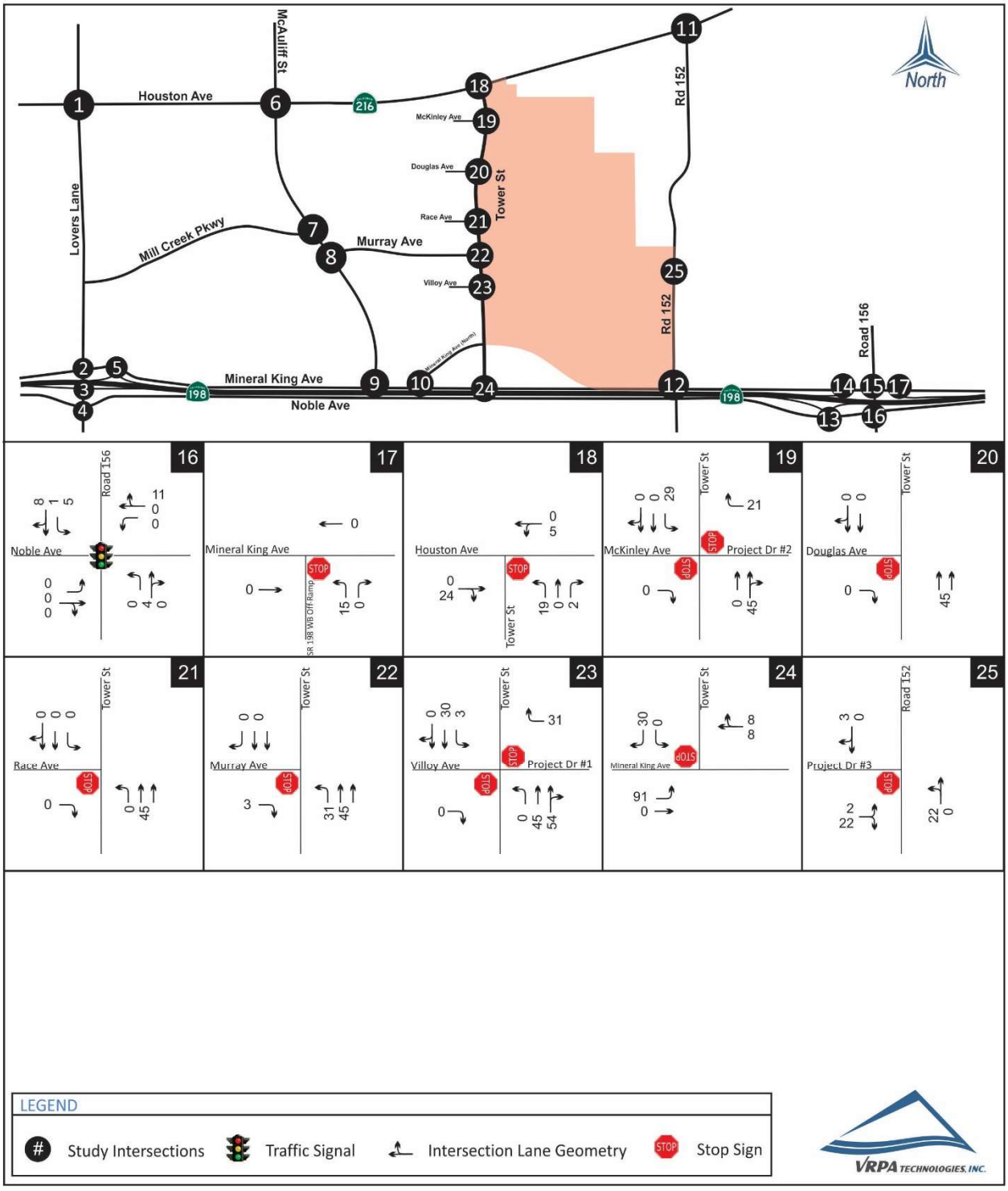
Figure 3-3a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 2 Weekday PM Peak Hour Trip Distribution Without Tower Street Interchange

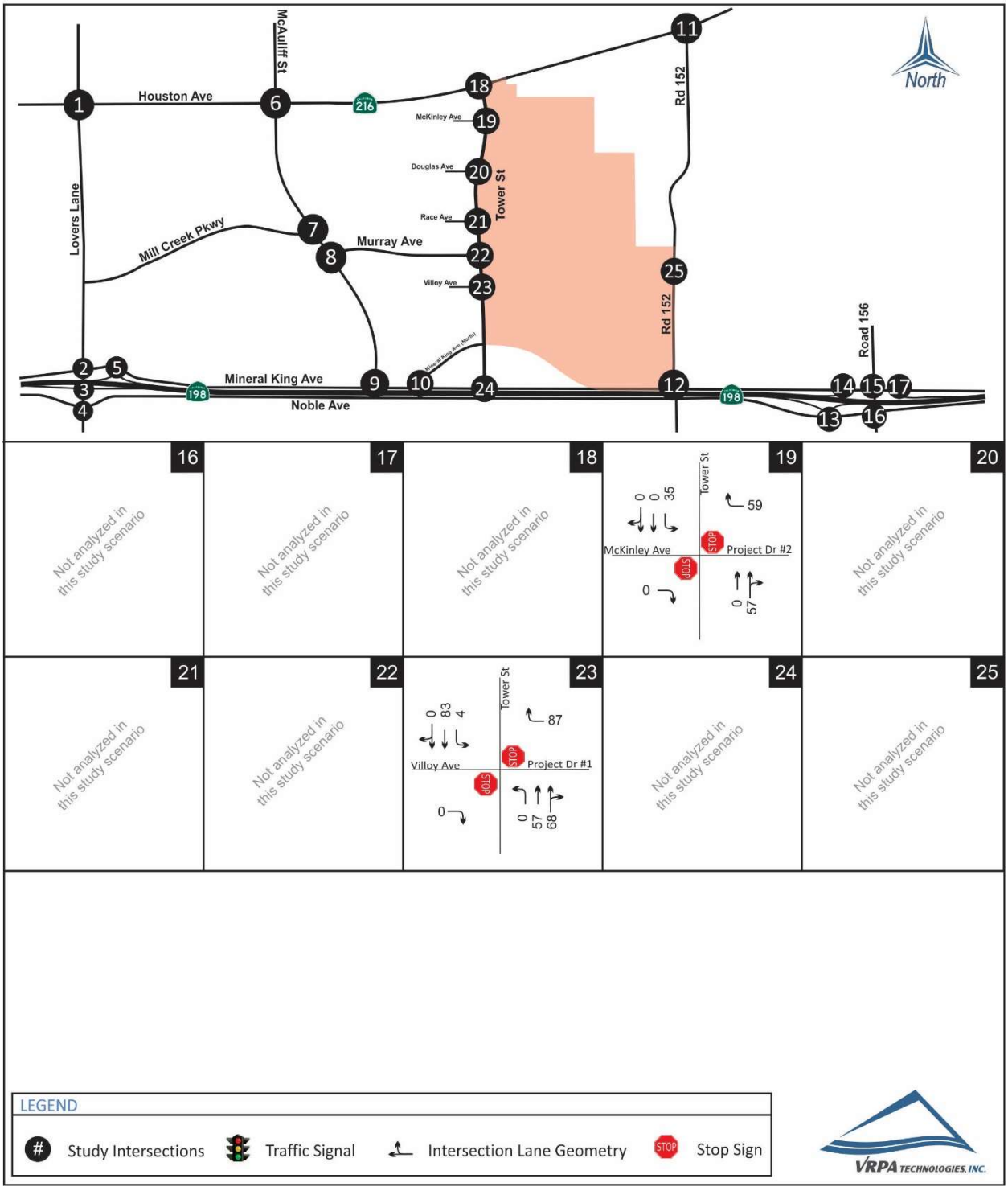
Figure 3-3b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 2 Saturday Peak Hour Trip Distribution Without Tower Street Interchange

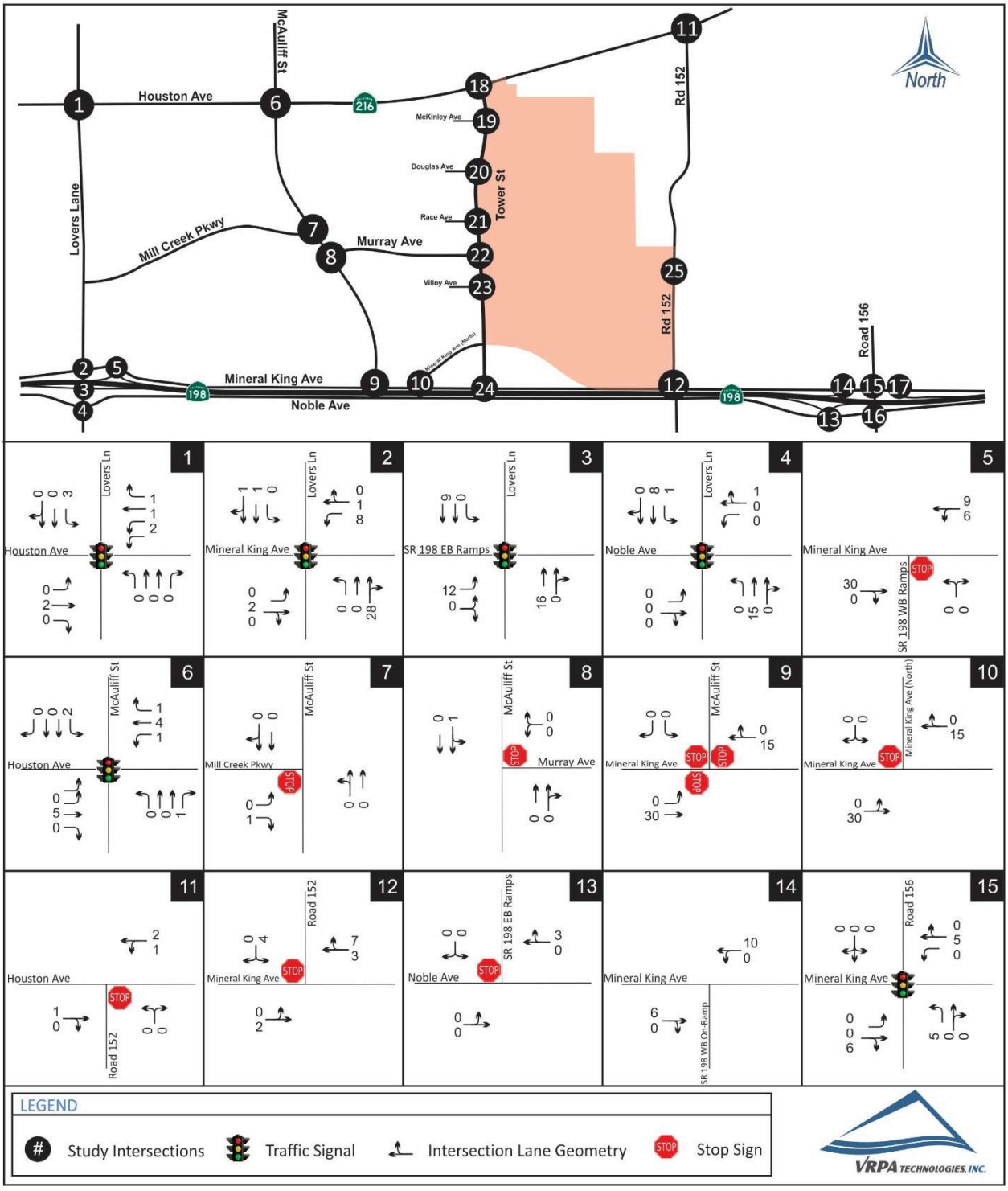
Figure 3-4



East Side Regional Park & Groundwater Recharge Project EIR

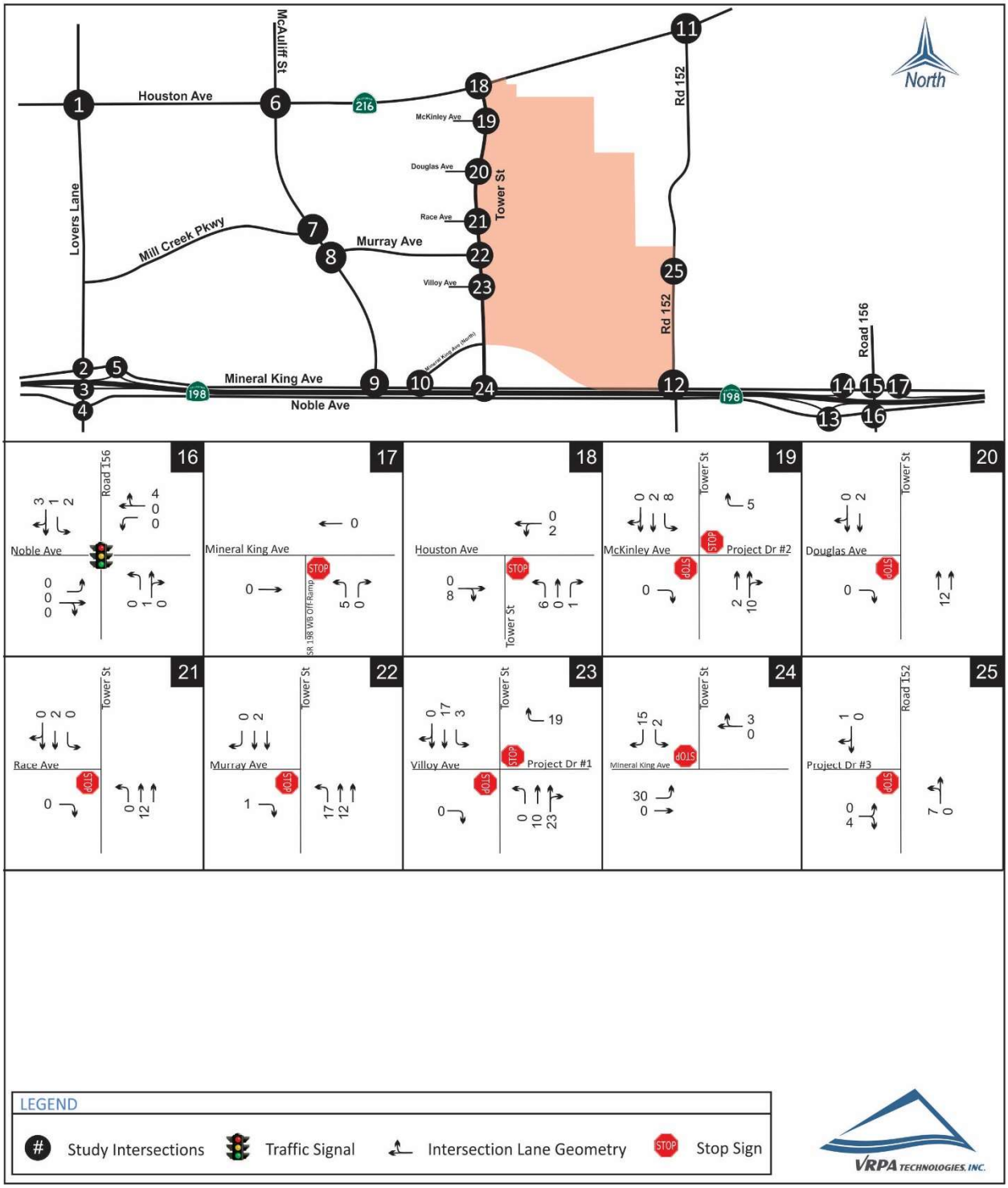
Project Phase 3 Weekday AM Peak Hour Trip Distribution Without Tower Street Interchange

Figure 3-5a



East Side Regional Park & Groundwater Recharge Project EIR — Figure 3-5b

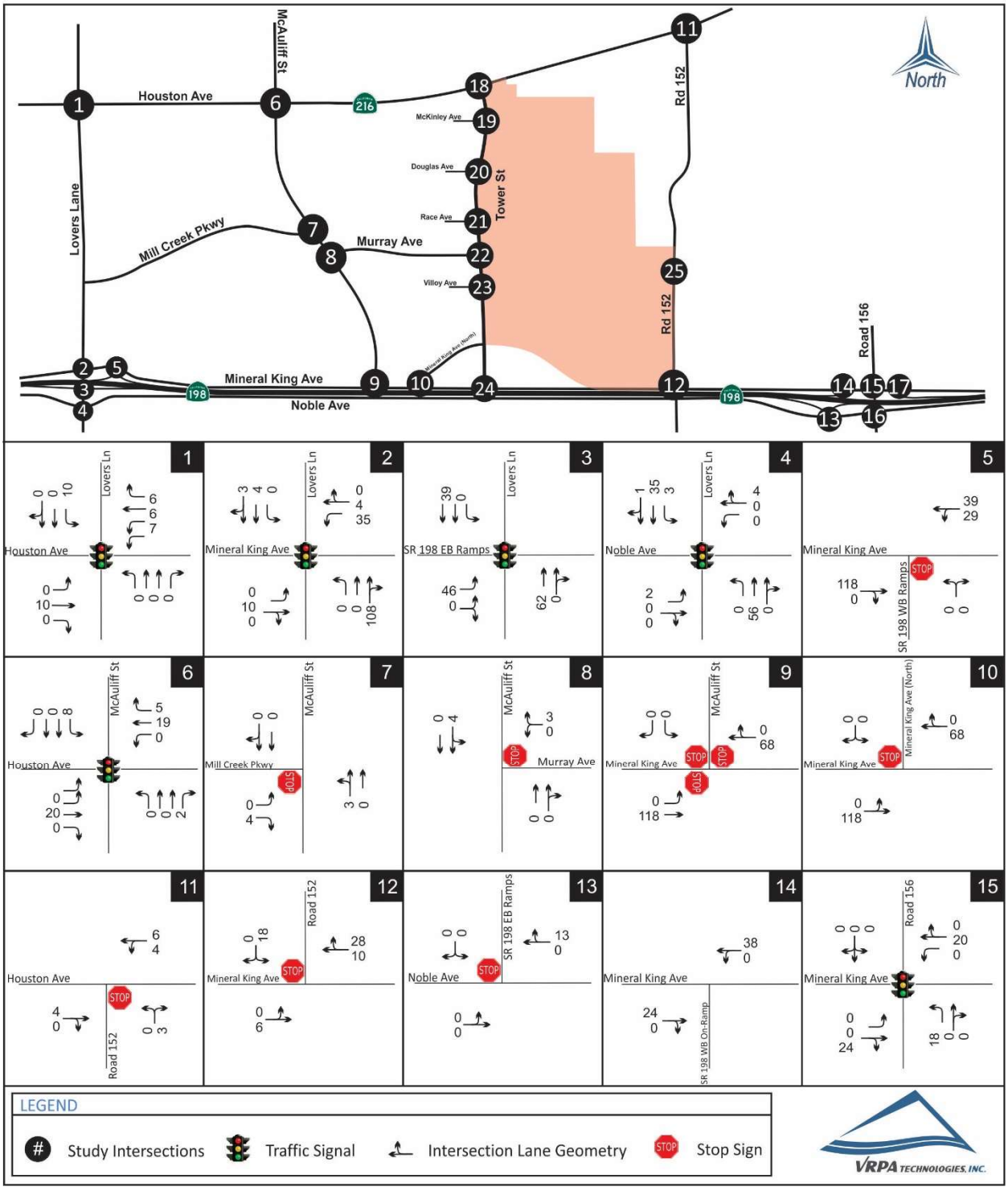
Project Phase 3 Weekday AM Peak Hour Trip Distribution Without Tower Street Interchange



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday PM Peak Hour Trip Distribution Without Tower Street Interchange

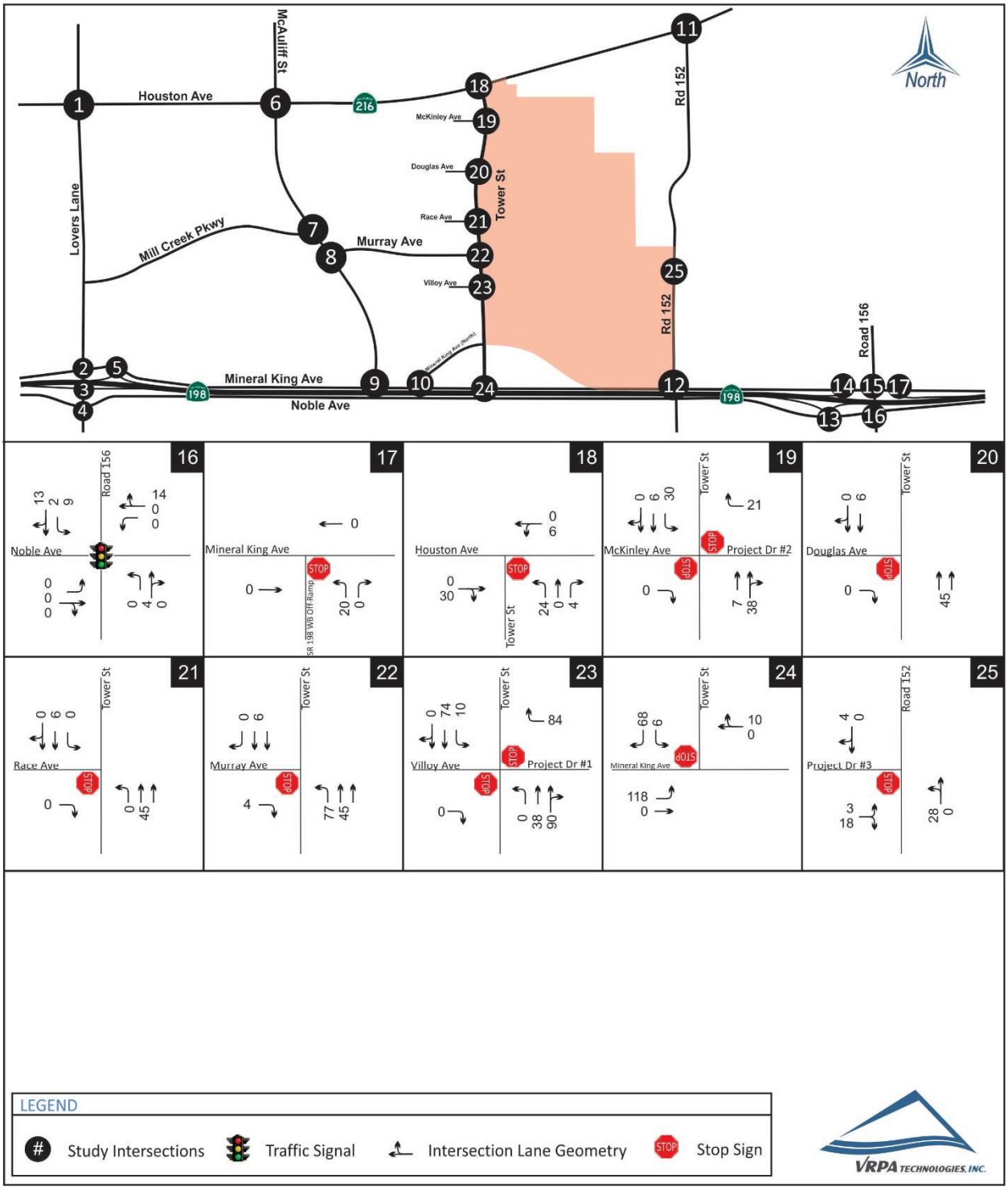
Figure 3-6a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday PM Peak Hour Trip Distribution Without Tower Street Interchange

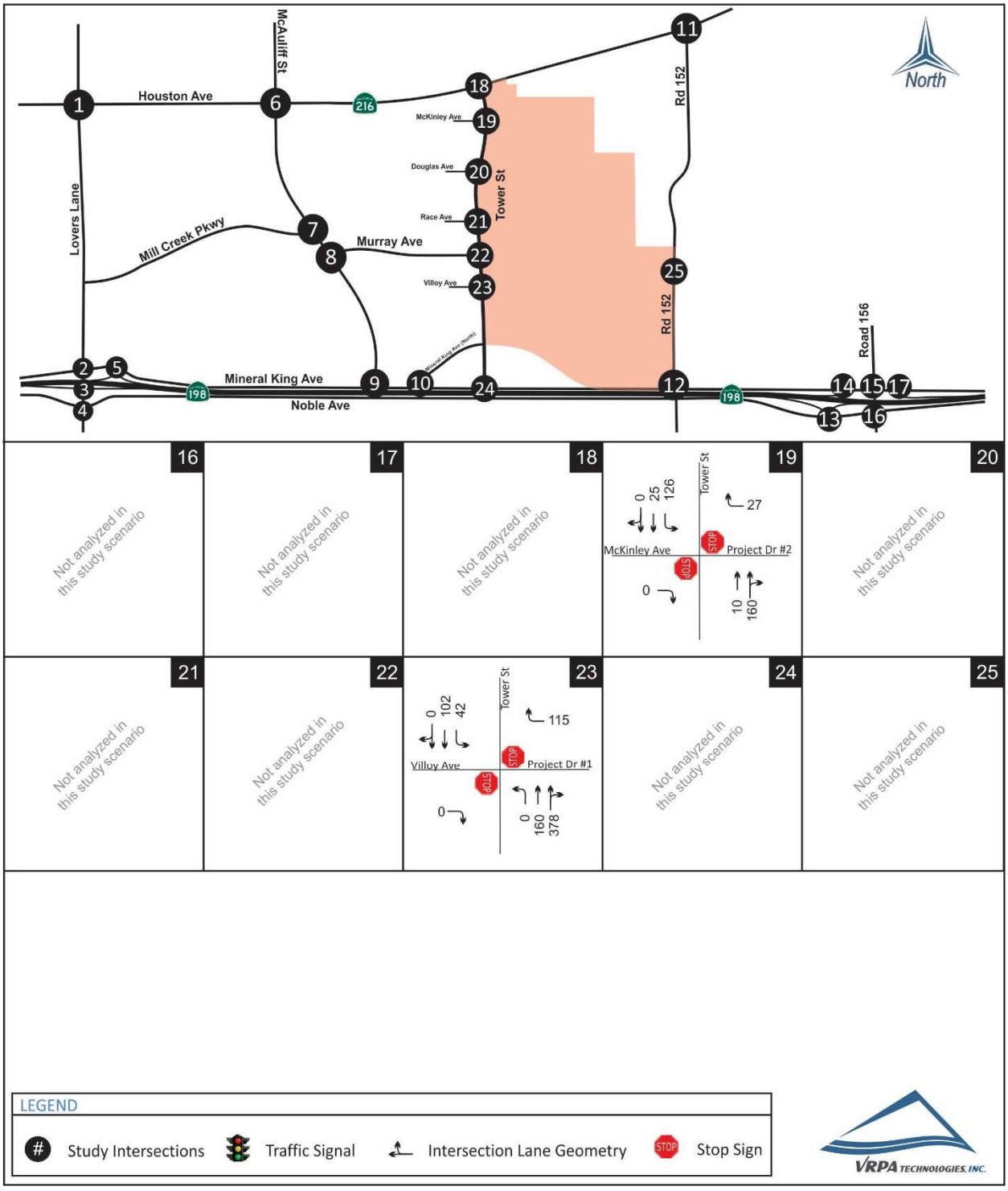
Figure 3-6b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Special Event Inbound Trip Distribution Without Tower Street Interchange

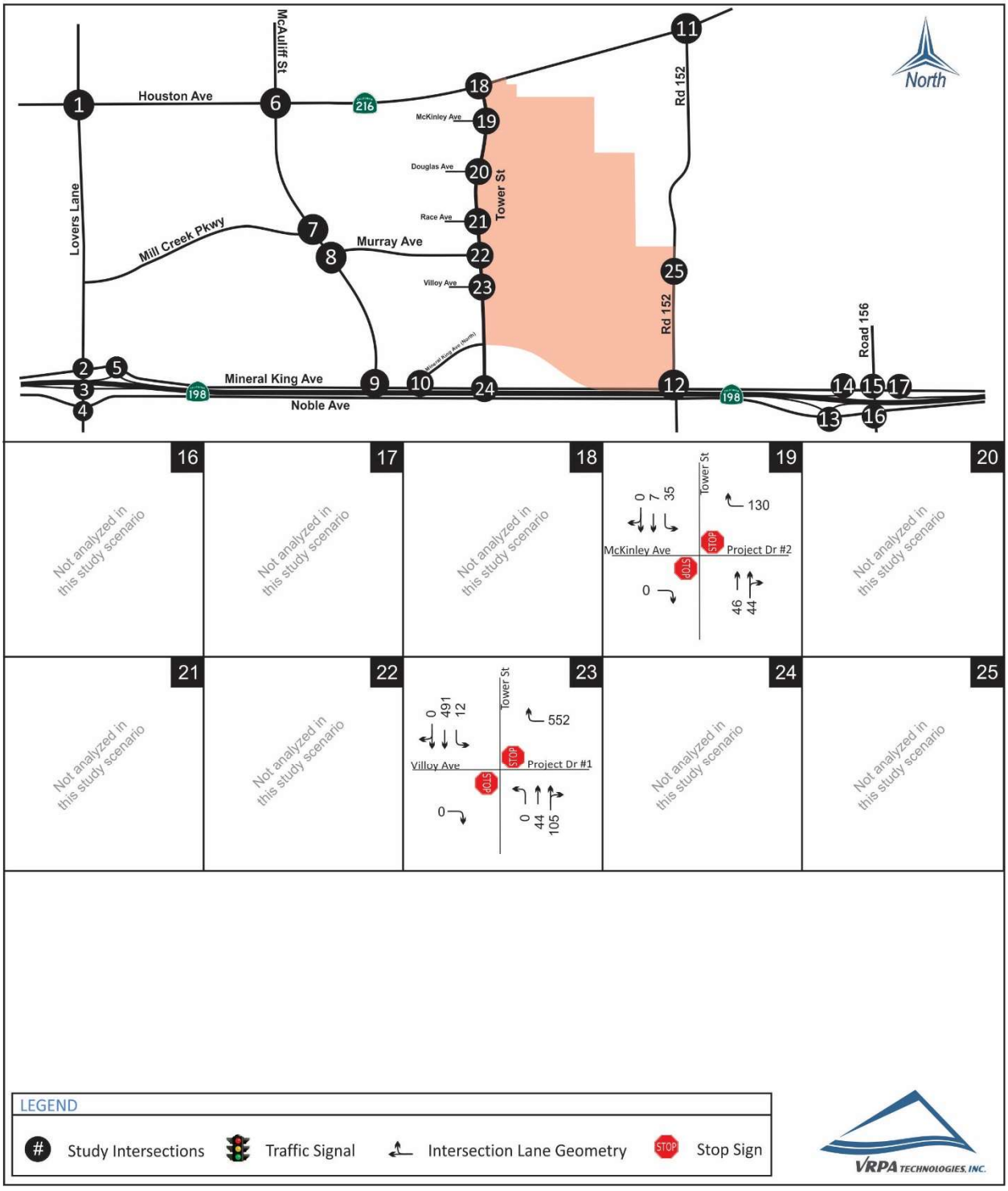
Figure 3-7a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Special Event Outbound Trip Distribution Without Tower Street Interchange

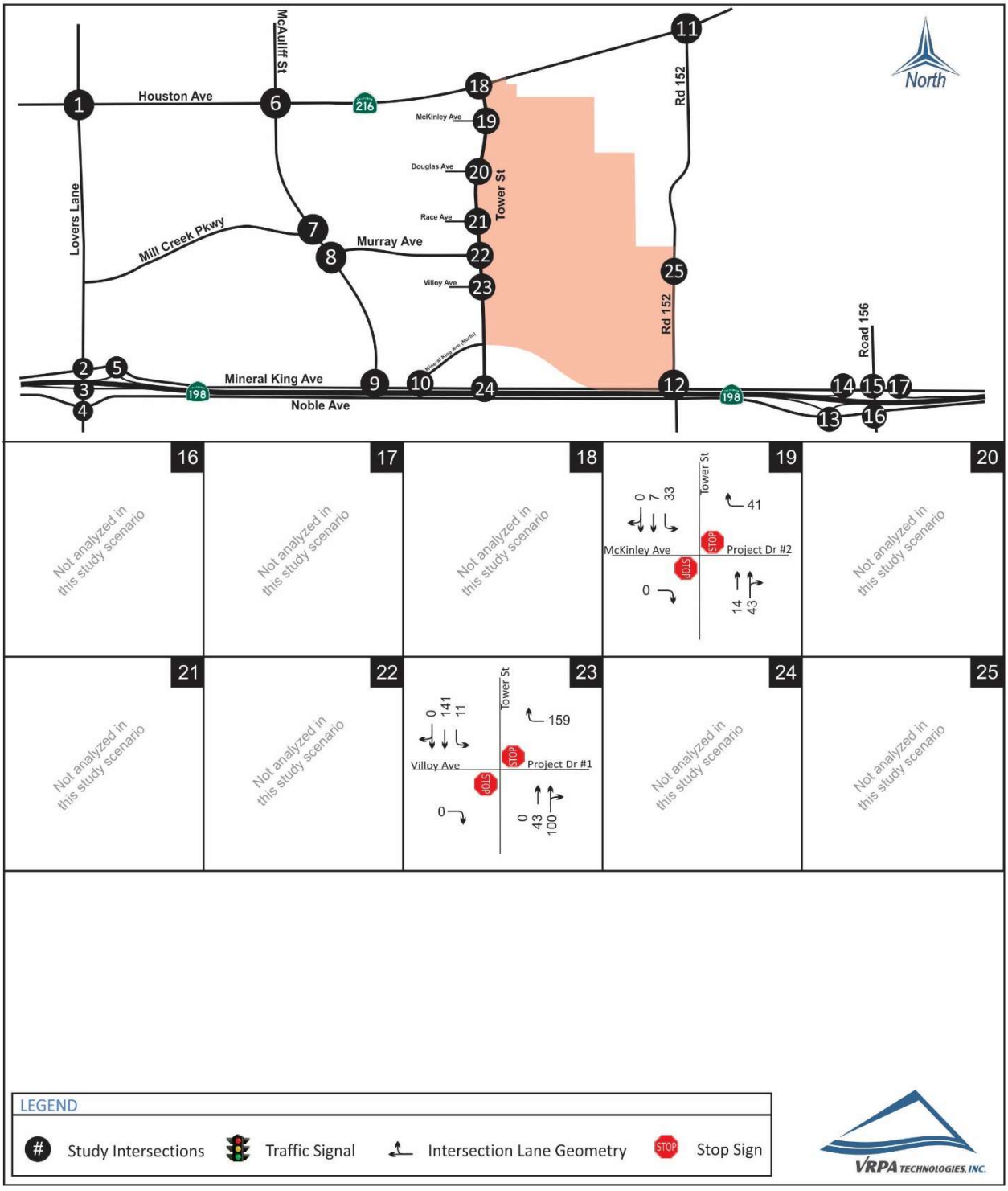
Figure 3-7b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Saturday Peak Hour Trip Distribution Without Tower Street Interchange

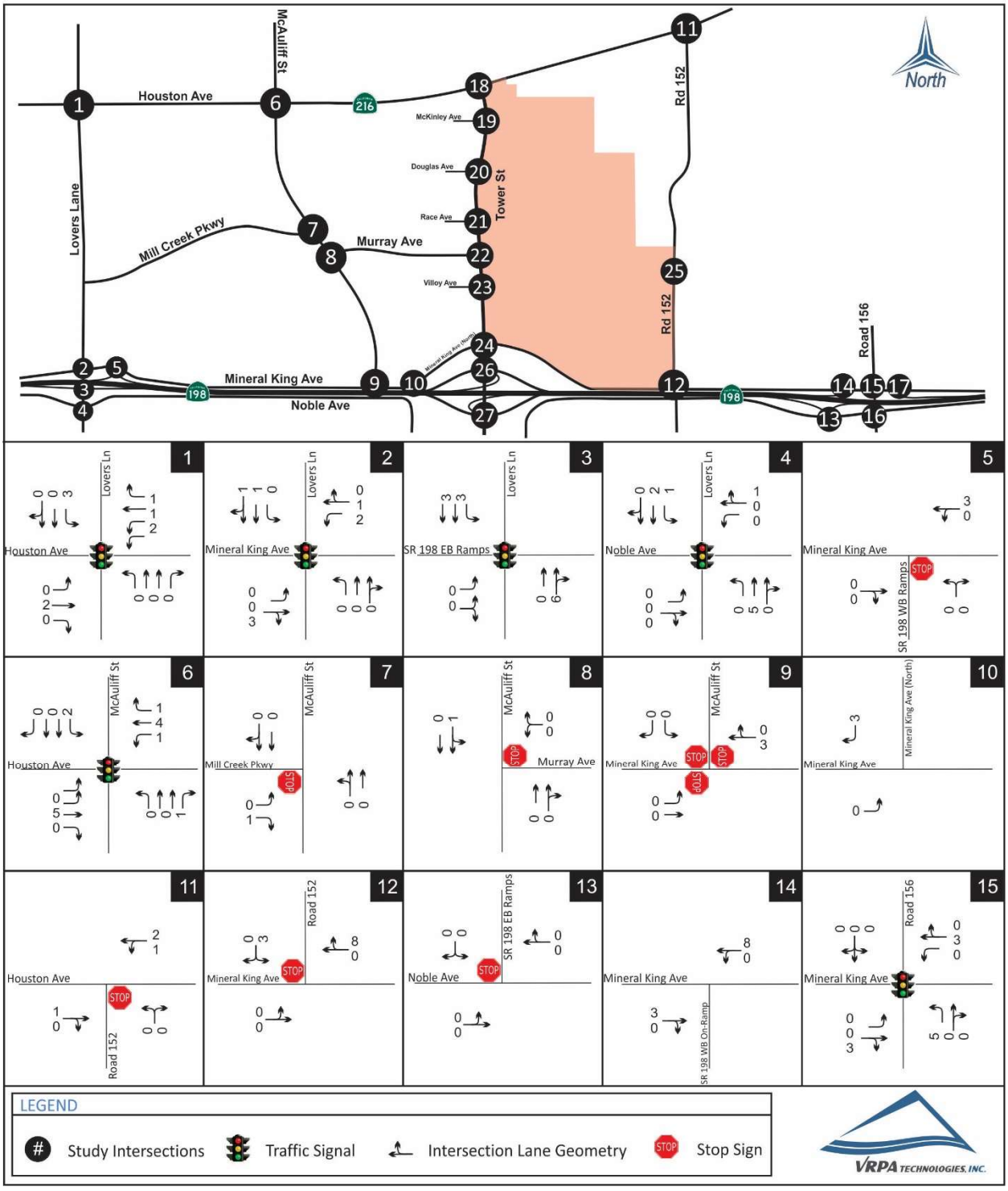
Figure 3-7c



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday AM Peak Hour Trip Distribution With Tower Street Interchange

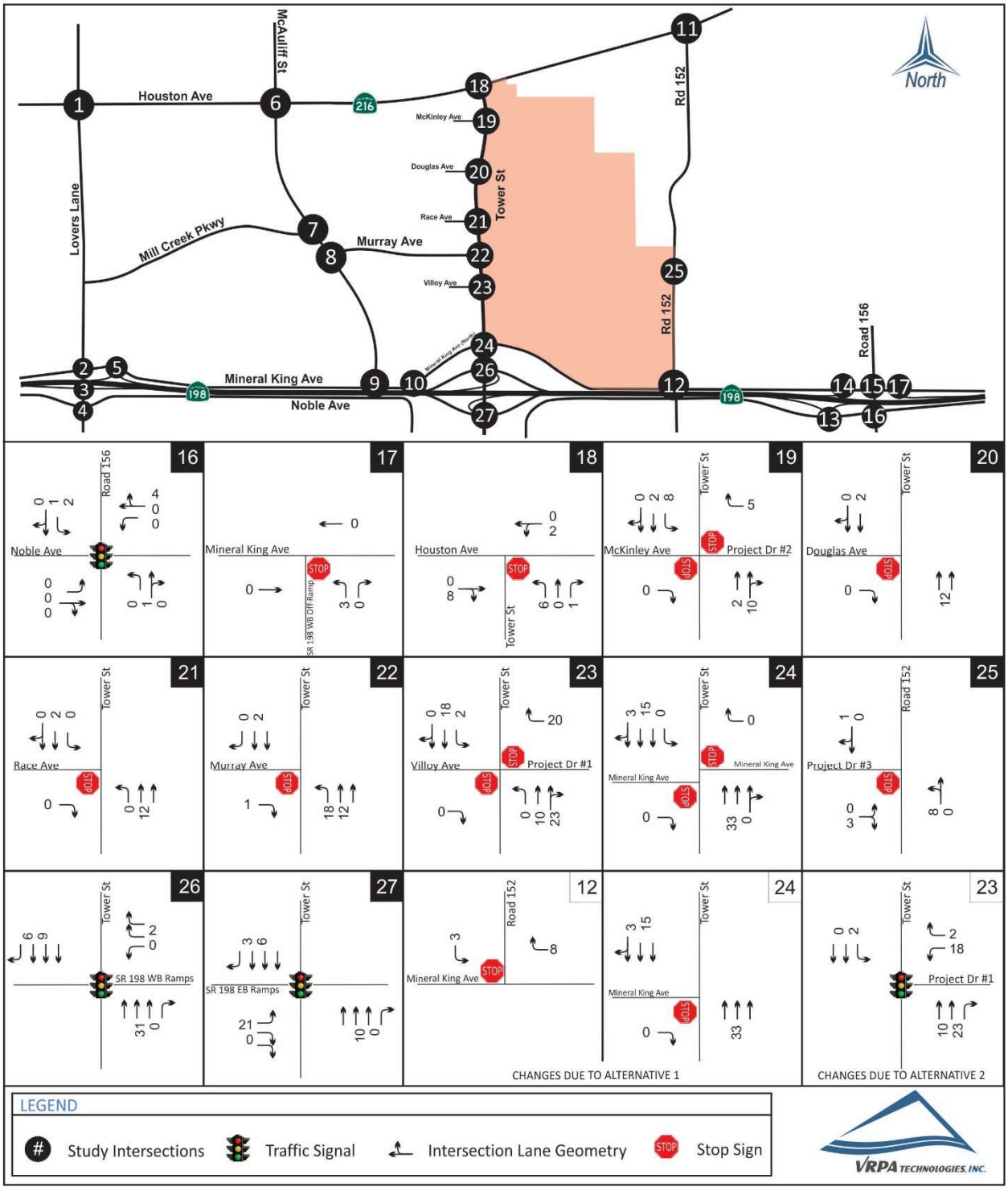
Figure 3-8a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday AM Peak Hour Trip Distribution With Tower Street Interchange

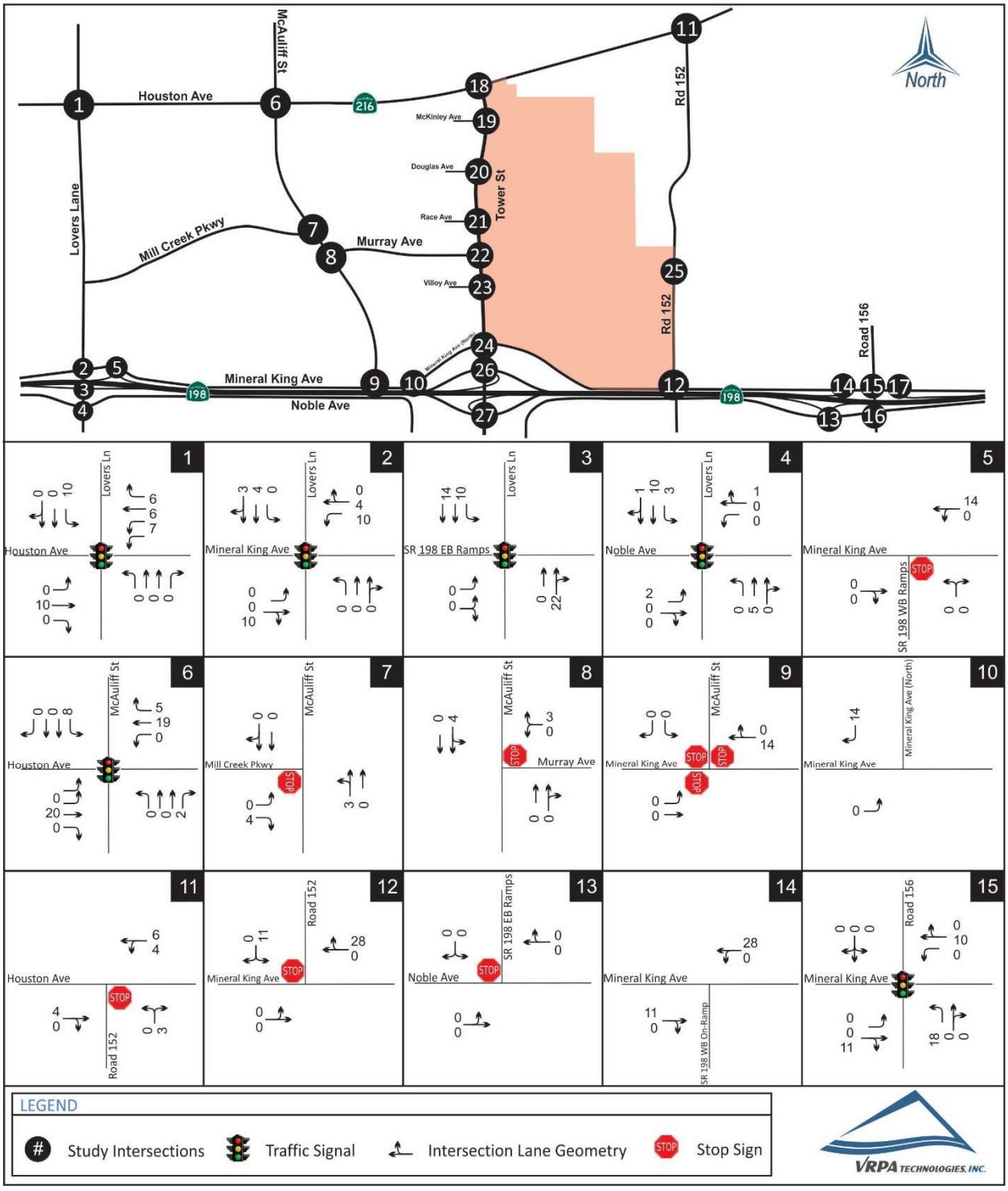
Figure 3-8b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday PM Peak Hour Trip Distribution With Tower Street Interchange

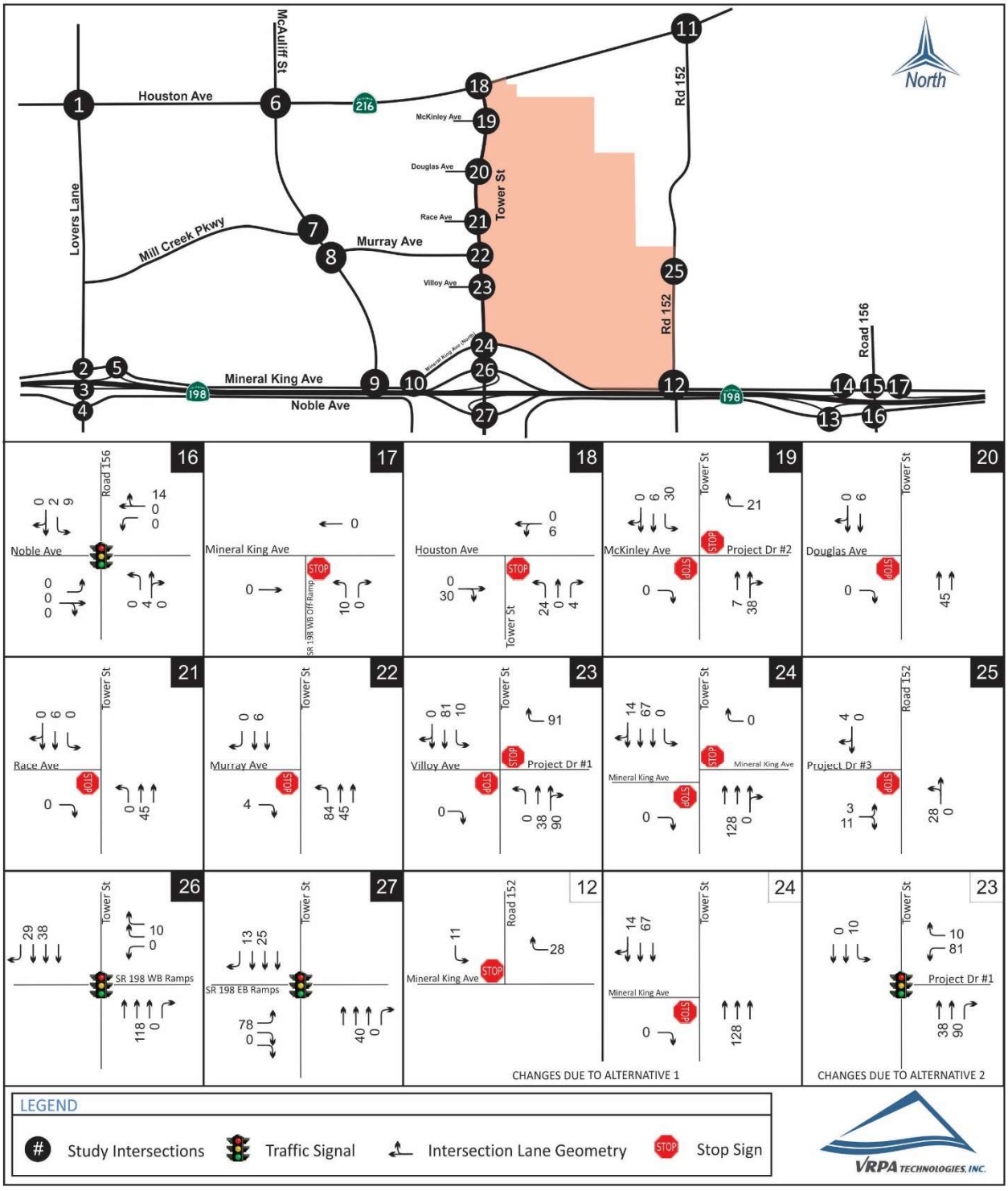
Figure 3-9a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Weekday PM Peak Hour Trip Distribution With Tower Street Interchange

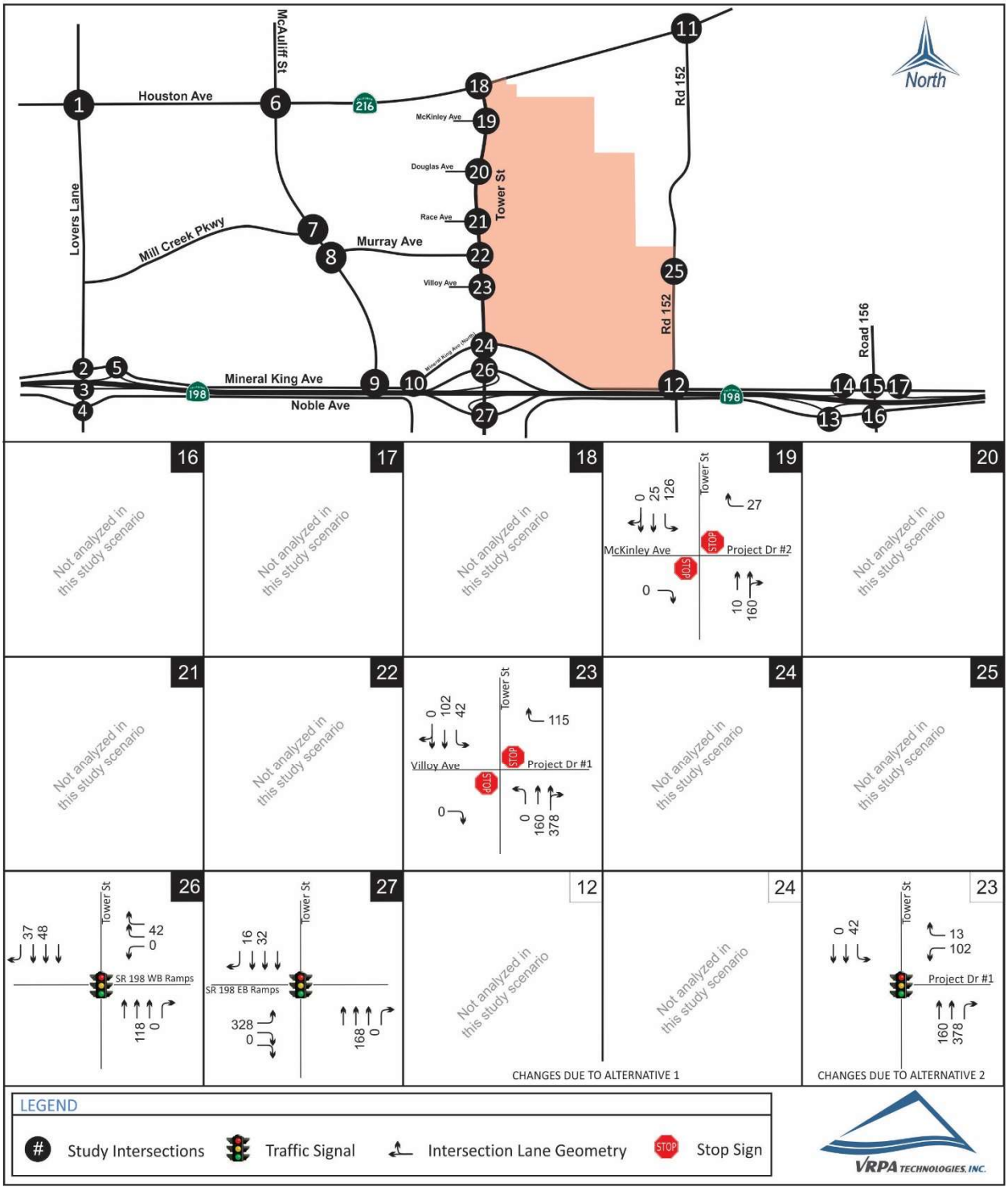
Figure 3-9b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Special Event Inbound Trip Distribution With Tower Street Interchange

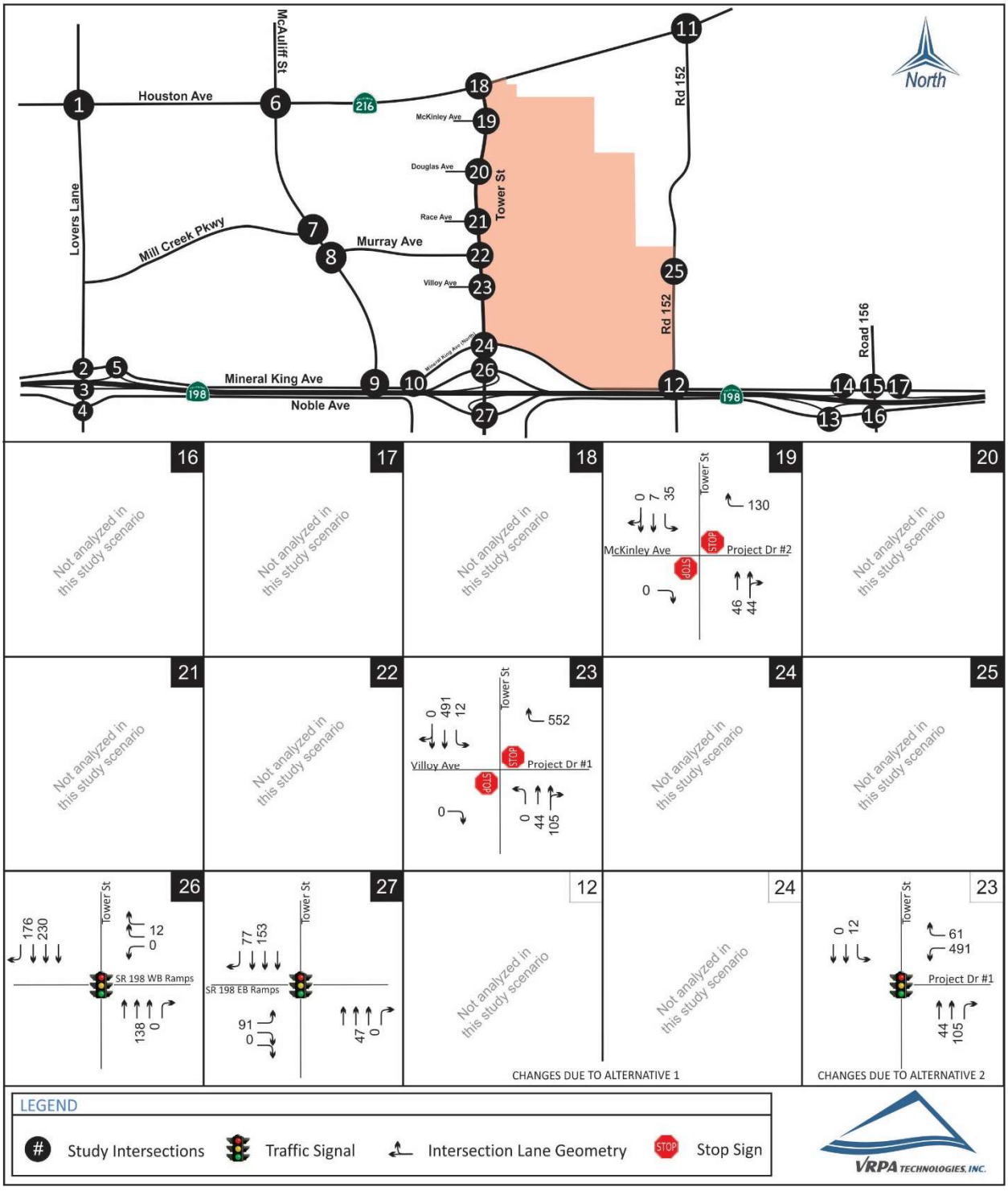
Figure 3-10a



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Special Event Outbound Trip Distribution With Tower Street Interchange

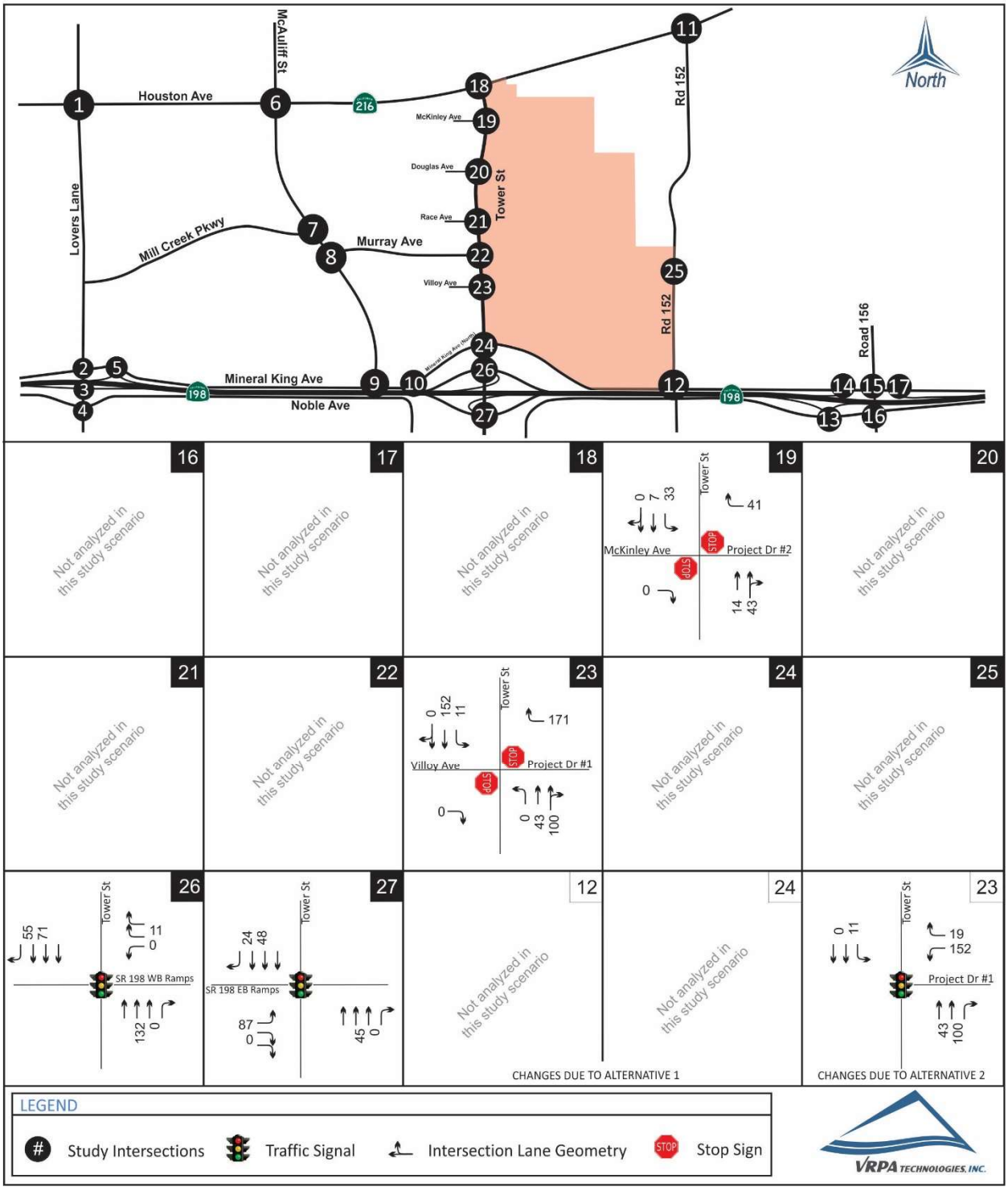
Figure 3-10b



East Side Regional Park & Groundwater Recharge Project EIR

Project Phase 3 Saturday Peak Hour Trip Distribution With Tower Street Interchange

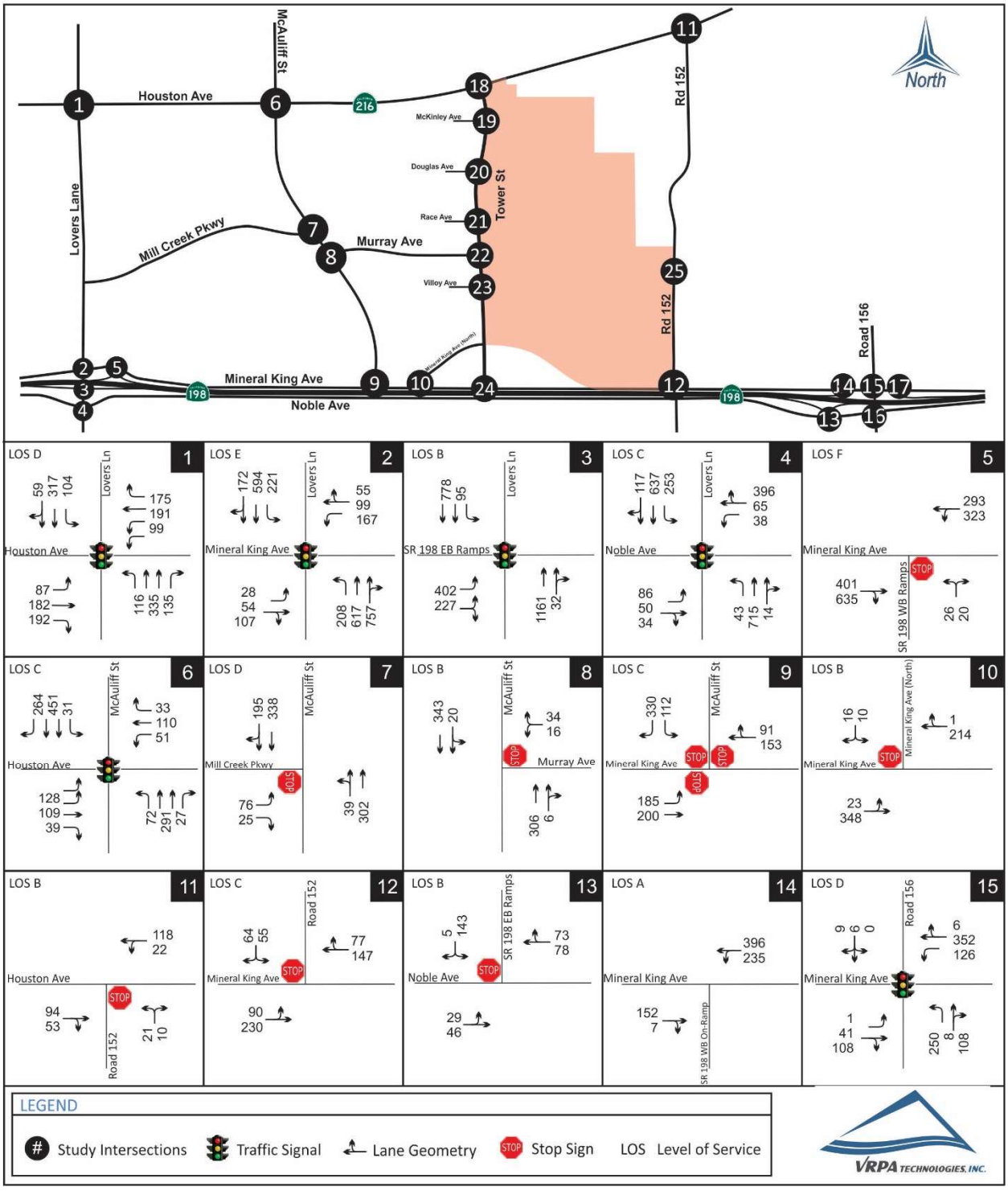
Figure 3-10c



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 AM Peak Hour Traffic Without Tower Street Interchange

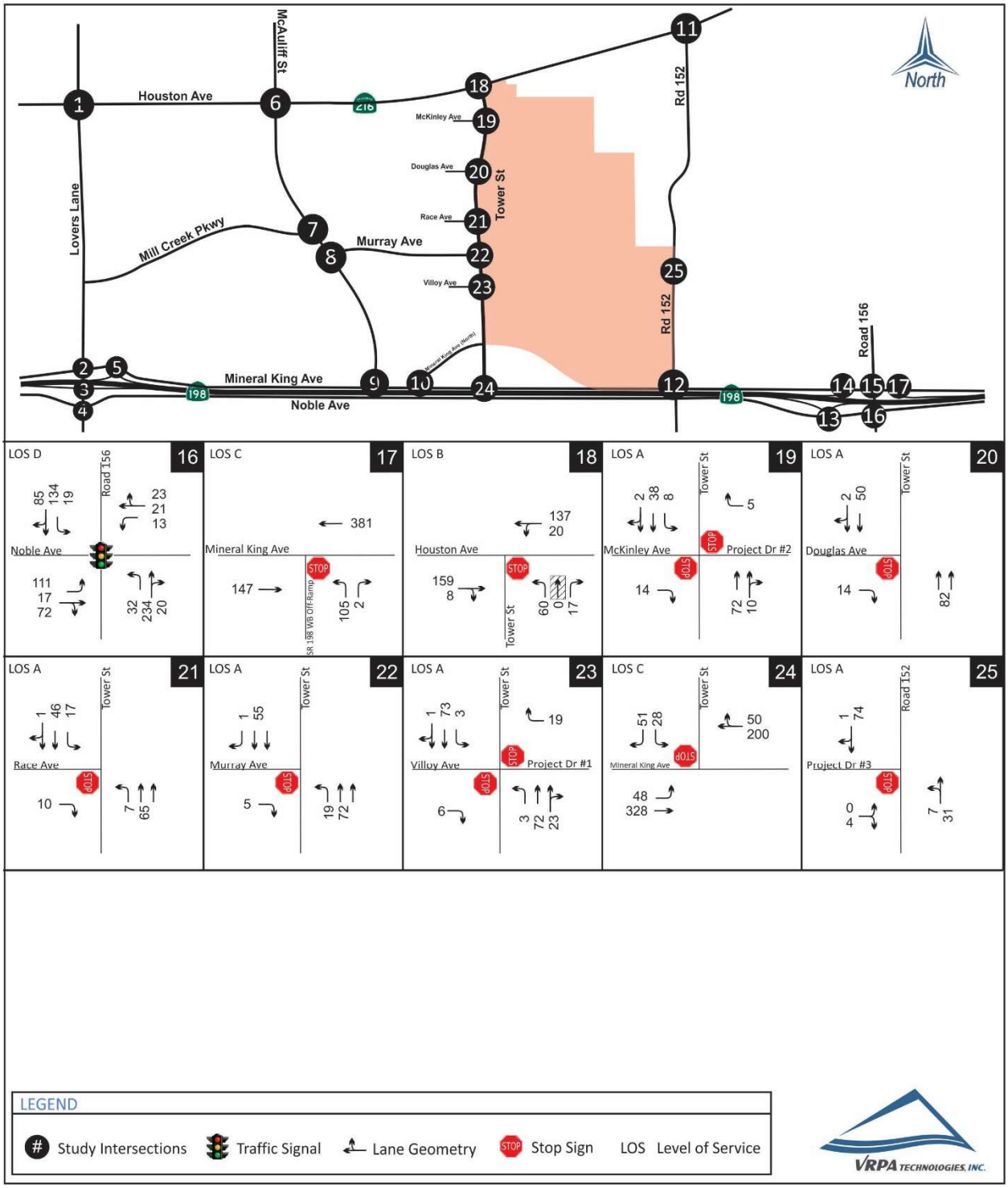
Figure 3-11a



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 AM Peak Hour Traffic Without Tower Street Interchange

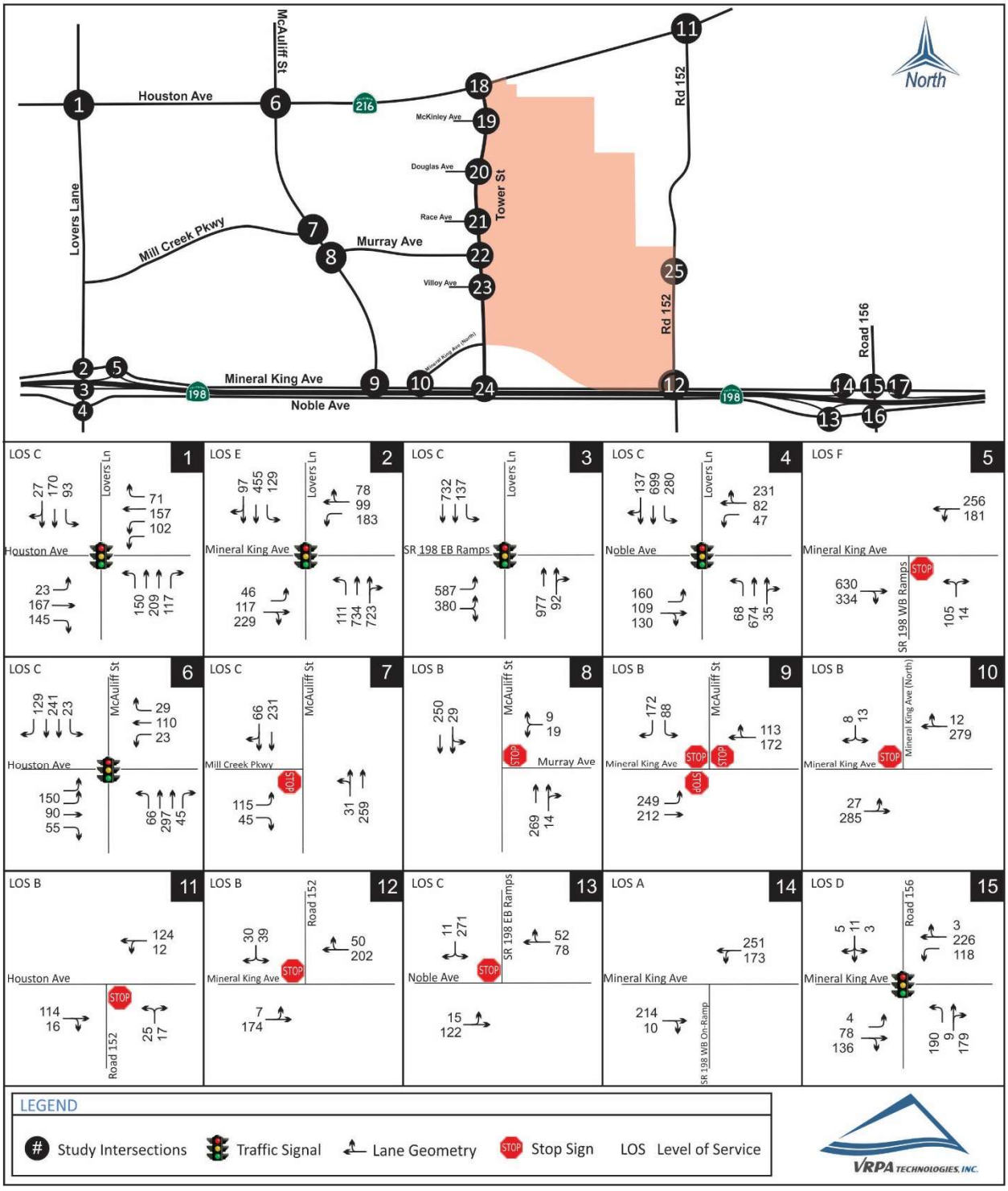
Figure 3-11b



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 PM Peak Hour Traffic Without Tower Street Interchange

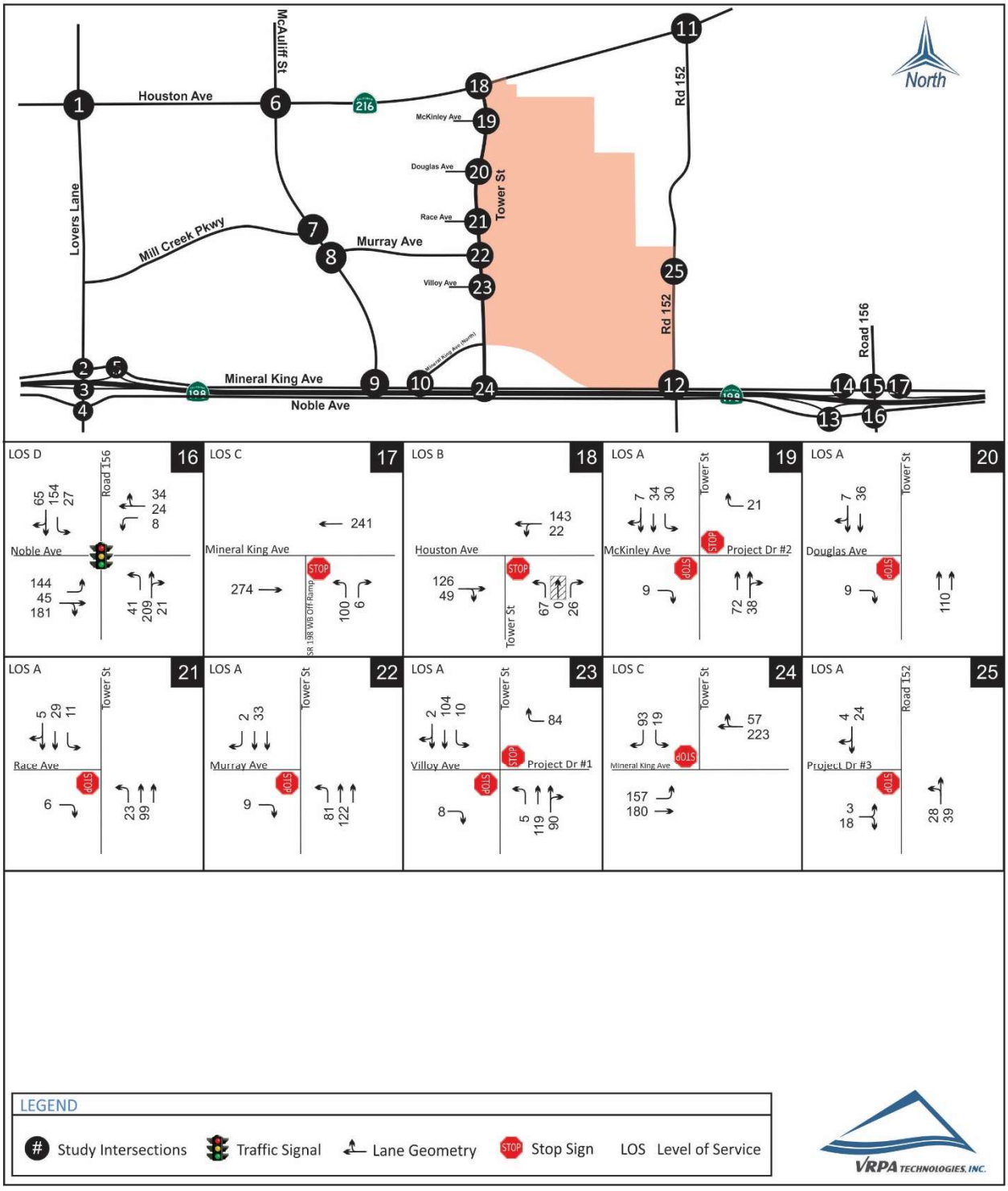
Figure 3-12a



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 PM Peak Hour Traffic Without Tower Street Interchange

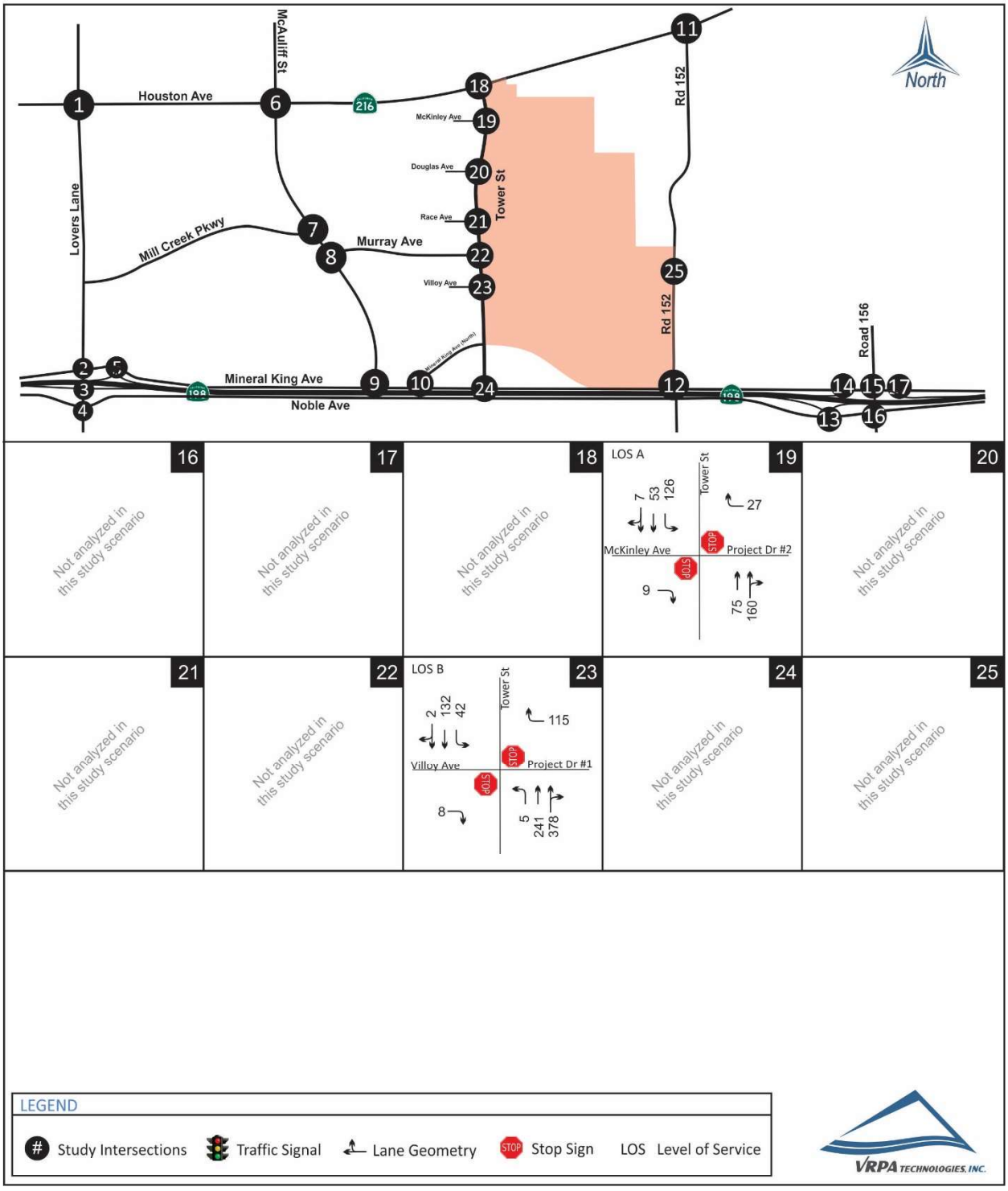
Figure 3-12b



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 Special Event Inbound Traffic Without Tower Street Interchange

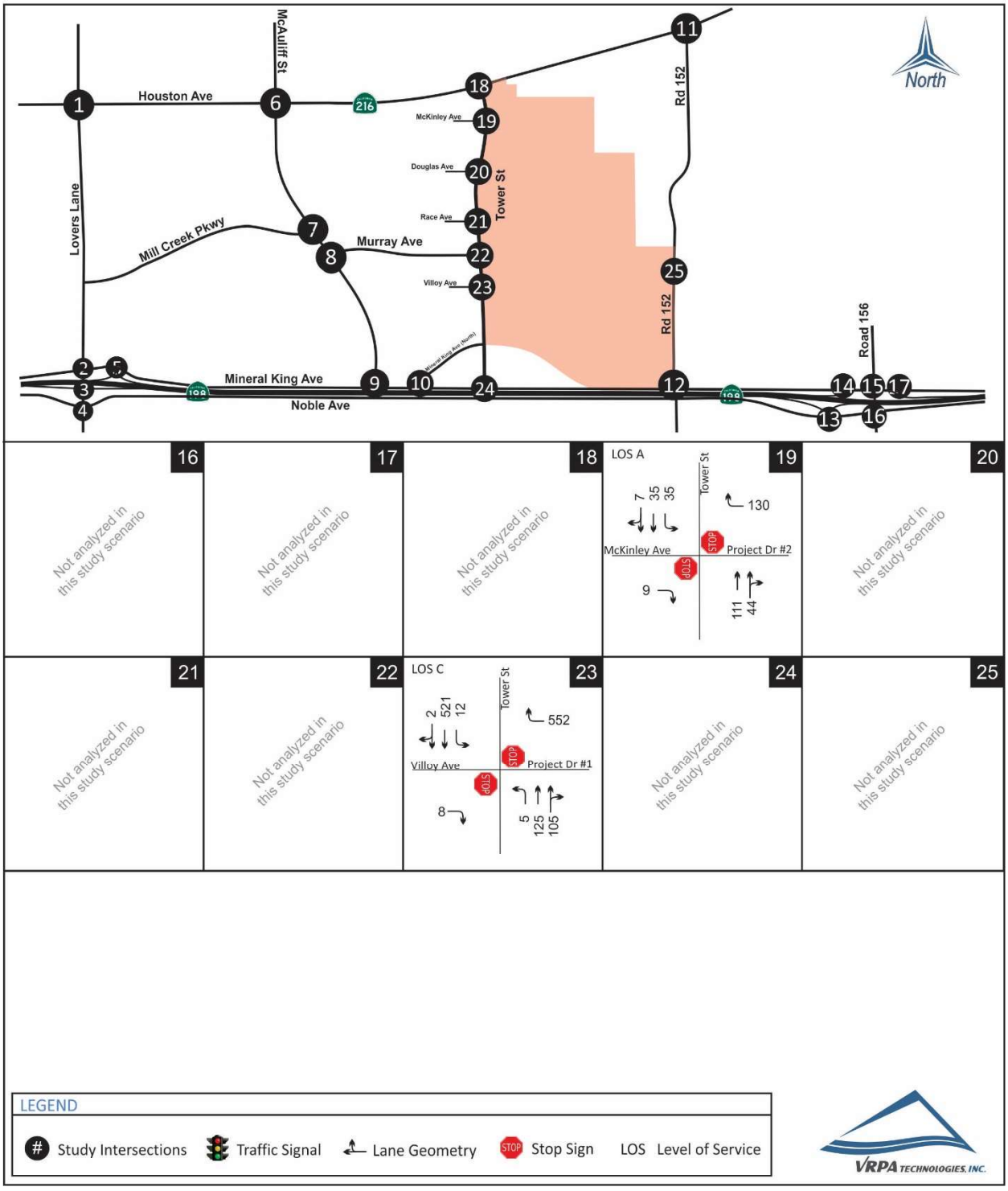
Figure 3-13a



East Side Regional Park & Groundwater Recharge Project EIR

Existing Plus Project Phase 3 Special Event Outbound Traffic Without Tower Street Interchange

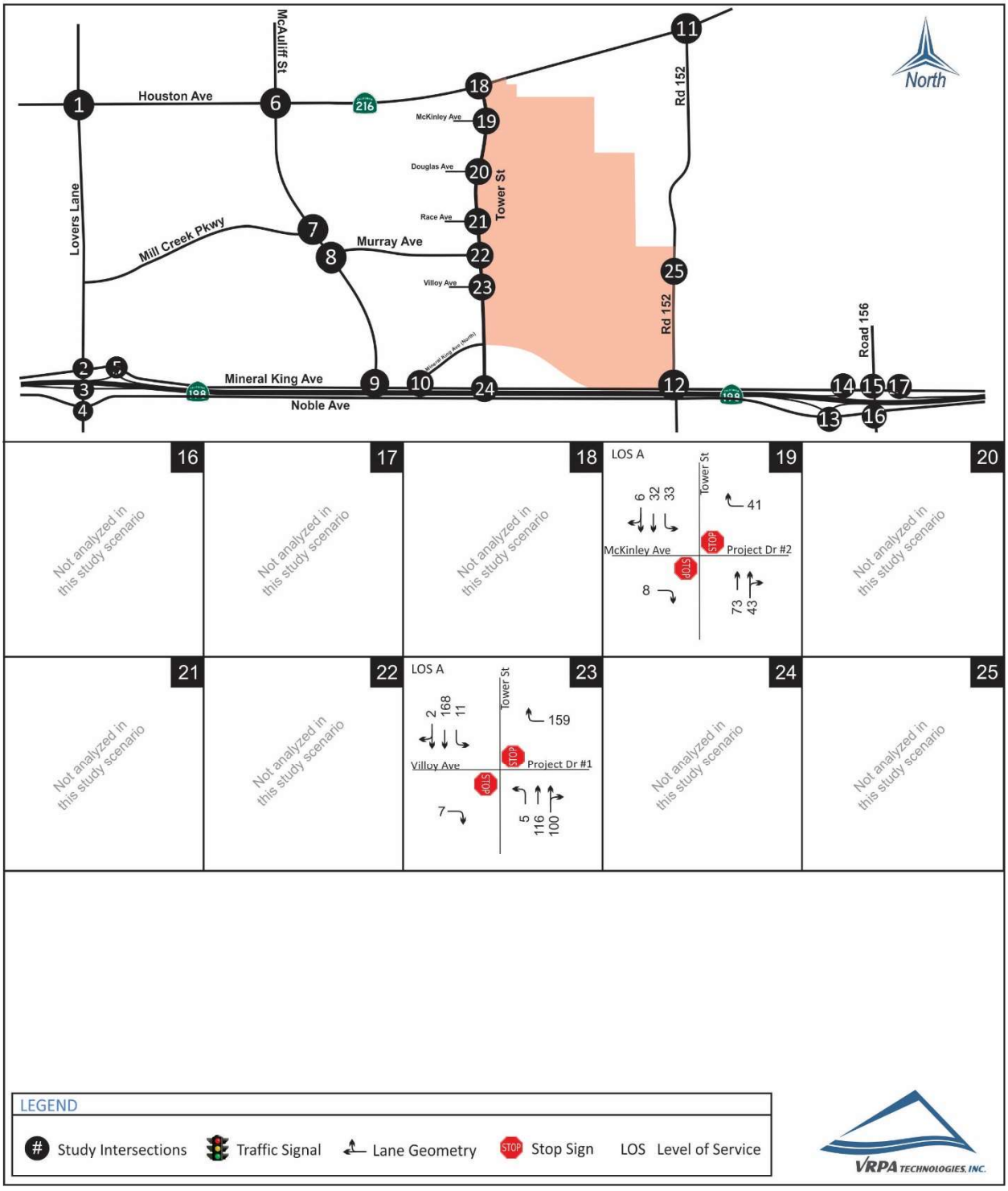
Figure 3-13b



East Side Regional Park & Groundwater Recharge Project EIR

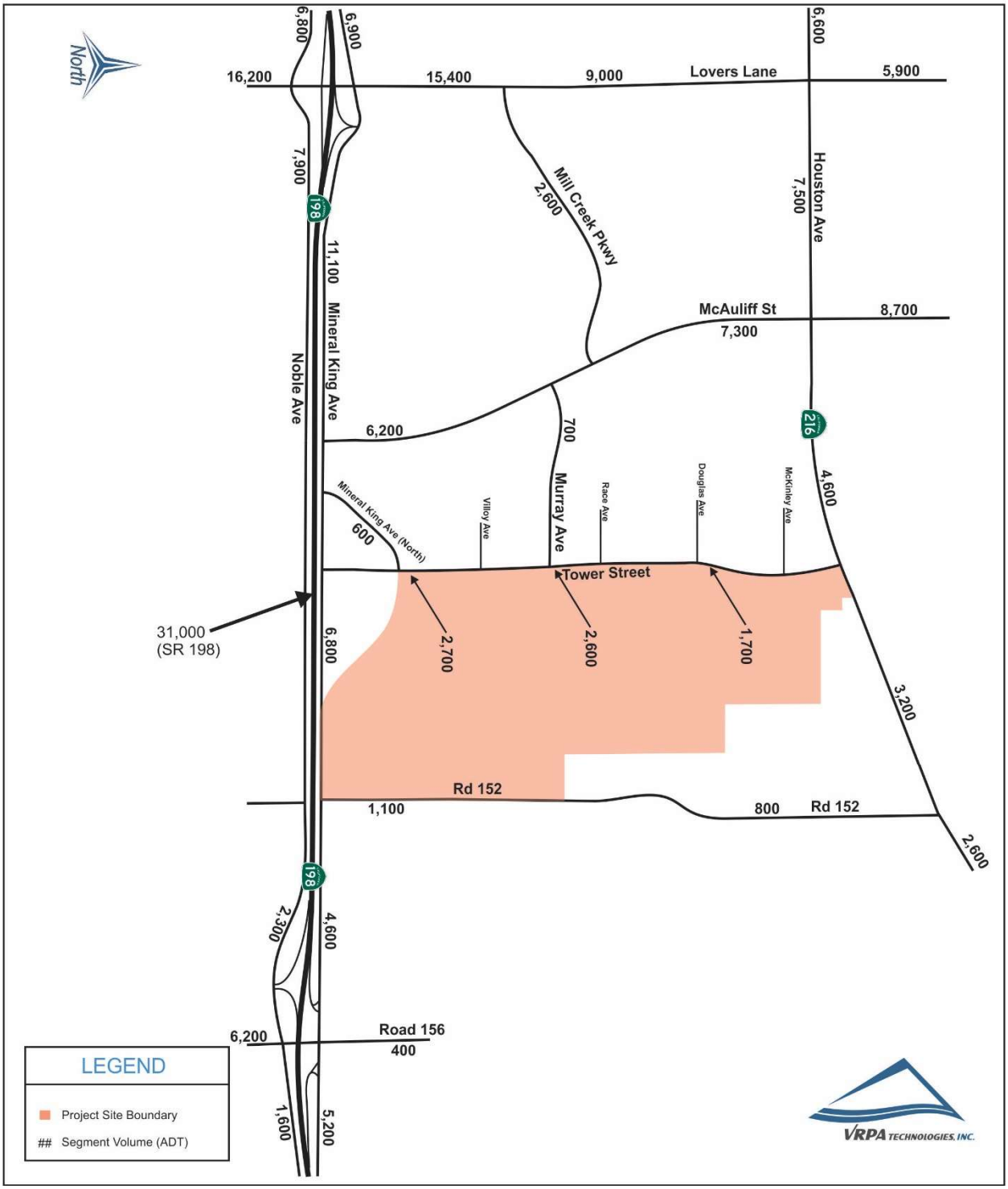
Existing Plus Project Phase 3 Saturday Peak Hour Traffic Without Tower Street Interchange

Figure 3-13c



East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-14**

Existing Plus Project Phase 3 Segment Volumes Without Tower Street Interchange



3.4.1 *Existing Plus Project Intersection Capacity Analysis*

Table 3-7 shows intersections that are expected to fall short of desirable operating conditions for the Existing Plus Project scenario. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the proposed Project will cause or contribute to an unacceptable LOS at 2 of the 25 study intersections (Lovers Lane and Mineral King Avenue and SR 198 WB Ramps and Mineral King Avenue) for this scenario when comparing the Existing and Existing Plus Project scenarios.

Table 3-8 shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street will meet acceptable levels of service.

Table 3-9 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during a special event. Results of the analysis show that the Project driveways will meet acceptable levels of service.

Table 3-10 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways will meet acceptable levels of service.

3.4.2 *Existing Plus Project Roadway Segment Capacity Analysis*

Table 3-11 shows roadway segment volumes and levels of service pertaining to the Existing Plus Project scenario. Results of the analysis show that all of the study roadway segments will meet acceptable levels of service. Table 3-12 provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street will meet acceptable levels of service.

3.4.3 *Existing Plus Project Queuing Analysis*

Tables 3-13 and 3-14 provides a queue length summary for left and right turn lanes at the study intersections for the Existing Plus Project scenario. Queuing analysis was completed using information found in the Synchro outputs. Synchro provides 50th and 95th percentile maximum queue lengths in feet for signalized intersections. The 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes. The queues shown for signalized intersections in Tables 3-13 and 3-14 represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans' Highway Design Manual.

3.4.4 *Existing Plus Project Merge/Diverge Analysis*

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Existing Plus Project scenario

are reflected in Table 3-15 and indicate the interchanges will operate at acceptable levels of service.

Table 3-7
Existing Plus Project Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT	
				DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	35.9	D
			PM	28.7	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**73.8**	**E**
			PM	**58.9**	**E**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	17.3	B
			PM	29.0	C
4. Lovers Lane / Noble Avenue	Signalized	D	AM	34.9	C
			PM	30.0	C
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F +**
			PM	**>50.0**	**F +**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	25.1	C
			PM	23.8	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	25.2	D
			PM	16.0	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	12.3	B
			PM	12.3	B
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	16.3	C
			PM	13.5	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	12.2	B
			PM	13.1	B
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.2	B
			PM	10.7	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	15.0	C
			PM	11.9	B
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	12.4	B
			PM	16.2	C
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A
			PM	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	45.9	D
			PM	39.3	D
16. Road 156 / Noble Avenue	Signalized	D	AM	36.6	D
			PM	39.9	D
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	15.0	C
			PM	15.4	C

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table 3-8
Existing Plus Project Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT	
			DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	11.5	B
		PM	11.6	B
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.6	A
		PM	8.7	A
20. Tower Street / Douglas Avenue	D	AM	8.5	A
		PM	8.5	A
21. Tower Street / Race Avenue	D	AM	8.5	A
		PM	8.4	A
22. Tower Street / Murray Avenue	D	AM	8.5	A
		PM	8.5	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	8.7	A
		PM	9.4	A
24. Tower Street / Mineral King Avenue	D	AM	15.2	C
		PM	17.9	C
25. Road 152 / Project Driveway #3	D	AM	8.7	A
		PM	8.6	A

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-9
Existing Plus Project Special Event Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT	
			DELAY	LOS
SPECIAL EVENT INBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	9.2	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	11.8	B
SPECIAL EVENT OUTBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	9.4	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	16.7	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 3-10
Existing Plus Project Saturday Peak Hour Intersection Operations

INTERSECTION	TARGET LOS	EXISTING PLUS PROJECT	
		DELAY	LOS
19. Tower Street / McKinley Avenue-Project Driveway #2	D	8.8	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	9.9	A

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 3-11
Existing Plus Project Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	EXISTING PLUS PROJECT		
				VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)						
West of Lovers Lane	2 Lanes Undivided	D	17,700	6,600	0.37	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	7,500	0.19	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	4,600	0.26	C
East of Road 152	2 Lanes Undivided	C	17,700	2,600	0.15	C
Lovers Lane						
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	5,900	0.17	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	9,000	0.25	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	15,400	0.43	C
South of Noble Avenue	4 Lanes Divided	D	35,820	16,200	0.45	C
McAuliff Street						
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	8,700	0.24	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,300	0.22	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	6,200	0.18	C
Road 152						
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	800	0.05	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	1,100	0.07	C
Mineral King Avenue						
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,900	0.43	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	11,100	0.70	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	6,800	0.43	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	4,600	0.29	C
East of Road 156	2 Lanes Undivided	D	15,930	5,200	0.33	C
Road 156						
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	6,200	0.39	C
Mill Creek Parkway						
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,600	0.15	C
Mineral King Avenue (North)						
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	600	0.04	C
Murray Avenue						
East of McAuliff Street	2 Lanes Undivided	D	14,040	700	0.05	C
Noble Avenue						
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,800	0.43	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	7,900	0.50	C
West of Road 156	2 Lanes Undivided	D	15,930	2,300	0.14	C
East of Road 156	2 Lanes Undivided	D	15,930	1,600	0.10	C
SR 198						
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	31,000	0.39	B

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-12
Existing Plus Project Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	EXISTING PLUS PROJECT		
				VOLUME	V/C[2]	LOS
Tower Street						
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	1,700	0.05	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	2,600	0.07	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	2,700	0.08	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-13
Existing Plus Project Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING PLUS PROJECT	
			AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	142	187
	NB Right	300	16	22
	SB Left	225	184	129
	EB Left	200	167	47
	EB Right	200	46	44
	WB Left	2 @ 375	63	74
	WB Right	325	10	4
Lovers Lane / Mineral King Avenue	NB Left	100	**232**	83
	SB Left	175	**323**	**209**
	EB Left	150	37	50
	WB Left	150	**214**	**318**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**124**	**156**
	EB Left	225	**356**	**578**
Lovers Lane / Noble Avenue	NB Left	125	69	100
	SB Left	100	**319**	**297**
	EB Left	125	**185**	**231**
	WB Left	125	45	54
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	83	85
	NB Right	125	0	0
	SB Left	200	51	42
	SB Right	200	31	27
	EB Left	2 @ 375	70	82
	EB Right	200	0	0
	WB Left	375	70	40
	WB Right	375	0	0
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100
	EB Right	100	25	50
McAuliff Street / Mineral King Avenue	SB Left	250	100	75
	SB Right	250	**275**	150
	EB Left	200	150	200
Road 156 / Mineral King Avenue	NB Left	125	**261**	**210**
	EB Left	50	6	15
	WB Left	125	**144**	**133**
Road 156 / Noble Avenue	NB Left	175	51	62
	SB Left	150	20	33
	EB Left	350	125	151
	WB Left	325	29	21

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-14
Existing Plus Project Tower Street Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING PLUS PROJECT	
			AM Queue	PM Queue
Tower Street / Houston Avenue (SR 216)	NB Left	--	50	56
	NB Right	--	14	22
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--	7	25
	EB Left	--	12	8
	WB Left	--	4	18
Tower Street / Race Avenue	NB Left	--	6	19
	SB Left	--	14	9
Tower Street / Murray Avenue	NB Left	--	16	68
	SB Right	--	1	2
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	3	4
	SB Left	--	3	8
	EB Right	--	5	7
	WB Left	--		
	WB Right	--	16	70
Tower Street / Mineral King Avenue	SB Left	--	23	16
	SB Right	--	43	78
	EB Left	--	40	131

Queue is measured in feet

Table 3-15
Existing Plus Project Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	2172	629	2774	967	2	1	C	B	15.3	C	21.2
SR-198 EB On Ramp from Lovers Lane	Merge	1543	127	1807	229	2	1	C	B	12.6	B	15.8
SR-198 EB Off Ramp to Road 156	Diverge	1670	148	2036	282	2	1	C	A	9.2	B	12.8
SR-198 EB On Ramp from Road 156	Merge	1522	102	1754	67	2	1	C	B	15.2	B	17.0
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	1674	107	1657	106	2	1	C	A	8.3	A	8.2
SR-198 WB On Ramp from Road 156	Merge	1567	242	1551	183	2	1	C	B	14.6	B	13.9
SR-198 WB Off Ramp to Lovers Lane	Diverge	1809	46	1734	119	2	1	C	B	13.7	B	13.0
SR-198 WB On Ramp from Lovers Lane	Merge	1763	958	1615	515	2	1	C	C	23.9	B	18.9

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

3.5 Near-Term (Year 2018) Traffic Conditions

Traffic conditions without the Project in the Year 2018 (Project Opening Day) were estimated by applying a growth rate of 2% per year to the existing traffic volumes. The 2% growth rate was derived from model plots provided by TCAG staff and the Transportation Concept Reports (TCR) for SR 198 and SR 216. The 2% growth rate is consistent with the TCAG model plots in the study area and TCR's. The resulting traffic is shown in Figures 3-15a, 3-15b, 3-16a, 3-16b, and 3-17.

Phase 2 Project trips were added to the forecasted Near-Term Opening Year 2018 Without Project traffic volumes to obtain Near-Term Opening Year 2018 Plus Phase 2 Project conditions. The resulting traffic is shown in Figures 3-18a, 3-18b, 3-19a, 3-19b, 3-20, and 3-21.

3.5.1 *Near-Term (Year 2018) Intersection Capacity Analysis*

Table 3-16 shows intersections that are expected to fall short of desirable operating conditions for the Existing Plus Project scenario. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the proposed Project will cause or contribute to an unacceptable LOS at 2 of the 25 study intersections (Lovers Lane and Mineral King Avenue and SR 198 WB Ramps and Mineral King Avenue) for this scenario when comparing the Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios.

Table 3-17 shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street will meet acceptable levels of service.

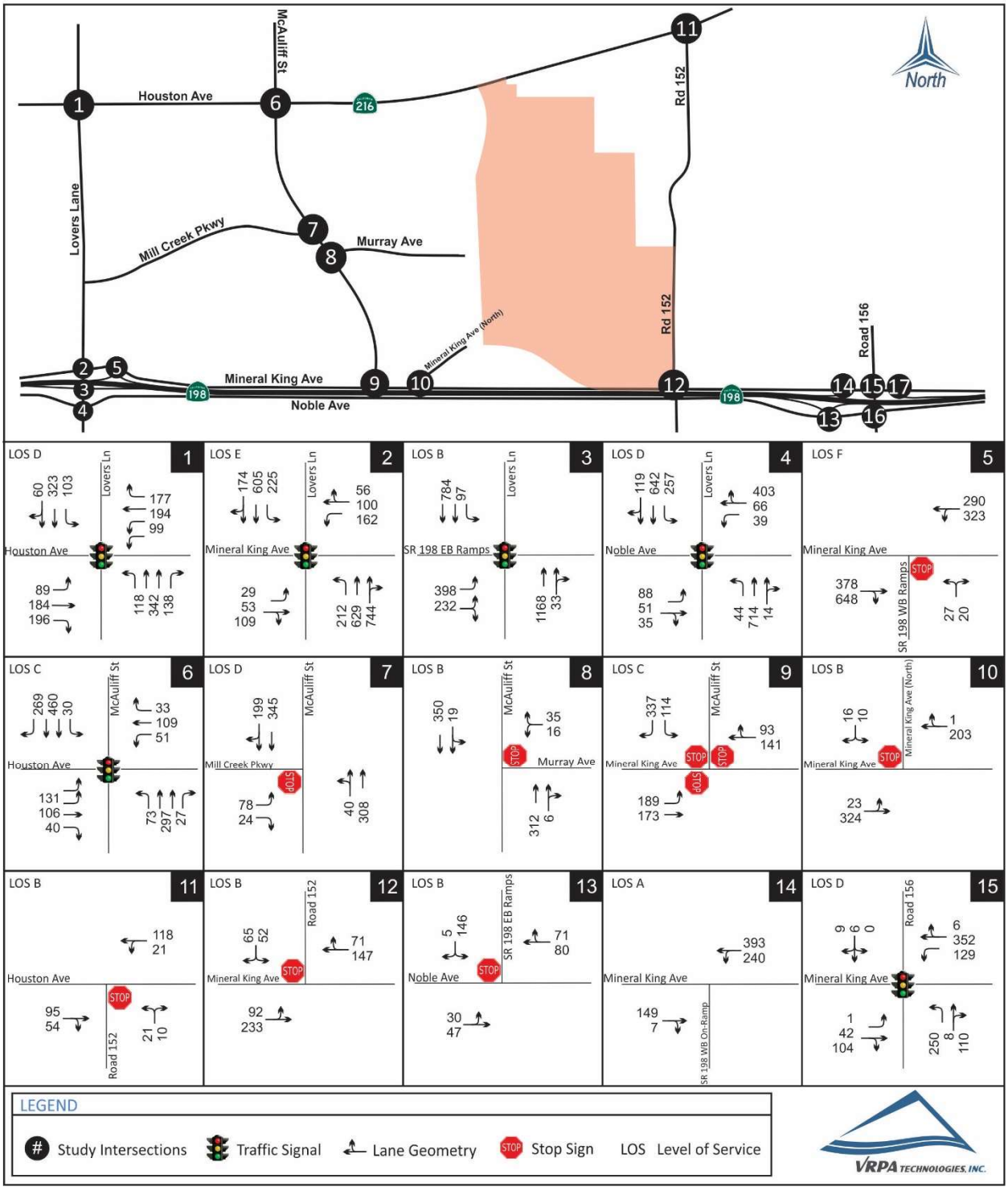
Table 3-18 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways will meet acceptable levels of service.

3.5.2 *Near-Term (Year 2018) Roadway Segment Capacity Analysis*

Table 3-19 shows roadway segment volumes and levels of service pertaining to the Near-Term (Year 2018) scenarios. Results of the analysis show that all of the study roadway segments will meet acceptable levels of service. Table 3-20 provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street will meet acceptable levels of service.

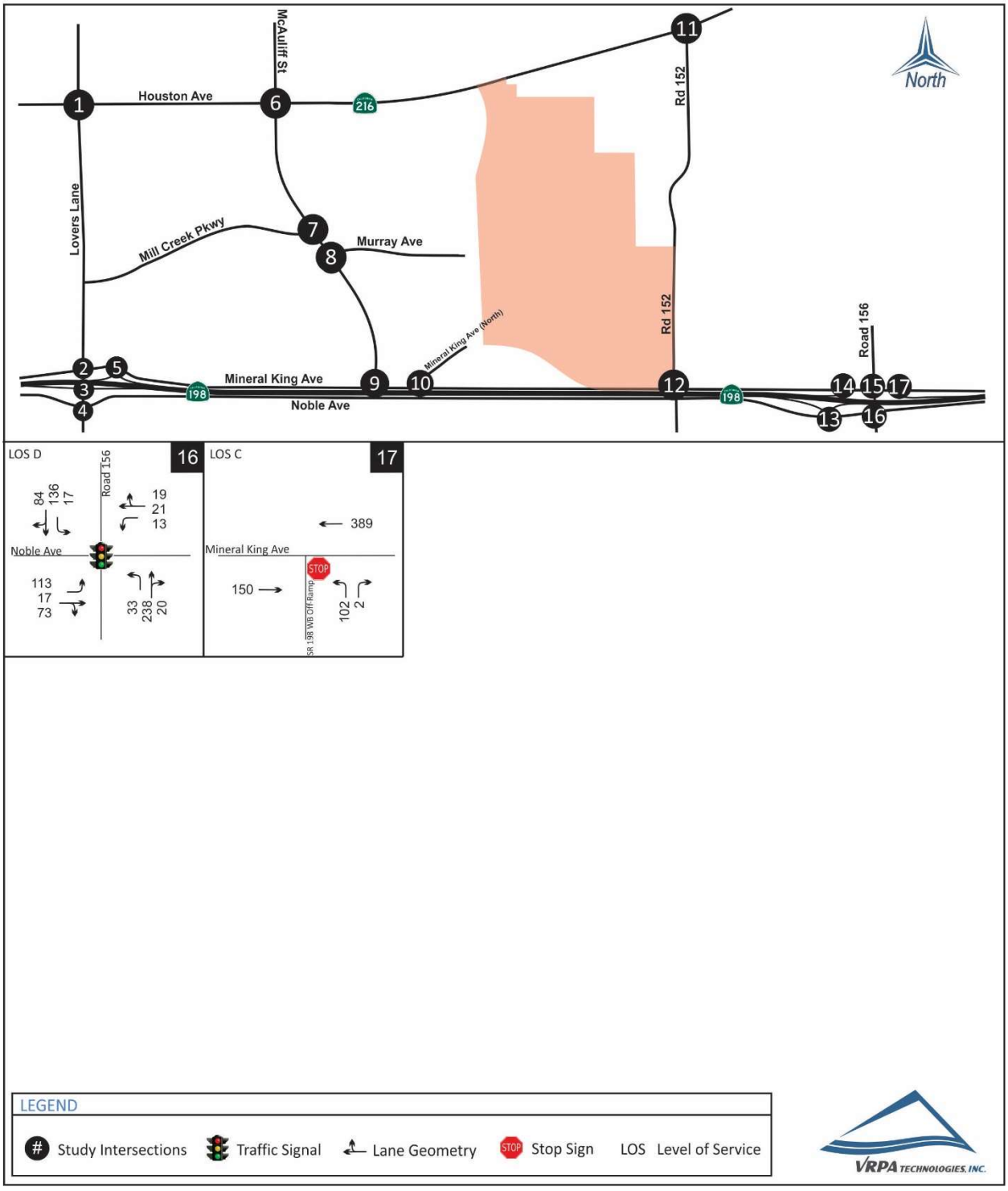
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Without Project AM Peak Hour Traffic

Figure 3-15a



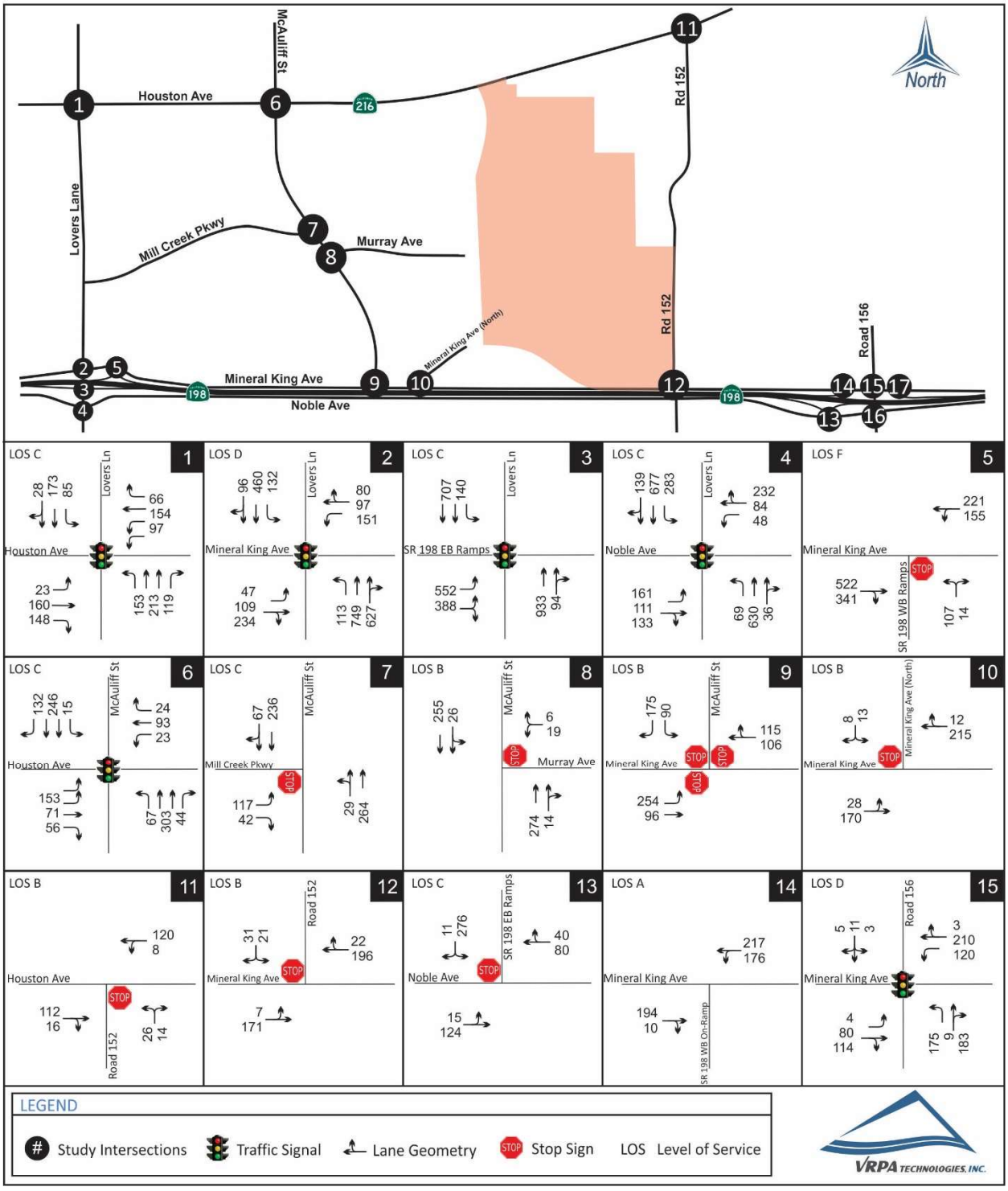
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Without Project AM Peak Hour Traffic

Figure 3-15b



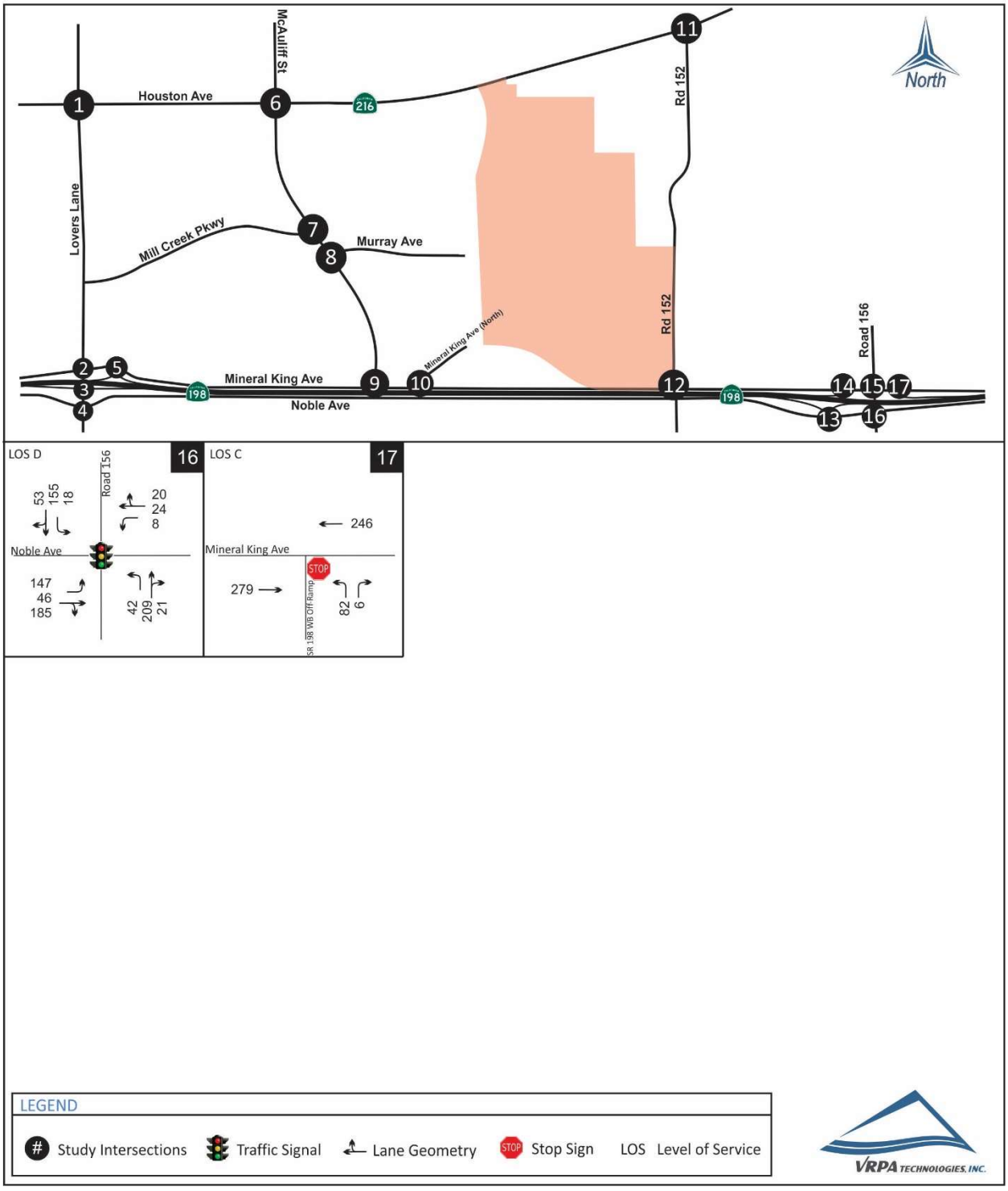
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Without Project PM Peak Hour Traffic

Figure 3-16a



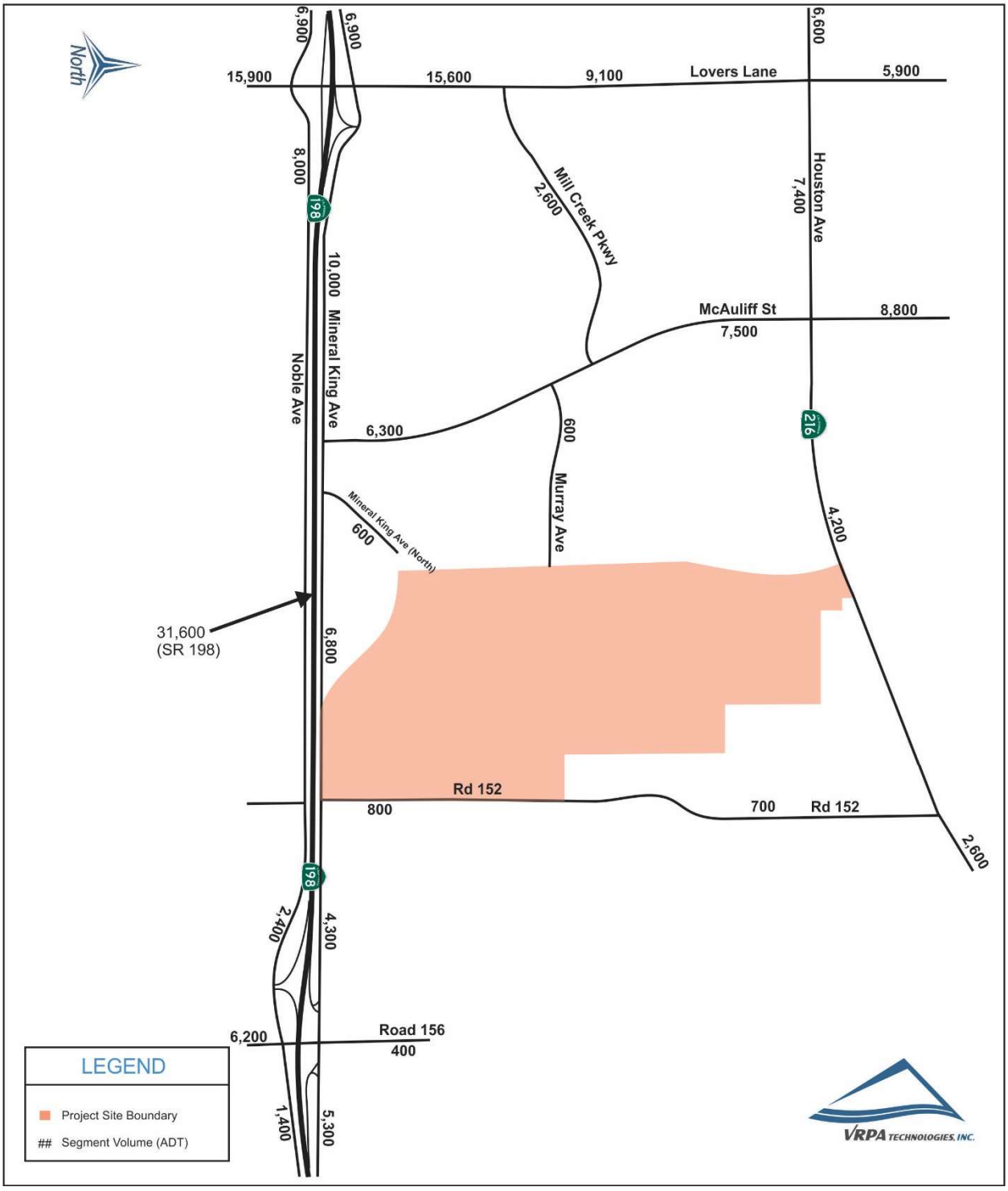
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Without Project PM Peak Hour Traffic

Figure 3-16b



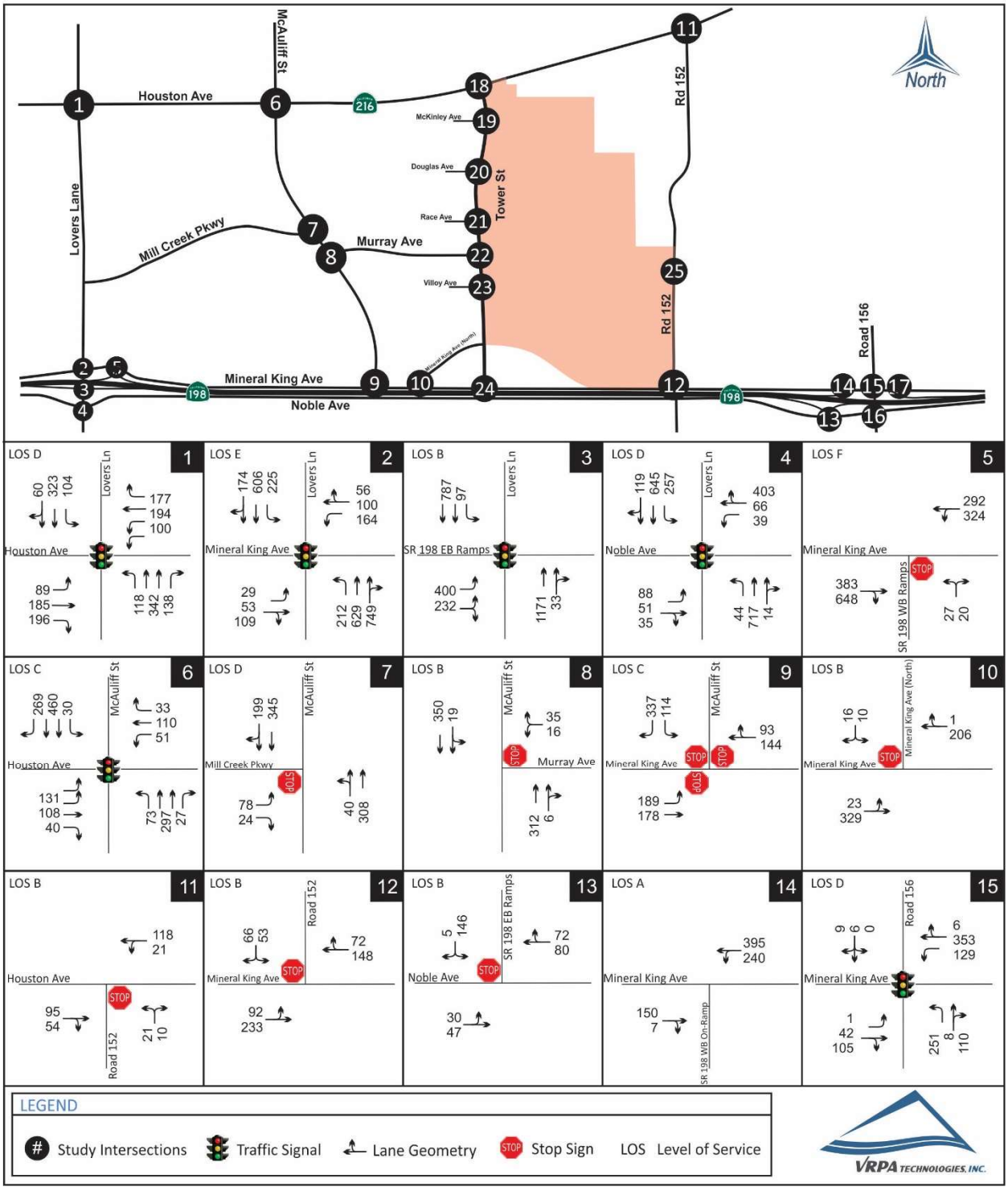
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Without Project Segment Volumes

Figure 3-17



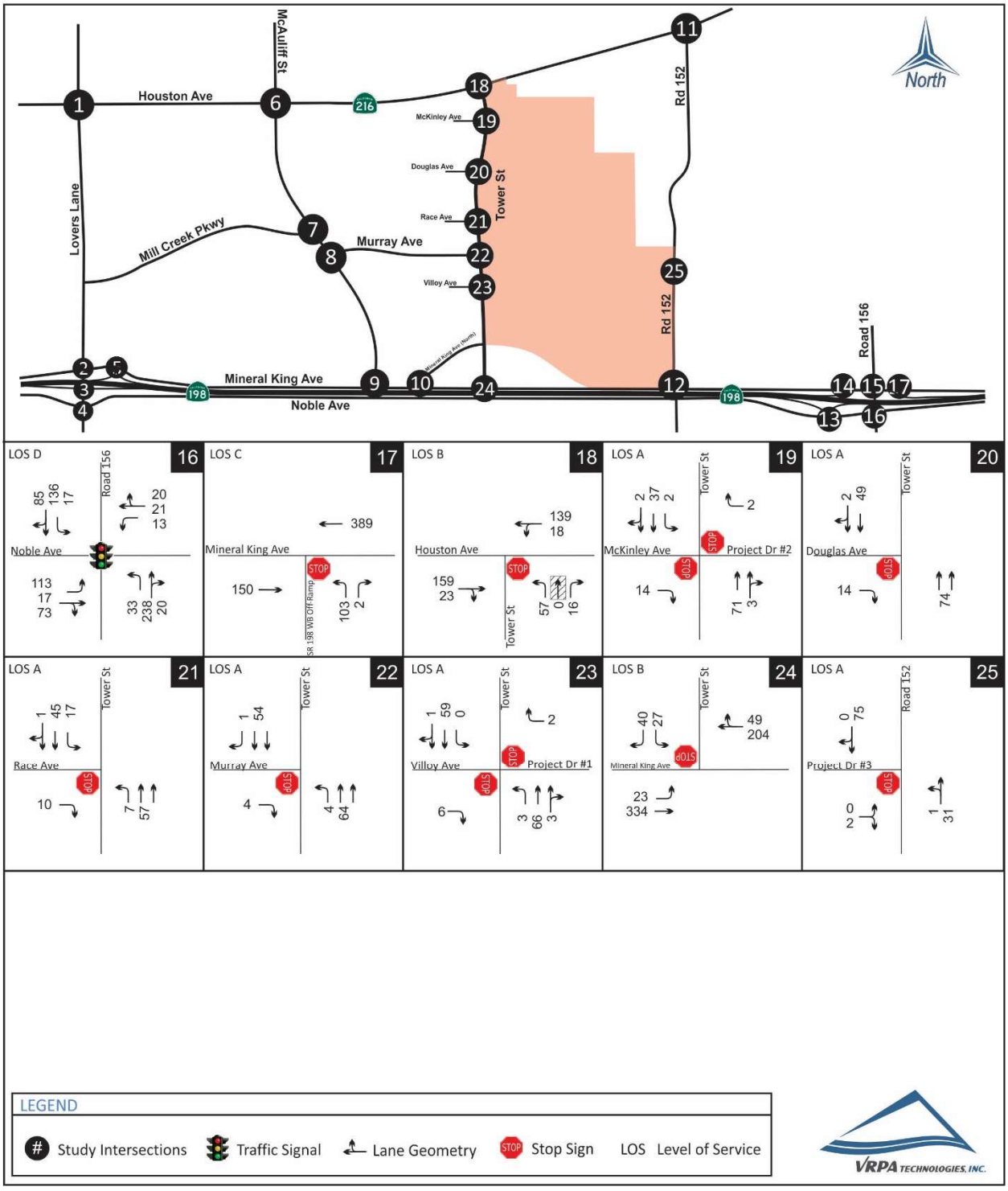
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 AM Peak Hour Traffic

Figure 3-18a



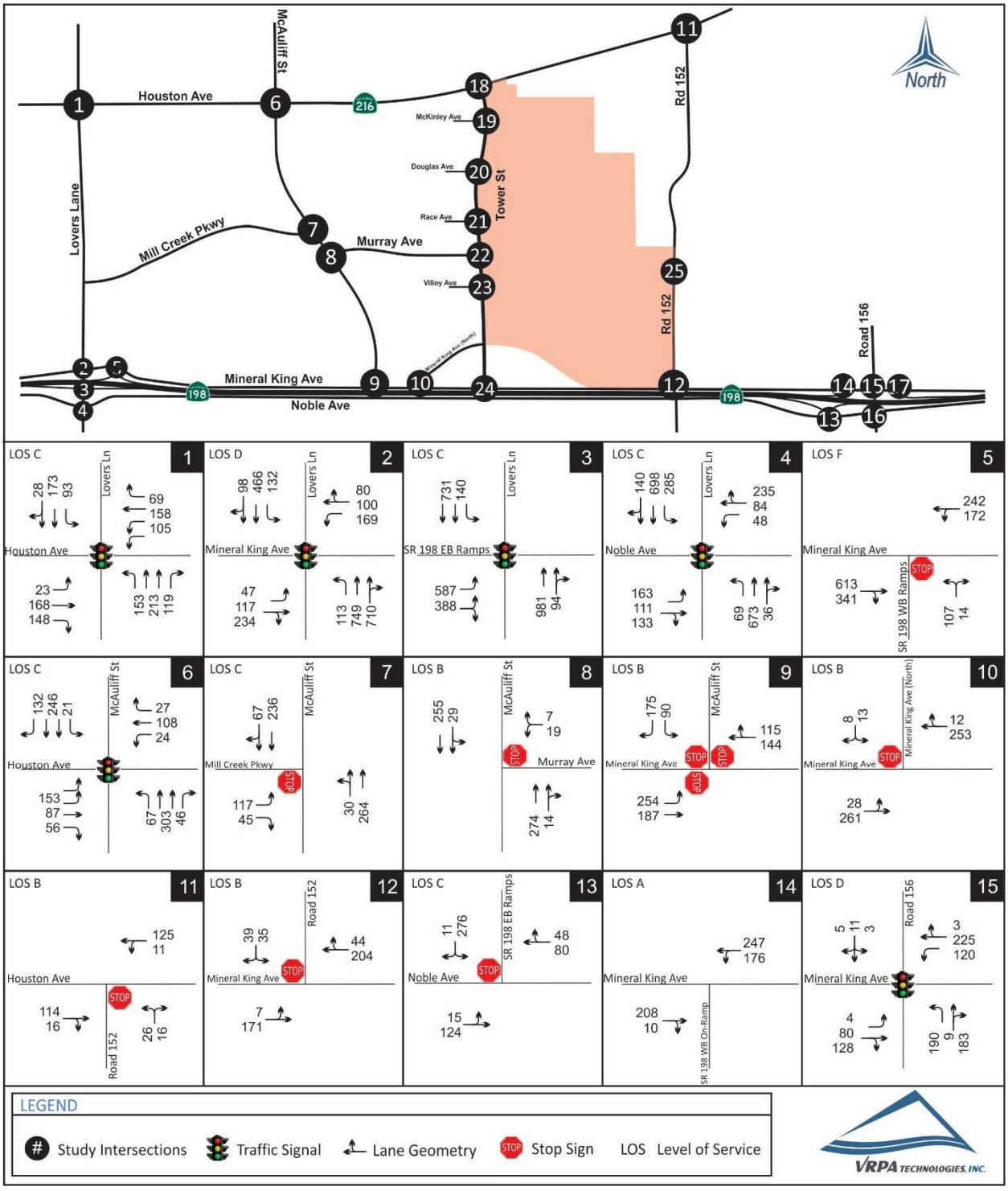
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 AM Peak Hour Traffic

Figure 3-18b



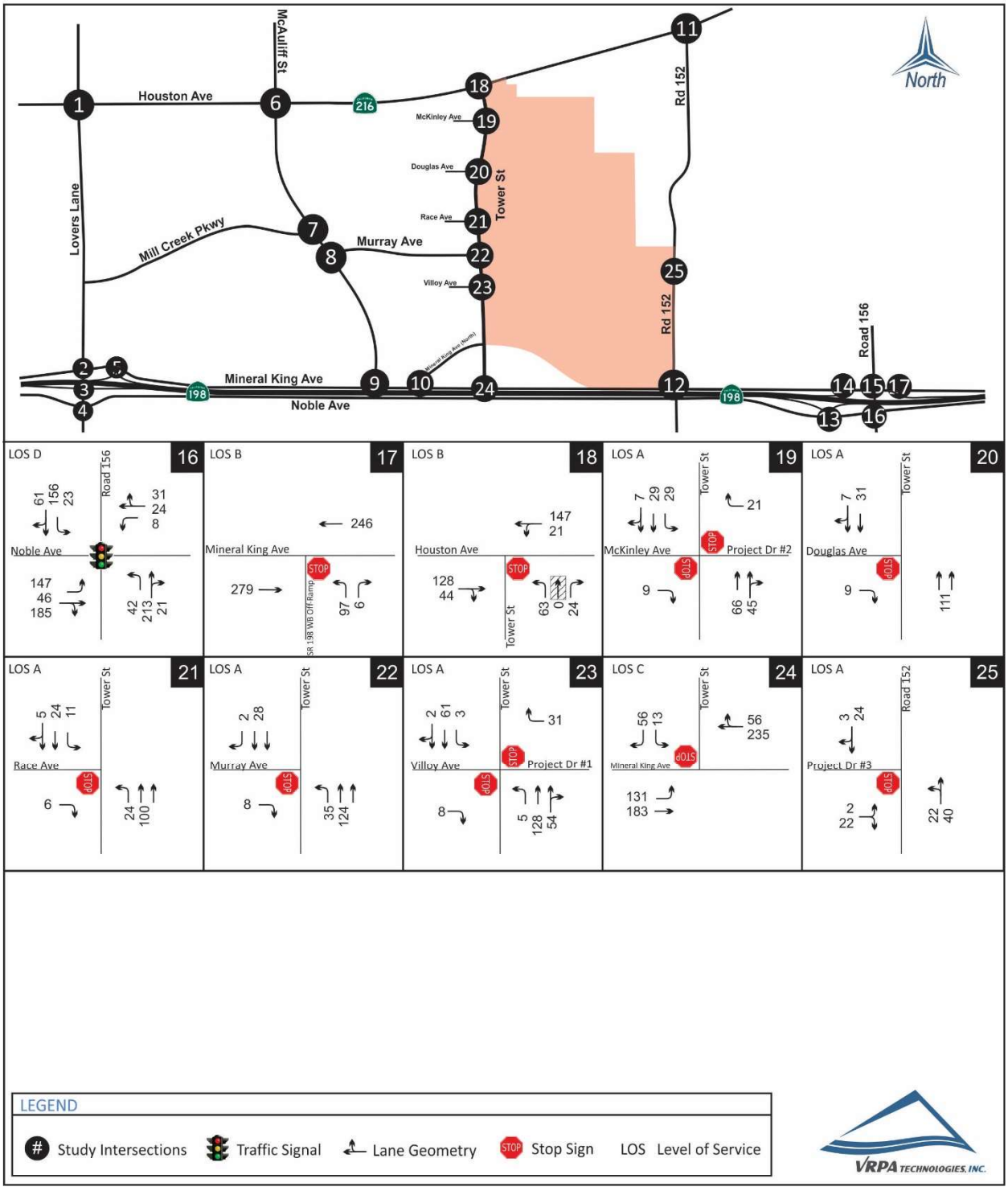
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 PM Peak Hour Traffic

Figure 3-19a



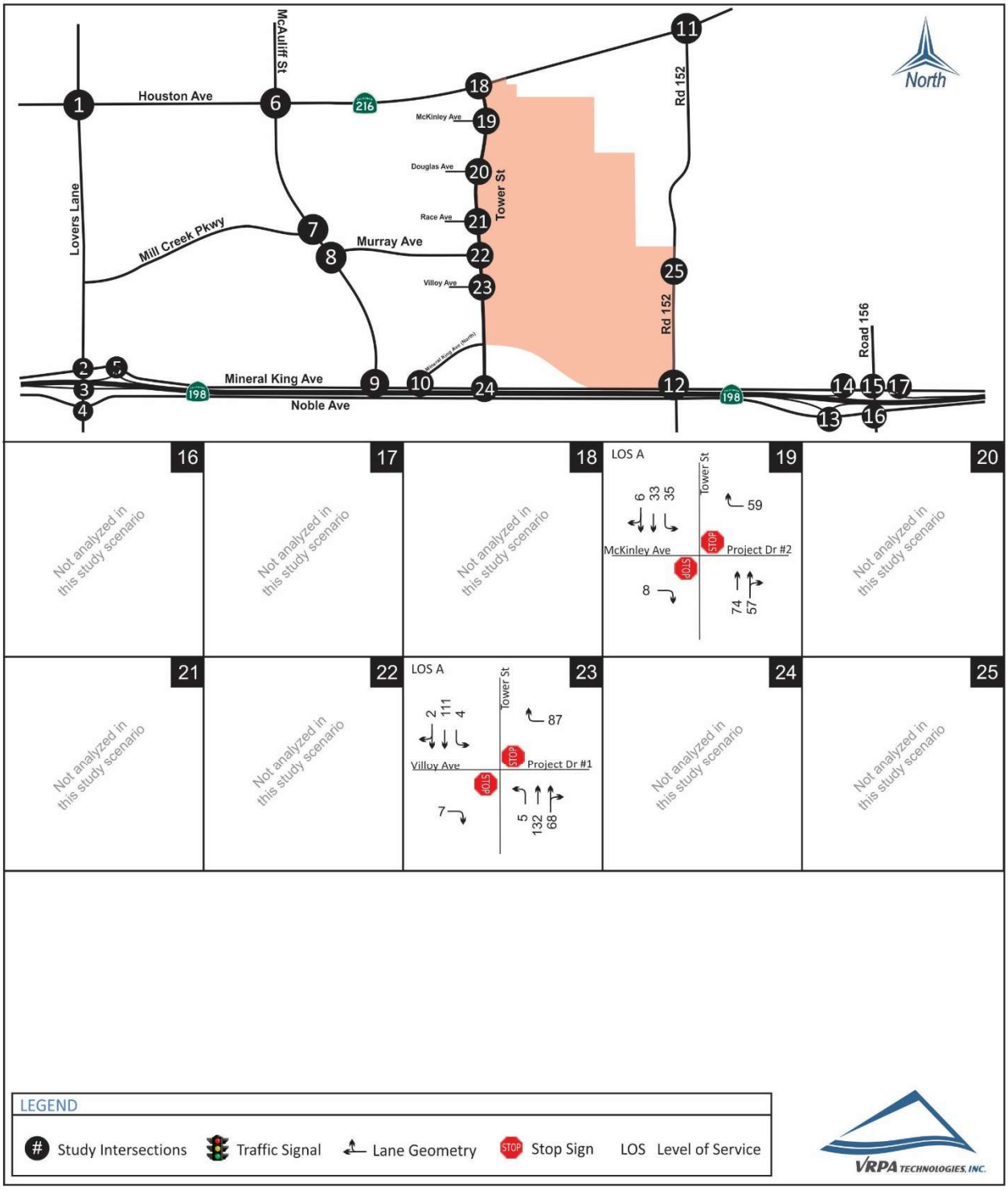
East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 PM Peak Hour Traffic

Figure 3-19b



East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 Saturday Peak Hour Traffic

Figure 3-20



East Side Regional Park & Groundwater Recharge Project EIR
Near-Term Opening Year 2018 Plus Phase 2 Project Segment Volumes

Figure 3-21

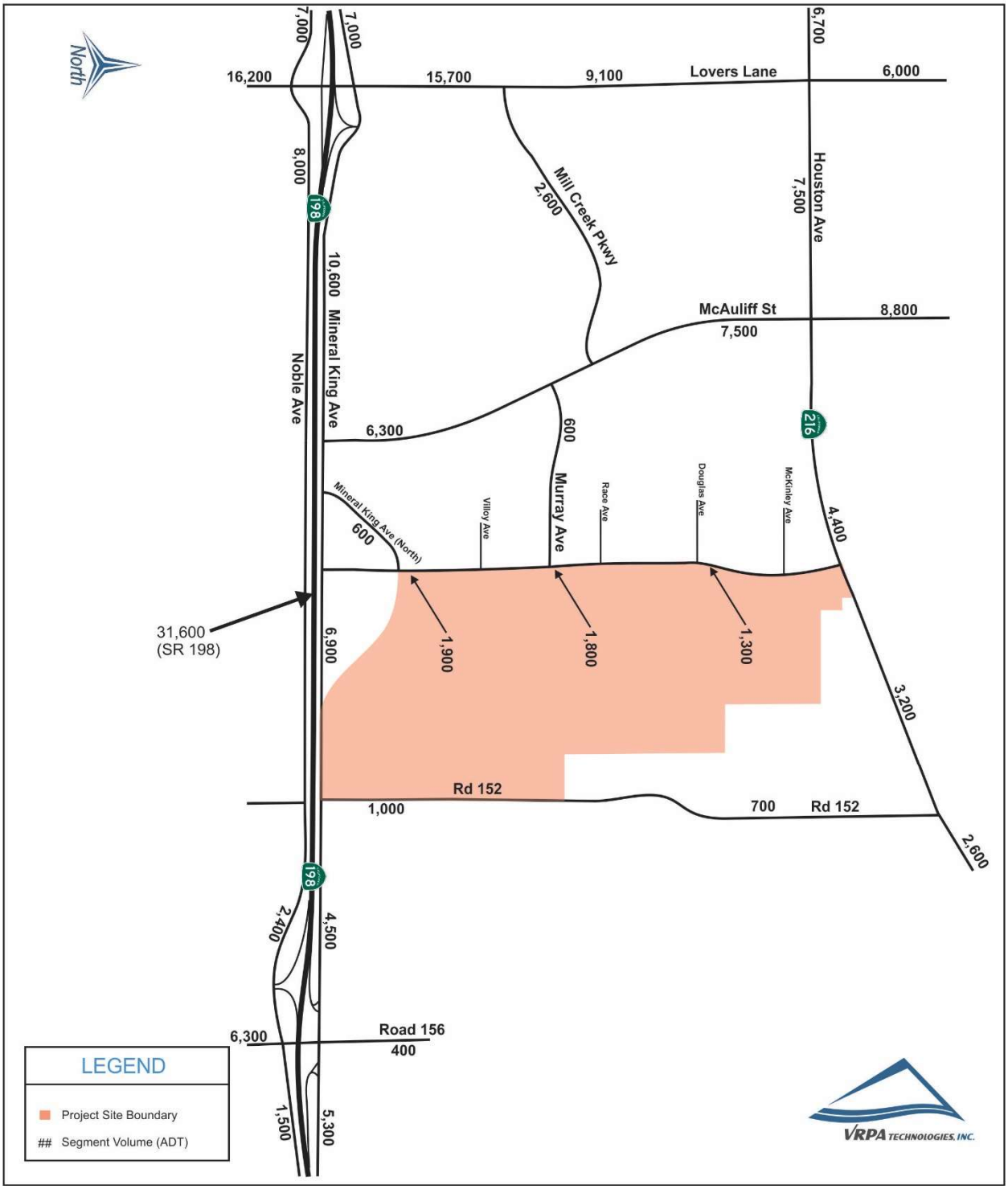


Table 3-16
Near-Term (Year 2018) Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	NEAR-TERM OPENING YEAR 2018 WITHOUT PROJECT		NEAR-TERM OPENING YEAR 2018 PLUS PROJECT	
				DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	36.3	D	36.4	D
			PM	28.6	C	28.9	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**70.8**	**E**	**72.1**	**E**
			PM	37.0	D	52.0	D
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	17.4	B	17.2	B
			PM	27.4	C	29.5	C
4. Lovers Lane / Noble Avenue	Signalized	D	AM	36.1	D	36.2	D
			PM	29.1	C	30.2	C
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F +**	**>50.0**	**F +**
			PM	**>50.0**	**F +**	**>50.0**	**F +**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	25.1	C	25.1	C
			PM	23.3	C	23.8	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	26.5	D	26.5	D
			PM	16.2	C	16.3	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	12.4	B	12.4	B
			PM	12.6	B	12.6	B
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	16.0	C	16.2	C
			PM	12.1	B	13.0	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	11.9	B	12.0	B
			PM	11.5	B	12.6	B
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.2	B	11.2	B
			PM	10.6	B	10.7	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	14.8	B	14.9	B
			PM	11.4	B	11.7	B
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	12.5	B	12.5	B
			PM	16.4	C	16.5	C
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A
			PM	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	45.9	D	46.0	D
			PM	37.5	D	38.8	D
16. Road 156 / Noble Avenue	Signalized	D	AM	36.7	D	36.7	D
			PM	39.8	D	39.9	D
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	15.1	C	15.1	C
			PM	15.0	C	10.1	B

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table 3-17
Near-Term (Year 2018) Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	NEAR-TERM OPENING YEAR 2018 PLUS PROJECT	
			DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	11.5	B
		PM	11.5	B
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.5	A
		PM	8.5	A
20. Tower Street / Douglas Avenue	D	AM	8.5	A
		PM	8.5	A
21. Tower Street / Race Avenue	D	AM	8.5	A
		PM	8.4	A
22. Tower Street / Murray Avenue	D	AM	8.5	A
		PM	8.4	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	8.5	A
		PM	9.0	A
24. Tower Street / Mineral King Avenue	D	AM	14.3	B
		PM	16.6	C
25. Road 152 / Project Driveway #3	D	AM	8.7	A
		PM	8.6	A

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-18
Near-Term (Year 2018) Saturday Peak Hour Intersection Operations

INTERSECTION	TARGET LOS	NEAR-TERM OPENING YEAR 2018 PLUS PROJECT	
		DELAY	LOS
19. Tower Street / McKinley Avenue-Project Driveway #2	D	9.0	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	9.4	A

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 3-19
Near-Term (Year 2018) Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	NEAR-TERM OPENING YEAR 2018 WITHOUT PROJECT			NEAR-TERM OPENING YEAR 2018 PLUS PROJECT		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	6,600	0.37	C	6,700	0.38	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	7,400	0.19	C	7,500	0.19	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	4,200	0.24	C	4,400	0.25	C
East of Road 152	2 Lanes Undivided	C	17,700	2,600	0.15	C	2,600	0.15	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	5,900	0.17	C	6,000	0.18	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	9,100	0.25	C	9,100	0.25	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	15,600	0.44	C	15,700	0.44	C
South of Noble Avenue	4 Lanes Divided	D	35,820	15,900	0.44	C	16,200	0.45	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	8,800	0.25	C	8,800	0.25	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,500	0.22	C	7,500	0.22	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	6,300	0.19	C	6,300	0.19	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	700	0.04	C	700	0.04	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	800	0.05	C	1,000	0.06	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,900	0.43	C	7,000	0.44	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	10,000	0.63	C	10,600	0.67	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	6,800	0.43	C	6,900	0.43	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	4,300	0.27	C	4,500	0.28	C
East of Road 156	2 Lanes Undivided	D	15,930	5,300	0.33	C	5,300	0.33	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	6,200	0.39	C	6,300	0.40	C
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,600	0.15	C	2,600	0.15	C
Mineral King Avenue (North)									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	600	0.04	C	600	0.04	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	600	0.04	C	600	0.04	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	6,900	0.43	C	7,000	0.44	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	8,000	0.50	C	8,000	0.50	C
West of Road 156	2 Lanes Undivided	D	15,930	2,400	0.15	C	2,400	0.15	C
East of Road 156	2 Lanes Undivided	D	15,930	1,400	0.09	C	1,500	0.09	C
SR 198									
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	31,600	0.40	B	31,600	0.40	B

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-20
Near-Term (Year 2018) Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	NEAR-TERM OPENING YEAR 2018 PLUS PROJECT		
				VOLUME	V/C[2]	LOS
Tower Street						
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	1,300	0.04	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	1,800	0.05	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	1,900	0.05	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

3.5.3 *Near-Term (Year 2018) Queuing Analysis*

Tables 3-21 and 3-22 provides a queue length summary for left and right turn lanes at the study intersections for the Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios. The queues shown for signalized intersections in Tables 3-21 and 3-22 represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans' Highway Design Manual.

3.5.4 *Near-Term (Year 2018) Merge/Diverge Analysis*

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios are reflected in Tables 3-23 and 3-24 and indicate the interchanges will operate at acceptable levels of service.

Table 3-21
Near-Term (Year 2018) Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		EXISTING CONDITIONS		NEAR-TERM OPENING YEAR 2018 WITHOUT PROJECT		NEAR-TERM OPENING YEAR 2018 PLUS PROJECT	
			AM Queue	PM Queue	AM Queue	PM Queue	AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	142	187	144	191	144	191
	NB Right	300	16	22	15	24	15	24
	SB Left	225	180	118	183	120	184	129
	EB Left	200	167	47	170	47	170	47
	EB Right	200	46	44	46	46	46	46
	WB Left	2 @ 375	62	70	63	71	63	76
	WB Right	325	10	0	10	0	10	2
Lovers Lane / Mineral King Avenue	NB Left	100	**245**	89	**243**	89	**242**	82
	SB Left	175	**323**	**209**	**331**	**215**	**331**	**215**
	EB Left	150	37	50	38	51	38	51
	WB Left	150	**190**	**250**	**207**	**256**	**210**	**296**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**125**	**170**	**126**	**173**	**125**	**163**
	EB Left	225	**350**	**536**	**357**	**552**	**356**	**589**
Lovers Lane / Noble Avenue	NB Left	125	69	100	71	100	71	100
	SB Left	100	**317**	**300**	**325**	**303**	**324**	**301**
	EB Left	125	**185**	**225**	**193**	**232**	**193**	**237**
	WB Left	125	45	55	46	56	46	56
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	83	84	84	86	84	86
	NB Right	125	0	0	0	0	0	0
	SB Left	200	48	30	49	30	49	40
	SB Right	200	31	26	31	28	31	29
	EB Left	2 @ 375	70	81	72	84	72	84
	EB Right	200	0	0	0	0	0	0
	WB Left	375	68	40	70	40	70	42
	WB Right	375	0	0	0	0	0	0
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100	75	100	75	100
	EB Right	100	25	25	25	25	25	50
McAuliff Street / Mineral King Avenue	SB Left	250	100	75	100	75	100	75
	SB Right	250	**275**	150	**275**	150	**275**	150
	EB Left	200	150	200	150	200	150	200
Road 156 / Mineral King Avenue	NB Left	125	**257**	**194**	**262**	**196**	**263**	**210**
	EB Left	50	6	15	6	15	6	15
	WB Left	125	**144**	**133**	**147**	**134**	**147**	**134**
Road 156 / Noble Avenue	NB Left	175	51	62	52	63	52	63
	SB Left	150	18	25	18	25	18	29
	EB Left	350	125	151	127	153	127	153
	WB Left	325	29	21	29	21	29	21

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-22
Near-Term (Year 2018) Tower Street Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		NEAR-TERM OPENING YEAR 2018 PLUS PROJECT	
			AM Queue	PM Queue
Tower Street / Houston Avenue (SR 216)	NB Left	--	48	53
	NB Right	--	13	20
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--	2	24
	EB Left	--	12	8
	WB Left	--	2	18
Tower Street / Race Avenue	NB Left	--	6	20
	SB Left	--	14	9
Tower Street / Murray Avenue	NB Left	--	3	29
	SB Right	--	1	2
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	3	4
	SB Left	--	0	3
	EB Right	--	5	7
	WB Left	--		
	WB Right	--	2	26
Tower Street / Mineral King Avenue	SB Left	--	23	11
	SB Right	--	33	47
	EB Left	--	19	109

Queue is measured in feet

Table 3-23
Near-Term Opening Year 2018 Without Project Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	2203	630	2783	940	2	1	C	B	15.6	C	21.3
SR-198 EB On Ramp from Lovers Lane	Merge	1573	130	1843	234	2	1	C	B	12.9	B	16.2
SR-198 EB Off Ramp to Road 156	Diverge	1703	151	2077	287	2	1	C	A	9.5	B	13.2
SR-198 EB On Ramp from Road 156	Merge	1552	101	1790	55	2	1	C	B	15.2	B	17.2
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	1702	104	1671	88	2	1	C	A	8.6	A	8.3
SR-198 WB On Ramp from Road 156	Merge	1598	247	1583	186	2	1	C	B	14.9	B	14.3
SR-198 WB Off Ramp to Lovers Lane	Diverge	1845	47	1769	121	2	1	C	B	14.1	B	13.3
SR-198 WB On Ramp from Lovers Lane	Merge	1798	971	1648	496	2	1	C	C	24.3	B	19.0

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 3-24
Near-Term Opening Year 2018 Plus Project Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	2205	632	2818	975	2	1	C	B	15.6	C	21.6
SR-198 EB On Ramp from Lovers Lane	Merge	1573	130	1843	234	2	1	C	B	12.9	B	16.2
SR-198 EB Off Ramp to Road 156	Diverge	1703	151	2077	287	2	1	C	A	9.5	B	13.2
SR-198 EB On Ramp from Road 156	Merge	1552	102	1790	63	2	1	C	B	15.5	B	17.3
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	1703	105	1686	103	2	1	C	A	8.6	A	8.5
SR-198 WB On Ramp from Road 156	Merge	1598	247	1583	186	2	1	C	B	14.9	B	14.3
SR-198 WB Off Ramp to Lovers Lane	Diverge	1845	47	1769	121	2	1	C	B	14.1	B	13.3
SR-198 WB On Ramp from Lovers Lane	Merge	1798	972	1648	513	2	1	C	C	24.3	B	19.1

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

3.6 Cumulative Year 2040 Traffic Conditions

The impacts of the Project were analyzed considering future traffic conditions in the year 2040. The levels of traffic expected in 2040 relate to the cumulative effect of traffic increases resulting from the implementation of the General Plans of local agencies, including the City of Visalia and Tulare County. Traffic conditions without the Project in the Year 2040 were estimated using the TCAG regional travel model. Future traffic forecasts along study area roadway segments were estimated by utilizing methodologies (incremental method) published by the Fresno Council of Governments (Fresno COG) using the TurnsW32 program. This process can be summarized as follows:

1. The TCAG model for the year 2014 and 2040 was used to estimate the future traffic forecasts for study area roadway segments. The AM and PM peak hour traffic volumes between both models were compared and the difference between the 2014 (baseline) and future year (2040) models was determined. This difference will then be added to the existing traffic counts to determine the 2040 Without Project peak hour segment volumes.

2. Existing AM and PM peak hour turning movements and the adjusted 2040 roadway segment traffic forecasts (above) were input to the TurnsW32 program and the program calculated 2040 AM and PM peak hour turning movements, as described in Fresno COG guidelines for determining future year turning movement forecasts (Incremental Method).

The resulting traffic volumes from the process described above was evaluated for consistency with the anticipated growth along the State Highway System (SHS) in the study area. As noted previously, the TCR's for SR 198 and SR 216 show a projected growth of 2.07% per year for the peak hours in the study area. Traffic volumes derived from the process described above were manually adjusted in cases where the resulting traffic volumes were less than the anticipated growth along the SHS. Adjustments to neighboring intersections were modified accordingly.

Other Known Approved, Pending Traffic

Traffic impact analyses typically require the analysis of approved or pending developments that have not yet been built in the vicinity of the Project in addition to the proposed Project. The City of Visalia and the County of Tulare both provided lists of such projects consistent with CEQA requirements and are included in Appendix G. Upon review of the provided lists, it was determined that a majority of the projects would either be captured in the ambient traffic growth in the TCAG model or wouldn't impact the Project study area.

The proposed Sequoia Drive-In Business Park is located off of Road 156 and Noble Avenue in Tulare County east of the Project site, on the south side of SR 198. A Notice of Preparation (NOP) has been announced by Tulare County for the proposed Sequoia Drive-In Business Park which proposes to develop approximately 367,360 square feet of highway commercial and 837,200 square feet of retail development (Appendix G). A traffic impact analysis has not been completed for the project, but Table 3-25 provides a general expectation of the traffic volumes anticipated by the project. Traffic expected from the Sequoia Drive-In Business Park was manually distributed to the study area considering prevailing travel patterns and engineering judgment and are included in all Cumulative Year 2040 study scenarios.

Table 3-25
Sequoia Drive-In Business Park Estimated Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Convenience Market w/ Gas Pumps	5.3 KSF	845.6	4,482	40.92	50:50	108	108	216	50.92	50:50	135	135	270
Business Park	353.07 KSF	12.44	4,392	1.40	85:15	420	74	494	1.26	26:74	116	329	445
TOTAL TRIP GENERATION			**8,874**			**528**	**182**	**710**			**251**	**464**	**715**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

Traffic conditions resulting from the documentation provided above for the Cumulative Year 2040 Without Project scenario is shown in Figures 3-22a, 3-22b, 3-23a, 3-23b, and 3-24.

The addition of Project trips (Phase 3), as shown in Figures 3-5a, 3-5b, 3-6a, 3-6b, 3-7a, 3-7b, and 3-7c (Section 3.3), were added to Cumulative Year 2040 Without Project traffic volumes. This leads to the results shown in Figures 3-25a, 3-25b, 3-26a, 3-26b, 3-27a, 3-27b, 3-27c, and 3-28.

3.6.1 *Cumulative Year 2040 Intersection Capacity Analysis*

Table 3-26 shows intersections that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 scenarios. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the proposed Project will cause or contribute to an unacceptable LOS at 10 of the 25 study intersections for this scenario when comparing the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios.

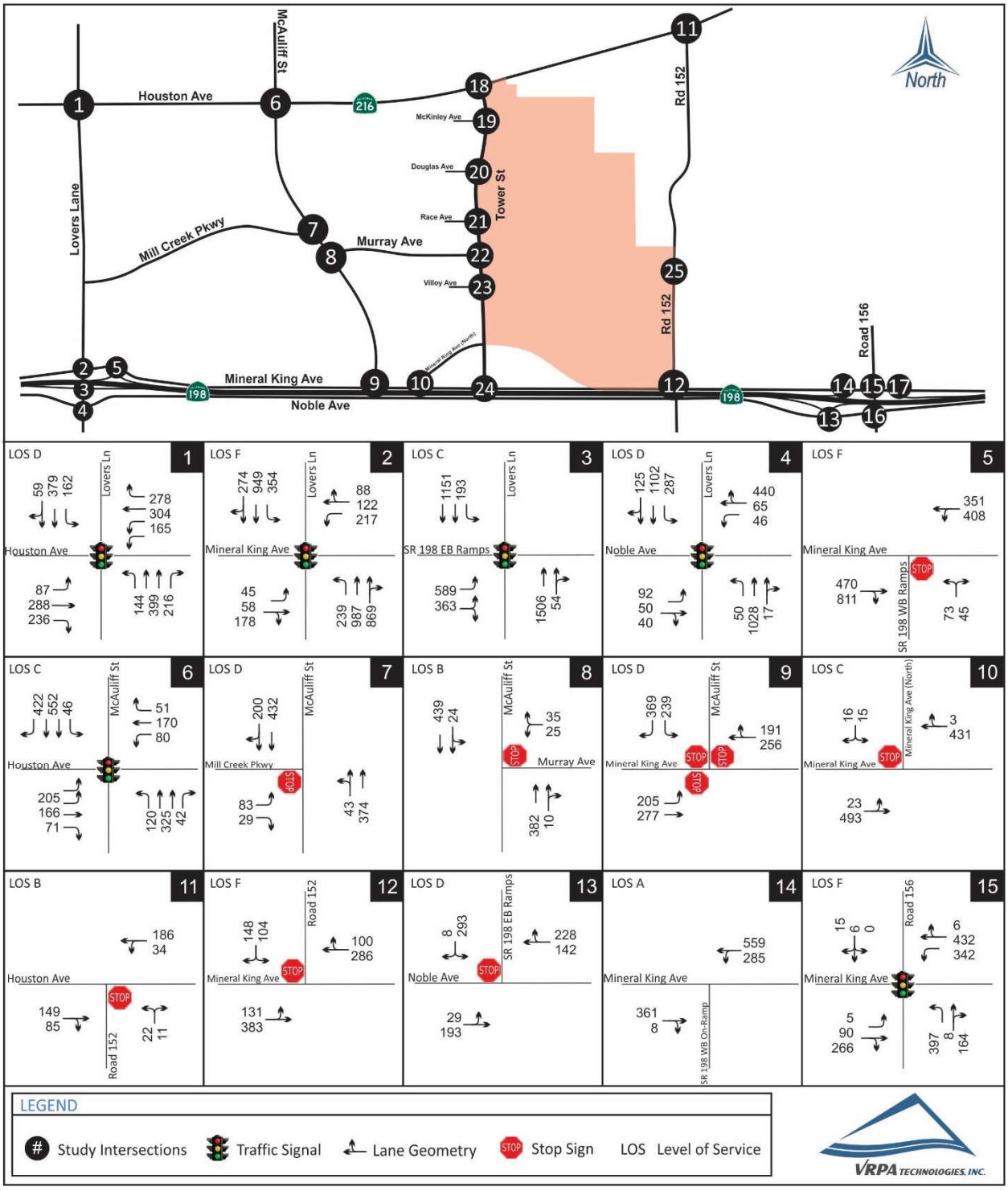
Table 3-27 shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street will meet acceptable levels of service with the exception of the Tower Street at Mineral King Avenue intersection, which is projected to operate at LOS E during the PM peak hour under the Cumulative Year 2040 Plus Project scenario.

Table 3-28 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during a special event. Results of the analysis show that the Project driveways will meet acceptable levels of service.

Table 3-29 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways will meet acceptable levels of service.

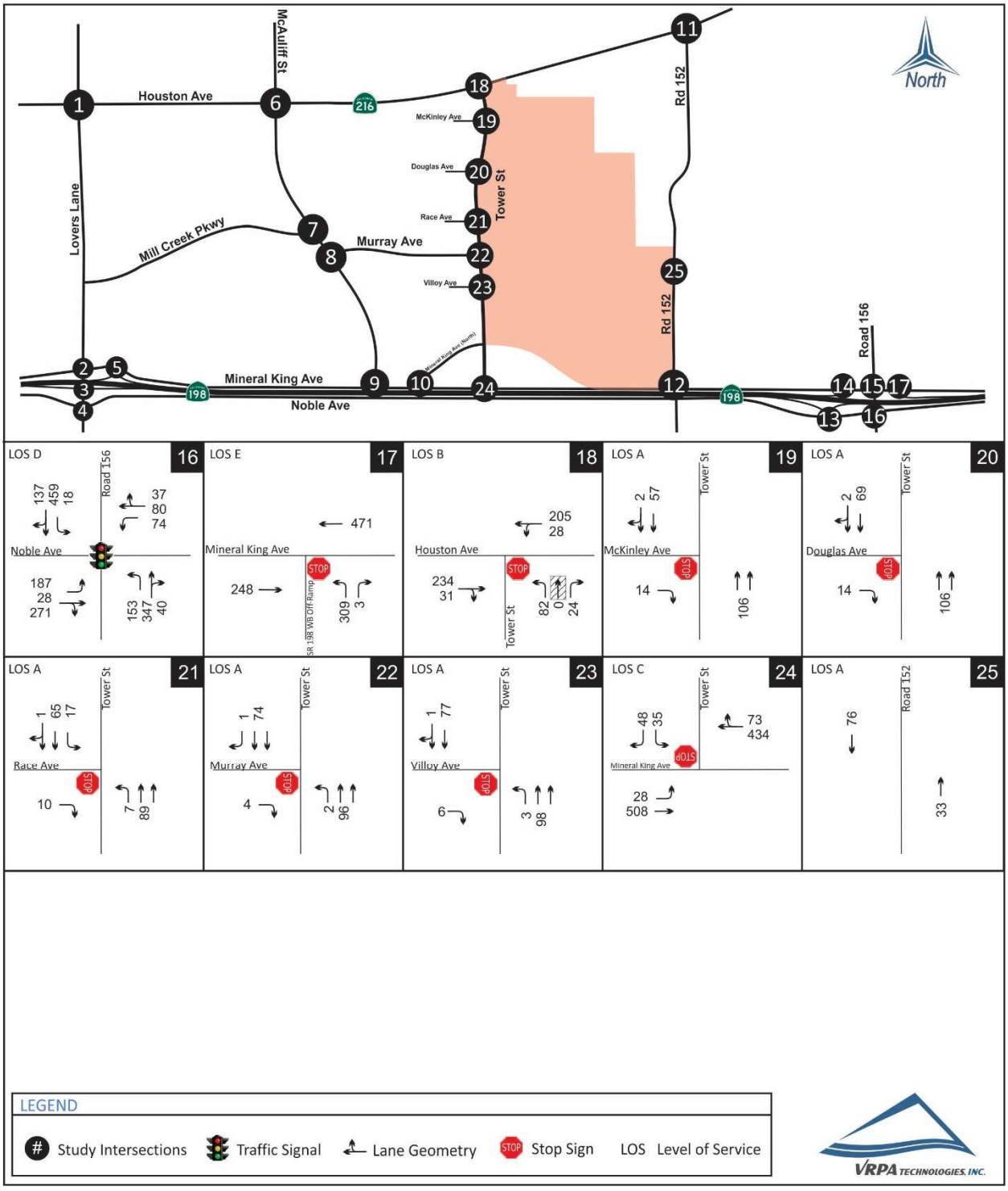
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project AM Peak Hour Traffic

Figure 3-22a



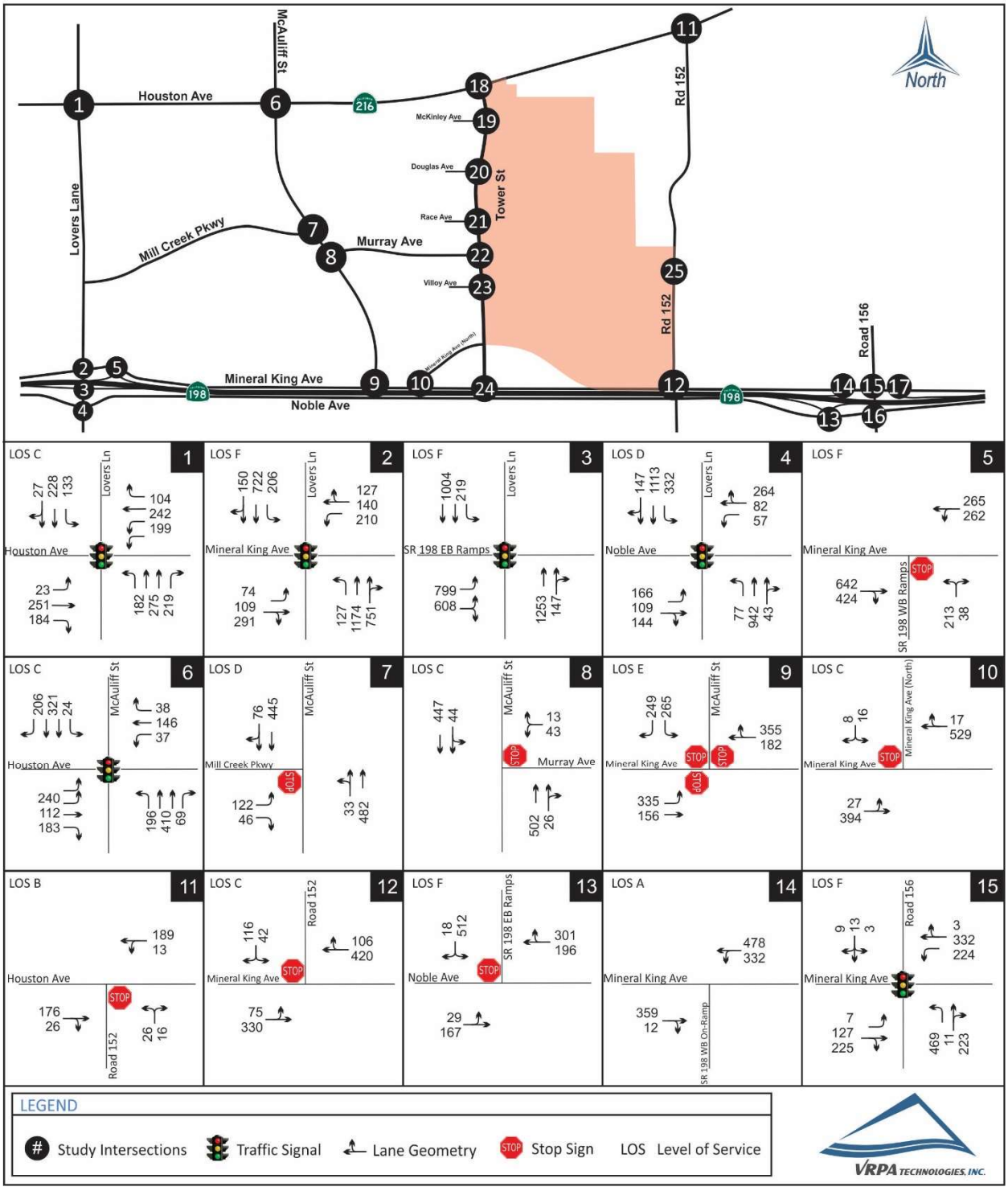
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project AM Peak Hour Traffic

Figure 3-22b



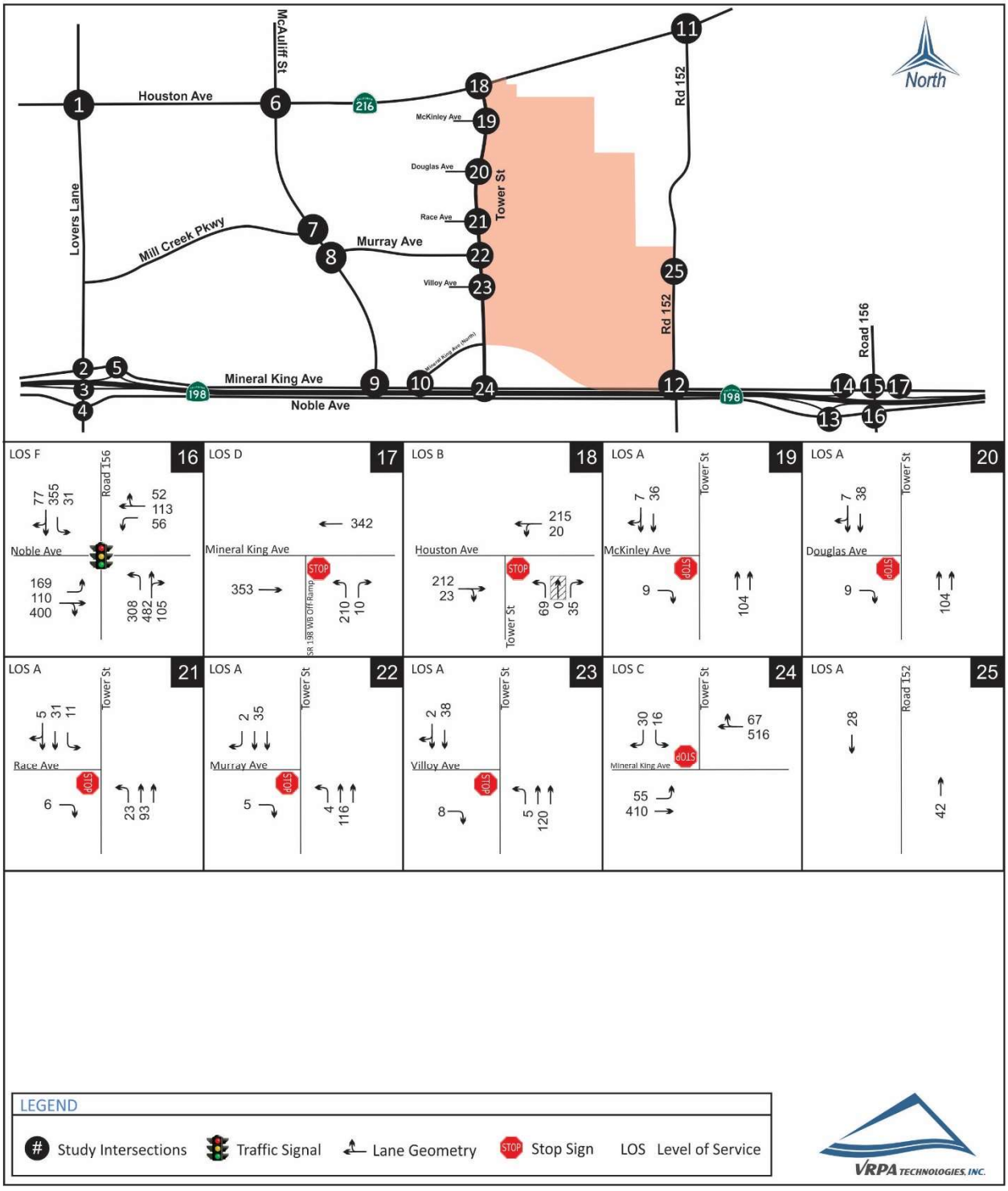
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project PM Peak Hour Traffic

Figure 3-23a



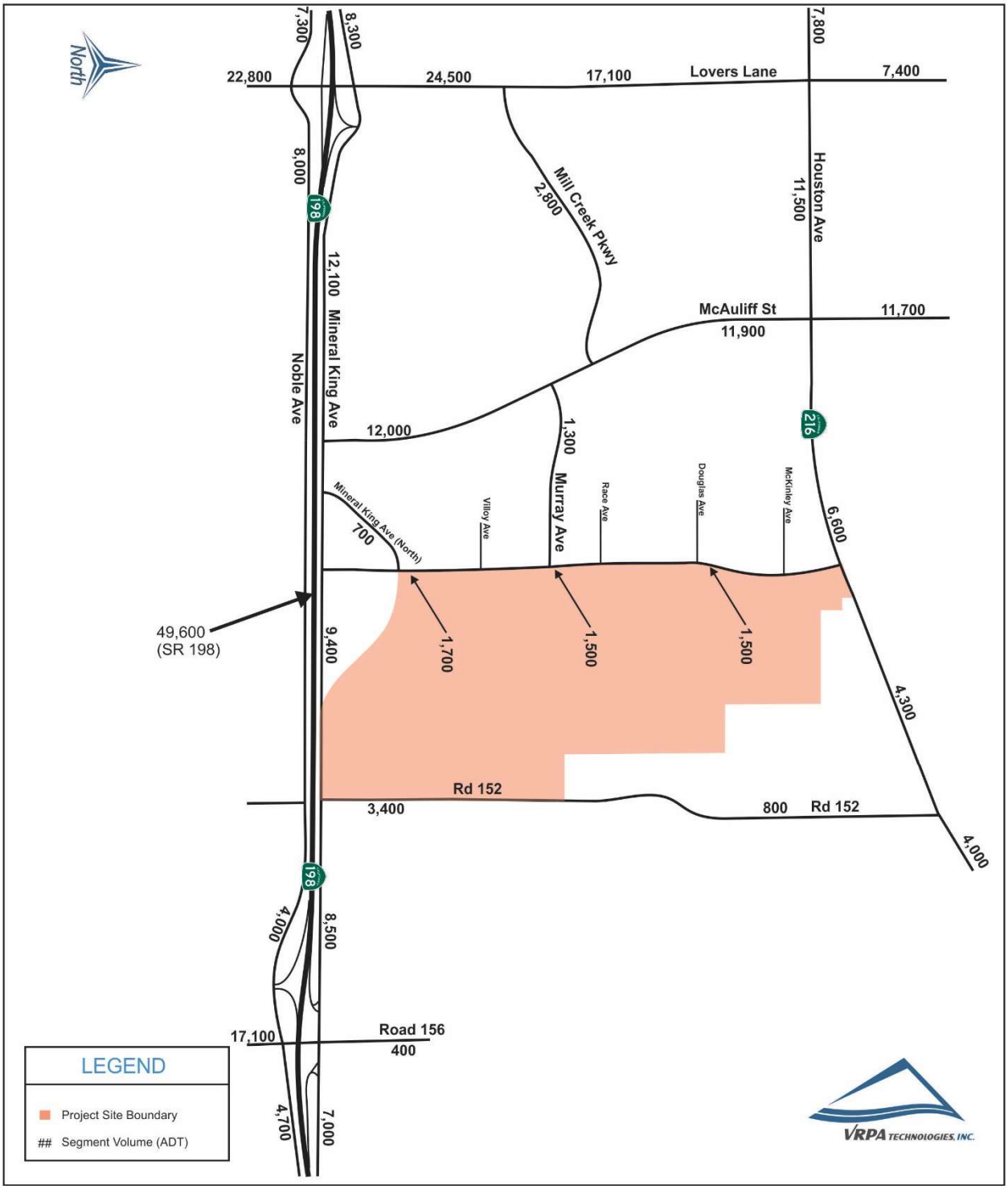
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project PM Peak Hour Traffic

Figure 3-23b



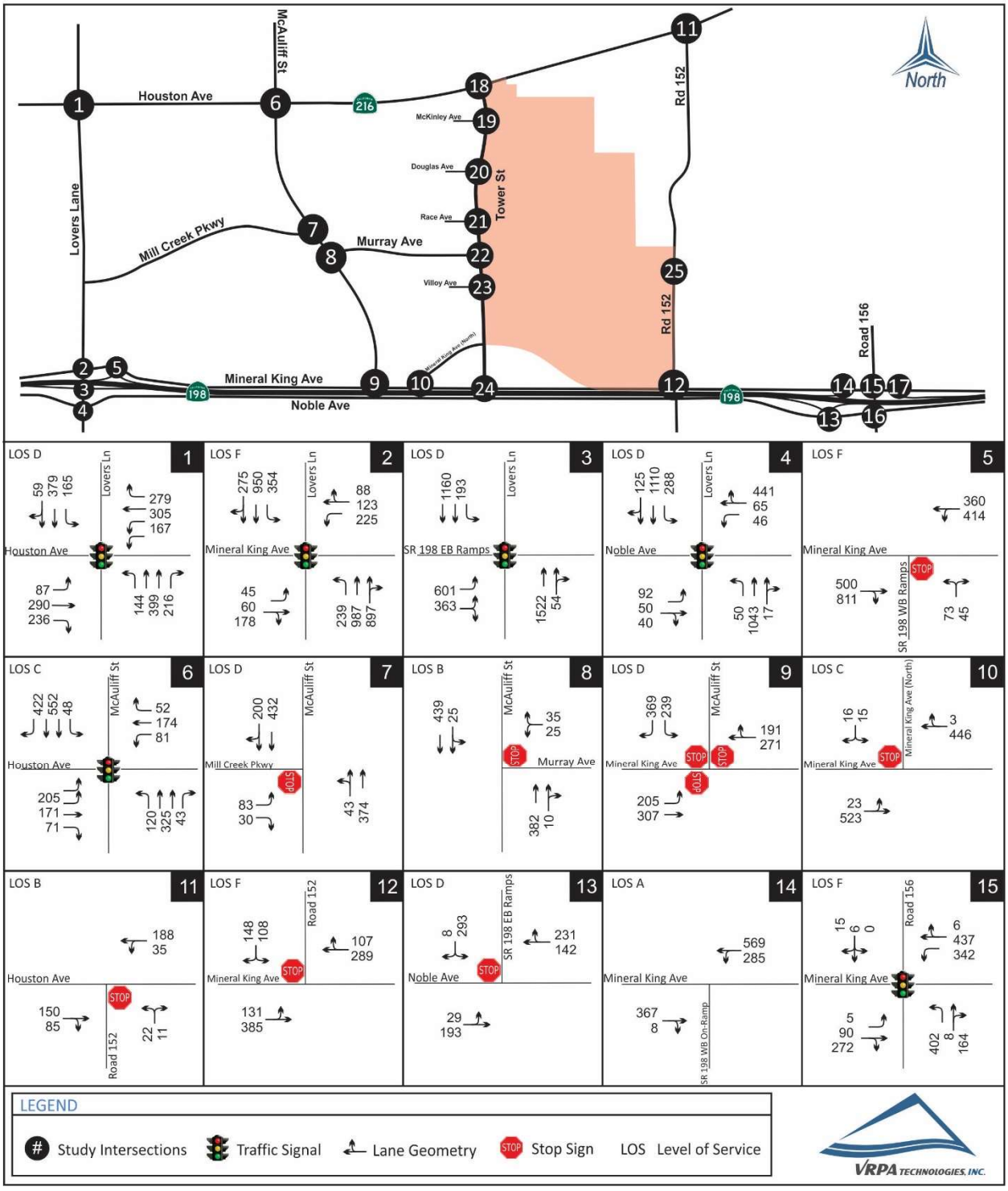
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Without Project Segment Volumes

Figure 3-24



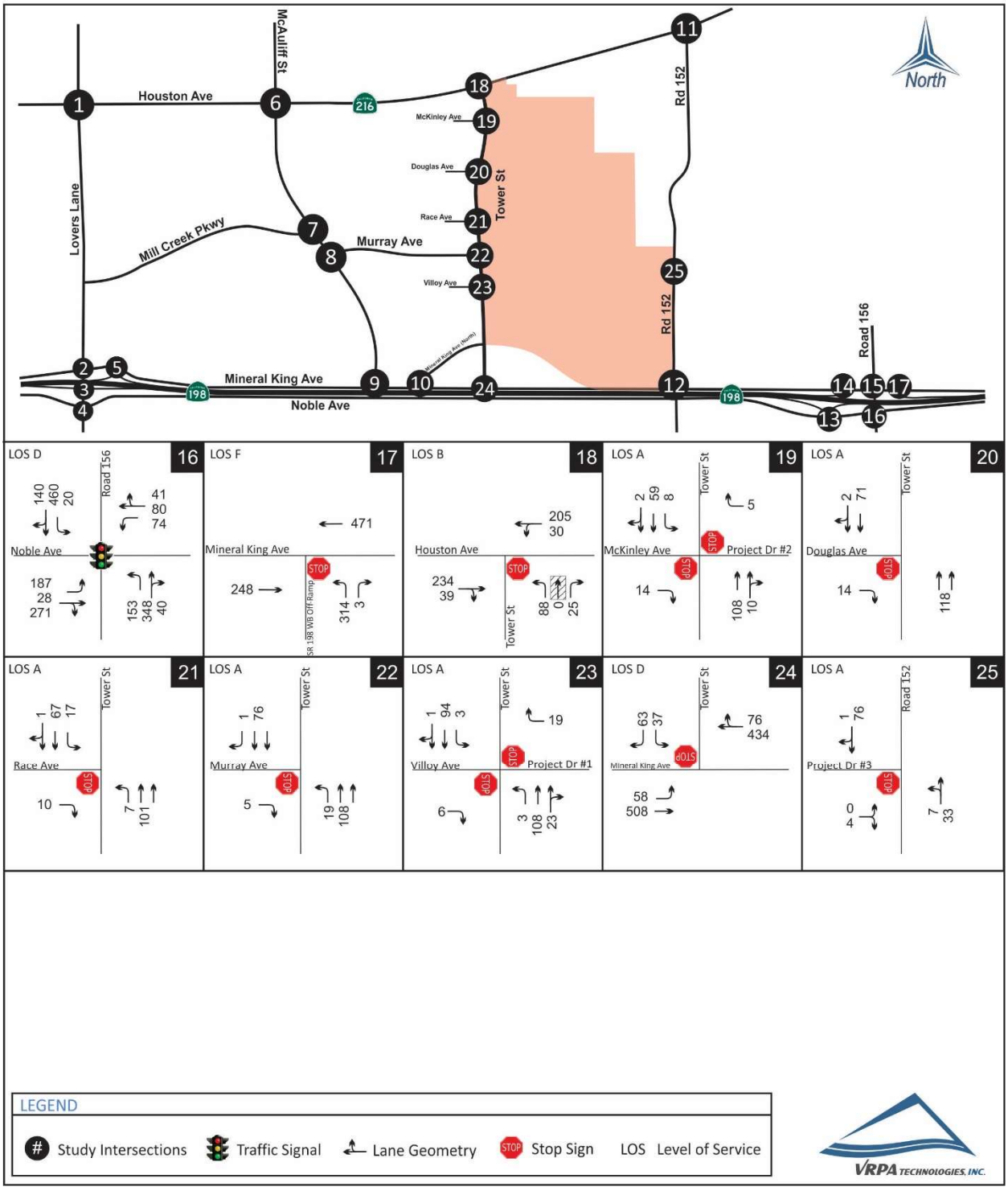
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project AM Peak Hour Traffic

Figure 3-25a



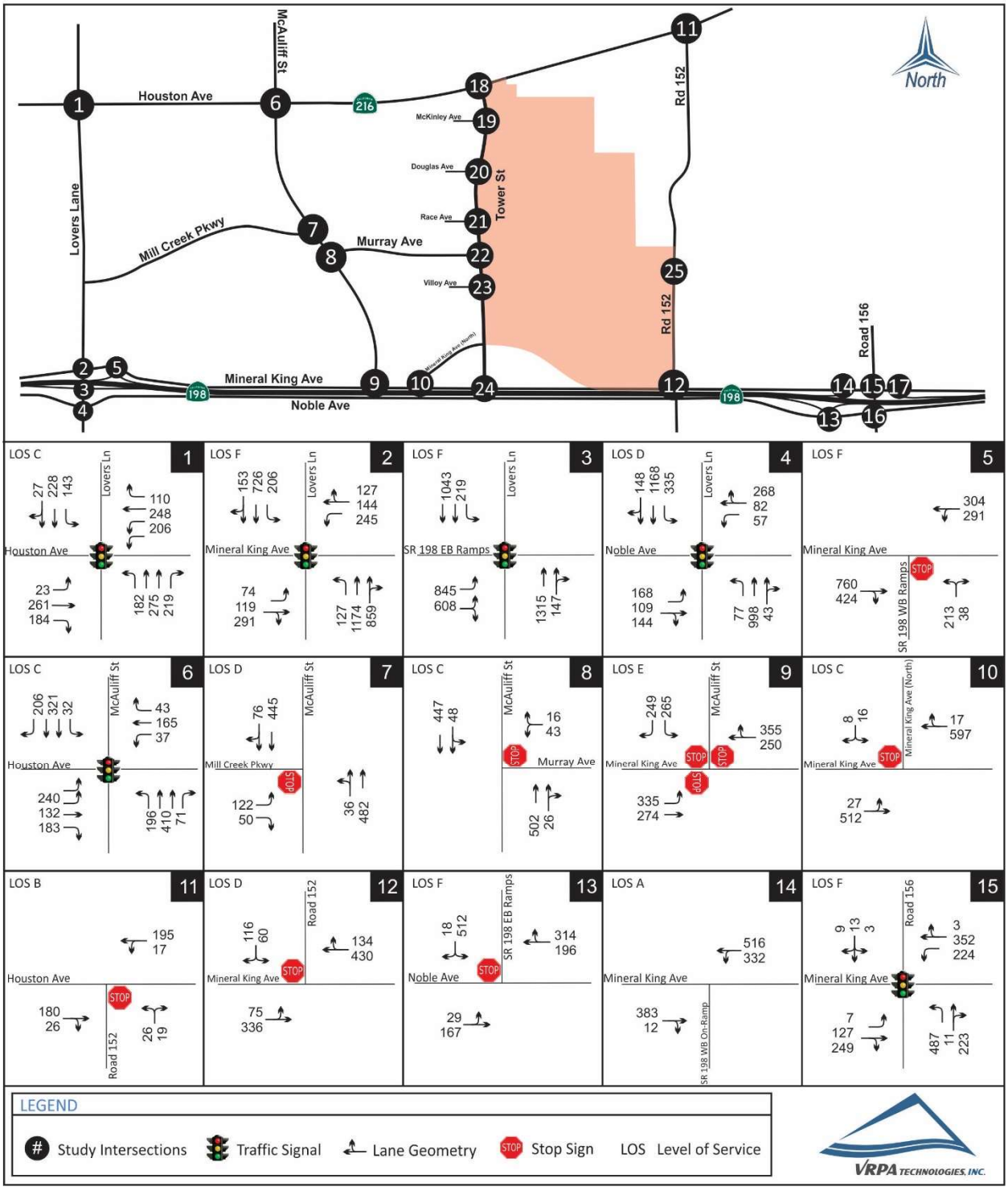
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project AM Peak Hour Traffic

Figure 3-25b



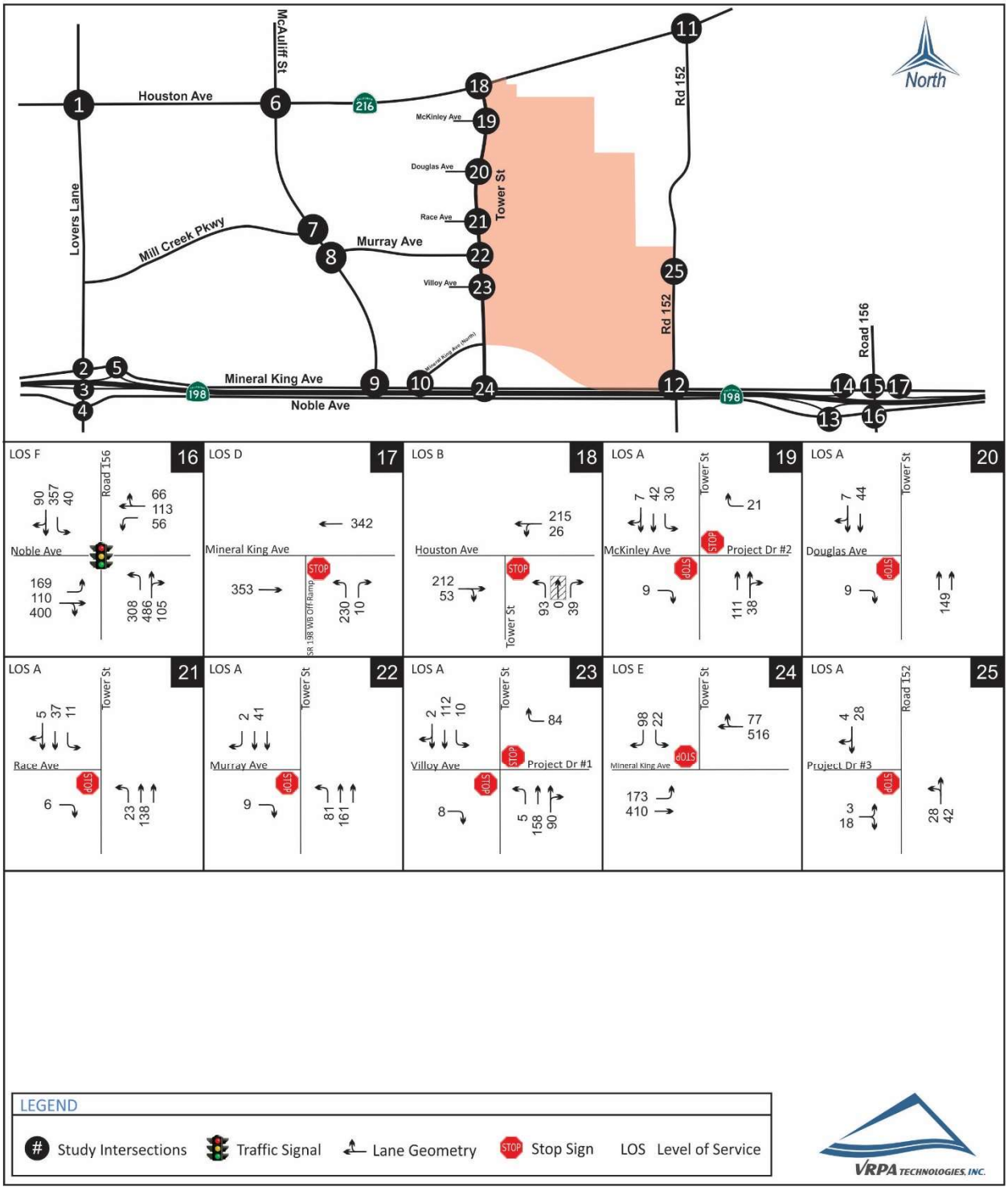
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project PM Peak Hour Traffic

Figure 3-26a



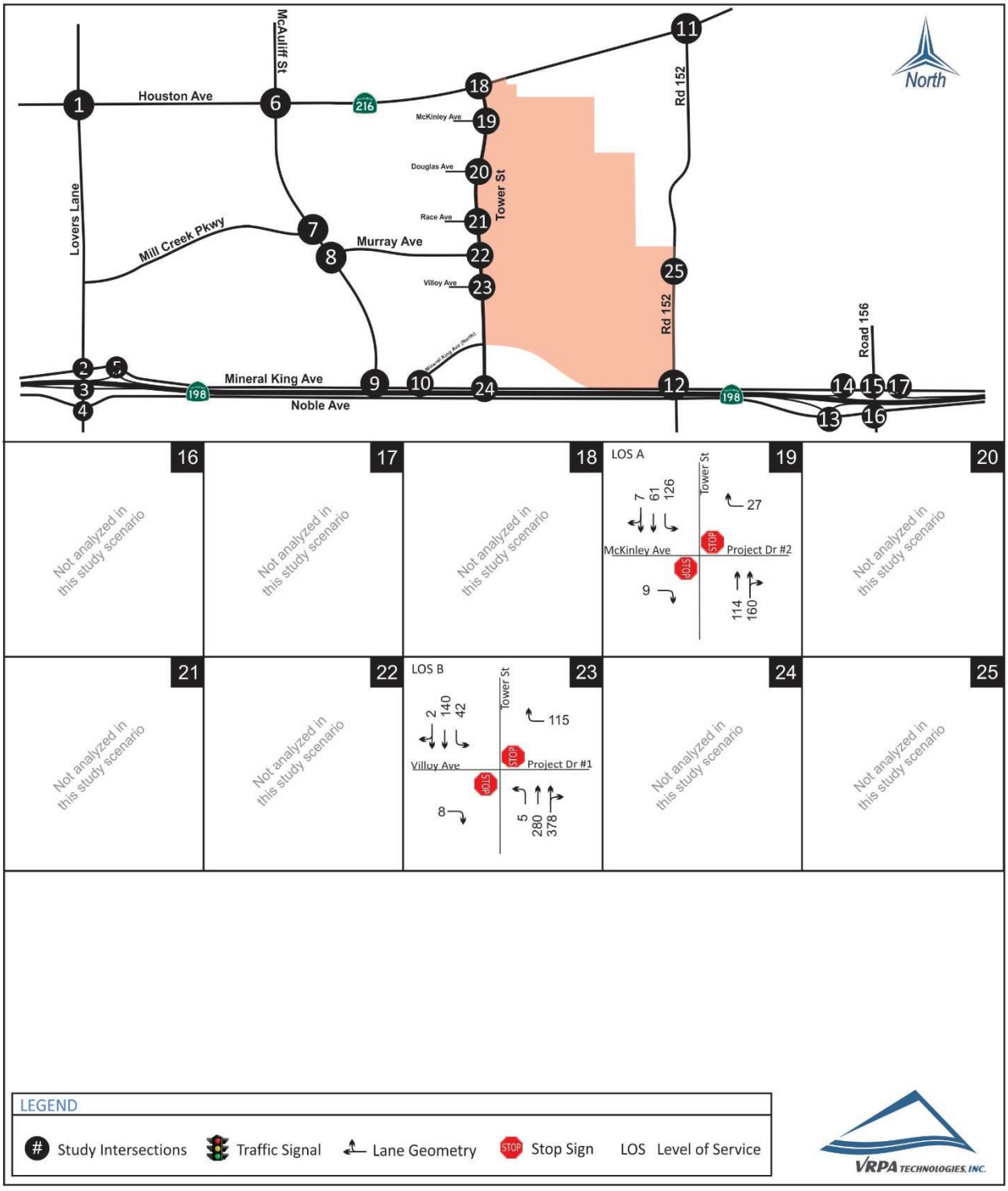
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project PM Peak Hour Traffic

Figure 3-26b



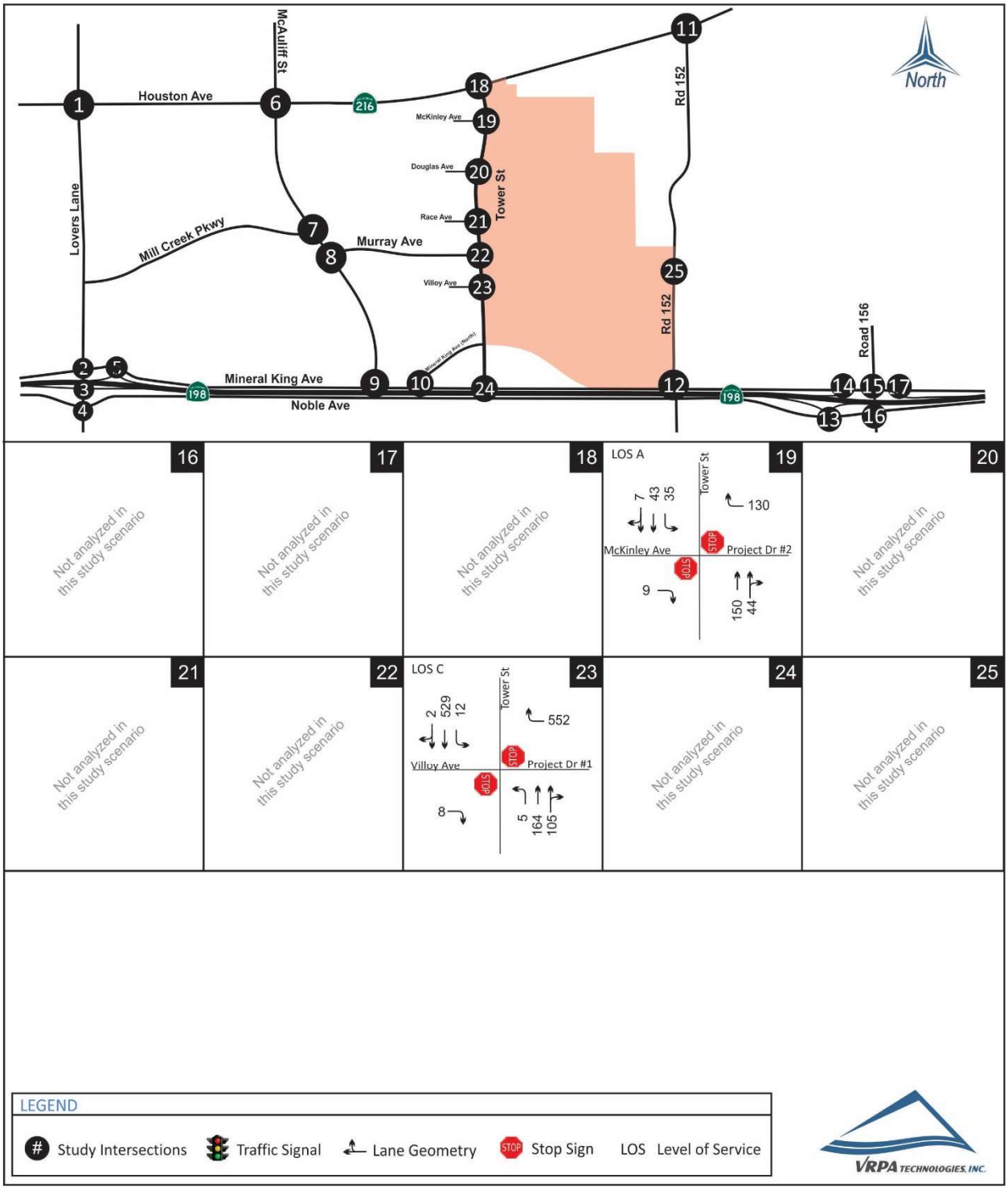
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Special Event Inbound Traffic

Figure 3-27a



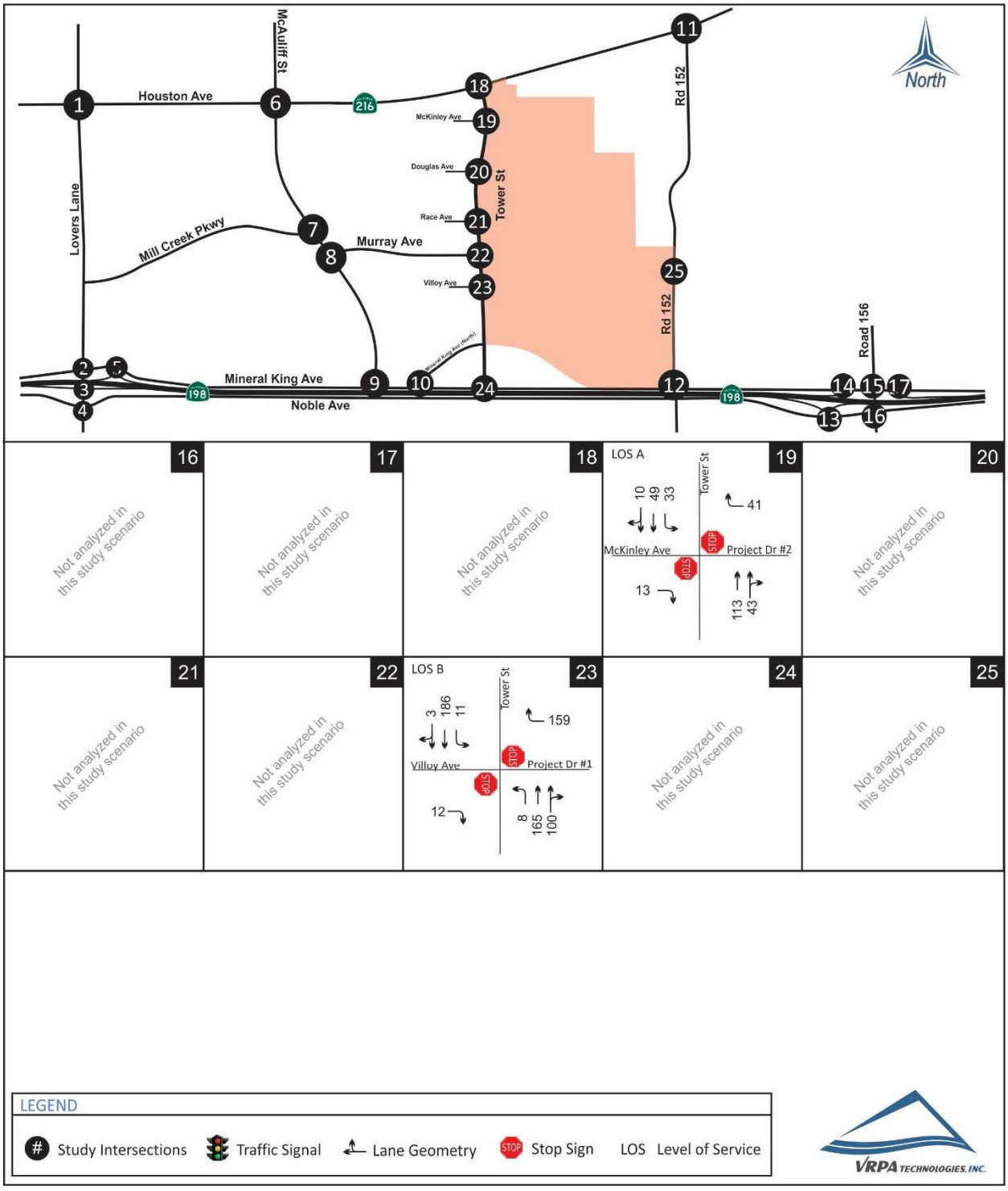
East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Special Event Outbound Traffic

Figure 3-27b



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Saturday Peak Hour Traffic

Figure 3-27c



East Side Regional Park & Groundwater Recharge Project EIR
Cumulative Year 2040 Plus Project Segment Volumes

Figure 3-28

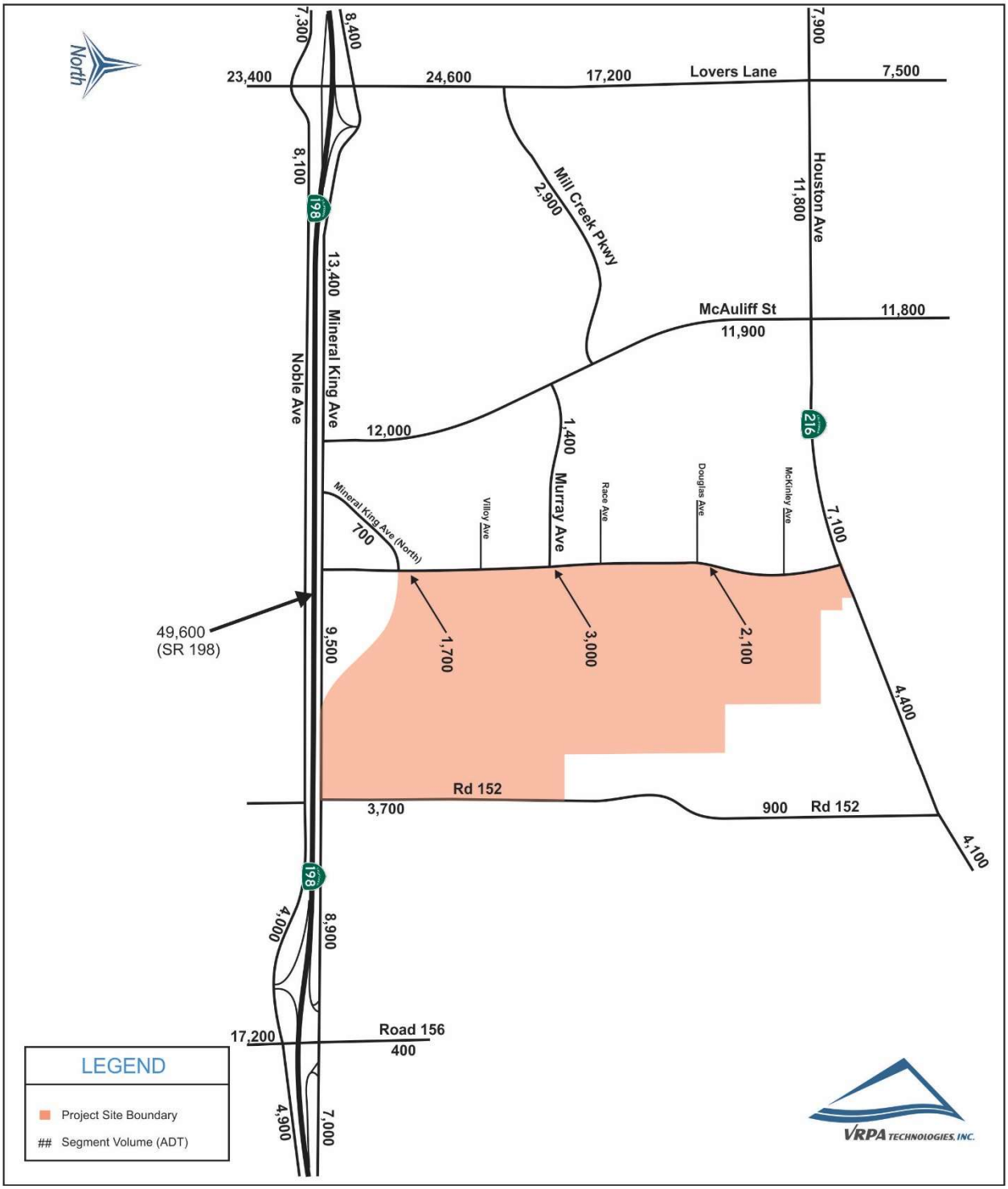


Table 3-26
Cumulative Year 2040 Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT	
				DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	44.1	D	44.9	D
			PM	34.7	C	34.4	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	33.0	C	**35.3**	**D**
			PM	**>80.0**	**F**	**>80.0**	**F**
4. Lovers Lane / Noble Avenue	Signalized	D	AM	48.3	D	49.9	D
			PM	47.2	D	54.9	D
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F**	**>50.0**	**F**
			PM	**>50.0**	**F**	**>50.0**	**F**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	29.5	C	29.7	C
			PM	30.9	C	31.5	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	26.8	D	26.8	D
			PM	31.5	D	32.0	D
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	13.4	B	13.4	B
			PM	20.8	C	20.8	C
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	29.7	D	33.3	D
			PM	**37.7**	**E**	**38.7**	**E**
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	17.1	C	17.9	C
			PM	19.6	C	24.5	C
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.7	B	11.8	B
			PM	11.3	B	11.5	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	**>50.0**	**F +**	**>50.0**	**F +**
			PM	21.7	C	28.0	D
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	**29.6**	**D**	**29.9**	**D**
			PM	**>50.0**	**F**	**>50.0**	**F**
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A
			PM	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
16. Road 156 / Noble Avenue	Signalized	D	AM	51.3	D	52.1	D
			PM	**>80.0**	**F**	**>80.0**	**F**
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	**70.5**	**E**	**>50.0**	**F**
			PM	**30.0**	**D**	**33.8**	**D**

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table 3-27
Cumulative Year 2040 Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT	
			DELAY	LOS	DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	14.3	B	14.6	B
		PM	13.4	B	14.4	B
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.5	A	8.7	A
		PM	8.5	A	8.8	A
20. Tower Street / Douglas Avenue	D	AM	8.6	A	8.6	A
		PM	8.5	A	8.5	A
21. Tower Street / Race Avenue	D	AM	8.6	A	8.6	A
		PM	8.5	A	8.5	A
22. Tower Street / Murray Avenue	D	AM	8.5	A	8.6	A
		PM	8.4	A	8.5	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	8.6	A	8.8	A
		PM	8.5	A	9.5	A
24. Tower Street / Mineral King Avenue	D	AM	24.9	C	28.5	D
		PM	24.6	C	**42.7**	**E**
25. Road 152 / Project Driveway #3	D	AM	--	A	8.7	A
		PM	--	A	8.7	A

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-28
Cumulative Year 2040 Special Event Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT	
			DELAY	LOS
SPECIAL EVENT INBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	9.3	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	12.0	B
SPECIAL EVENT OUTBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	9.6	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	17.8	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-29
Cumulative Year 2040 Saturday Peak Hour Intersection Operations

INTERSECTION	TARGET LOS	CUMULATIVE YEAR 2040 PLUS PROJECT	
		DELAY	LOS
19. Tower Street / McKinley Avenue-Project Driveway #2	D	9.0	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	10.1	B

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

3.6.2 *Cumulative Year 2040 Roadway Segment Capacity Analysis*

Table 3-30 shows roadway segment volumes and levels of service pertaining to the Cumulative Year 2040 scenario. Results of the analysis show that all of the study roadway segments will meet acceptable levels of service with the exception of Road 156 south of Noble Avenue, which is projected to operate at LOS F under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios. Table 3-31 provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street will meet acceptable levels of service.

3.6.3 *Cumulative Year 2040 Plus Project Queuing Analysis*

Tables 3-32 and 3-33 provides a queue length summary for left and right turn lanes at the study intersections for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios. The queues shown for signalized intersections in Tables 3-32 and 3-33 represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans' Highway Design Manual.

3.6.4 *Cumulative Year 2040 Merge/Diverge Analysis*

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are reflected in Tables 3-34 and 3-35 and indicate that the SR 198 EB Off Ramp to Lovers Lane will operate at an unacceptable level of service in the PM peak hour. Results also show that the SR 198 WB On Ramp from Lovers Lane will operate at an unacceptable level of service for the AM and PM peak hours.

Table 3-30
Cumulative Year 2040 Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040 PLUS PROJECT		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	11,500	0.29	C	11,800	0.30	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	6,600	0.37	C	7,100	0.40	C
East of Road 152	2 Lanes Undivided	C	17,700	4,000	0.23	C	4,100	0.23	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	17,100	0.48	C	17,200	0.48	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	24,500	0.68	C	24,600	0.69	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,800	0.64	C	23,400	0.65	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	11,700	0.33	C	11,800	0.33	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	11,900	0.35	C	11,900	0.35	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	12,000	0.35	C	12,000	0.35	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	800	0.05	C	900	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	3,400	0.21	C	3,700	0.23	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	8,300	0.52	C	8,400	0.53	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	12,100	0.76	C	13,400	0.84	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	9,400	0.59	C	9,500	0.60	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	8,500	0.53	C	8,900	0.56	C
East of Road 156	2 Lanes Undivided	D	15,930	7,000	0.44	C	7,000	0.44	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**17,100**	**1.07**	**F**	**17,200**	**1.08**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Mineral King Avenue (North)									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	700	0.04	C	700	0.04	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	1,300	0.09	C	1,400	0.10	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,300	0.46	C	7,300	0.46	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	8,000	0.50	C	8,100	0.51	C
West of Road 156	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,000	0.25	C
East of Road 156	2 Lanes Undivided	D	15,930	4,700	0.30	C	4,900	0.31	C
SR 198									
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	49,600	0.62	C	49,600	0.62	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-31
Cumulative Year 2040 Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	1,500	0.04	C	2,100	0.06	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	1,500	0.04	C	3,000	0.08	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	1,700	0.05	C	3,200	0.09	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-32
Cumulative Year 2040 Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT	
			AM Queue	PM Queue	AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	200	226	200	226
	NB Right	300	52	57	52	57
	SB Left	225	**302**	193	**308**	212
	EB Left	200	165	48	165	48
	EB Right	200	57	53	57	53
	WB Left	2 @ 375	101	162	103	169
	WB Right	325	60	28	60	33
Lovers Lane / Mineral King Avenue	NB Left	100	**319**	72	**319**	67
	SB Left	175	**627**	**363**	**627**	**363**
	EB Left	150	63	80	63	80
	WB Left	150	**352**	**347**	**370**	**418**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**326**	**302**	**326**	**285**
	EB Left	225	**688**	**947**	**696**	**1018**
Lovers Lane / Noble Avenue	NB Left	125	78	109	78	109
	SB Left	100	**332**	**318**	**332**	**323**
	EB Left	125	**193**	**260**	**192**	**265**
	WB Left	125	51	67	51	67
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	140	**301**	140	**307**
	NB Right	125	2	0	2	1
	SB Left	200	70	43	70	54
	SB Right	200	62	43	62	44
	EB Left	2 @ 375	110	125	110	127
	EB Right	200	0	60	0	59
	WB Left	375	116	58	117	59
	WB Right	375	0	0	0	0
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100	75	100
	EB Right	100	25	50	25	50
McAuliff Street / Mineral King Avenue	SB Left	250	200	225	200	225
	SB Right	250	**300**	200	**300**	200
	EB Left	200	175	**275**	175	**275**
Road 156 / Mineral King Avenue	NB Left	125	**515**	**632**	**525**	**658**
	EB Left	50	15	20	15	20
	WB Left	125	**495**	**308**	**495**	**308**
Road 156 / Noble Avenue	NB Left	175	**254**	**521**	**254**	**521**
	SB Left	150	7	22	8	27
	EB Left	350	198	176	198	176
	WB Left	325	138	102	138	102

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-33
Cumulative Year 2040 Tower Street Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT	
			AM Queue	PM Queue	AM Queue	PM Queue
Tower Street / Houston Avenue (SR 216)	NB Left	--	68	58	73	78
	NB Right	--	20	29	21	33
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--			7	25
	EB Left	--	12	8	12	8
	WB Left	--			4	18
Tower Street / Race Avenue	NB Left	--	6	19	6	19
	SB Left	--	14	9	14	9
Tower Street / Murray Avenue	NB Left	--	2	3	16	68
	SB Right	--	1	2	1	2
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	3	4	3	4
	SB Left	--			3	8
	EB Right	--	5	7	5	7
	WB Left	--				
	WB Right	--			16	70
Tower Street / Mineral King Avenue	SB Left	--	29	13	31	18
	SB Right	--	40	25	53	82
	EB Left	--	23	46	48	144

Queue is measured in feet

Table 3-34
Cumulative Year 2040 Without Project Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3377	952	4299	1407	2	1	C	C	27.1	**F**	**36.2**
SR-198 EB On Ramp from Lovers Lane	Merge	2425	247	2892	366	2	1	C	C	21.5	C	26.7
SR-198 EB Off Ramp to Road 156	Diverge	2672	301	3258	530	2	1	C	B	19.1	C	24.8
SR-198 EB On Ramp from Road 156	Merge	2371	257	2728	330	2	1	C	C	24.1	C	27.9
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2913	312	2650	220	2	1	C	C	20.5	B	17.9
SR-198 WB On Ramp from Road 156	Merge	2601	293	2430	344	2	1	C	C	24.2	C	23.1
SR-198 WB Off Ramp to Lovers Lane	Diverge	2894	118	2774	251	2	1	C	C	24.4	C	23.2
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1219	2523	686	2	1	C	**E**	**35.1**	**D**	**28.4**

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 3-35
Cumulative Year 2040 Plus Project Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3389	964	4345	1453	2	1	C	C	27.2	**F**	**36.6**
SR-198 EB On Ramp from Lovers Lane	Merge	2425	247	2892	366	2	1	C	C	21.5	C	26.7
SR-198 EB Off Ramp to Road 156	Diverge	2672	301	3258	530	2	1	C	B	19.1	C	24.8
SR-198 EB On Ramp from Road 156	Merge	2371	260	2728	343	2	1	C	C	24.1	C	28.0
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2918	317	2670	240	2	1	C	C	20.6	B	18.1
SR-198 WB On Ramp from Road 156	Merge	2601	293	2430	344	2	1	C	C	24.2	C	23.1
SR-198 WB Off Ramp to Lovers Lane	Diverge	2894	118	2774	251	2	1	C	C	24.4	C	23.2
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1225	2523	715	2	1	C	**E**	**35.2**	**D**	**28.6**

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

3.7 Cumulative Year 2040 With Tower Street Interchange Traffic Conditions

The impacts of the Project were analyzed considering the development of an interchange at Tower Street and SR 198 for future year traffic conditions in the year 2040. Traffic volumes along roadway segments in the study area for the TCAG model with an interchange at Tower Street was compared to the TCAG model without an interchange at Tower Street. The percent decrease or increase along segment volumes was then applied to the resulting Cumulative Year 2040 Without Project volumes derived in Section 3.6. Traffic conditions for the Cumulative Year 2040 Without Project With Tower Street Interchange scenario is shown in Figures 3-29a, 3-29b, 3-30a, 3-30b, and 3-31.

The addition of Project trips (Phase 3), as shown in Figures 3-8a, 3-8b, 3-9a, 3-9b, 3-10a, 3-10b, and 3-10c (Section 3.3), were added to Cumulative Year 2040 Without Project traffic volumes. This leads to the results shown in Figures 3-32a, 3-32b, 3-33a, 3-33b, 3-34a, 3-34b, 3-34c, and 3-35.

3.7.1 *Cumulative Year 2040 With Tower Street Interchange Intersection Capacity Analysis*

Table 3-36 shows intersections that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 With Tower Street Interchange scenarios. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the proposed Project will cause or contribute to an unacceptable LOS at 8 of the 25 study intersections for this scenario when comparing the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios.

Table 3-37 shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street will meet acceptable levels of service with the exception of the Tower Street at Houston Avenue (SR 216) intersection, which is projected to operate at LOS F during the PM peak hour under the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios.

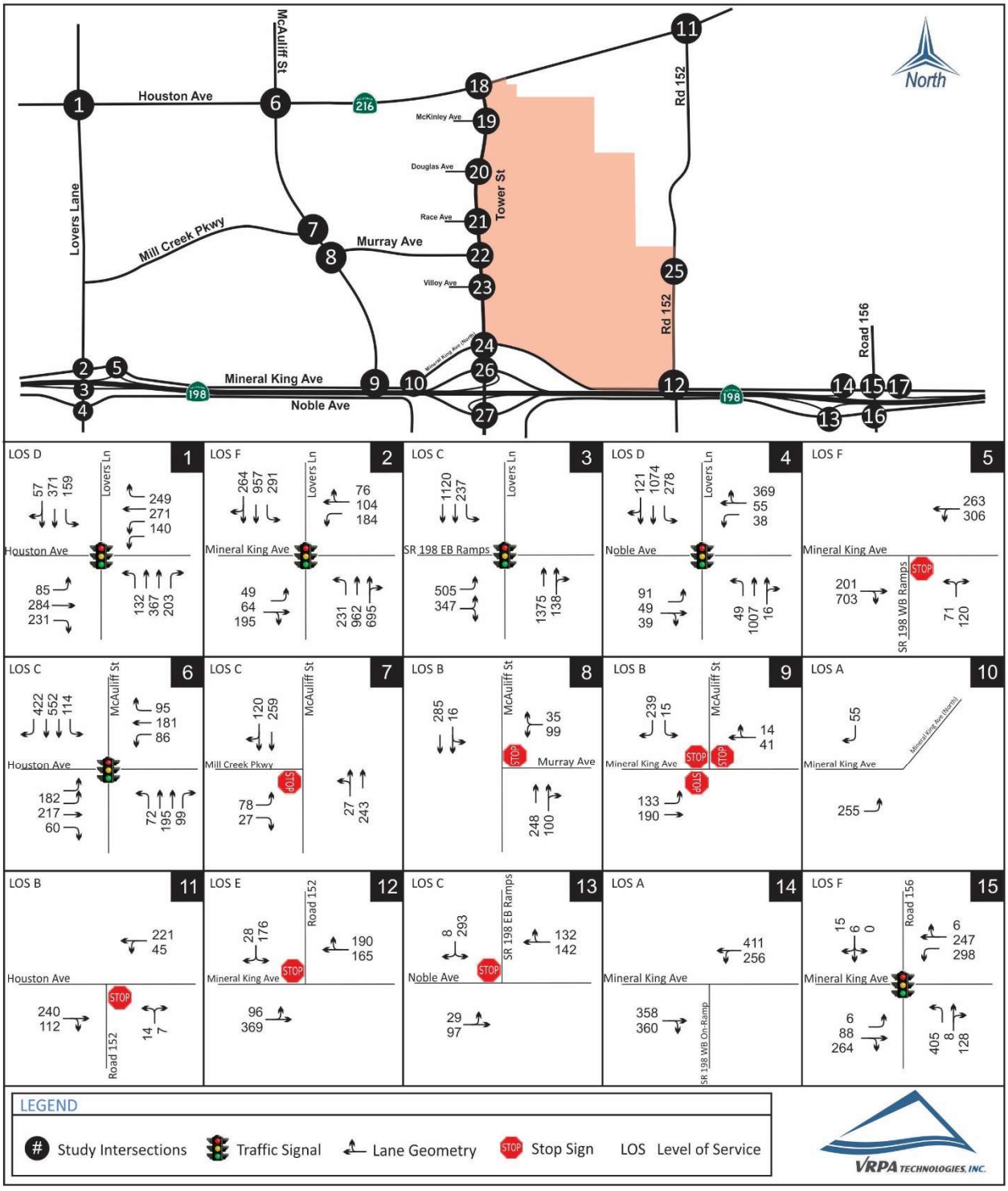
Table 3-38 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during a special event. Results of the analysis show that the intersection of Tower Street at Villoy Avenue-Project Driveway #1 will operate at unacceptable levels of service for the Special Event Outbound Traffic scenario.

Table 3-39 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways will meet acceptable levels of service.

East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Without Project AM Peak Hour Traffic With Tower Street Interchange

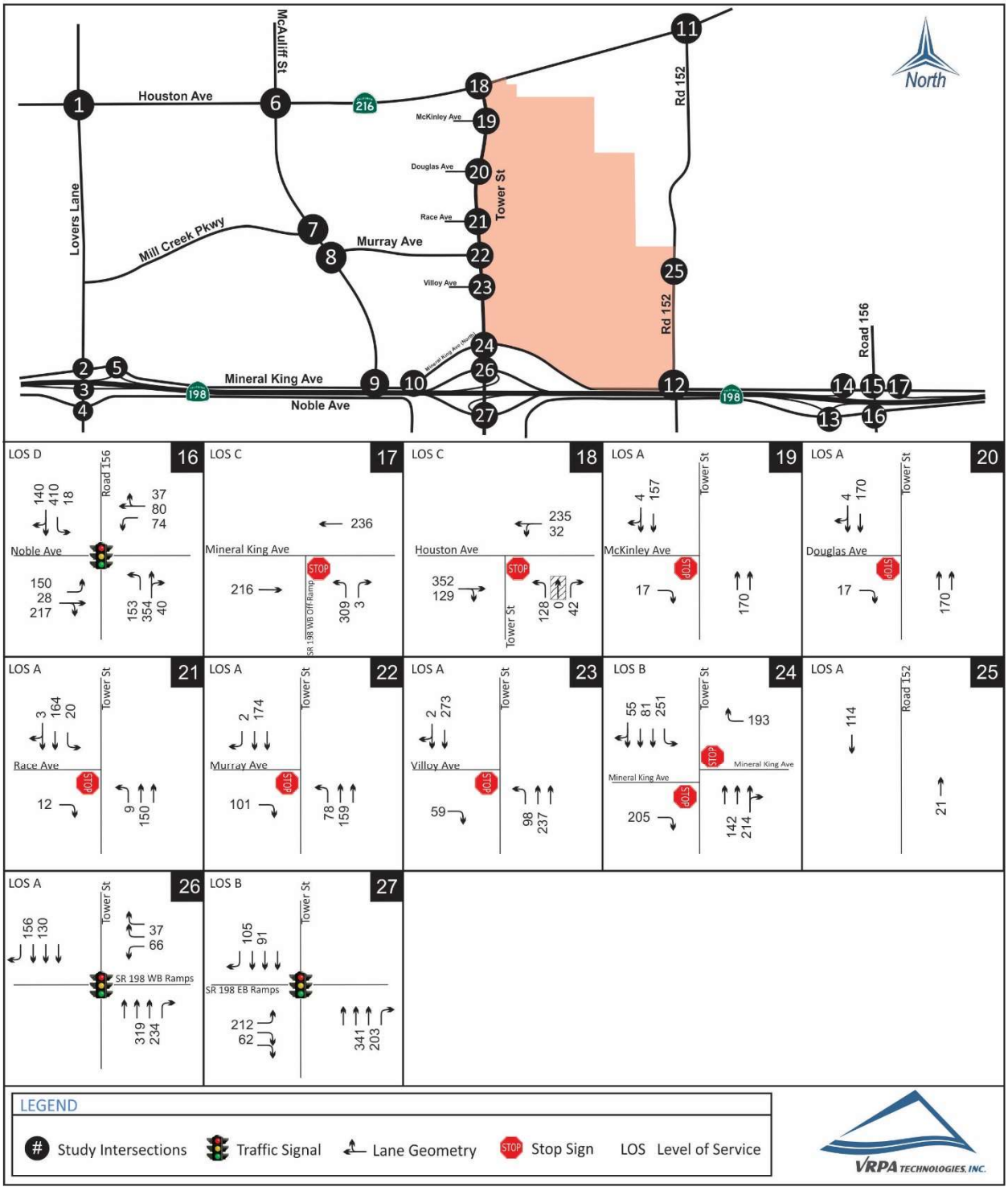
Figure 3-29a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Without Project AM Peak Hour Traffic With Tower Street Interchange

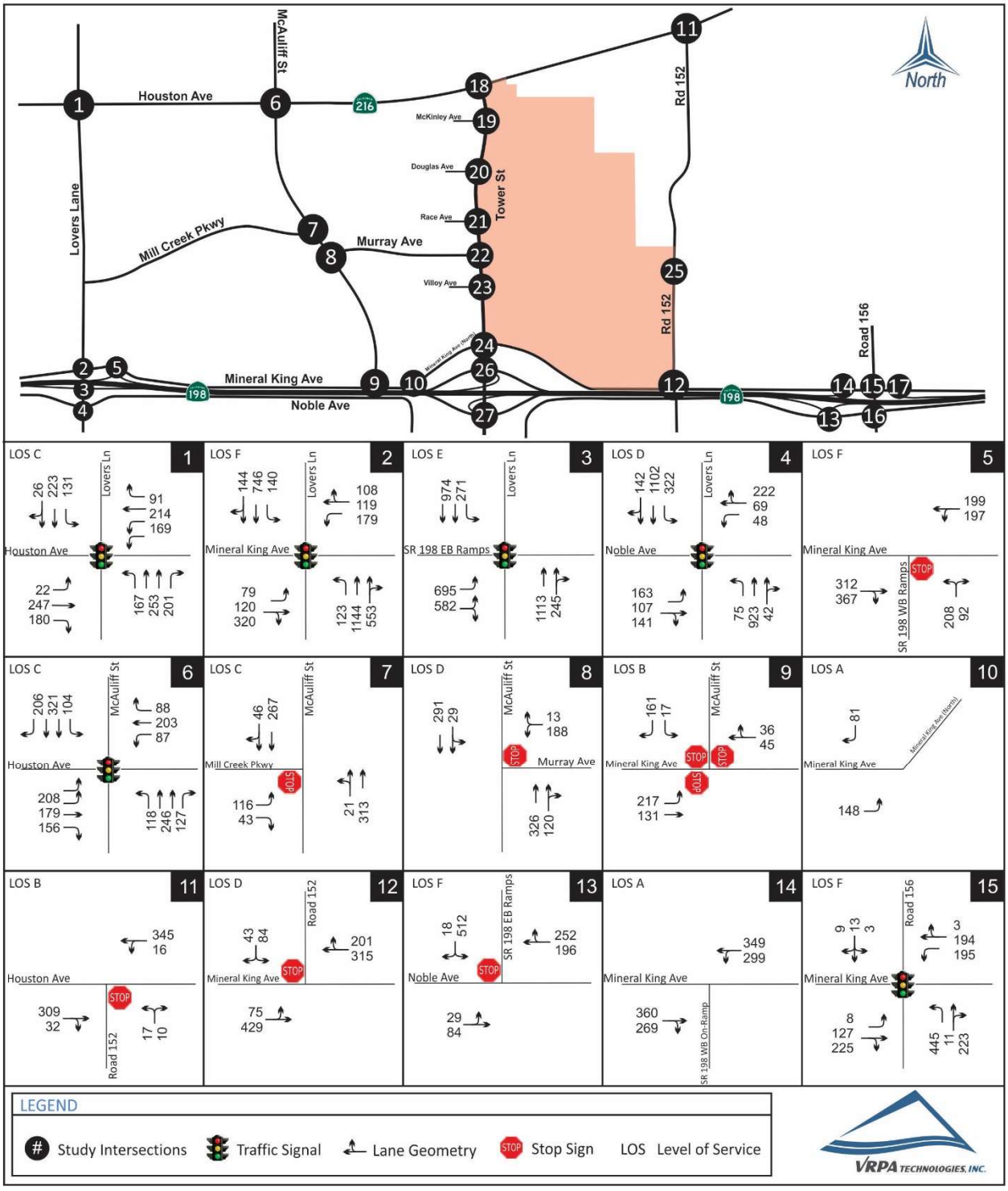
Figure 3-29b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Without Project PM Peak Hour Traffic With Tower Street Interchange

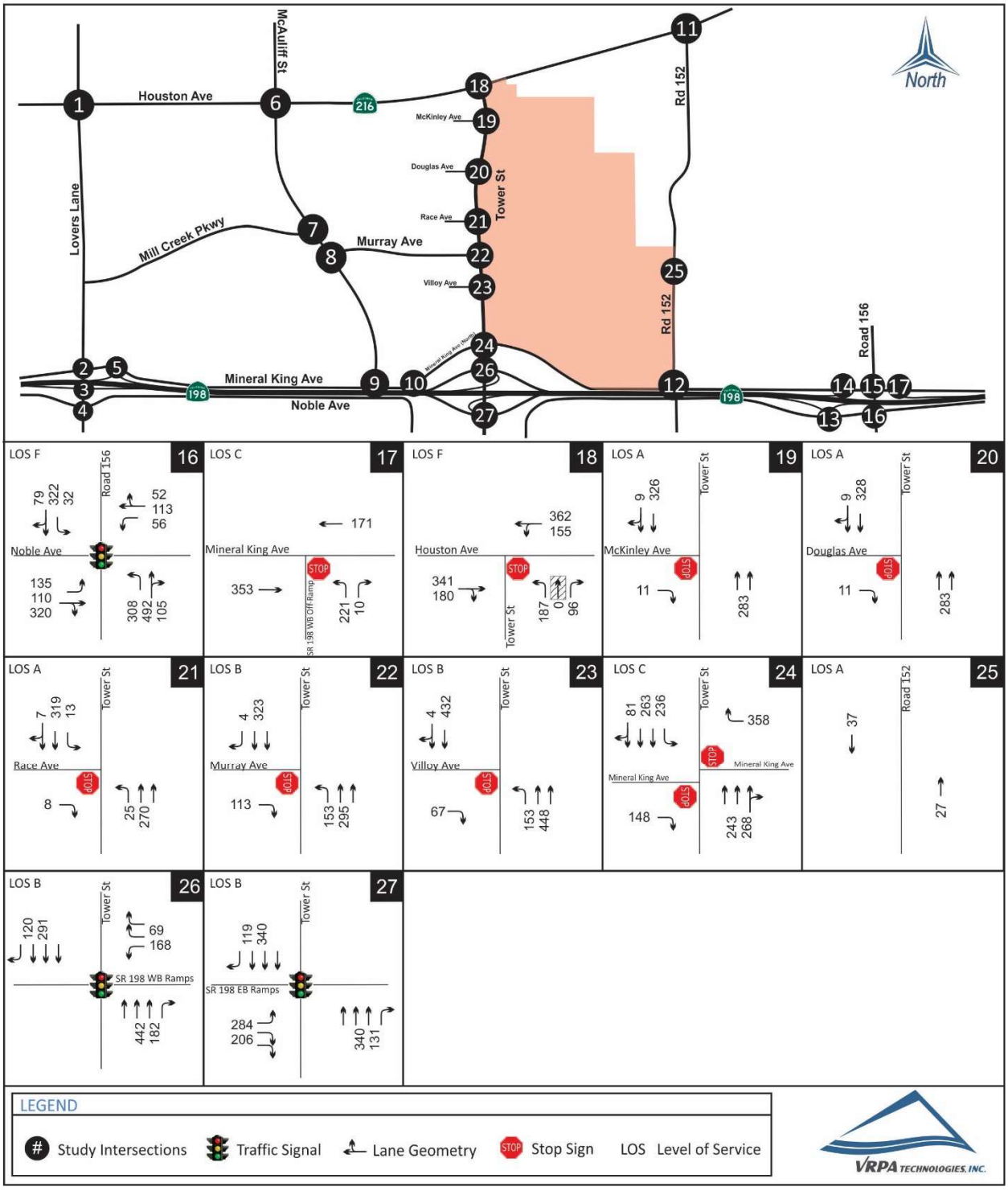
Figure 3-30a



East Side Regional Park & Groundwater Recharge Project EIR

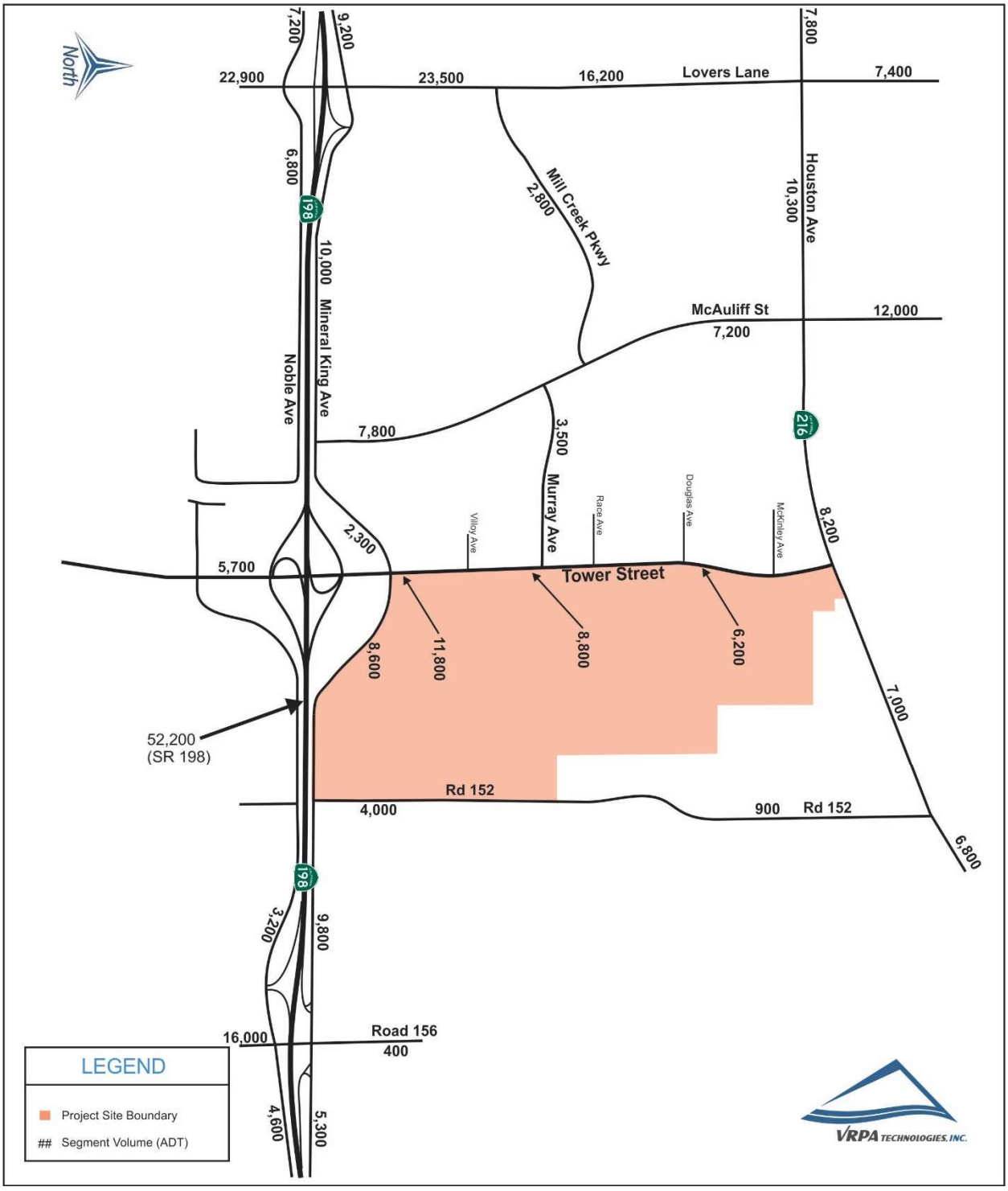
Cumulative Year 2040 Without Project PM Peak Hour Traffic With Tower Street Interchange

Figure 3-30b



East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-31**

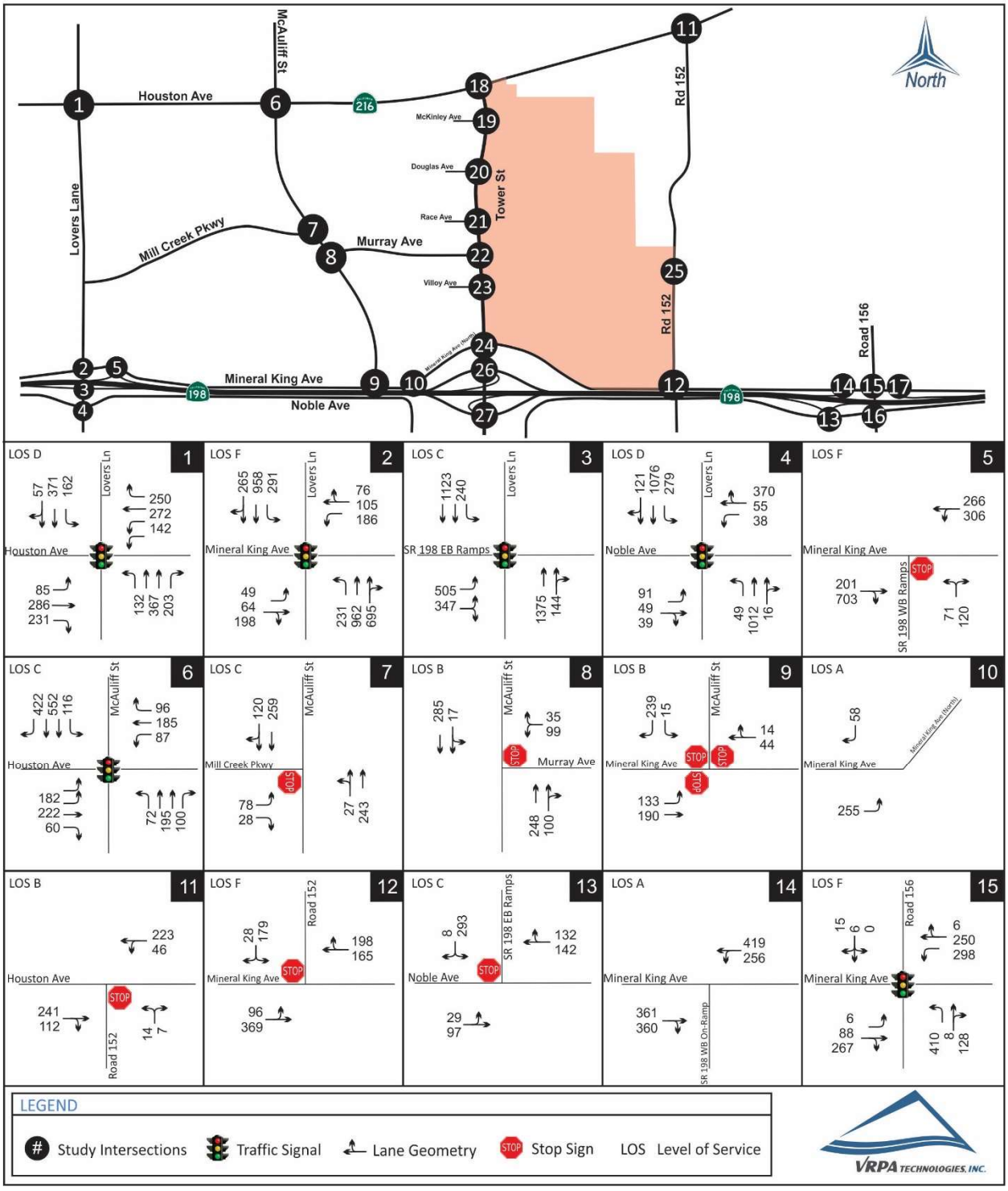
Cumulative Year 2040 Without Project Segment Volumes With Tower Street Interchange



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange

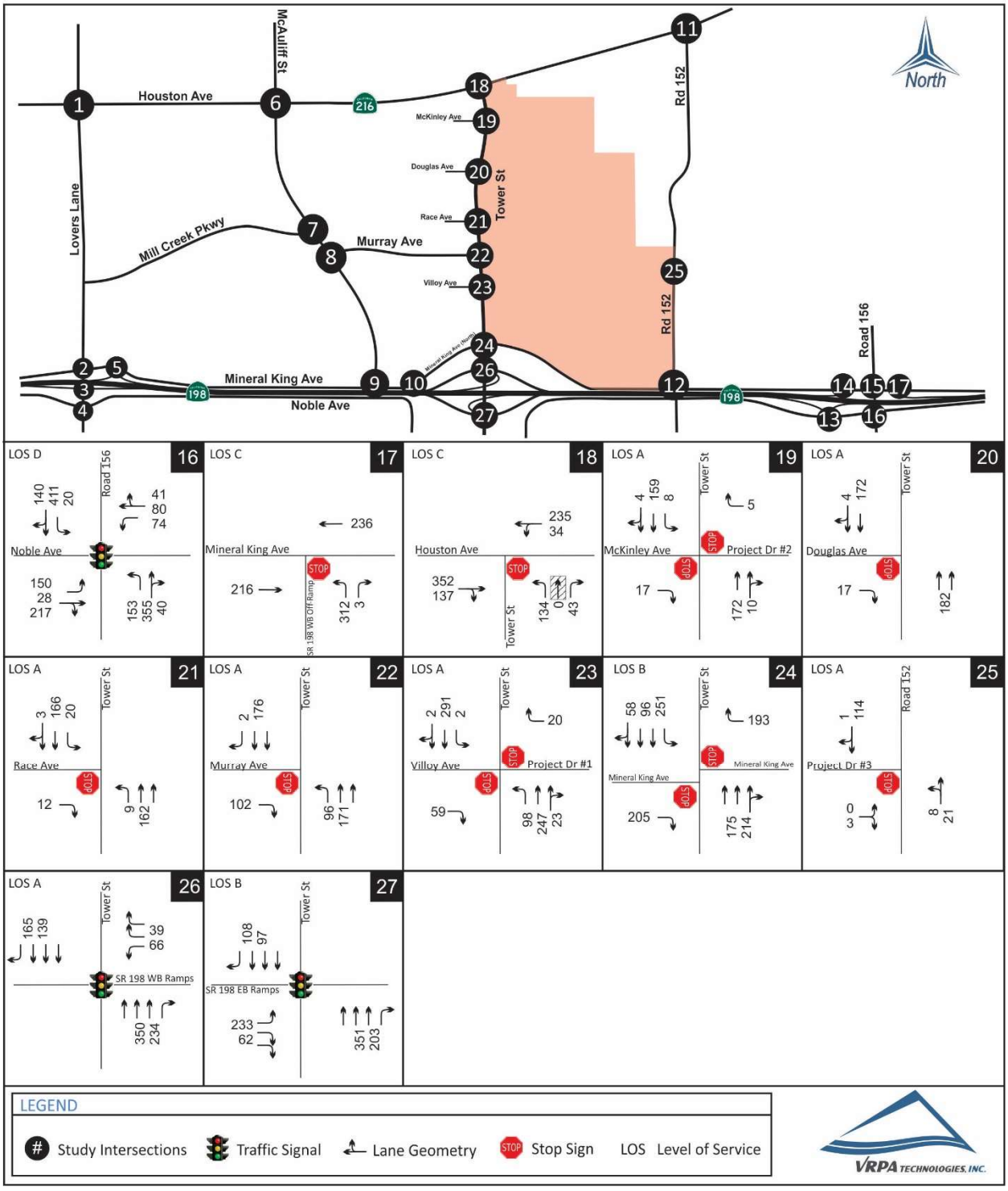
Figure 3-32a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange

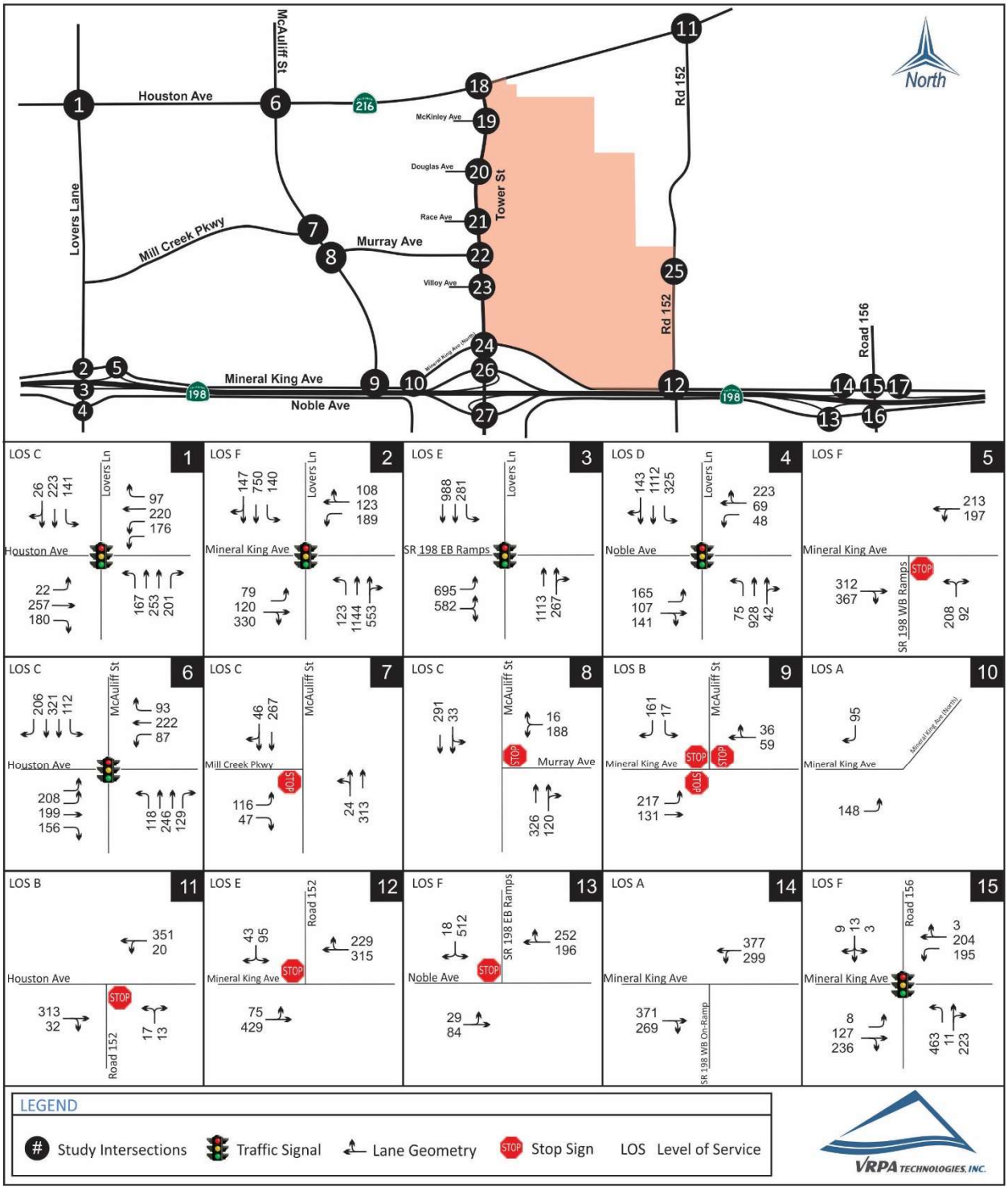
Figure 3-32b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange

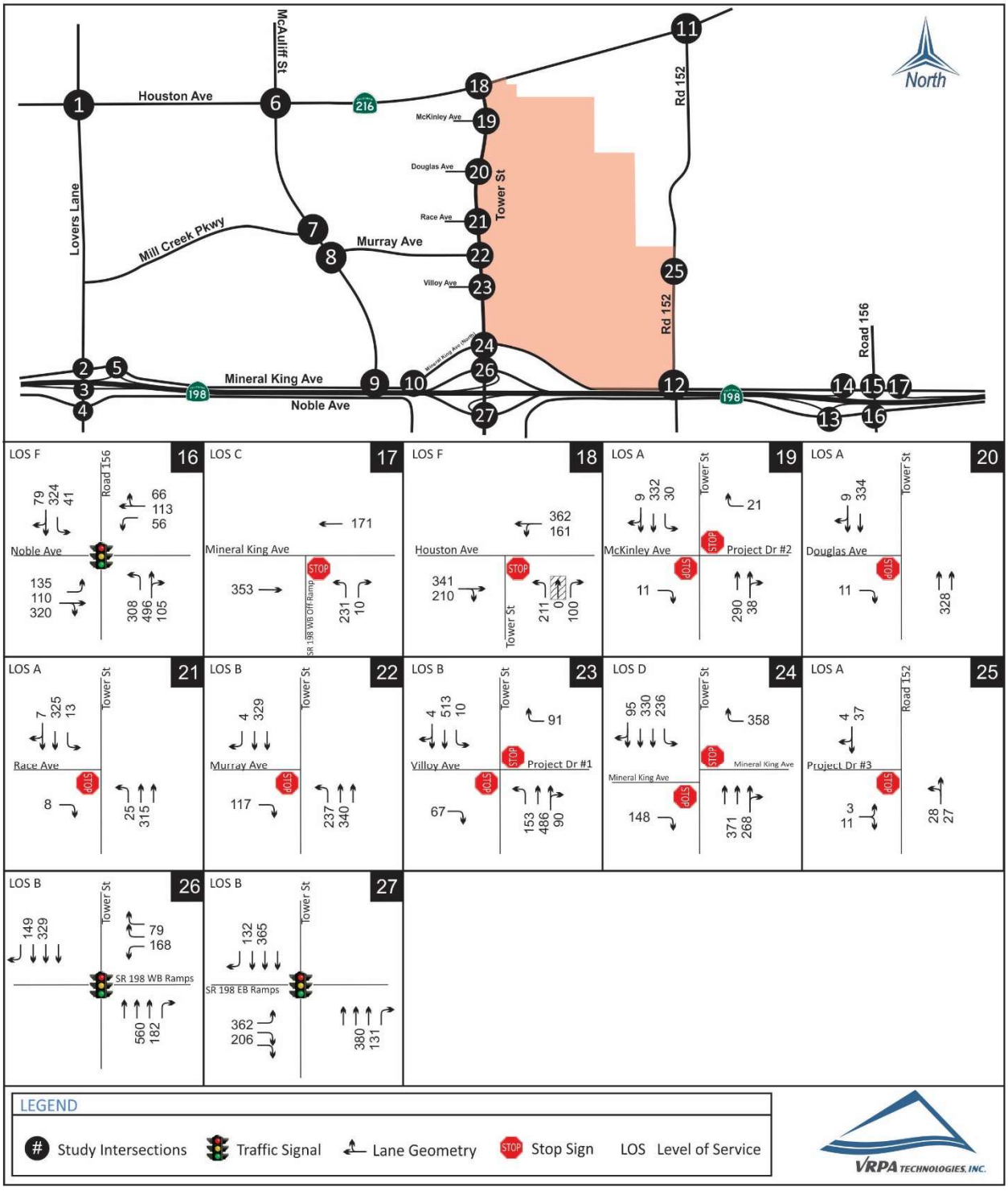
Figure 3-33a



East Side Regional Park & Groundwater Recharge Project EIR

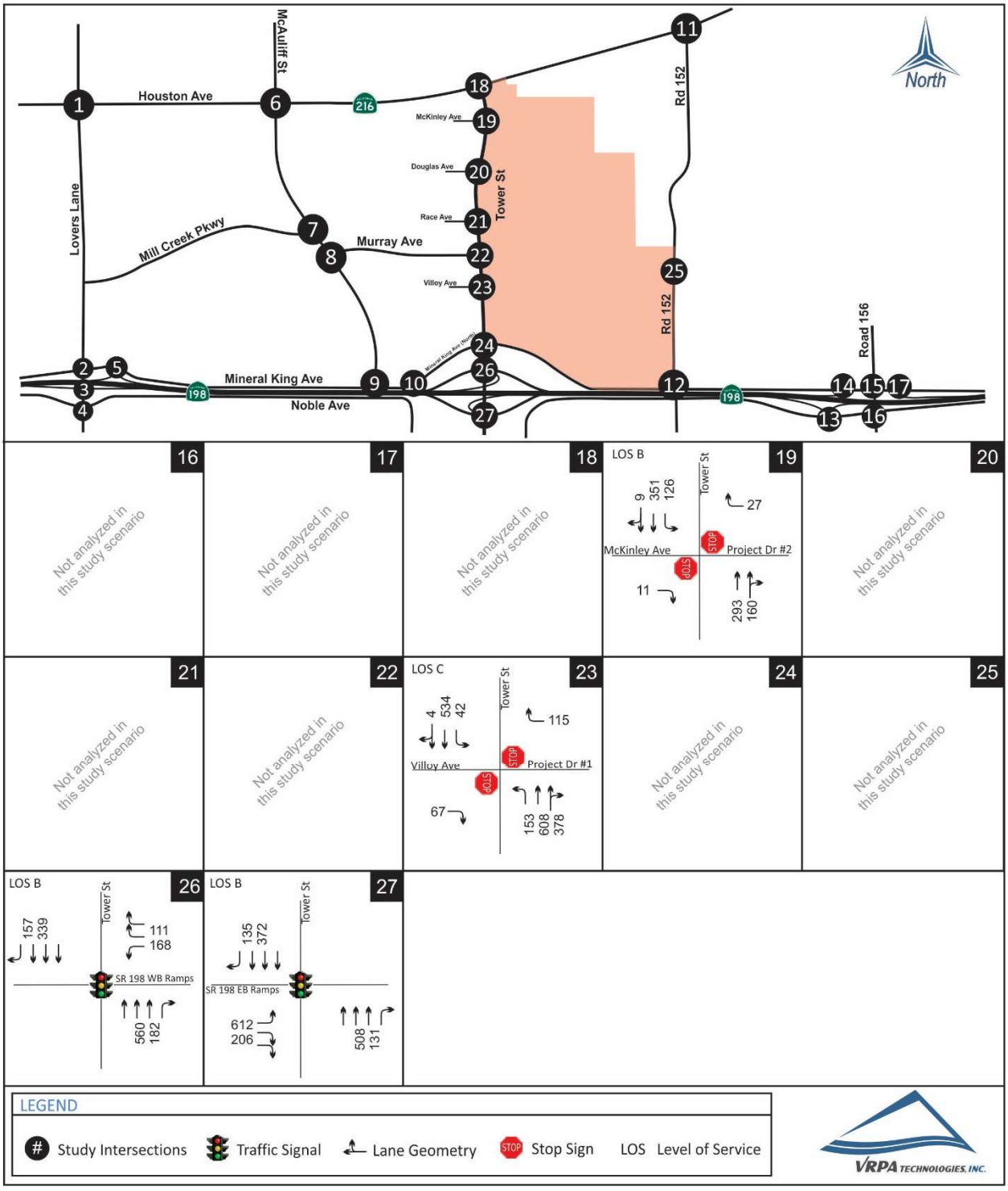
Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange

Figure 3-33b



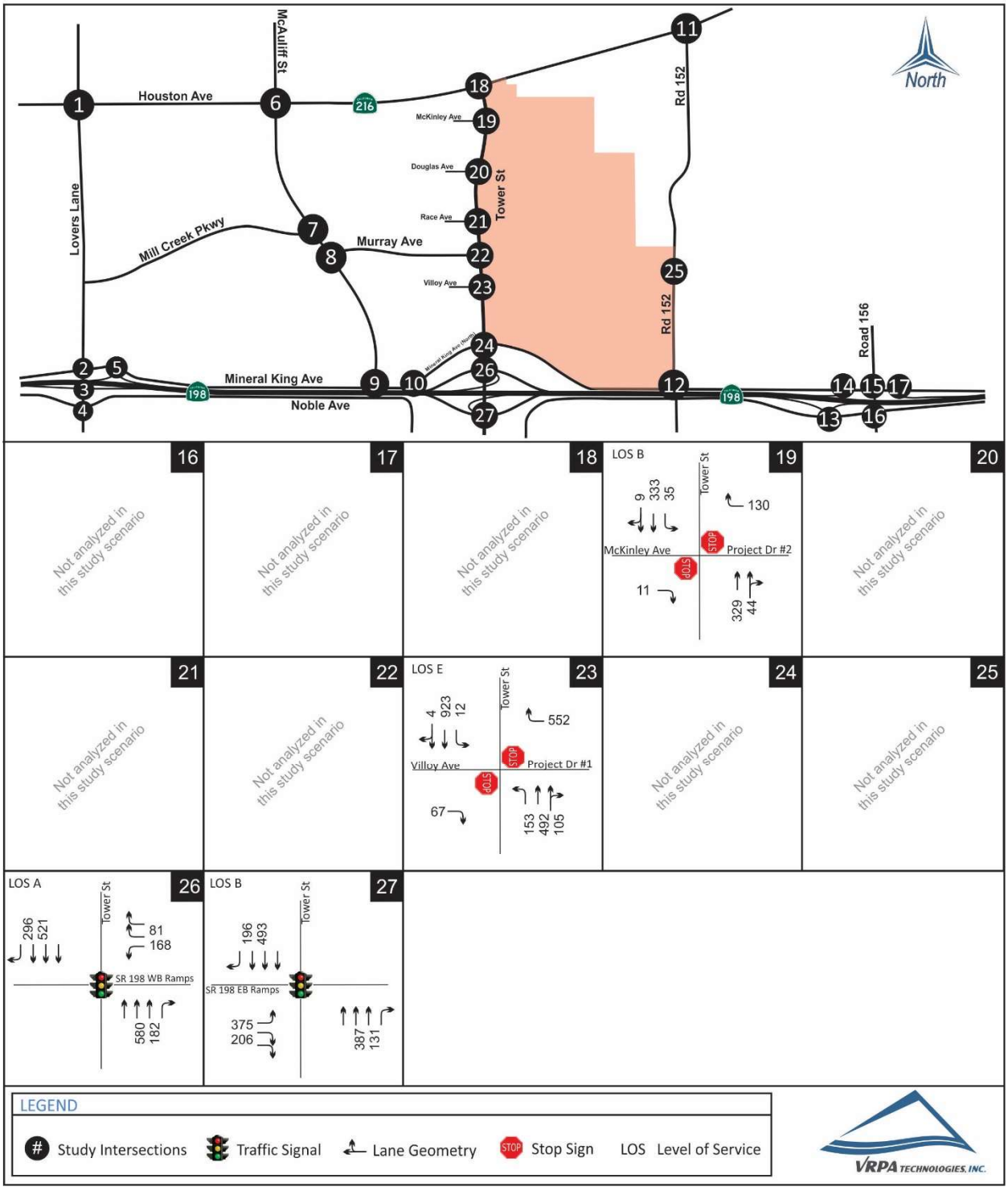
East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-34a**

Cumulative Year 2040 Plus Project Special Event Inbound Traffic With Tower Street Interchange



East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-34b**

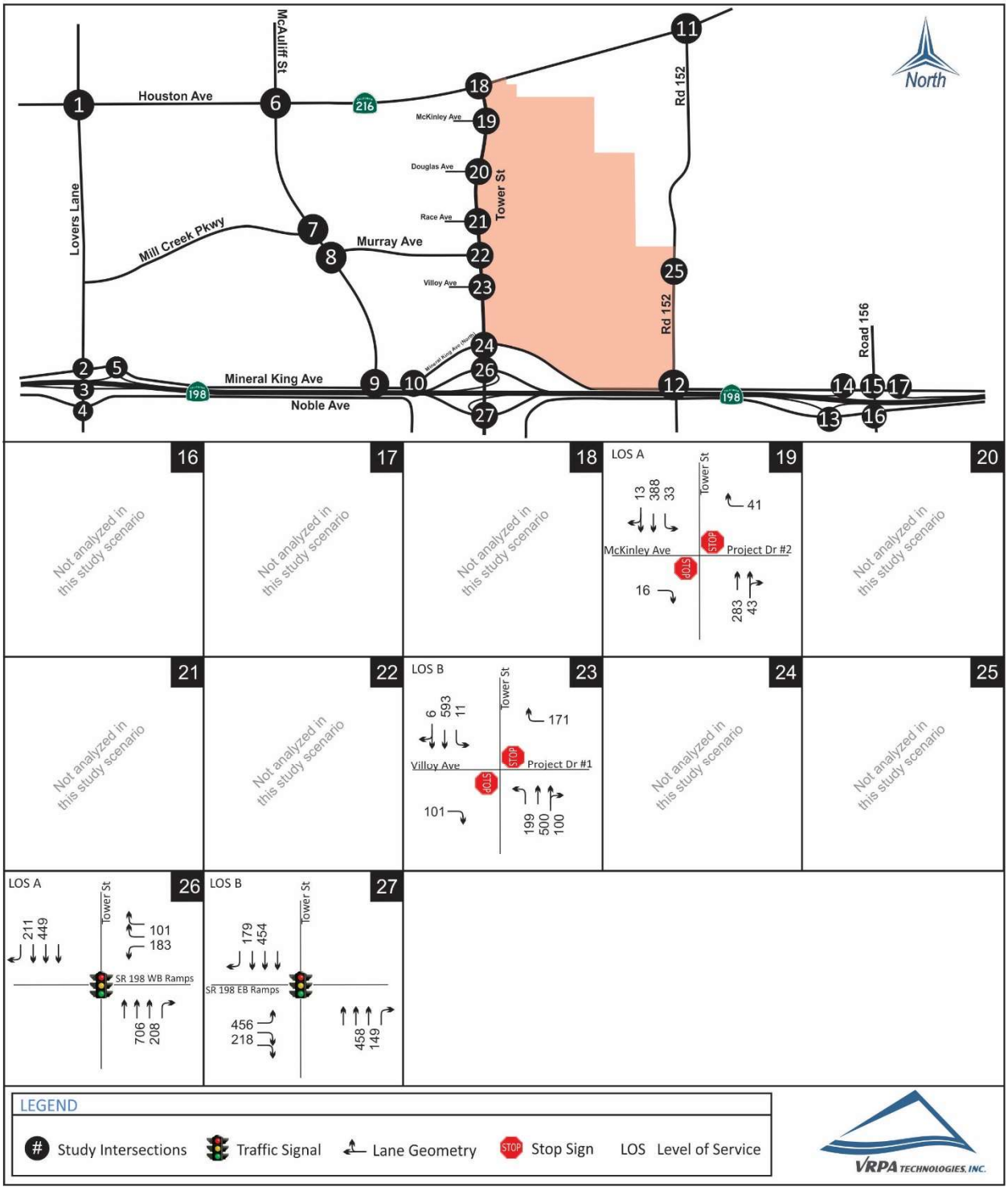
Cumulative Year 2040 Plus Project Special Event Outbound Traffic With Tower Street Interchange



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project Saturday Peak Hour Traffic With Tower Street Interchange

Figure 3-34c



East Side Regional Park & Groundwater Recharge Project EIR — Figure 3-35
Cumulative Year 2040 Plus Project Segment Volumes With Tower Street Interchange

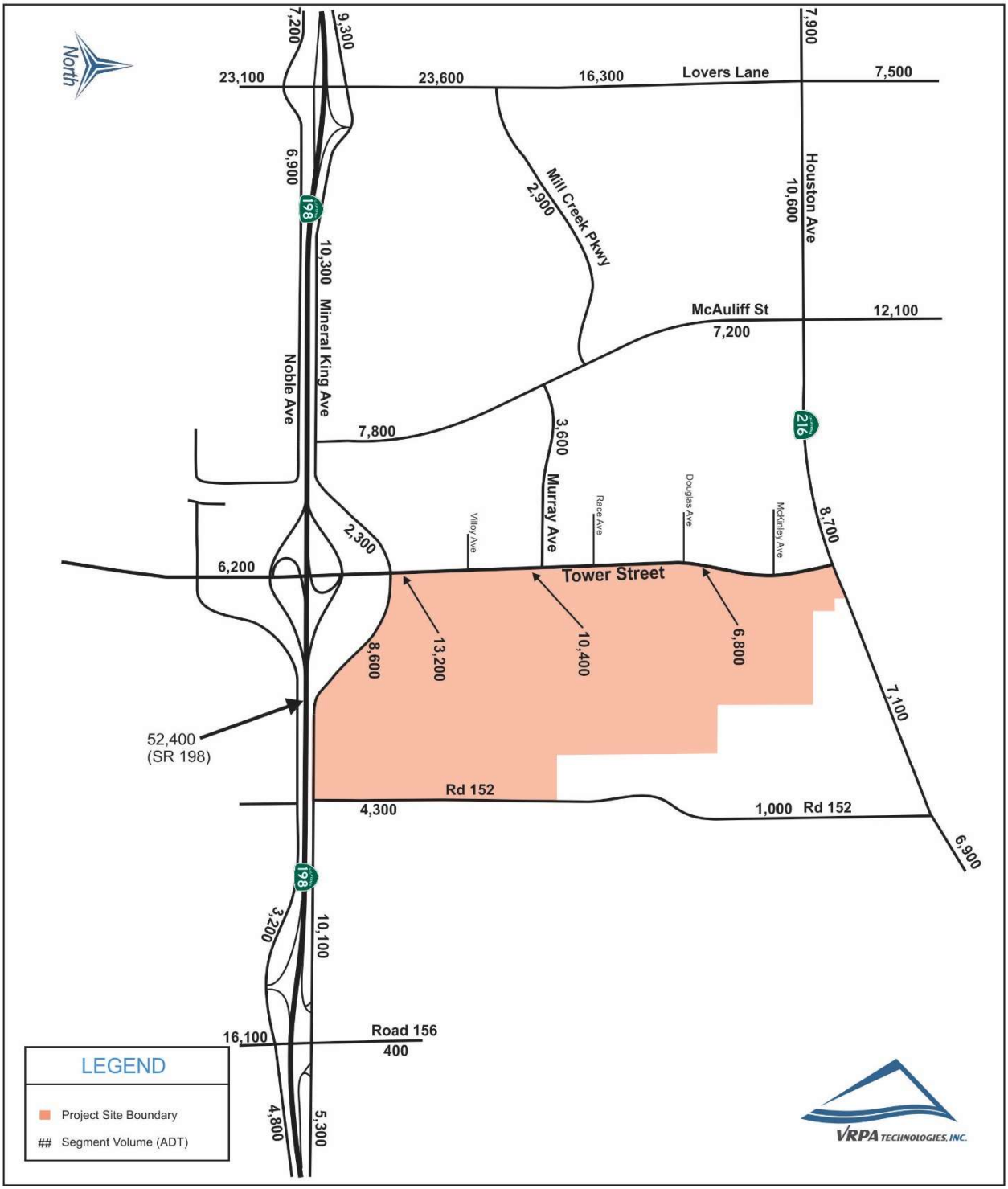


Table 3-36
Cumulative Year 2040 With Tower Street Interchange Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
				DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	41.8	D	42.4	D
			PM	32.3	C	33.3	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	21.1	C	25.7	C
			PM	**68.2**	**E**	**72.4**	**E**
4. Lovers Lane / Noble Avenue	Signalized	D	AM	41.6	D	42.0	D
			PM	43.5	D	44.3	D
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F**	**>50.0**	**F**
			PM	**>50.0**	**F**	**>50.0**	**F**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	25.9	C	26.1	C
			PM	30.8	C	30.9	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	15.3	C	15.3	C
			PM	16.4	C	16.5	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	14.8	B	14.9	B
			PM	26.2	D	26.9	C
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	10.2	B	10.2	B
			PM	10.1	B	10.2	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	--	A	--	A
			PM	--	A	--	A
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	13.4	B	13.4	B
			PM	14.2	B	14.2	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	**49.9**	**E +**	**>50.0**	**F +**
			PM	33.5	D	**38.9**	**E +**
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	19.5	C	19.5	C
			PM	**>50.0**	**F**	**>50.0**	**F**
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A
			PM	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
16. Road 156 / Noble Avenue	Signalized	D	AM	44.4	D	44.4	D
			PM	**>80.0**	**F**	**>80.0**	**F**
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	23.5	C	23.8	C
			PM	20.4	C	21.1	C

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table 3-37
Cumulative Year 2040 With Tower Street Interchange
Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			DELAY	LOS	DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	22.0	C	22.8	C
		PM	**>50.0**	**F**	**>50.0**	**F**
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.9	A	8.9	A
		PM	9.4	A	9.5	A
20. Tower Street / Douglas Avenue	D	AM	8.9	A	8.9	A
		PM	9.4	A	9.5	A
21. Tower Street / Race Avenue	D	AM	8.9	A	8.9	A
		PM	9.4	A	9.4	A
22. Tower Street / Murray Avenue	D	AM	9.3	A	9.4	A
		PM	10.1	B	10.1	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	9.5	A	9.6	A
		PM	10.2	B	11.2	B
24. Tower Street / Mineral King Avenue	D	AM	12.4	B	12.8	B
		PM	20.6	C	25.6	D
25. Road 152 / Project Driveway #3	D	AM	--	A	8.9	A
		PM	--	A	8.7	A
26. Tower Street / SR 198 WB Ramps	C	AM	6.4	A	6.3	A
		PM	10.9	B	10.1	B
27. Tower Street / SR 198 EB Ramps	C	AM	10.1	B	10.5	B
		PM	11.5	B	12.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-38
Cumulative Year 2040 With Tower Street Interchange
Special Event Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			DELAY	LOS
SPECIAL EVENT INBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	10.0	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	15.0	C
26. Tower Street / SR 198 WB Ramps	C	PM	10.7	B
27. Tower Street / SR 198 EB Ramps	C	PM	18.0	B
SPECIAL EVENT OUTBOUND TRAFFIC				
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	10.5	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	**39.2**	**E**
26. Tower Street / SR 198 WB Ramps	C	PM	8.9	A
27. Tower Street / SR 198 EB Ramps	C	PM	12.4	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-39
Cumulative Year 2040 With Tower Street Interchange
Saturday Peak Hour Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			DELAY	LOS
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	9.7	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	12.5	B
26. Tower Street / SR 198 WB Ramps	C	AM	9.7	A
27. Tower Street / SR 198 EB Ramps	C	AM	14.1	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

3.7.2 *Cumulative Year 2040 With Tower Street Interchange Roadway Segment Capacity Analysis*

Table 3-40 shows roadway segment volumes and levels of service pertaining to the Cumulative Year 2040 With Tower Street Interchange scenario. Results of the analysis show that all of the study roadway segments will meet acceptable levels of service with the exception of Road 156 south of Noble Avenue, which is projected to operate at LOS F under the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios. Table 3-41 provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street will meet acceptable levels of service.

3.7.3 *Cumulative Year 2040 With Tower Street Interchange Queuing Analysis*

Tables 3-42 and 3-43 provides a queue length summary for left and right turn lanes at the study intersections for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios. The queues shown for signalized intersections in Tables 3-42 and 3-43 represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans' Highway Design Manual.

3.7.4 *Cumulative Year 2040 With Tower Street Interchange Merge/Diverge Analysis*

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are reflected in Tables 3-44 and 3-45 and indicate that the SR 198 EB Off Ramp to Lovers Lane will operate at an unacceptable level of service in the PM peak hour. Results also show that the SR 198 WB On Ramp from Lovers Lane will operate at an unacceptable level of service for the AM peak hour.

Table 3-40
Cumulative Year 2040 With Tower Street Interchange Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	10,300	0.26	C	10,600	0.27	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	8,200	0.46	C	8,700	0.49	C
East of Road 152	2 Lanes Undivided	C	17,700	6,800	0.38	C	6,900	0.39	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	16,200	0.45	C	16,300	0.46	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	23,500	0.66	C	23,600	0.66	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,900	0.64	C	23,100	0.64	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	12,000	0.34	C	12,100	0.34	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,200	0.21	C	7,200	0.21	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	7,800	0.23	C	7,800	0.23	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	900	0.06	C	1,000	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,300	0.27	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	9,200	0.58	C	9,300	0.58	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	10,000	0.63	C	10,300	0.65	C
McAuliff Street to Tower Street	2 Lanes Undivided	D	15,930	2,300	0.14	C	2,300	0.14	C
Tower Street to Road 152	2 Lanes Undivided	D	15,930	8,600	0.54	C	8,600	0.54	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	9,800	0.62	C	10,100	0.63	C
East of Road 156	2 Lanes Undivided	D	15,930	5,300	0.33	C	5,300	0.33	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**16,000**	**1.00**	**F**	**16,100**	**1.01**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	3,500	0.25	C	3,600	0.26	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,200	0.45	C	7,200	0.45	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	6,800	0.43	C	6,900	0.43	C
West of Road 156	2 Lanes Undivided	D	15,930	3,200	0.20	C	3,200	0.20	C
East of Road 156	2 Lanes Undivided	D	15,930	4,600	0.29	C	4,800	0.30	C
SR 198									
Tower Street to Road 156	4 Lanes Divided	C	79,900	52,200	0.65	C	52,400	0.66	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-41
Cumulative Year 2040 With Tower Street Interchange
Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	6,200	0.17	C	6,800	0.19	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	8,800	0.25	C	10,400	0.29	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	11,800	0.33	C	13,200	0.37	C
South of SR 198 EB Ramps	4 Lanes Divided	D	35,820	5,700	0.16	C	6,200	0.17	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-42
Cumulative Year 2040 With Tower Street Interchange Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			AM Queue	PM Queue	AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	173	209	173	209
	NB Right	300	51	55	51	55
	SB Left	225	**296**	186	**302**	209
	EB Left	200	159	47	159	47
	EB Right	200	56	53	56	53
	WB Left	2 @ 375	88	130	89	137
	WB Right	325	57	18	57	23
Lovers Lane / Mineral King Avenue	NB Left	100	**303**	75	**303**	74
	SB Left	175	**502**	**233**	**502**	**233**
	EB Left	150	66	83	66	83
	WB Left	150	**304**	**313**	**310**	**338**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**410**	**408**	**415**	**417**
	EB Left	225	**586**	**780**	**586**	**780**
Lovers Lane / Noble Avenue	NB Left	125	78	107	78	107
	SB Left	100	**328**	**313**	**329**	**317**
	EB Left	125	**183**	**237**	**184**	**240**
	WB Left	125	44	59	44	59
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	94	**170**	95	**172**
	NB Right	125	29	31	30	32
	SB Left	200	**207**	190	**211**	**208**
	SB Right	200	61	45	61	46
	EB Left	2 @ 375	101	114	101	115
	EB Right	200	0	54	0	54
	WB Left	375	129	135	133	137
	WB Right	375	18	0	19	2
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100	75	100
	EB Right	100	25	25	25	50
McAuliff Street / Mineral King Avenue	SB Left	250	25	25	25	25
	SB Right	250	200	125	200	125
	EB Left	200	100	175	100	175
Road 156 / Mineral King Avenue	NB Left	125	**529**	**620**	**539**	**643**
	EB Left	50	19	22	19	22
	WB Left	125	**423**	**259**	**423**	**259**
Road 156 / Noble Avenue	NB Left	175	**254**	**521**	**254**	**521**
	SB Left	150	8	23	9	29
	EB Left	350	161	149	161	149
	WB Left	325	138	102	138	102

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-43
Cumulative Year 2040 With Tower Street Interchange
Tower Street Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			AM Queue	PM Queue	AM Queue	PM Queue
Tower Street / Houston Avenue (SR 216)	NB Left	--	107	156	112	176
	NB Right	--	35	80	36	83
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--			7	25
	EB Left	--	14	9	14	9
	WB Left	--			4	18
Tower Street / Race Avenue	NB Left	--	8	21	8	21
	SB Left	--	17	11	17	11
Tower Street / Murray Avenue	NB Left	--	65	128	80	198
	SB Right	--	2	3	2	3
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	82	128	82	128
	SB Left	--			2	8
	EB Right	--	49	56	49	56
	WB Left	--				
	WB Right	--			17	76
Tower Street / Mineral King Avenue	SB Left	--	209	197	209	197
	SB Right	--				
	EB Left	--				
Tower Street / SR 198 WB Ramps	NB Right	--	7	8	7	8
	SB Right	--	9	9	9	10
	WB Left	--	50	68	50	68
	WB Right	--	17	23	18	24
Tower Street / SR 198 EB Ramps	NB Right	--	15	15	16	17
	SB Right	--	16	20	17	25
	EB Left	--	150	190	164	245
	EB Right	--	6	11	6	11

Queue is measured in feet

Table 3-44
Cumulative Year 2040 Without Project With Tower Street Interchange Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3149	852	4019	1277	2	1	C	C	24.9	**D**	**33.4**
SR-198 EB On Ramp from Lovers Lane	Merge	2297	375	2742	516	2	1	C	C	21.4	C	26.6
SR-198 EB Off Ramp to Tower Street	Diverge	2672	274	3258	490	2	1	C	C	20.2	C	25.9
SR-198 EB On Ramp (loop) from Tower Street	Merge	2398	105	2768	119	2	1	C	C	20.1	C	23.5
SR-198 EB On Ramp from Tower Street	Merge	2503	203	2887	131	2	1	C	C	21.8	C	24.6
SR-198 EB Off Ramp to Road 156	Diverge	2706	301	3018	530	2	1	C	B	19.4	C	22.5
SR-198 EB On Ramp from Road 156	Merge	2405	161	2488	281	2	1	C	C	23.6	C	25.3
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2418	312	2350	231	2	1	C	B	15.7	B	15.0
SR-198 WB On Ramp from Road 156	Merge	2106	616	2119	568	2	1	C	C	22.5	C	22.2
SR-198 WB Off Ramp to Tower Street	Diverge	2722	103	2687	237	2	1	C	B	18.6	B	18.3
SR-198 WB On Ramp (loop) from Tower Street	Merge	2619	234	2450	182	2	1	C	C	23.9	C	22.0
SR-198 WB On Ramp from Tower Street	Merge	2853	156	2632	120	2	1	C	C	25.3	C	23.1
SR-198 WB Off Ramp to Lovers Lane	Diverge	3009	191	2752	300	2	1	C	C	25.5	C	23.0
SR-198 WB On Ramp from Lovers Lane	Merge	2818	1009	2452	564	2	1	C	**D**	**33.7**	C	26.7

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 3-45
Cumulative Year 2040 Plus Project With Tower Street Interchange Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	C	25.0	**D**	**33.9**
SR-198 EB On Ramp from Lovers Lane	Merge	2309	384	2788	548	2	1	C	C	21.6	C	27.2
SR-198 EB Off Ramp to Tower Street	Diverge	2693	295	3336	568	2	1	C	C	20.4	C	26.7
SR-198 EB On Ramp (loop) from Tower Street	Merge	2398	108	2768	132	2	1	C	C	20.1	C	23.6
SR-198 EB On Ramp from Tower Street	Merge	2506	203	2900	131	2	1	C	C	21.9	C	24.8
SR-198 EB Off Ramp to Road 156	Diverge	2709	301	3031	530	2	1	C	B	19.4	C	22.6
SR-198 EB On Ramp from Road 156	Merge	2408	161	2501	281	2	1	C	C	23.6	C	25.4
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2423	315	2370	241	2	1	C	B	15.7	B	15.2
SR-198 WB On Ramp from Road 156	Merge	2108	616	2129	568	2	1	C	C	22.5	C	22.3
SR-198 WB Off Ramp to Tower Street	Diverge	2724	105	2697	247	2	1	C	B	18.7	B	18.4
SR-198 WB On Ramp (loop) from Tower Street	Merge	2619	234	2450	182	2	1	C	C	23.9	C	22.0
SR-198 WB On Ramp from Tower Street	Merge	2853	165	2632	149	2	1	C	C	25.4	C	23.3
SR-198 WB Off Ramp to Lovers Lane	Diverge	3018	191	2781	300	2	1	C	C	25.6	C	23.3
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	**D**	**33.8**	C	27.0

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

3.8 Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Traffic Conditions

Alternative 1 encompasses the elimination of Mineral King Avenue from Tower Street to Road 152 for the Cumulative Year 2040 Plus Project With Tower Street Interchange Scenario. This change in the roadway configuration will cause a redistribution of traffic along adjacent roadways. This leads to the results shown in Figures 3-36a, 3-36b, 3-37a, 3-37b, 3-38a, 3-38b, 3-38c, and 3-39.

Alternative 2 considers a full access intersection at Tower Street and Project Driveway #1 for the Cumulative Year 2040 Plus Project With Tower Street Interchange Scenario. Villoy Avenue will terminate at a cul-de-sac to the west of Tower Street and will not intersect with Tower Street for this scenario. This change in the roadway configuration will cause a redistribution of traffic along adjacent roadways. This leads to the results shown in Figures 3-40a, 3-40b, 3-41a, 3-41b, 3-42a, 3-42b, 3-42c, and 3-43.

3.8.1 *Cumulative Year 2040 With Tower Street Interchange Alternatives 1 and 2 Intersection Capacity Analysis*

Table 3-46 shows intersections that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 With Tower Street Interchange Alternative scenarios. Potential mitigation measures are discussed in Chapter 4 of this report. Results of the analysis show that the Project will cause or contribute to an unacceptable LOS at 9 of the 25 study intersections for this scenario when comparing the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 scenarios. Results also show that the Project will cause or contribute to an unacceptable LOS at 8 of the 25 study intersections for this scenario when comparing the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 2 scenarios.

Table 3-47 shows the intersection levels of service for study intersections along Tower Street. Results of the analysis show that all study intersections along Tower Street will meet acceptable levels of service with the exception of the Tower Street at Houston Avenue (SR 216) intersection, which is projected to operate at LOS F during the PM peak hour under the Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 and 2 scenarios.

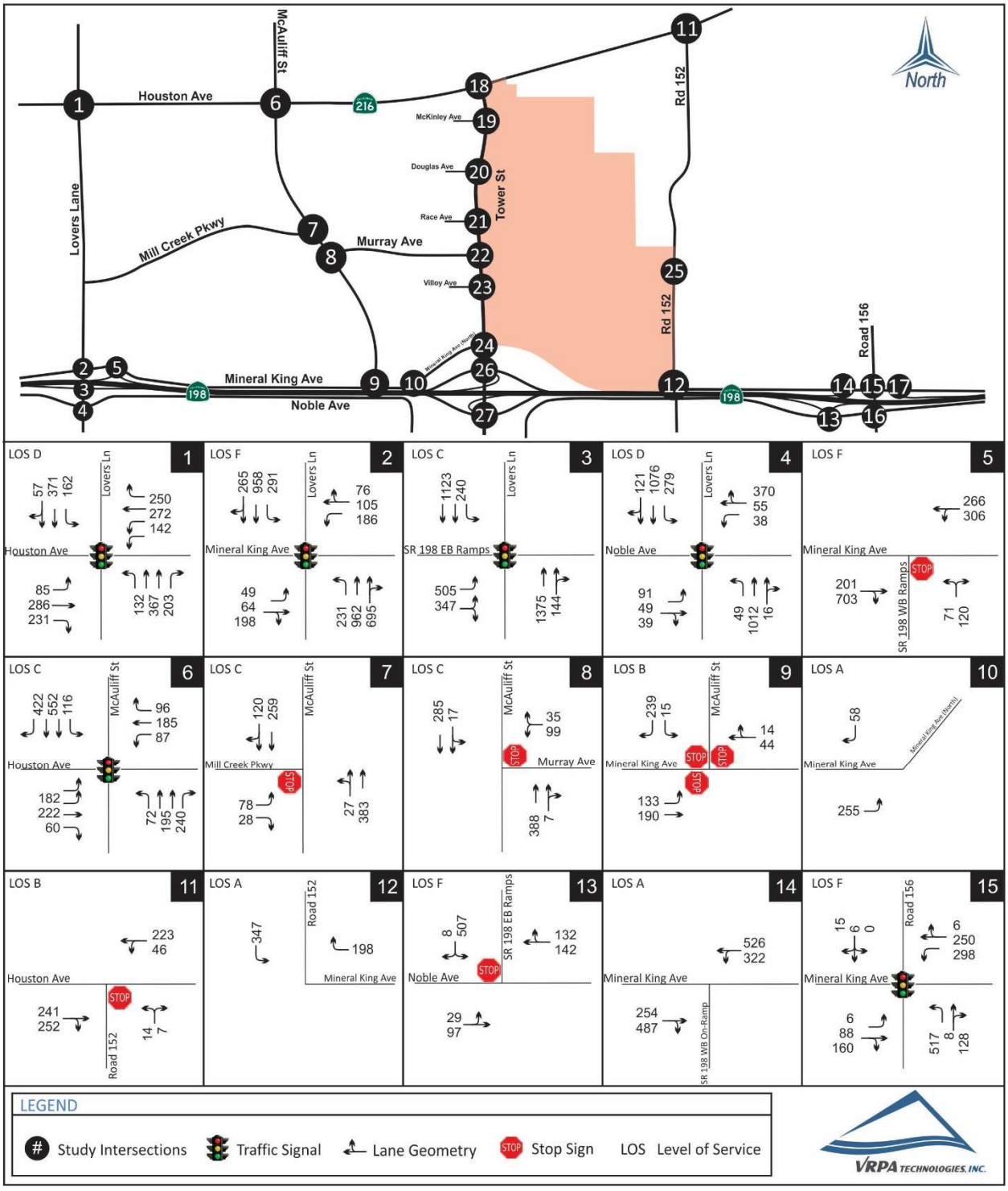
Table 3-48 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during a special event. Results of the analysis show that the intersection of Tower Street at Villoy Avenue-Project Driveway #1 will operate at unacceptable levels of service for the Special Event Outbound Traffic under the Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 scenario.

Table 3-49 shows the intersection levels of service for study intersections at the Project driveways along Tower Street during the Saturday peak hour. Results of the analysis show that the Project driveways will meet acceptable levels of service.

East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange - Alt 1

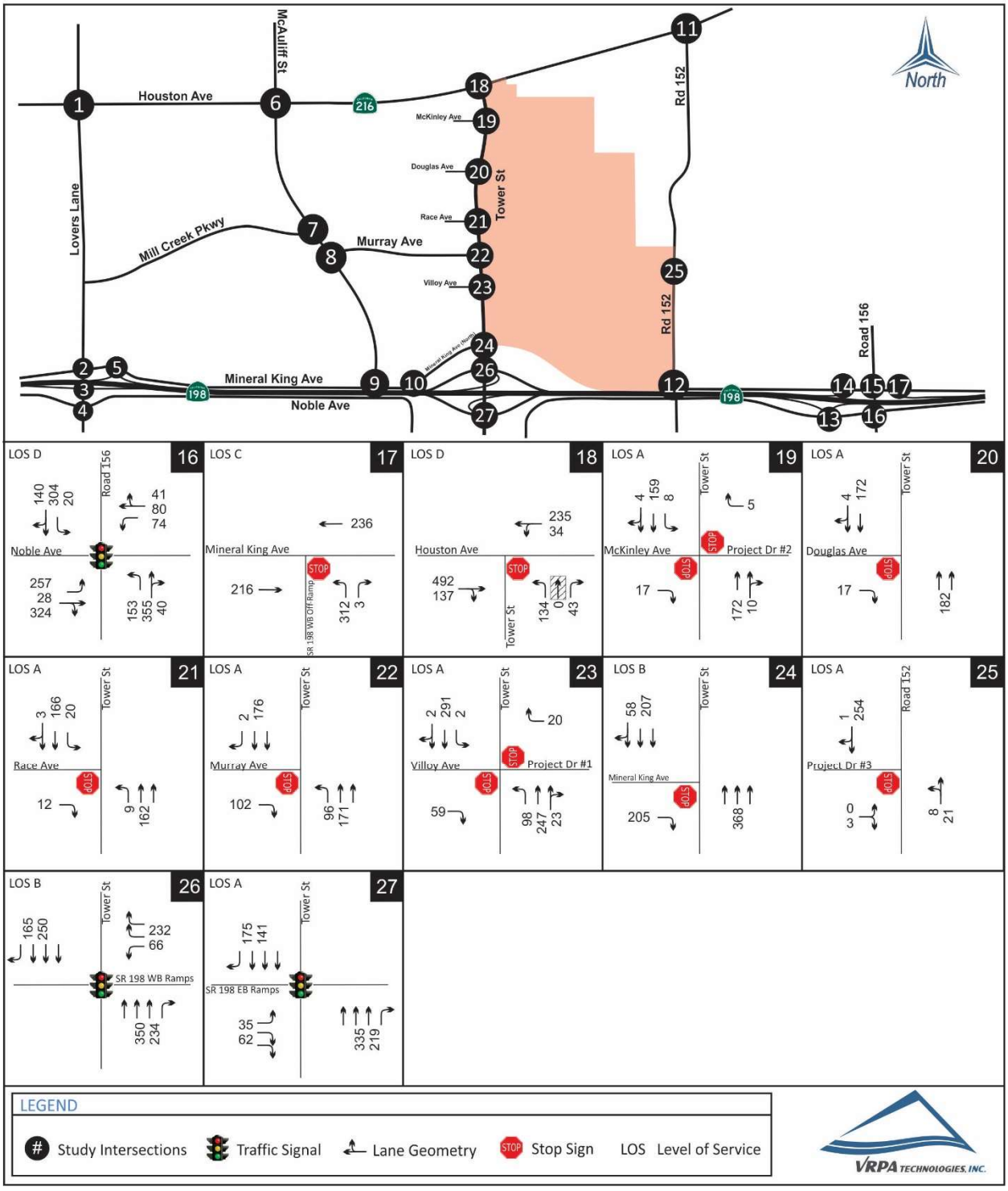
Figure 3-36a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange - Alt 1

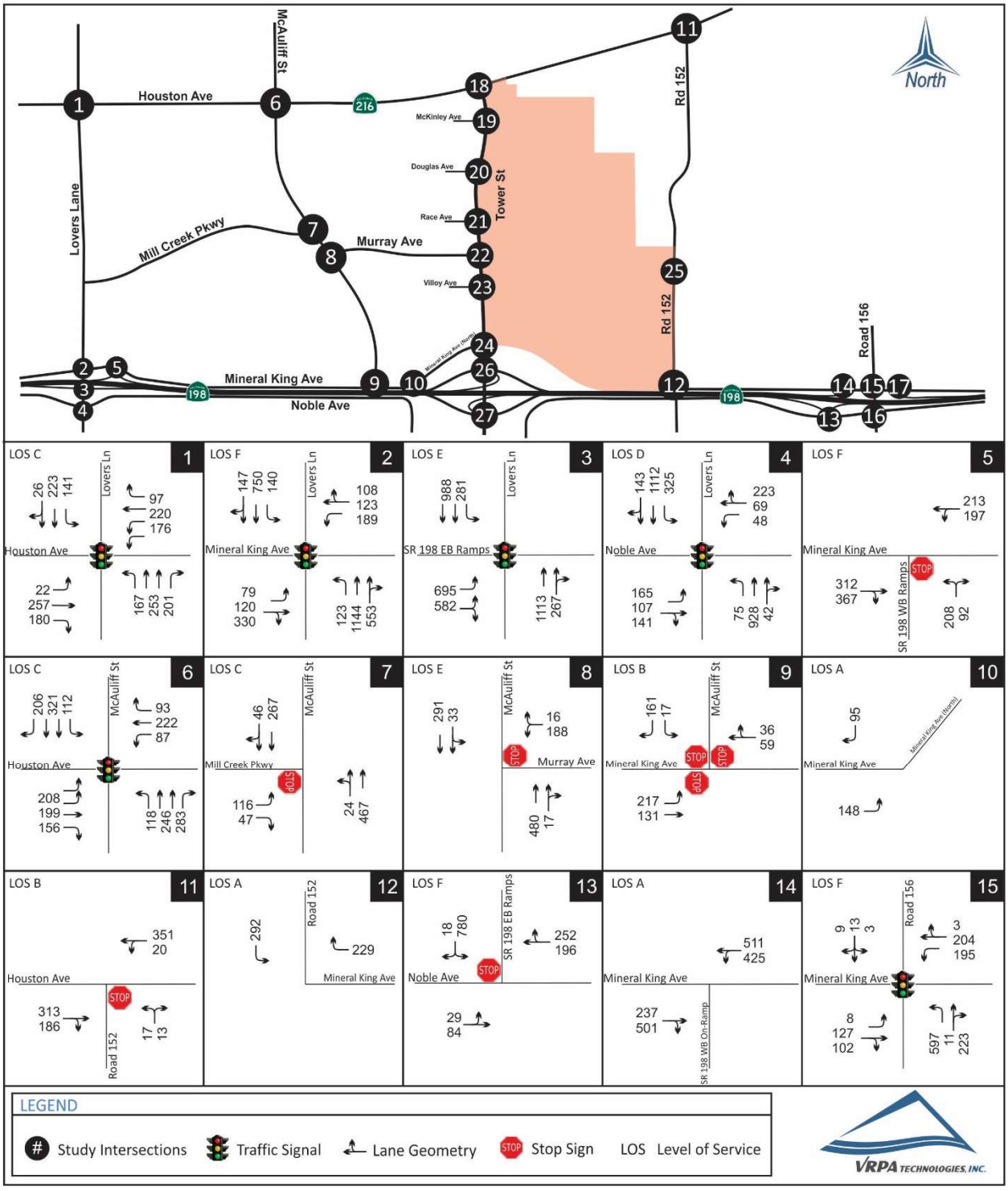
Figure 3-36b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange - Alt 1

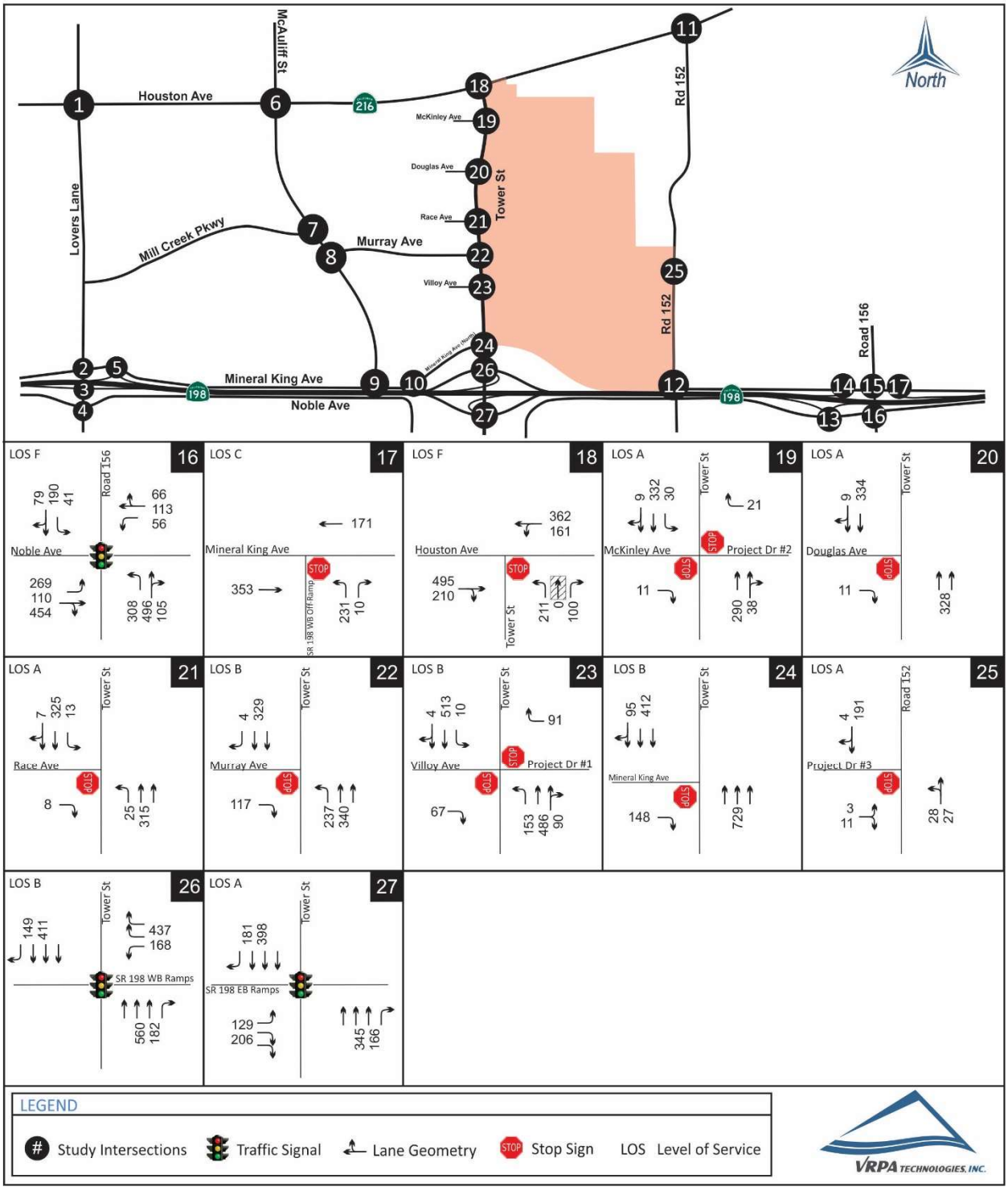
Figure 3-37a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange - Alt 1

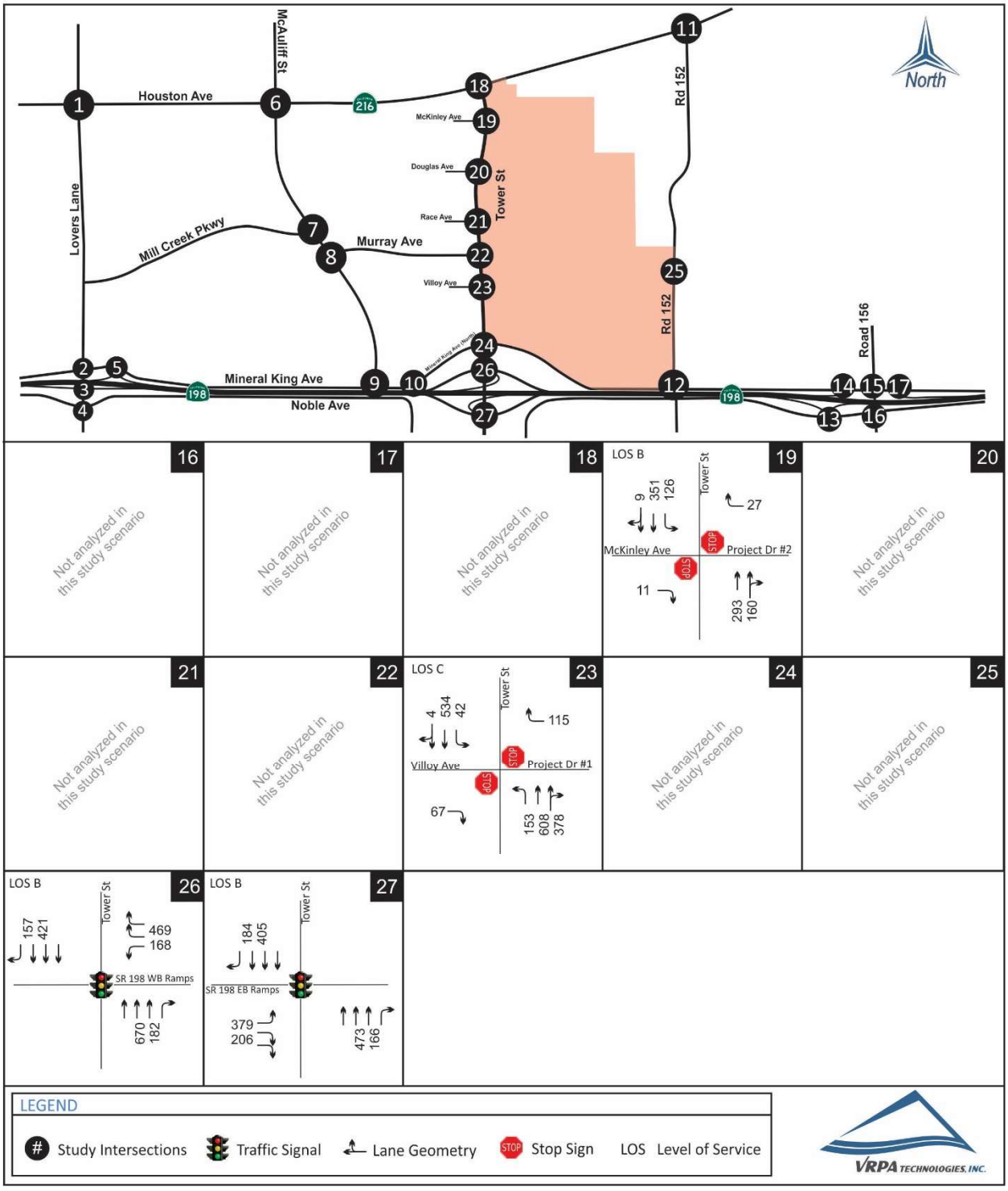
Figure 3-37b



East Side Regional Park & Groundwater Recharge Project EIR

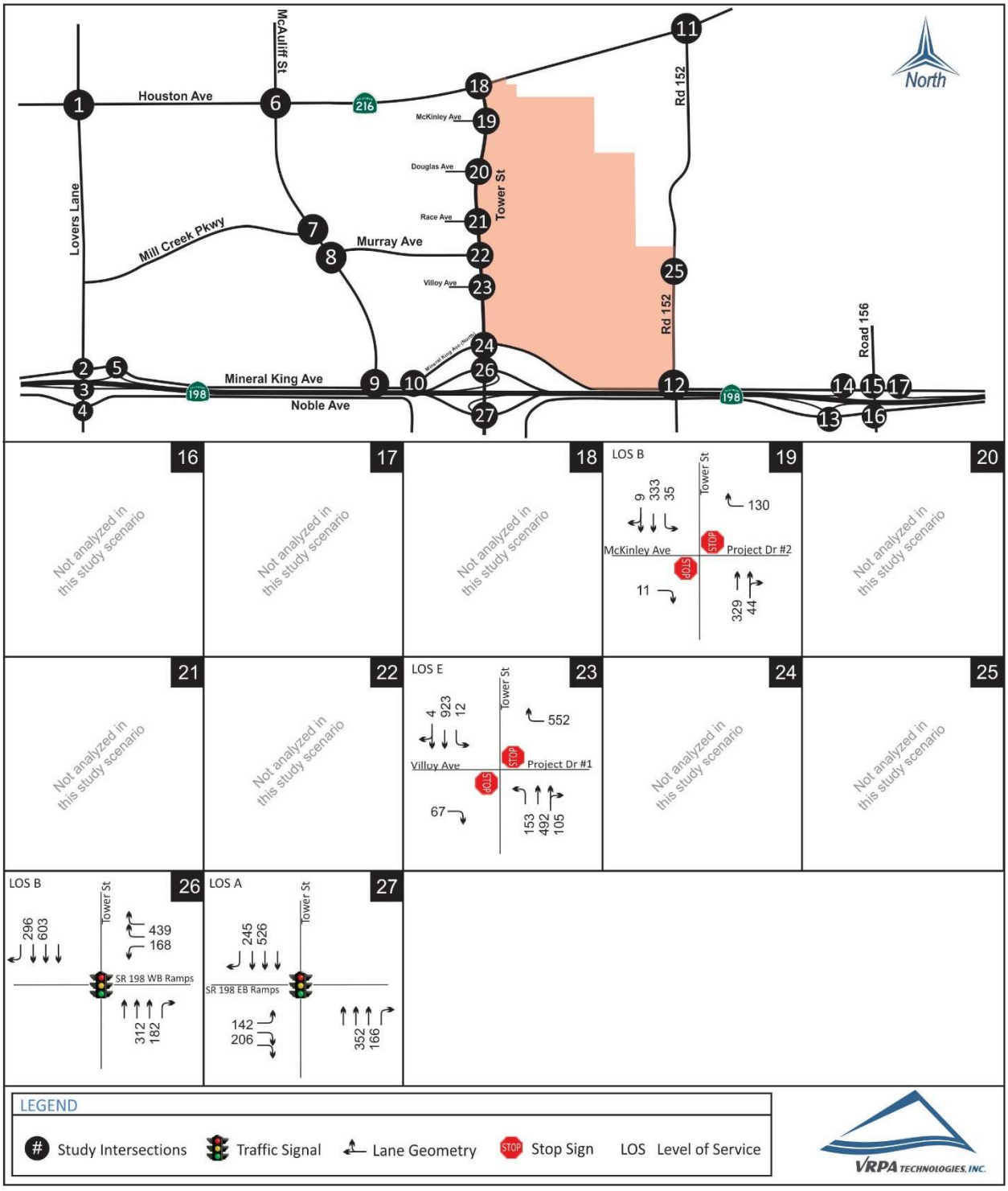
Cumulative Year 2040 Plus Project Special Event Inbound Traffic With Tower Street Interchange - Alt 1

Figure 3-38a



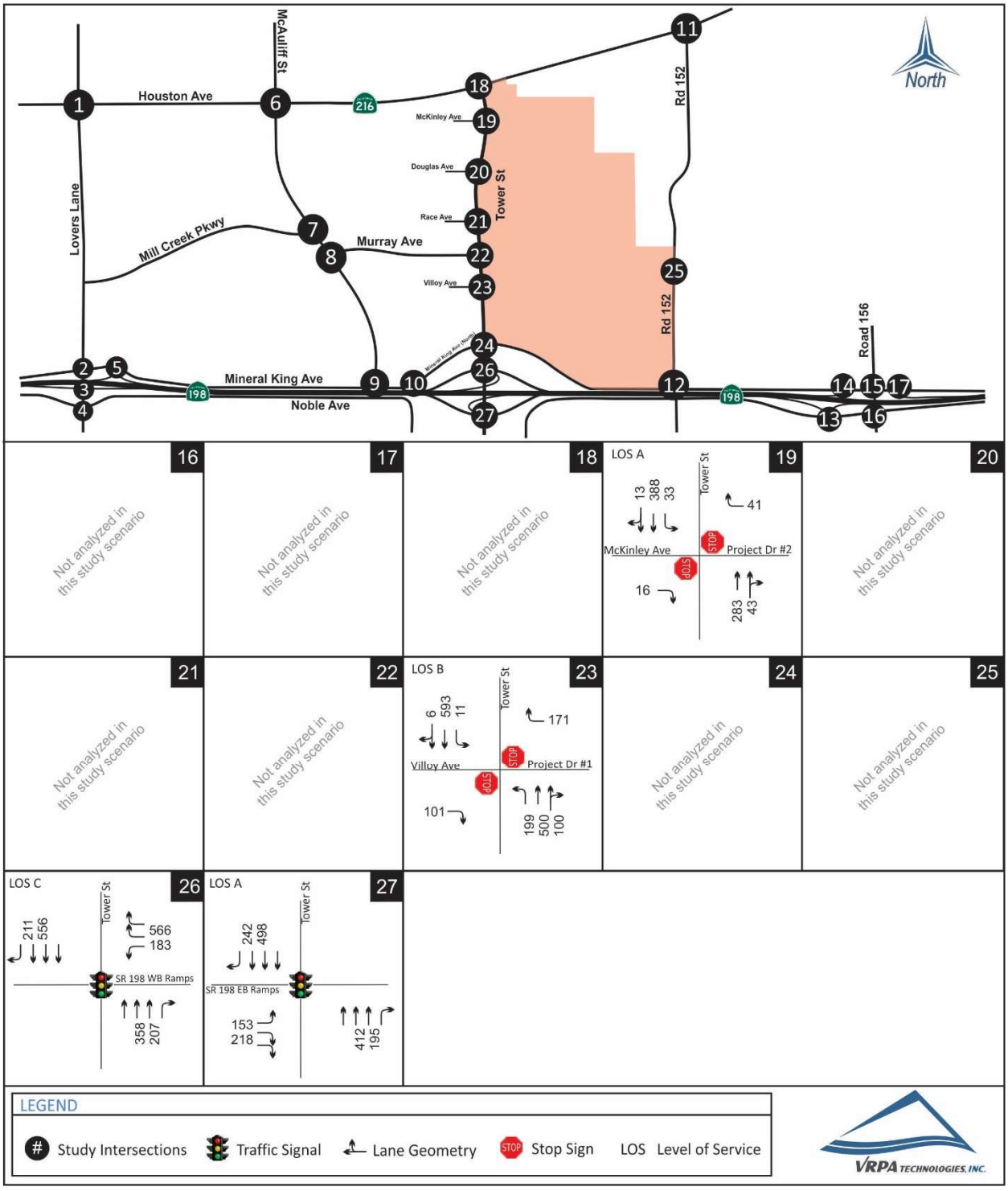
East Side Regional Park & Groundwater Recharge Project EIR **Figure 3-38b**

Cumulative Year 2040 Plus Project Special Event Outbound Traffic With Tower Street Interchange - Alt 1



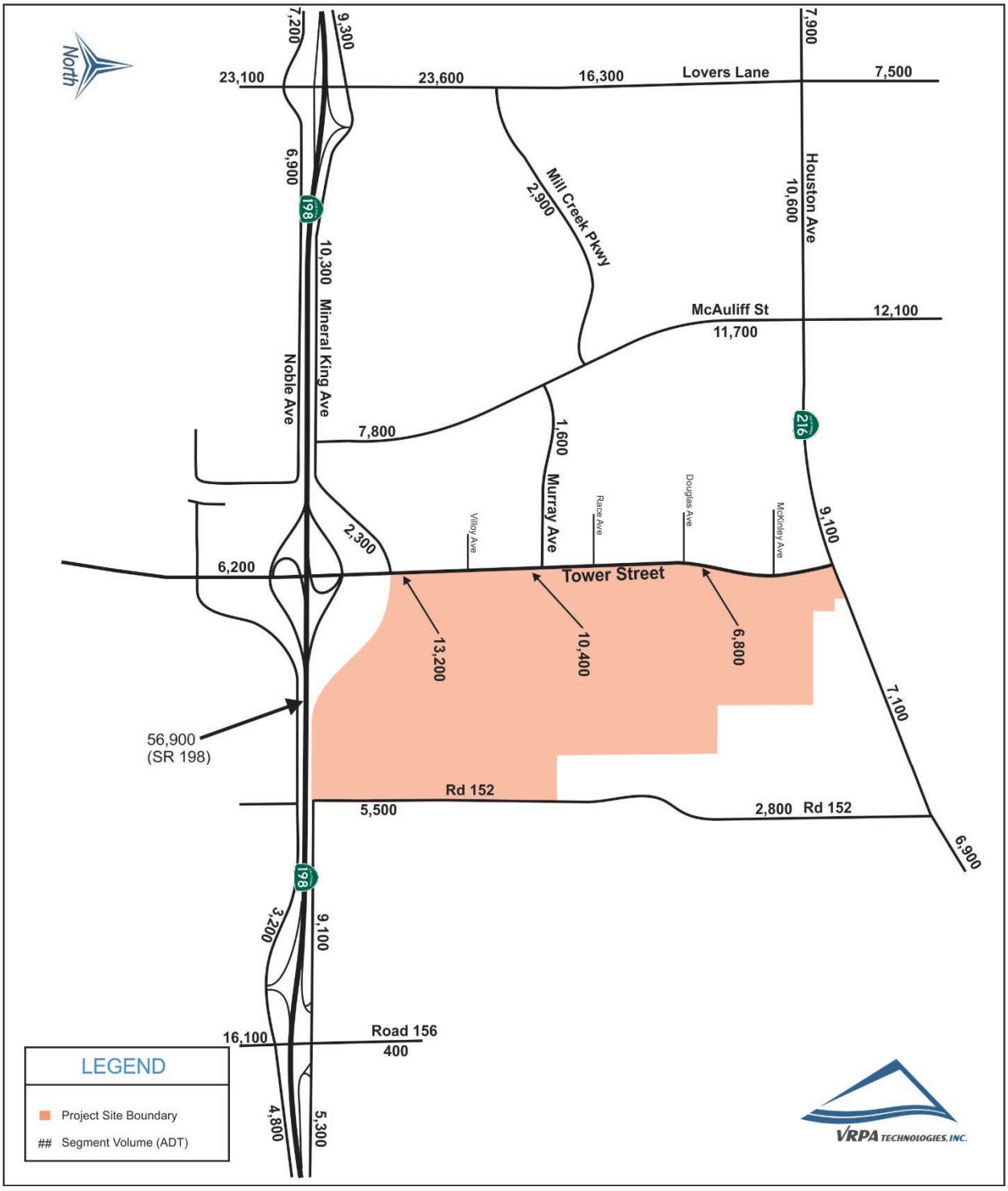
East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-38c**

Cumulative Year 2040 Plus Project Saturday Peak Hour Traffic With Tower Street Interchange - Alt 1



East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-39**

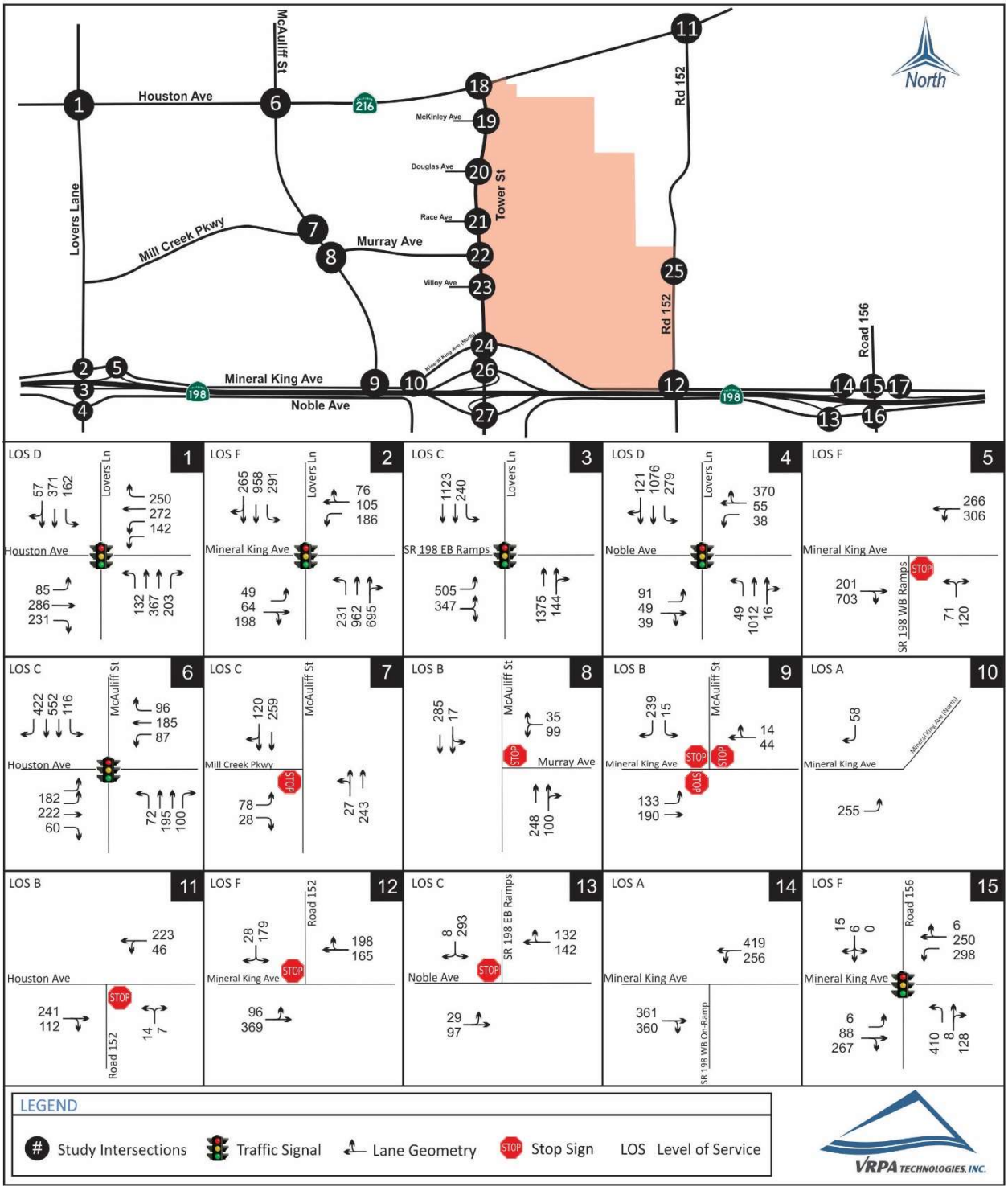
Cumulative Year 2040 Plus Project Segment Volumes With Tower Street Interchange - Alt 1



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange - Alt 2

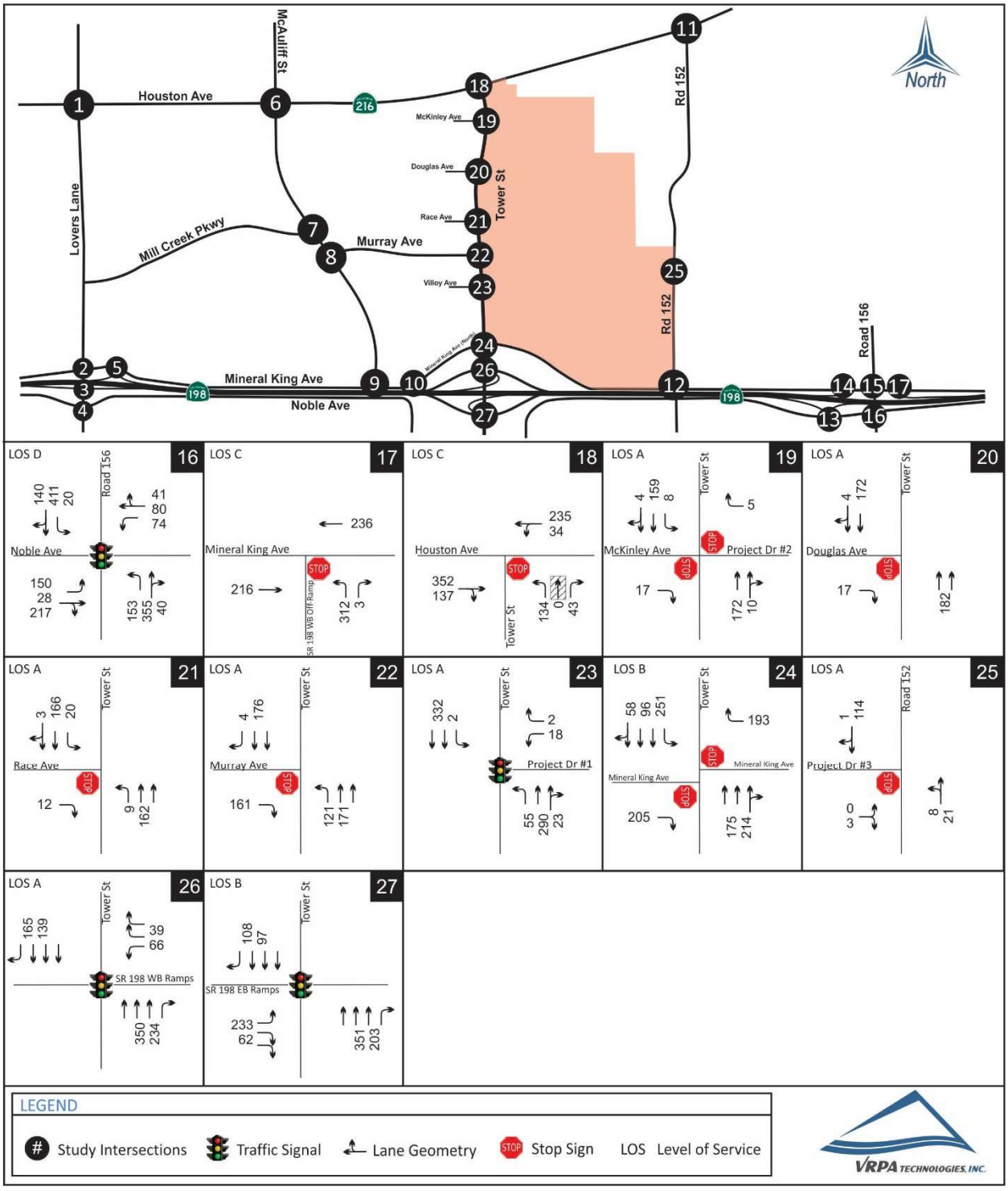
Figure 3-40a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project AM Peak Hour Traffic With Tower Street Interchange - Alt 2

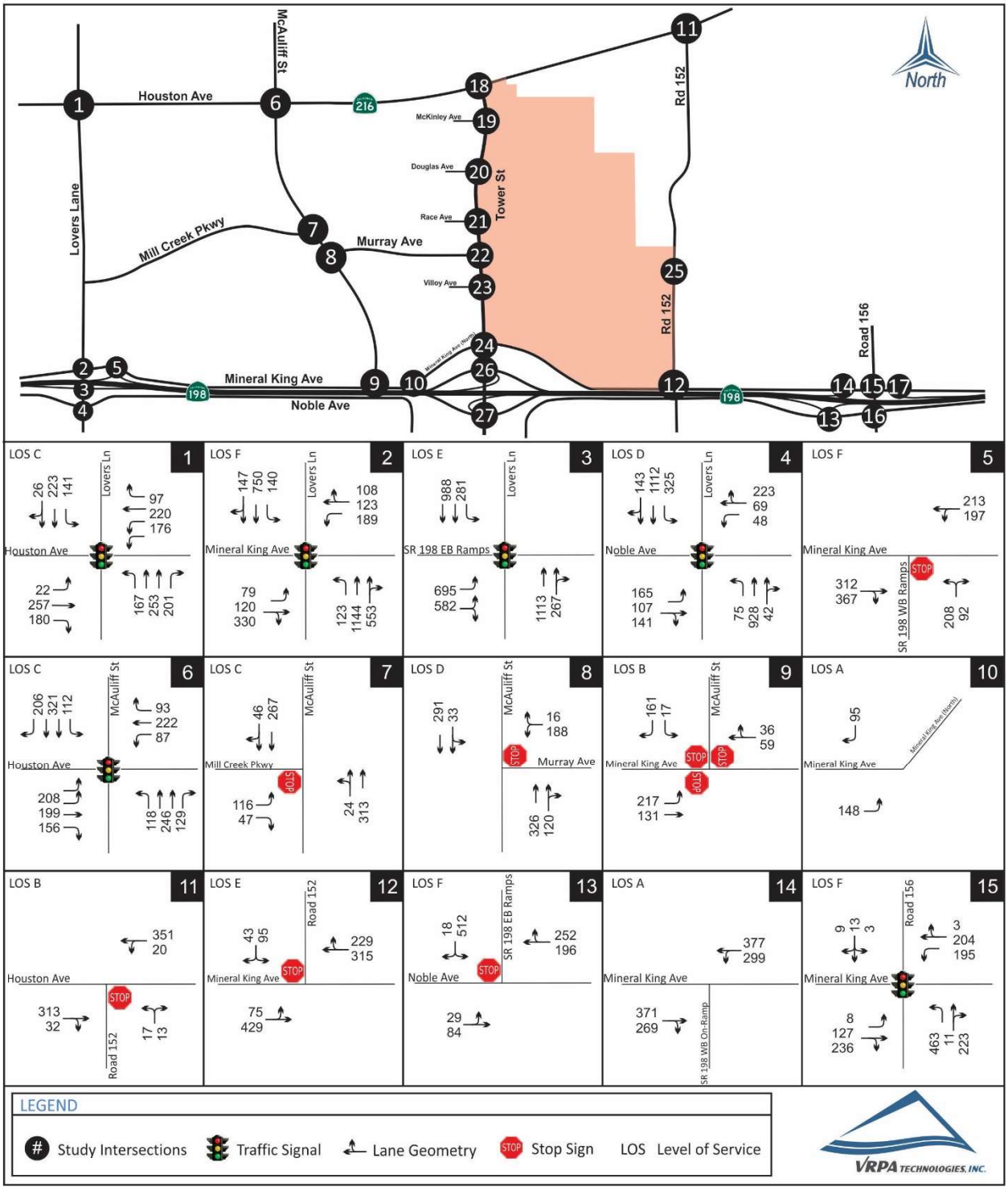
Figure 3-40b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange - Alt 2

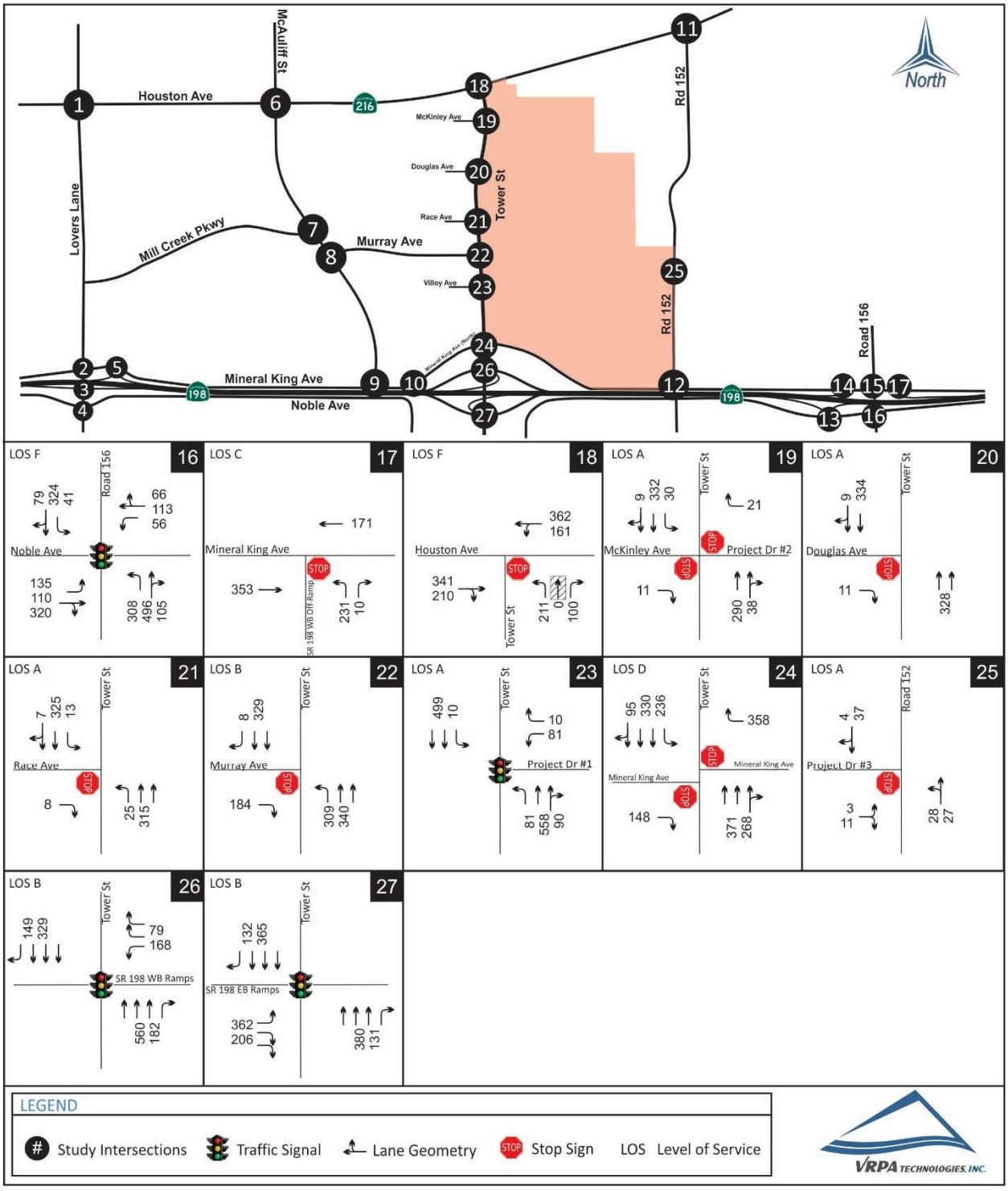
Figure 3-41a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project PM Peak Hour Traffic With Tower Street Interchange - Alt 2

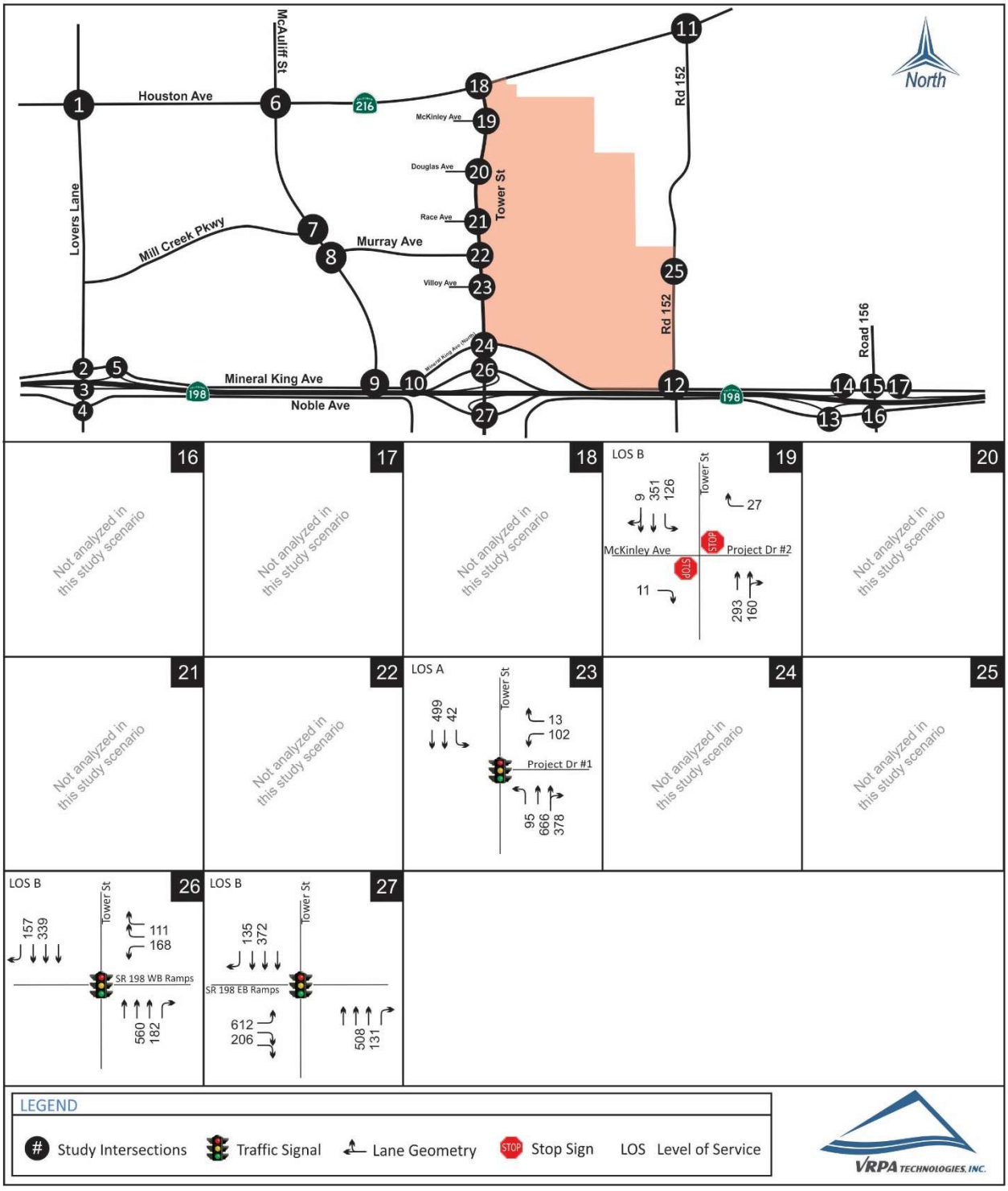
Figure 3-41b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project Special Event Inbound Traffic With Tower Street Interchange - Alt 2

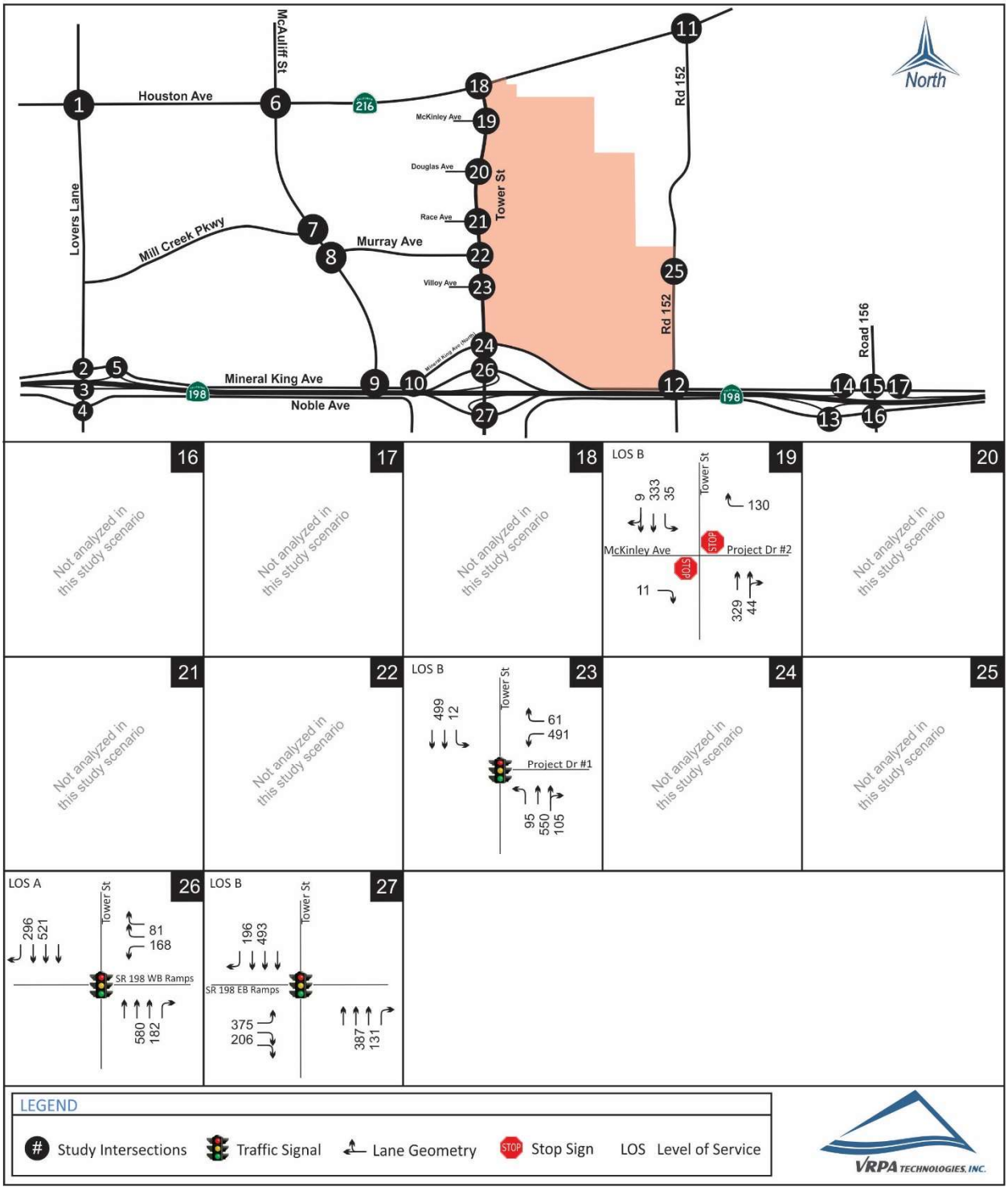
Figure 3-42a



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project Special Event Outbound Traffic With Tower Street Interchange - Alt 2

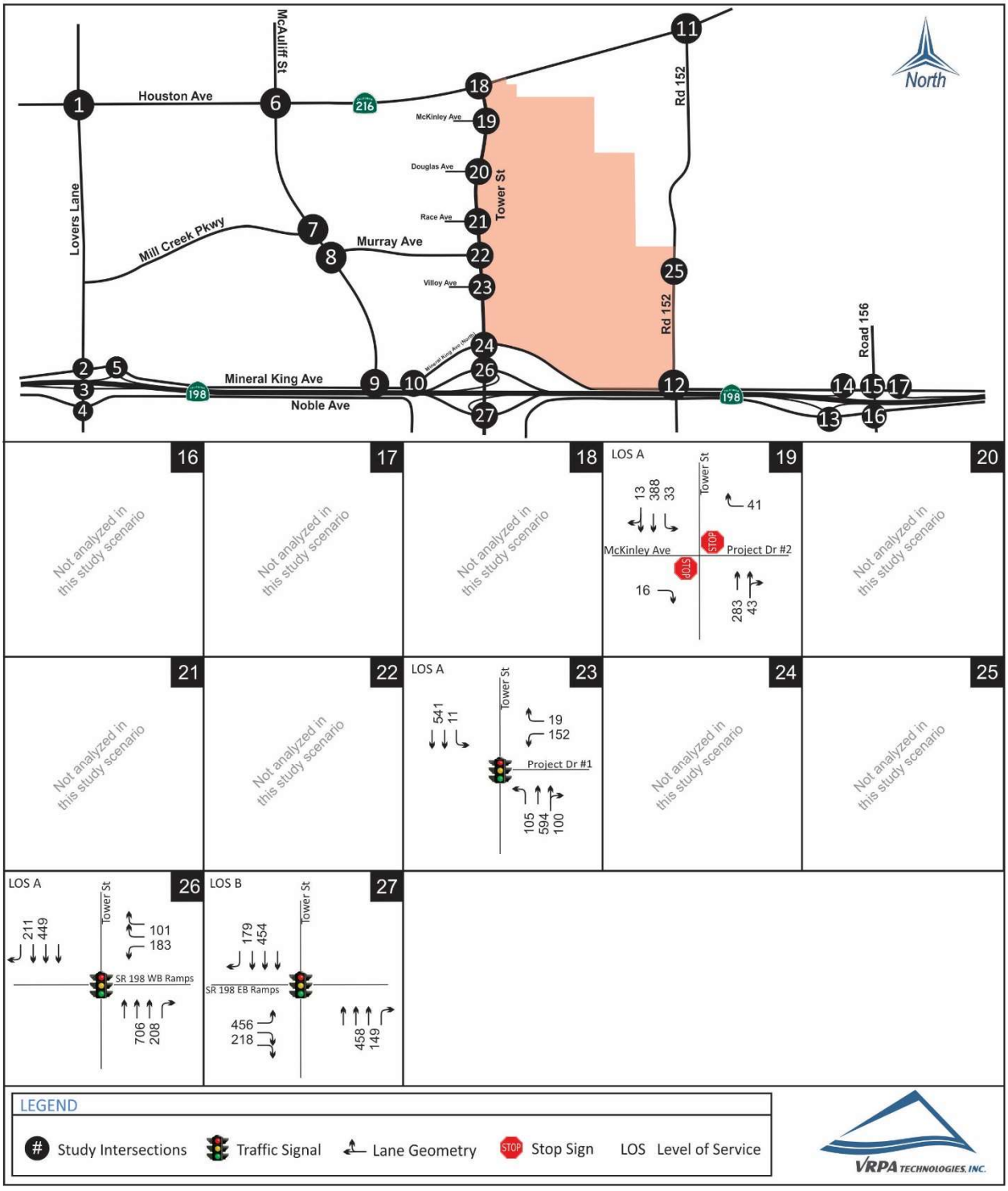
Figure 3-42b



East Side Regional Park & Groundwater Recharge Project EIR

Cumulative Year 2040 Plus Project Saturday Peak Hour Traffic With Tower Street Interchange - Alt 2

Figure 3-42c



East Side Regional Park & Groundwater Recharge Project EIR — **Figure 3-43**

Cumulative Year 2040 Plus Project Segment Volumes With Tower Street Interchange - Alt 2

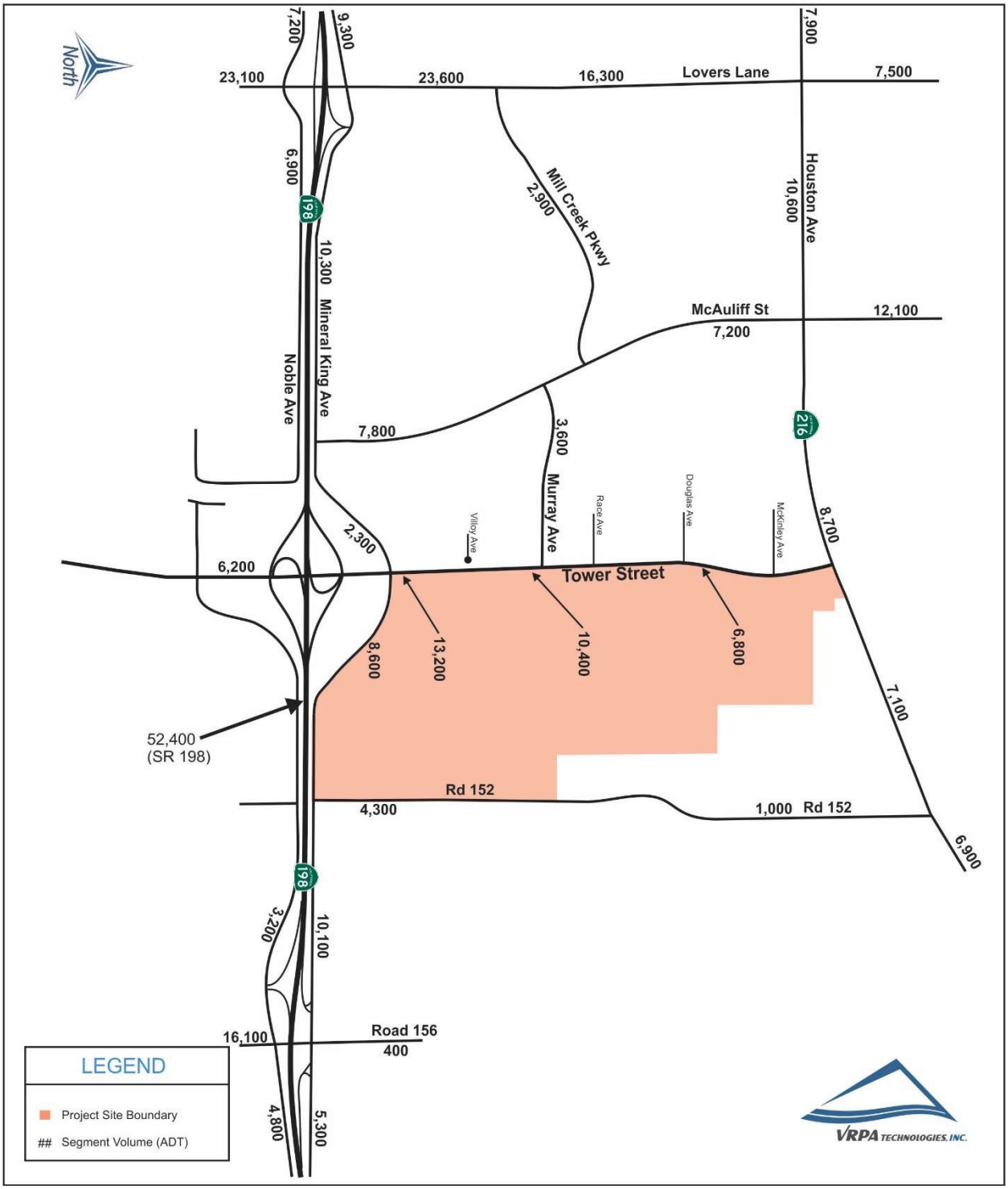


Table 3-46
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2	
				DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	42.4	D	42.4	D
			PM	33.3	C	33.3	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	25.6	C	25.6	C
			PM	**72.3**	**E**	**72.3**	**E**
4. Lovers Lane / Noble Avenue	Signalized	D	AM	42.0	D	42.0	D
			PM	44.3	D	44.3	D
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F**	**>50.0**	**F**
			PM	**>50.0**	**F**	**>50.0**	**F**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	28.0	C	26.1	C
			PM	31.0	C	30.9	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	16.9	C	15.3	C
			PM	18.8	C	16.5	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	16.9	C	14.9	B
			PM	**37.4**	**E +**	26.9	D
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	10.2	B	10.2	B
			PM	10.2	B	10.2	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	--	A	--	A
			PM	--	A	--	A
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	14.4	B	13.4	B
			PM	15.4	C	14.2	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	--	A	**>50.0**	**F +**
			PM	--	A	**38.9**	**E +**
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	**>50.0**	**F**	19.5	C
			PM	**>50.0**	**F**	**>50.0**	**F**
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A
			PM	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**
16. Road 156 / Noble Avenue	Signalized	D	AM	48.9	D	44.4	D
			PM	**>80.0**	**F**	**>80.0**	**F**
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	23.8	C	23.8	C
			PM	21.1	C	21.1	C

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.
+ Does not meet peak hour signal warrants.

Table 3-47
Cumulative Year 2040 Plus Project With Tower Street Interchange
Alternatives 1 and 2 Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2	
			DELAY	LOS	DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	31.4	D	22.8	C
		PM	**>50.0**	**F**	**>50.0**	**F**
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.9	A	8.9	A
		PM	9.5	A	9.5	A
20. Tower Street / Douglas Avenue	D	AM	8.9	A	8.9	A
		PM	9.5	A	9.5	A
21. Tower Street / Race Avenue	D	AM	8.9	A	8.9	A
		PM	9.4	A	9.4	A
22. Tower Street / Murray Avenue	D	AM	9.4	A	9.7	A
		PM	10.1	B	10.7	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	9.6	A	4.2	A
		PM	11.2	B	5.5	A
24. Tower Street / Mineral King Avenue	D	AM	11.9	B	12.8	B
		PM	12.9	B	25.6	D
25. Road 152 / Project Driveway #3	D	AM	9.8	A	8.9	A
		PM	9.7	A	8.7	A
26. Tower Street / SR 198 WB Ramps	C	AM	12.3	B	6.3	A
		PM	18.0	B	10.1	B
27. Tower Street / SR 198 EB Ramps	C	AM	4.3	A	10.5	B
		PM	8.1	A	12.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-48
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Special Event Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2	
			DELAY	LOS	DELAY	LOS
SPECIAL EVENT INBOUND TRAFFIC						
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	10.0	B	10.0	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	15.0	C	7.3	A
26. Tower Street / SR 198 WB Ramps	C	PM	18.4	B	10.7	B
27. Tower Street / SR 198 EB Ramps	C	PM	12.4	B	18.0	B
SPECIAL EVENT OUTBOUND TRAFFIC						
19. Tower Street / McKinley Avenue-Project Driveway #2	D	PM	10.5	B	10.5	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	PM	**39.2**	**E**	14.5	B
26. Tower Street / SR 198 WB Ramps	C	PM	17.7	B	8.9	A
27. Tower Street / SR 198 EB Ramps	C	PM	7.7	A	12.4	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 3-49
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Saturday Peak Hour Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2	
			DELAY	LOS	DELAY	LOS
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	9.7	A	9.7	A
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	12.5	B	6.9	A
26. Tower Street / SR 198 WB Ramps	C	AM	22.9	C	9.7	A
27. Tower Street / SR 198 EB Ramps	C	AM	7.9	A	14.1	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

3.8.2 *Cumulative Year 2040 With Tower Street Interchange Alternatives 1 and 2 Segment Capacity Analysis*

Table 3-50 shows roadway segment volumes and levels of service pertaining to the Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 and 2 scenarios. Results of the analysis show that all of the study roadway segments will meet acceptable levels of service with the exception of Road 156 south of Noble Avenue, which is projected to operate at LOS F under the Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 and 2 scenarios. Table 3-51 provides the roadway segment levels of service for Tower Street, which shows that roadway segments along Tower Street will meet acceptable levels of service.

3.8.3 *Cumulative Year 2040 With Tower Street Interchange Alternatives 1 and 2 Queuing Analysis*

Tables 3-52 and 3-53 provides a queue length summary for left and right turn lanes at the study intersections for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios. The queues shown for signalized intersections in Tables 3-52 and 3-53 represent the 95th percentile queue lengths for the respective lane movements. Queuing analysis for unsignalized intersections was completed using Section 400 of Caltrans' Highway Design Manual.

3.8.4 *Cumulative Year 2040 With Tower Street Interchange Alternatives 1 and 2 Merge/Diverge Analysis*

The ramp merge/diverge analysis for the SR 198 at Lovers Lane and Road 156 interchanges were based on the Highway Capacity Manual (HCM). Results of the AM and PM peak hour ramp merge/diverge analysis at the SR 198 interchanges for the Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 and 2 scenarios are reflected in Tables 3-54 and 3-55 and indicate that the SR 198 EB Off Ramp to Lovers Lane will operate at an unacceptable level of service in the PM peak hour. Results also show that the SR 198 WB On Ramp from Lovers Lane will operate at an unacceptable level of service for the AM peak hour.

Table 3-50
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,900	0.45	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	10,600	0.27	C	10,600	0.27	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	9,100	0.51	C	8,700	0.49	C
East of Road 152	2 Lanes Undivided	C	17,700	6,900	0.39	C	6,900	0.39	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,500	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	16,300	0.46	C	16,300	0.46	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	23,600	0.66	C	23,600	0.66	C
South of Noble Avenue	4 Lanes Divided	D	35,820	23,100	0.64	C	23,100	0.64	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	12,100	0.34	C	12,100	0.34	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	11,700	0.35	C	7,200	0.21	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	7,800	0.23	C	7,800	0.23	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	2,800	0.18	C	1,000	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	5,500	0.35	C	4,300	0.27	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	9,300	0.58	C	9,300	0.58	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	10,300	0.65	C	10,300	0.65	C
McAuliff Street to Tower Street	2 Lanes Undivided	D	15,930	2,300	0.14	C	2,300	0.14	C
Tower Street to Road 152	2 Lanes Undivided	D	15,930				8,600	0.54	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	9,100	0.57	C	10,100	0.63	C
East of Road 156	2 Lanes Undivided	D	15,930	5,300	0.33	C	5,300	0.33	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**16,100**	**1.01**	**F**	**16,100**	**1.01**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,900	0.17	C	2,900	0.17	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	1,600	0.11	C	3,600	0.26	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,200	0.45	C	7,200	0.45	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	6,900	0.43	C	6,900	0.43	C
West of Road 156	2 Lanes Undivided	D	15,930	3,200	0.20	C	3,200	0.20	C
East of Road 156	2 Lanes Undivided	D	15,930	4,800	0.30	C	4,800	0.30	C
SR 198									
Tower Street to Road 156	4 Lanes Divided	C	79,900	56,900	0.71	C	52,400	0.66	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-51
Cumulative Year 2040 Plus Project With Tower Street Interchange
Alternatives 1 and 2 Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	6,800	0.19	C	6,800	0.19	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	10,400	0.29	C	10,400	0.29	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	13,200	0.37	C	13,200	0.37	C
South of SR 198 EB Ramps	4 Lanes Divided	D	35,820	6,200	0.17	C	6,200	0.17	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 3-52
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2	
			AM Queue	PM Queue	AM Queue	PM Queue
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	173	209	173	209
	NB Right	300	51	55	51	55
	SB Left	225	**302**	209	**302**	209
	EB Left	200	159	47	159	47
	EB Right	200	56	53	56	53
	WB Left	2 @ 375	89	137	89	137
	WB Right	325	57	23	57	23
Lovers Lane / Mineral King Avenue	NB Left	100	**303**	74	**303**	74
	SB Left	175	**502**	**233**	**502**	**233**
	EB Left	150	66	83	66	83
	WB Left	150	**310**	**338**	**310**	**338**
Lovers Lane / SR 198 EB Ramps	SB Left	75	**415**	**417**	**415**	**417**
	EB Left	225	**586**	**780**	**586**	**780**
Lovers Lane / Noble Avenue	NB Left	125	78	107	78	107
	SB Left	100	**329**	**317**	**329**	**317**
	EB Left	125	**184**	**240**	**184**	**240**
	WB Left	125	44	59	44	59
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	95	**172**	95	**172**
	NB Right	125	43	48	30	32
	SB Left	200	**211**	**208**	**211**	**208**
	SB Right	200	61	46	61	46
	EB Left	2 @ 375	101	115	101	115
	EB Right	200	0	54	0	54
	WB Left	375	133	137	133	137
	WB Right	375	19	2	19	2
McAuliff Street / Mill Creek Parkway	EB Left	100	75	100	75	100
	EB Right	100	25	50	25	50
McAuliff Street / Mineral King Avenue	SB Left	250	25	25	25	25
	SB Right	250	200	125	200	125
	EB Left	200	100	175	100	175
Road 156 / Mineral King Avenue	NB Left	125	**678**	**822**	**539**	**643**
	EB Left	50	23	22	19	22
	WB Left	125	**19**	**259**	**423**	**259**
Road 156 / Noble Avenue	NB Left	175	**254**	**521**	**254**	**521**
	SB Left	150	8	38	9	29
	EB Left	350	319	292	161	149
	WB Left	325	138	102	138	102

Queue is measured in feet / **BOLD** denotes exceedance

Table 3-53
Cumulative Year 2040 Plus Project With Tower Street Interchange
Alternatives 1 and 2 Tower Street Queuing Operations

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2	
			AM Queue	PM Queue	AM Queue	PM Queue
Tower Street / Houston Avenue (SR 216)	NB Left	--	112	176	112	176
	NB Right	--	36	83	36	83
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--	7	25	7	25
	EB Left	--	14	9	14	9
	WB Left	--	4	18	4	18
Tower Street / Race Avenue	NB Left	--	8	21	8	21
	SB Left	--	17	11	17	11
Tower Street / Murray Avenue	NB Left	--	80	198	101	258
	SB Right	--	2	3	3	7
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	82	128	32	55
	SB Left	--	2	8	4	14
	EB Right	--	49	56		
	WB Left	--			16	55
	WB Right	--	17	76	4	10
Tower Street / Mineral King Avenue	SB Left	--			209	197
	SB Right	--				
	EB Left	--				
Tower Street / SR 198 WB Ramps	NB Right	--	7	8	7	8
	SB Right	--	10	11	9	10
	WB Left	--	49	68	50	68
	WB Right	--	39	50	18	24
Tower Street / SR 198 EB Ramps	NB Right	--	9	12	16	17
	SB Right	--	11	17	17	25
	EB Left	--	41	92	164	245
	EB Right	--	7	12	6	11

Queue is measured in feet

Table 3-54
Cumulative Year 2040 Plus Project With Tower Street Interchange
Alternative 1 Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	C	25.0	**D**	**33.9**
SR-198 EB On Ramp from Lovers Lane	Merge	2309	384	2788	548	2	1	C	C	21.6	C	27.2
SR-198 EB Off Ramp to Tower Street	Diverge	2693	97	3336	335	2	1	C	C	20.4	C	26.7
SR-198 EB On Ramp (loop) from Tower Street	Merge	2596	175	3001	181	2	1	C	C	22.4	C	26.1
SR-198 EB On Ramp from Tower Street	Merge	2771	219	3182	166	2	1	C	C	24.3	C	27.6
SR-198 EB Off Ramp to Road 156	Diverge	2990	515	3348	798	2	1	C	C	22.2	C	25.7
SR-198 EB On Ramp from Road 156	Merge	2475	161	2550	281	2	1	C	C	24.2	C	25.9
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2423	315	2370	241	2	1	C	B	15.7	B	15.2
SR-198 WB On Ramp from Road 156	Merge	2108	809	2129	926	2	1	C	C	24.2	C	25.3
SR-198 WB Off Ramp to Tower Street	Diverge	2917	298	3055	605	2	1	C	C	20.6	C	21.9
SR-198 WB On Ramp (loop) from Tower Street	Merge	2619	234	2450	182	2	1	C	C	23.9	C	22.0
SR-198 WB On Ramp from Tower Street	Merge	2853	165	2632	149	2	1	C	C	25.4	C	23.3
SR-198 WB Off Ramp to Lovers Lane	Diverge	3018	191	2781	300	2	1	C	C	25.6	C	23.3
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	**D**	**33.8**	C	27.0

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 3-55
Cumulative Year 2040 Plus Project With Tower Street Interchange
Alternative 2 Merge/Diverge Operations

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	C	25.0	**D**	**33.9**
SR-198 EB On Ramp from Lovers Lane	Merge	2309	384	2788	548	2	1	C	C	21.6	C	27.2
SR-198 EB Off Ramp to Tower Street	Diverge	2693	295	3336	568	2	1	C	C	20.4	C	26.7
SR-198 EB On Ramp (loop) from Tower Street	Merge	2398	108	2768	132	2	1	C	C	20.1	C	23.6
SR-198 EB On Ramp from Tower Street	Merge	2506	203	2900	131	2	1	C	C	21.9	C	24.8
SR-198 EB Off Ramp to Road 156	Diverge	2709	301	3031	530	2	1	C	B	19.4	C	22.6
SR-198 EB On Ramp from Road 156	Merge	2408	161	2501	281	2	1	C	C	23.6	C	25.4
Westbound												
SR-198 WB Off Ramp to Road 156	Diverge	2423	315	2370	241	2	1	C	B	15.7	B	15.2
SR-198 WB On Ramp from Road 156	Merge	2108	616	2129	568	2	1	C	C	22.5	C	22.3
SR-198 WB Off Ramp to Tower Street	Diverge	2724	105	2697	247	2	1	C	B	18.7	B	18.4
SR-198 WB On Ramp (loop) from Tower Street	Merge	2619	234	2450	182	2	1	C	C	23.9	C	22.0
SR-198 WB On Ramp from Tower Street	Merge	2853	165	2632	149	2	1	C	C	25.4	C	23.3
SR-198 WB Off Ramp to Lovers Lane	Diverge	3018	191	2781	300	2	1	C	C	25.6	C	23.3
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	**D**	**33.8**	C	27.0

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

4.0 Mitigation

As discussed in Section 3.0 Impacts, the potentially significant impacts resulting from the Project relate to the generation of unacceptable LOS at various intersections and road segments both in the near term and long term. Described below are recommended improvements at study area intersections and segments for various scenarios that would in most cases mitigate the potential significant impacts to acceptable levels of service and thereby reduce the impact to less than significant. It should be noted that statements of significance for the improvements identified below are related to Project impacts. In certain scenarios, recommended mitigation will not fully mitigate significant impacts to less than significant but will reduce impacts as much a reasonable/feasible; these impacts are thus described as Unavoidable. In accordance with CEQA, the City will need to adopt findings in support of a Statement of Overriding Considerations if it approves the Project despite these unavoidable impacts.

The existing roadway network can be mitigated to ease many of the impacts of the Project and projected future traffic through the year 2040. The Project will be required to contribute a fair-share towards the costs of improvements that are identified for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios. The intent of determining the equitable responsibility for the improvements identified below for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios, is to provide a starting point for early discussions between the City and Caltrans to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts, in particular, for those that come about if/when the Tower Street Interchange is built by Caltrans.

4.1 Existing Plus Project (Full Build Out) Mitigation Measures

4.1.1 *Intersections*

MM TR-1. Lovers Lane at Mineral King Avenue

- Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
- Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)

The improvements identified above for the Existing Plus Project (Full Build Out) scenario is sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-1.

MM TR-2. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
- Widen the eastbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)
- Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The intersection is forecasted to operate at unacceptable levels of service under the Existing Plus Project scenario despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-2.

Post-Mitigation Level of Service

The level of service resulting from the potential improvements identified above is shown in Table 4-1.

Table 4-1
Existing Plus Project Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	EXISTING PLUS PROJECT		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	47.1	D	Less than significant
		PM	41.1	D	
SR 198 WB Ramps / Mineral King Avenue	D	AM	**>50.0**	**F***	Significant and unavoiable
		PM	**>50.0**	**F***	

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

* With all reasonable improvements considered, the intersection does not meet the target LOS.

4. 2 Near-Term (Year 2018) Mitigation Measures

4.2.1 *Intersections*

MM TR-3. Lovers Lane at Mineral King Avenue

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-1

The improvements identified above for the Near-Term Opening Year 2018 Without Project, and Near-Term Opening Year 2018 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-3.

MM TR-4. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-2

The intersection is forecasted to operate at unacceptable levels of service under the Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. It should be noted that the intersection operates at LOS 'F' conditions under Existing conditions. The improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-4.

Post-Mitigation Level of Service

The level of service resulting from the potential improvements identified above is shown in Table 4-2.

Table 4-2
Near-Term (Year 2018) Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	NEAR-TERM OPENING YEAR 2018 WITHOUT PROJECT		NEAR-TERM OPENING YEAR 2018 PLUS PROJECT		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	44.5	D	45.7	D	Less than significant
		PM	26.4	C	38.3	D	
SR 198 WB Ramps / Mineral King Avenue	D	AM	**>50.0**	**F***	**>50.0**	**F***	Significant and unavoiable
		PM	**>50.0**	**F***	**>50.0**	**F***	

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

* With all reasonable improvements considered, the intersection does not meet the target LOS.

4.3 Cumulative Year 2040 Mitigation Measures

4.3.1 *Intersections*

MM TR-5. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
  - Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-5.

MM TR-6. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 through lanes and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 2 left turn lanes and 1 right turn lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-6.

MM TR-7. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
  - Widen the eastbound approach to 1 through lane and 1 right turn lane with overlap phasing (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-7.

MM TR-8. McAuliff Street and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 1 through and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-8.

MM TR-9. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the southbound approach to 1 left turn and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The intersection is forecasted to operate at unacceptable level of service 'E' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. However, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization.

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-9.

MM TR-10. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-10.

MM TR-11. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-11.

MM TR-12. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-12.

MM TR-13. SR 198 WB Off Ramp and Mineral King Avenue (between Road 156 and Road 158)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 2 through lanes (adding 1 through lane)

The intersection is forecasted to operate at unacceptable level of service 'D' in the AM peak hour under the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios despite the improvements recommended above. The projected volumes at the intersection satisfy peak hour signal warrants and a traffic signal would alleviate level of service deficiencies. However, this intersection is less than 200 feet from the Road 156 and Mineral King Avenue intersection and is not recommended for signalization.

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-13.

4.3.2 *Roadway Segments*

MM TR-14. Road 156

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  South of Noble Avenue
  - Widen the segment from 2 to 4 travel lanes (adding 1 travel lane in each direction)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-14.

4.3.3 *SR 198 Ramp Junctions*

MM TR-15. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-15.

MM TR-16. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the westbound movement (adding 1 travel lane)

The improvements identified above for the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-16.

4.3.4 *Queuing*

MM TR-17. Lovers Lane and Houston Avenue (SR 216)

- In the southbound left-turn lane, lengthen the storage pocket from 225 feet to 300 feet.

The Project's impact is considered less than significant with incorporation of MM TR-17.

MM TR-18. Lovers Lane and Mineral King Avenue

- In the northbound left-turn lane, lengthen the storage pocket from 100 feet to 325 feet.
- In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

The Project's impact is considered less than significant with incorporation of MM TR-18.

MM TR-19. Lovers Lane and SR 198 EB Ramps

- In the eastbound left-turn lane, lengthen the storage pocket from 225 feet to 375 feet.

The Project's impact is considered less than significant with incorporation of MM TR-19.

MM TR-20. Lovers Lane and Noble Avenue

- In the eastbound left-turn lane, lengthen the storage pocket from 125 feet to 275 feet.

The Project's impact is considered less than significant with incorporation of MM TR-20.

MM TR-21. McAuliff Street and Houston Avenue (SR 216)

- In the northbound left-turn lane, lengthen the storage pocket from 150 feet to 300 feet.

The Project's impact is considered less than significant with incorporation of MM TR-21.

MM TR-22. McAuliff Street and Mineral King Avenue

- In the southbound right-turn lane, lengthen the storage pocket from 250 feet to 300 feet.
- In the eastbound left-turn lane, lengthen the storage pocket from 200 feet to 275 feet.
- In the westbound right-turn lane, provide 300-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-22.

MM TR-23. Road 152 and Mineral King Avenue

- In the southbound right-turn lane, provide 125-foot storage pocket.
- In the eastbound left-turn lane, provide 100-foot storage pocket.
- In the westbound right-turn lane, provide 125-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-23.

MM TR-24. SR 198 EB Ramps and Noble Avenue

- In the westbound right-turn lane, provide 125-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-24.

MM TR-25. Road 156 and Noble Avenue

- In the northbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the eastbound right-turn lane, provide 150-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-25.

MM TR-26. Tower Street and Houston Avenue (SR 216)

- In the northbound left-turn lane, provide 200-foot storage pocket.
- In the northbound right-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-26.

MM TR-27. Tower Street and McKinley Avenue-Project Driveway #2

- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-27.

MM TR-28. Tower Street and Race Avenue

- In the northbound left-turn lane, provide 100-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-28.

MM TR-29. Tower Street and Murray Avenue

- In the northbound left-turn lane, provide 250-foot storage pocket.
- In the southbound right-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-29.

MM TR-30. Tower Street and Villoy Avenue-Project Driveway #1

- In the northbound left-turn lane, provide 150-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-30.

MM TR-31. Tower Street and Villoy Avenue-Project Driveway #1

- In the southbound left-turn lane, provide 250-foot storage pocket.
- In the eastbound left-turn lane, provide 175-foot storage pocket.

The Project's impact is considered less than significant with incorporation of MM TR-31.

Post-Mitigation Level of Service

The level of service resulting from the potential improvements identified above is shown in Table 4-3 for study area intersections, Table 4-4 for study segments, and Tables 4-5 and 4-6 for freeway facilities. Tables 4-7 and 4-8 identifies left turn and right turn pocket lengths required for the Cumulative Year 2040 Plus Project scenario. The determination of the recommended storage length was determined by the queuing analysis and recommendations of storage lengths found in Chapter 400 of Caltrans' Highway Design Manual. The left turn and right turn pocket length do not include deceleration lengths.

Table 4-3
Cumulative Year 2040 Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	61.1	E	67.1	E	Less than significant
		PM	44.8	D	51.9	D	
Lovers Lane / SR 198 EB Ramps	C	AM	29.8	C	30.3	C	Significant and unavoiable
		PM	**41.5**	**D***	**47.3**	**D***	
SR 198 WB Ramps / Mineral King Avenue	D	AM	36.6	D	47.1	D	Less than significant
		PM	30.7	C	40.4	D	
McAuliff Street / Mineral King Avenue	D	AM	21.0	C	22.9	C	Less than significant
		PM	23.8	C	27.1	D	
Road 152 / Mineral King Avenue	D	AM	**36.7**	**E***	**38.4**	**E***	Significant and unavoiable
		PM	23.1	C	25.7	D	
Noble Avenue / SR 198 EB Ramps	C	AM	16.9	B	17.2	B	Less than significant
		PM	20.0	B	20.1	C	
Road 156 / Mineral King Avenue	D	AM	42.8	D	42.9	D	Less than significant
		PM	41.0	D	41.3	D	
Road 156 / Noble Avenue	D	AM	48.6	D	49.3	D	Less than significant
		PM	50.3	D	51.5	D	
SR 198 WB Off-Ramp / Mineral King Avenue	C	AM	**27.8**	**D***	**28.5**	**D***	Significant and unavoiable
		PM	20.6	C	22.1	C	

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

* With all reasonable improvements considered, the intersection does not meet the target LOS.

Table 4-4
Cumulative Year 2040 Segment Operations with Mitigation

STREET SEGMENT	SEGMENT DESCRIPTION	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040 PLUS PROJECT			LEVEL OF SIGNIFICANCE WITH MITIGATION
			VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS	
Road 156									
South of Noble Avenue	4 Lanes Undivided	33,830	17,100	0.51	C	17,200	0.51	C	Less than significant

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 4-5
Cumulative Year 2040 Without Project Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3377	952	4299	1407	2	1	C	B	17.9	C	23.7
Westbound												
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1219	2523	686	2	1	C	C	25.2	B	19.4

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 4-6
Cumulative Year 2040 Plus Project Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour		Level Of Significance With Mitigation
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]	
Eastbound													
SR-198 EB Off Ramp to Lovers Lane	Diverge	3389	964	4345	1453	2	1	C	B	18.0	C	24.1	Less than significant
Westbound													
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1225	2523	715	2	1	C	C	25.3	B	19.7	Less than significant

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 4-7
Left Turn and Right Turn Storage Requirements

INTERSECTION	EXISTING STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 PLUS PROJECT RECOMMENDED STORAGE LENGTH (ft) [1]	LEVEL OF SIGNIFICANCE WITH MITIGATION
Lovers Lane / Houston Avenue (SR 216)	NB Left	325	325	Less than significant
	NB Right	300	300	
	SB Left	225	**300**	
	EB Left	200	200	
	EB Right	200	200	
	WB Left	2 @ 375	2 @ 375	
	WB Right	325	325	
Lovers Lane / Mineral King Avenue	NB Left	100	**325**	Less than significant
	SB Left	175	**2 @ 225**	
	EB Left	150	150	
	WB Left	150	**325**	
Lovers Lane / SR 198 EB Ramps	SB Left	75	75	Less than significant
	EB Left	225	**2 @ 375**	
Lovers Lane / Noble Avenue	NB Left	125	125	Less than significant
	SB Left	100	100	
	EB Left	125	**275**	
	WB Left	125	125	
McAuliff Street / Houston Avenue (SR 216)	NB Left	150	**300**	Less than significant
	NB Right	125	125	
	SB Left	200	200	
	SB Right	200	200	
	EB Left	2 @ 375	2 @ 375	
	EB Right	200	200	
	WB Left	375	375	
	WB Right	375	375	
McAuliff Street / Mill Creek Parkway	EB Left	100	100	
	EB Right	100	50	
McAuliff Street / Mineral King Avenue	SB Left	250	225	Less than significant
	SB Right	250	**300**	
	EB Left	200	**275**	
	WB Right	--	**300**	
Road 152 / Mineral King Avenue	SB Right	--	**125**	Less than significant
	EB Left	--	**100**	
	WB Right	--	**125**	
SR 198 EB Ramps / Noble Avenue	WB Right	--	**175**	Less than significant
Road 156 / Mineral King Avenue	NB Left	125	2 @ 125	
	EB Left	50	50	
	EB Right	--	100	
	WB Left	125	125	
Road 156 / Noble Avenue	NB Left	175	**2 @ 225**	Less than significant
	SB Left	150	150	
	EB Left	350	350	
	EB Right	--	**150**	
	WB Left	325	325	

1 - Storage length does not include deceleration length requirement
Bold denotes impacted turning movement

Table 4-8
Tower Street Left Turn and Right Turn Storage Requirements

INTERSECTION	EXISTING QUEUE STORAGE LENGTH (ft)		CUMULATIVE YEAR 2040 PLUS PROJECT RECOMMENDED STORAGE LENGTH (ft) [1]	LEVEL OF SIGNIFICANCE WITH MITIGATION
Tower Street / Houston Avenue (SR 216)	NB Left	--	200	Less than significant
	NB Right	--	100	
Tower Street / McKinley Ave-Project Driveway #2	SB Left	--	100	Less than significant
Tower Street / Race Avenue	NB Left	--	100	Less than significant
	SB Left	--	100	
Tower Street / Murray Avenue	NB Left	--	250	Less than significant
	SB Right	--	100	
Tower Street / Villoy Avenue-Project Driveway #1	NB Left	--	150	Less than significant
	SB Left	--	100	
Tower Street / Mineral King Avenue	SB Left	--	250	Less than significant
	EB Left	--	175	

1 - Storage length does not include deceleration length requirement

4.4 Cumulative Year 2040 With Tower Street Interchange Mitigation Measures

4.4.1 *Intersections*

MM TR-32. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-5

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-32.

MM TR-33. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-6

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-33.

MM TR-34. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-7

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange

scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. Should Caltrans determine that this intersection cannot be signalized due to inadequate spacing, the intersection would continue to operate at LOS 'F' conditions. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-34.

MM TR-35. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-9

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-35.

MM TR-36. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-10

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-36.

MM TR-37. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-11

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-11.

MM TR-38. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-12

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-38.

MM TR-39. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-39.

Special Event Traffic Impacts

As noted in Section 3.1, the Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities that could occur as a special event (e.g. concerts, tournaments, weddings). Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation, and representative of a "worst case" example. The following scenario was agreed upon to represent special event traffic for worst-case analysis purposes:

1. Amphitheater weekday evening event at full capacity (all 1,500 seats filled)

2. Typical weekday evening activity for all other park uses

The Project Driveway #1 at Tower Street will exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange scenario. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

MM TR-40. Tower Street at Villoy Avenue-Project Driveway #1

- Cumulative Year 2040 Plus Project With Tower Street Interchange scenario:
  - Install Traffic Signal

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-40.

4.4.2 *Roadway Segments*

MM TR-41. Road 156

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios: *South of Noble Avenue*
  - Implementation of MM TR-14

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-41.

4.4.3 *SR 198 Ramp Junctions*

MM TR-42. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-15

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-42.

MM TR-43. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-16

The improvements identified above for the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-43.

Post-Mitigation Level of Service

The level of service resulting from the potential improvements identified above is shown in Tables 4-9, 4-10, and 4-11 for study area intersections, Table 4-12 for study segments, and Tables 4-13 and 4-14 for freeway facilities.

Table 4-9
Cumulative Year 2040 With Tower Street Interchange
Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	35.2	D	36.2	D	Less than significant
		PM	30.6	C	31.4	C	
Lovers Lane / SR 198 EB Ramps	C	AM	25.6	C	25.6	C	Significant and unavoiable
		PM	**50.1**	**D***	**51.7**	**D***	
SR 198 WB Ramps / Mineral King Avenue	D	AM	24.7	C	24.7	C	Less than significant
		PM	29.5	C	29.2	C	
Road 152 / Mineral King Avenue	D	AM	32.6	D	33.2	D	Less than significant
		PM	27.8	D	29.5	D	
Noble Avenue / SR 198 EB Ramps	C	AM	16.6	B	16.6	B	Less than significant
		PM	19.5	B	19.5	B	
Road 156 / Mineral King Avenue	D	AM	41.7	D	41.9	D	Less than significant
		PM	36.5	D	36.6	D	
Road 156 / Noble Avenue	D	AM	44.4	D	44.5	D	Less than significant
		PM	52.5	D	53.3	D	

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

* With all reasonable improvements considered, the intersection does not meet the target LOS.

Table 4-10
Cumulative Year 2040 With Tower Street Interchange
Tower Street Intersection Operations with Mitigation

INTERSECTION	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		LEVEL OF SIGNIFICANCE WITH MITIGATION
		DELAY	LOS	DELAY	LOS	
Tower Street / Houston Avenue (SR 216)	AM	6.3	A	6.4	A	Less than significant
	PM	8.3	A	9.6	A	

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 4-11
Cumulative Year 2040 With Tower Street Interchange
Special Event Intersection Operations with Mitigation

INTERSECTION	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		LEVEL OF SIGNIFICANCE WITH MITIGATION
		DELAY	LOS	
SPECIAL EVENT OUTBOUND TRAFFIC				
Tower Street / Villoy Avenue-Project Driveway #1	PM	4.7	A	Less than significant

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 4-12
Cumulative Year 2040 With Tower Street Interchange
Segment Operations with Mitigation

STREET SEGMENT	SEGMENT DESCRIPTION	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE			LEVEL OF SIGNIFICANCE WITH MITIGATION
			VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS	
Road 156									
South of Noble Avenue	4 Lanes Undivided	33,830	16,000	0.47	C	16,100	0.48	C	Less than significant

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 4-13
Cumulative Year 2040 Without Project With Tower Street Interchange
Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [(1)]	Density [(2)]	LOS [(1)]	Density [(2)]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3149	852	4019	1277	2	1	C	B	16.4	C	22.0
Westbound												
SR-198 WB On Ramp from Lovers Lane	Merge	2818	1009	2452	564	2	1	C	C	23.7	B	18.0

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 4-14
Cumulative Year 2040 Plus Project With Tower Street Interchange
Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour		Level Of Significance With Mitigation
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [(1)]	Density [(2)]	LOS [(1)]	Density [(2)]	
Eastbound													
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	B	16.5	C	22.3	Less than significant
Westbound													
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	C	23.8	B	18.2	Less than significant

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

4.5 Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Mitigation Measures

Alternative 1 encompasses the elimination of Mineral King Avenue from Tower Street to Road 152 for the Cumulative Year 2040 Plus Project With Tower Street Interchange Scenario. Alternative 2 considers a full access intersection at Tower Street and Project Driveway #1 for the Cumulative Year 2040 Plus Project With Tower Street Interchange Scenario.

4.5.1 *Intersections*

MM TR-44. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-5

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the improvements for the northbound, southbound, and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-44.

MM TR-45. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-6

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C' in the AM peak hour. However, the intersection is forecasted to operate at unacceptable level of service 'D' in the PM peak hour, which exceeds Caltrans' acceptable LOS standard of 'C'. No additional improvements are recommended given the close proximity of the existing SR-198 overpass. It should be noted that the improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered significant and unavoidable despite the improvements identified for MM TR-45.

MM TR-46. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-7

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. It should be noted that the SR 198 WB Ramps at Mineral King Avenue intersection is located approximately 450 feet east of the signalized Lovers Lane at Mineral King Avenue intersection. The intersection would continue to operate at LOS 'F' conditions should Caltrans determine that this intersection cannot be signalized due to inadequate spacing. The roadway improvements for the eastbound and westbound movements were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-46.

McAuliff Street and Murray Avenue
No improvements are recommended to achieve acceptable levels of service.

This intersection is forecasted to operate at unacceptable LOS 'E' in the PM peak hour under Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 conditions; however, this intersection does not meet the peak hour traffic signal warrant because the minor approach does not carry enough traffic to justify signalization. Therefore, no improvements are recommended for the Project's contribution of traffic at the intersection.

The Project's impact is considered significant and unavoidable.

MM TR-47. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario:
  - Implementation of MM TR-9

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-47.

MM TR-48. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-10

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-48.

MM TR-49. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-11

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-49.

MM TR-50. Road 156 and Noble Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-12

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-50.

MM TR-51. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-39

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'.

The Project's impact is considered less than significant with incorporation of MM TR-51.

Special Event Traffic Impacts

As noted in Section 3.1, the Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. Some of the activity associated with the individual uses at the Project site would be represented in the typical weekday and Saturday trip generation, while other activities could be considered special events. It is not practical to analyze traffic conditions for all of the various activities. Instead, one design event condition was selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation. The Project Driveway #1 at Tower Street will exceed acceptable levels of service for outbound traffic in the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario considering the traffic volumes shown in Figure 3-38b. Traffic desiring to make the westbound right out of the Project site is anticipated to experience LOS E conditions.

MM TR-52. Tower Street at Villoy Avenue-Project Driveway #1

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario:
  - Implementation of MM TR-40

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenario are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-52.

4.5.2 *Roadway Segments*

MM TR-53. Road 156

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  South of Noble Avenue
  - Implementation of MM TR-14

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street

Interchange – Alternative 2 scenarios are sufficient to meet the City of Visalia's acceptable LOS standard of 'D'.

The Project's impact is considered less than significant with incorporation of MM TR-53.

4.5.3 *SR 198 Ramp Junctions*

MM TR-54. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-15

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-54.

MM TR-55. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-16

The improvements identified above for the Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios are sufficient to meet Caltrans' acceptable LOS standard of 'C'. The roadway improvements above were identified in Caltrans' SR 198 Corridor Study (September 2016).

The Project's impact is considered less than significant with incorporation of MM TR-55.

POST-MITIGATION LEVEL OF SERVICE

The level of service resulting from the potential improvements identified above is shown in Tables 4-15, 4-16, and 4-17 for study area intersections, Table 4-18 for study segments, and Tables 4-19 and 4-20 for freeway facilities.

Table 4-15
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	36.1	D	36.1	D	Less than significant
		PM	31.4	C	31.4	C	
Lovers Lane / SR 198 EB Ramps	C	AM	25.6	C	25.6	C	Significant and unavoiable
		PM	**51.7**	**D***	**51.7**	**D***	
SR 198 WB Ramps / Mineral King Avenue	D	AM	24.7	C	24.7	C	Less than significant
		PM	29.2	C	29.2	C	
McAuliff Street / Murray Avenue	D	AM	16.9	C			Significant and unavoiable
		PM	**37.4**	**E***			
Road 152 / Mineral King Avenue	D	AM			33.2	D	Less than significant
		PM			29.5	D	
Noble Avenue / SR 198 EB Ramps	C	AM	20.0	C	16.6	B	Less than significant
		PM	30.9	C	19.5	B	
Road 156 / Mineral King Avenue	D	AM	43.1	D	39.6	D	Less than significant
		PM	42.1	D	36.0	D	
Road 156 / Noble Avenue	D	AM	40.1	D	40.6	D	Less than significant
		PM	51.5	D	53.3	D	

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

* With all reasonable improvements considered, the intersection does not meet the target LOS.

Table 4-16
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2
Tower Street Intersection Operations with Mitigation

INTERSECTION	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 2		LEVEL OF SIGNIFICANCE WITH MITIGATION
		DELAY	LOS	DELAY	LOS	
Tower Street / Houston Avenue (SR 216)	AM	6.6	A	6.4	A	Less than significant
	PM	12.5	B	9.6	A	

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 4-17
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1
Special Event Intersection Operations with Mitigation

INTERSECTION	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1		LEVEL OF SIGNIFICANCE WITH MITIGATION
		DELAY	LOS	
SPECIAL EVENT OUTBOUND TRAFFIC				
Tower Street / Villoy Avenue-Project Driveway #1	PM	0.6	A	Less than significant

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

Table 4-18
Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Segment Operations with Mitigation

STREET SEGMENT	SEGMENT DESCRIPTION	CAPACITY[1]	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2			LEVEL OF SIGNIFICANCE WITH MITIGATION
			VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS	
Road 156									
South of Noble Avenue	4 Lanes Undivided	33,830	16,100	0.48	C	16,100	0.48	C	Less than significant

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 4-19
Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour		Level Of Significance With Mitigation
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [(1)]	Density [(2)]	LOS [(1)]	Density [(2)]	
Eastbound													
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	B	16.5	C	22.3	Less than significant
Westbound													
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	C	23.8	B	18.2	Less than significant

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 4-20
Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour		Level Of Significance With Mitigation
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [(1)]	Density [(2)]	LOS [(1)]	Density [(2)]	
Eastbound													
SR-198 EB Off Ramp to Lovers Lane	Diverge	3161	852	4065	1277	2	1	C	B	16.5	C	22.3	Less than significant
Westbound													
SR-198 WB On Ramp from Lovers Lane	Merge	2827	1009	2481	564	2	1	C	C	23.8	B	18.2	Less than significant

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

4.6 Equitable Fair-Share Responsibility

The Project will be required to build MM TR-1, TR-2, TR-3 and TR-4 improvements that are identified in Sections 4.1 and 4.2 above, for the 'Existing Plus Project' and 'Near-Term Opening Year 2018 Plus Project' conditions to improve identified LOS deficiencies.

In addition to MM TR-1, TR-2, TR-3 and TR-4 discussed above, the proposed Project will also be required to contribute its calculated "fair-share" towards the costs of improvements that are identified for the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios. The intent of determining the equitable responsibility for the improvements identified above for the Cumulative Year 2040 scenarios, is to provide a starting point for early discussions between the City and Caltrans to address traffic mitigation equitability and to calculate the equitable share for mitigating traffic impacts, in particular, for those that come about if/when the Tower Street Interchange is built by Caltrans.

The formulas used to calculate the equitable share responsibility to City of Visalia and Caltrans facilities is as follows:

Equitable Share = (Project Trips)/(Cumulative Year 2040 Plus Project Traffic – Existing Traffic)

Tables 4-21, 4-22, 4-23 and 4-24 shows the City's equitable fair share responsibility on a percentage basis for improvements to City of Visalia and Caltrans facilities as described above. The equitable fair share responsibility shown in Tables 4-21, 4-22, 4-23 and 4-24 is the result of LOS enhancements related to capacity.

Table 4-21
Cumulative Year 2040 Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	41	4,421	3.0%
	PM	2,837	164	4,245	11.6%
Lovers Lane / SR 198 EB Ramps	AM	2,658	37	3,893	3.0%
	PM	2,759	147	4,177	10.4%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	45	2,203	8.2%
	PM	1,334	186	2,030	26.7%
McAuliff Street / Mineral King Avenue	AM	1,026	45	1,582	8.1%
	PM	820	186	1,724	20.6%
Road 152 / Mineral King Avenue	AM	647	16	1,168	3.1%
	PM	440	62	1,151	8.7%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	3	896	0.6%
	PM	536	13	1,236	1.9%
Road 156 / Mineral King Avenue	AM	999	16	1,747	2.1%
	PM	900	62	1,708	7.7%
Road 156 / Noble Avenue	AM	770	11	1,842	1.0%
	PM	911	42	2,300	3.0%
SR 198 WB Off Ramp / Mineral King Avenue (between Road 156 and Road 158)	AM	631	5	1,036	1.2%
	PM	601	20	935	6.0%
Tower Street / Houston Avenue (SR 216)	AM	283	17	621	5.0%
	PM	269	64	638	17.3%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	17,200	0.9%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	24	4,353	1.5%
	PM	3,649	92	5,798	4.3%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	4,001	0.5%
	PM	2,101	29	3,238	2.6%

Table 4-22
Cumulative Year 2040 With Tower Street Interchange
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,081	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,734	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Road 152 / Mineral King Avenue	AM	647	11	1,035	2.8%
	PM	440	39	1,186	5.2%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	701	0.0%
	PM	536	0	1,091	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,709	0.9%
	PM	911	29	2,153	2.3%
Tower Street / Houston Avenue (SR 216)	AM	283	17	935	2.6%
	PM	269	64	1,385	5.7%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,001	1.7%
	PM	3,649	78	5,296	4.7%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,712	0.6%
	PM	2,101	29	3,038	3.1%

Table 4-23
Cumulative Year 2040 With Tower Street Interchange – Alternative 1
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 1	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,080	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,733	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	915	0.0%
	PM	536	0	1,359	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,816	0.8%
	PM	911	29	2,287	2.1%
Tower Street / Houston Avenue (SR 216)	AM	283	17	1,075	2.1%
	PM	269	64	1,539	5.0%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,013	1.7%
	PM	3,649	78	5,342	4.6%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,721	0.6%
	PM	2,101	29	3,067	3.0%

Table 4-24
Cumulative Year 2040 With Tower Street Interchange – Alternative 2
Equitable Fair-Share Responsibility

INTERSECTION	PEAK HOUR	EXISTING	PROJECT TRIPS	CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE - ALTERNATIVE 2	PROJECT'S FAIR SHARE PERCENTAGE
Lovers Lane / Mineral King Avenue	AM	3,038	8	4,081	0.8%
	PM	2,837	31	3,806	3.2%
Lovers Lane / SR 198 EB Ramps	AM	2,658	12	3,734	1.1%
	PM	2,759	46	3,926	3.9%
SR 198 WB Ramps / Mineral King Avenue (between Lovers Lane and McAuliff Street)	AM	1,653	3	1,667	21.4%
	PM	1,334	14	1,389	25.5%
Road 152 / Mineral King Avenue	AM	647	11	1,035	2.8%
	PM	440	39	1,186	5.2%
Noble Avenue / SR 198 EB Ramps (between Road 152 and Road 156)	AM	371	0	701	0.0%
	PM	536	0	1,091	0.0%
Road 156 / Mineral King Avenue	AM	999	11	1,482	2.3%
	PM	900	39	1,495	6.6%
Road 156 / Noble Avenue	AM	770	8	1,709	0.9%
	PM	911	29	2,153	2.3%
Tower Street / Houston Avenue (SR 216)	AM	283	17	935	2.6%
	PM	269	64	1,385	5.7%
ROADWAY SEGMENTS					
Road 156					
South of Noble Avenue	ADT	6,100	100	16,100	1.0%
SR 198 RAMPS					
Lovers Lane					
SR 198 EB Off Ramp to Lovers Lane	AM	2,777	21	4,001	1.7%
	PM	3,649	78	5,296	4.7%
SR 198 WB On Ramp from Lovers Lane	AM	2,715	6	3,712	0.6%
	PM	2,101	29	3,038	3.1%

APPENDIX A

Trip Generation and Assumptions Memorandum
Intersection Control Evaluation (ICE) Memorandum

MEMORANDUM

DATE: February 21, 2017

TO: Caltrans, District 06: David Deel, Associate Transportation Planner

FROM: Erik Ruehr, P.E., Director of Traffic Engineering, VRPA Technologies, Inc.
Jason Ellard, Transportation Engineer, VRPA Technologies, Inc.

SUBJECT: East Side Regional Park and Groundwater Recharge Project Trip Generation Methodology

VRPA Technologies, Inc. (VRPA) is in the process of preparing a Traffic Impact Study (TIS) for the City of Visalia East Side Regional Park and Groundwater Recharge Project (Project). The proposed Project is bounded by Houston Avenue to the north, State Route 198 to the south, Road 152 to the East and the Tower Street (Road 148) alignment to the west. The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Engineering Division, have together acquired approximately 286 acres north of State Route 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 286-acre site will ultimately include a regional park, future freeway interchange improvements, street extension, and the development of groundwater recharge-basins and stormwater-layoff facilities, with a net area of approximately 239 acres for park (139 ac) and recharge basin (100 ac) use. The site is in the optimal location for the development of both groundwater recharge and stormwater-layoff basins as it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the proposed Project site; Mill Creek, Packwood Creek, and the Oakes Ditch. As a result, VRPA Technologies has prepared a memorandum that includes the trip generation for the proposed Project. The remainder of this memorandum includes sections that describe the project description, recommended trip generation, and alternative methodologies that were considered.

PROJECT DESCRIPTION

The 139-acre regional park mentioned above will include the following individual components, as shown in Figure 1:

- Four (4) lighted and fenced Adult Softball Fields (325’ to outfield)
- Four (4) lighted and fenced Youth Baseball Fields (225’ to outfield)
- Five (5) lighted full size Soccer Fields (210’ X 330’)
- Cricket Field
- Lighted Tennis Courts
- Lighted Pickleball Courts

- Lighted Full Basketball Court
- Amphitheater with seating capacity of 1,500
- Community Center Building (Approx. 30,000 sq.ft.)
- Various types of Regional Park amenities

RECOMMENDED TRIP GENERATION

Phase 1 of the Project

The 9th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual includes trip generation rates for a "Regional Park"; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. It is anticipated that the Project will be developed in two (2) phases. Phase 1 is depicted in Figure 2 and includes the following:

- Adult Softball Fields
- Youth Baseball Fields
- Soccer Fields
- Ancillary facilities (maintenance yard, cricket field basketball court, children's play area, and picnic area)

Organized adult softball games/practices will generally be held during the evening hours on weekdays with tournaments being held on most Saturdays and Sundays throughout the year. Youth Baseball will generally be held during the spring season (February to May), with playoff and all-star games occurring through the month of June. The 'Fall Ball' league occurs during the months of October and November, but is a very small league. Soccer leagues will be held primarily from August to December. However, adult soccer has three seasons per year and youth soccer has a couple of smaller spring leagues. It is anticipated that youth baseball and soccer would not be operating at the same time, but it is possible that the leagues could overlap. This information was provided by Project representatives.

Of the four (4) components listed above, Soccer Fields has a specific land use category listed in the ITE Trip Generation Manual. The softball fields and baseball fields were considered to generate trips similar to soccer fields. The considerations described above led to the recommended trip generation for weekday AM (7-9am) and PM (4-6pm) peak hours shown in Table 1.

In addition to the weekday AM (7-9am) and PM (4-6pm) peak hours, consideration was given to the Saturday peak hour. On Saturdays, traffic generated by the park recreational uses, peak around the 8am start time for most leagues. However, ambient traffic in the study area peaks during the mid-afternoon time period on Saturdays. Therefore, it is recommended that Saturday traffic be analyzed for the mid-afternoon peak hour. The ITE Trip Generation Manual includes trip generation rates for Saturday and Saturday peak hour conditions for the same land use categories as were analyzed for weekday AM (7-9am) and PM (4-6pm) peak hour conditions. This led to the recommended Saturday trip generation shown in Table 2. It should be noted that a swap meets operates on Thursdays and Sundays from 5:30am to 3:00pm adjacent to the southeast corner of the Project site. Traffic desiring to access the Project site from

Road 152/Mineral King Avenue for special events, tournaments, etc. may experience some delay due to swap meet traffic/operations. However, background or ambient traffic on a Sunday is generally lower than weekday or Saturday peak hour traffic.

Full Development of the Project

Trips associated with full development of the Project was also determined. The 9th Edition of the ITE Trip Generation Manual includes trip generation rates for a "Regional Park" as noted above; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. These included the following:

- Adult Softball Fields
- Youth Baseball Fields
- Soccer Fields
- Community Center

All other park uses were considered to be included in the overall regional park trip generation rate. Of the four (4) park components listed above, Soccer Fields and Community Center had a specific land use category listed in the ITE Trip Generation Manual. The softball fields and baseball fields were considered to generate trips similar to soccer fields. Since the special uses listed above were analyzed using their own trip generation rates, the acreage of these uses was subtracted out of the total 139 acres, leaving approximately 67.5 acres to be used to generate trips for the remainder of the park. The considerations described above led to the recommended trip generation for weekday AM (7-9am) and PM (4-6pm) peak hours shown in Table 3.

In addition to the weekday AM and PM peak hours, consideration was given to Saturdays and special events. Saturday traffic and special event traffic would be expected to occur outside the typical weekday AM and PM peak hours for non-park traffic. For that reason, it is recommended that the analysis of Saturday and special event traffic be limited to the following locations:

- Tower Street/Regional Park North Access Driveway
- Tower Street/Regional Park South Access Driveway
- SR 198 Westbound Ramps/Tower Street
- SR 198 Eastbound Ramps/Tower Street

On Saturdays, traffic generated by the park recreational uses, peak around the 8am start time for most leagues. However, ambient traffic in the study area peaks during the mid-afternoon time period on Saturdays.. Therefore, it is recommended that Saturday traffic be analyzed for the mid-afternoon peak hour. The ITE Trip Generation Manual includes trip generation rates for Saturday weekday and Saturday peak hour conditions for the same land use categories as were analyzed for weekday AM and PM peak hour conditions. This led to the recommended Saturday trip generation shown in Table 4. It should be noted that a swap meets operates on Thursdays and Sundays from 5:30am to 3:00pm adjacent to the southeast corner of the Project site. Traffic desiring to access the Project site from Road 152/Mineral King Avenue for special events, tournaments, etc. may experience some delay due to swap meet traffic/operations. However, background or ambient traffic on a Sunday is generally lower than weekday

or Saturday peak hour traffic.

The Project includes a large number of specialized land uses, each with their own individualized travel patterns and trip generation characteristics. In order to gain an understanding of the individual uses, VRPA staff participated in a meeting on February 11, 2016 that included various members of the Project Team and City staff members who had knowledge of the individual activities that would be expected to occur on the Project site. Some of the activity associated with these individual uses would be represented in the typical weekday and Saturday trip generation described above, while other activities could be considered to be special events. It is not practical to analyze traffic conditions for all of the various activities. Instead, it is recommended that one design event condition be selected that would occur often enough to justify analysis of traffic conditions and consideration of impacts and mitigation.

After consideration of the discussion at the February 11, 2016 meeting and additional follow-up discussion with City staff members, it is recommended that the following scenario be analyzed to represent special event traffic:

- Amphitheater weekday evening event at full capacity (all 1,500 seats filled)

- Typical weekday evening activity for all other park uses

In order to analyze this scenario, the following assumptions were made:

- It was considered important to analyze both inbound traffic conditions prior to the amphitheater event and outbound traffic conditions after the event

- Information from the *2009 National Household Travel Survey Average Vehicle Occupancy Rate for Social and Recreational Purposes* was used to estimate trips associated with the 1,500-seat amphitheater. This survey showed a total combined vehicle occupancy of 2.21 persons per vehicle for recreational purposes, which is equivalent to a trip generation rate of 0.45 trips per seat. Trips were assumed to be 95% inbound for the inbound event condition and 95% outbound for the outbound event condition

- Trip generation for the remainder of the Project site was assumed to be the same as the weekday PM (4-6pm) peak hour for the rest of the park uses. The assumption was that there would typically be a relatively steady level of traffic during the evening for the remainder of the park

- Although hours could vary, for traffic analysis purposes it was assumed that the inbound peak hour would occur from 6 PM to 7PM and the outbound peak hour would occur from 8 PM to 9 PM. While typical amphitheater events would be expected to last more than an hour, the time period for the outbound peak hour is considered to be a conservative assumption since prevailing traffic on local roadways would tend to decrease at later hours in the evening

This led to the recommended trip generation shown in Table 5.

East Side Regional Park & Groundwater Recharge Facility EIR

Project Components

Figure 1

East Side Regional Park & Groundwater Recharge Facility EIR

Phase 1 Boundary

Figure 2

Table 1
ITE East Side Regional Park Phase 1 Weekday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Adult Softball Fields, Youth Baseball Fields and Soccer Fields (488)	13 Fields	71.33	927	1.12	57:43	9	6	15	17.70	67:33	154	76	230
TOTAL TRIP GENERATION			**927**			**9**	**6**	**15**			**154**	**76**	**230**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

Table 2
ITE East Side Regional Park Phase 1 Saturday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		SATURDAY PEAK HOUR OF GENERATOR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	117.43	1,527	T = 37.04(X) - 75.92	48:52	195	211	406
TOTAL TRIP GENERATION			**1,527**			**195**	**211**	**406**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.
Trip ends are one-way traffic movements, entering or leaving.
The numbers in parenthesis are ITE land use codes.

Table 3

ITE East Side Regional Park Weekday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Regional Park (417)	67.5 acres	4.57	308	0.04 [1]	61:39 [2]	2	1	3	0.20	45:55	6	8	14
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	71.33	927	1.12	57:43	9	6	15	17.70	67:33	154	76	230
Community Center (495)	30,000 sq. ft.	33.82	1,015	2.05	66:34	41	21	62	2.74	49:51	40	42	82
TOTAL TRIP GENERATION			**2,250**			**52**	**28**	**80**			**200**	**126**	**326**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1 Trip Rate based on AM/PM Peak hour ratio of Land Use 412 (County Park)
Calculation - County Park AM Trip Rate (0.02) / County Park PM Trip Rate (0.09) = 0.22 X Regional Park PM Trip Rate (0.2) = .04

2 In/Out Split based on AM Peak hour for Land Use 412 (County Park)

Table 4

ITE East Side Regional Park Saturday Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		SATURDAY PEAK HOUR OF GENERATOR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL
Regional Park (417)	67.5 acres	5.65	381	0.34	48:52	11	12	23
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	117.43	1,527	T = 37.04(X) - 75.92	48:52	195	211	406
Community Center (495)	30,000 sq. ft.	9.10	273	1.07	54:46	17	15	32
TOTAL TRIP GENERATION			**2,181**			**223**	**238**	**461**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

Table 5
ITE East Side Regional Park Weekday Trip Generation with Special Event Traffic

LAND USE	Quantity	WEEKDAY SPECIAL EVENT INBOUND TRAFFIC					WEEKDAY SPECIAL EVENT OUTBOUND TRAFFIC				
		RATE [2]	IN:OUT SPLIT	VOLUME			RATE [2]	IN:OUT SPLIT	VOLUME		
				IN	OUT	TOTAL			IN	OUT	TOTAL
Regional Park (417)	67.5 acres	0.20	45:55	6	8	14	0.20	45:55	6	8	14
Adult Softball Fields, Youth Baseball Fields, and Soccer Fields (488)	13 Fields	17.70	67:33	154	76	230	17.70	67:33	154	76	230
Community Center (495)	30,000 sq. ft.	2.74	49:51	40	42	82	2.74	49:51	40	42	82
Special Event Traffic [1] (Amphitheater)	1,500 Seats	0.45	95:5	641	34	675	0.45	5:95	34	641	675
TOTAL TRIP GENERATION				**841**	**160**	**1,001**			**234**	**767**	**1,001**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1 Although hours could vary, for traffic analysis purposes it was assumed that the inbound peak hour would occur from 6 PM to 7PM and the outbound peak hour would occur from 8 PM to 9 PM. While typical amphitheater events would be expected to last more than an hour, the time period for the outbound peak hour is considered to be a conservative assumption since prevailing traffic on local roadways would tend to decrease at later hours in the evening

2 PM peak hour trip rate for Land Use 417, 488, and 495 assumed to be equal to typical 4 - 6pm peak hour trip rate.

ALTERNATIVE TRIP GENERATION METHODOLOGIES CONSIDERED

Table 6 provides estimated Daily and AM and PM Peak hour trips for the 139-acre Regional Park considering ITE's "Regional Park" land use only. As shown in Table 6, the estimated traffic generation for the 139-acre Regional Park site is 635 Daily trips, 36 AM Peak hour trips, and 28 PM Peak hour trips. The regional parks surveyed for purposes of developing ITE's "Regional Park" trip generation rates included a number of facilities such as hiking trails, lakes, pools, ball fields, soccer fields, camp sites, picnic facilities, and office space, which from all appearances are consistent with the proposed Project. However, with the diverse number of activities proposed for the Project site, it would be expected to generate trips at a higher level than would occur at the typical regional parks included in the ITE Manual.

In searches for trip generation for regional parks, one other potential source was located. Table 7 provides estimated Daily and AM and PM Peak hour trips for the 139-acre East Side Regional Park and Groundwater Recharge Project considering San Diego Association of Government's (SANDAG) *Vehicular Traffic Generation Rates* for a "Regional Park". As shown in Table 7, the estimated traffic generation for the 139-acre Regional Park site is 2,780 Daily trips, 111 AM Peak hour trips, and 222 PM Peak hour trips. Sixteen (16) regional parks in the San Diego County area were surveyed for purposes of developing SANDAG's "Regional Park" trip generation rates. However, after review of the study sites, it was determined that the uses counted in the SANDAG rate included Cabrillo National Monument, state beaches, and Balboa Park (a City Park with museums, restaurants, and other indoor attractions). Therefore, the SANDAG regional park trip generation rate is considered to include tourist destinations that are not representative of the proposed Project.

It should be noted that the recommended trip generation is higher than the ITE Manual trip generation rate for regional parks and lower than the SANDAG trip generation rate for regional parks.

Table 6
ITE Regional Park Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR					WEEKDAY PM PEAK HOUR				
		RATE	VOLUME	RATE	IN:OUT SPLIT	VOLUME			RATE	IN:OUT SPLIT	VOLUME		
						IN	OUT	TOTAL			IN	OUT	TOTAL
Regional Park (417)	139 acres	4.57	635	0.26 [1]	56:44 [2]	20	16	36	0.20	45:55	13	15	28
TOTAL TRIP GENERATION			**635**			**20**	**16**	**36**			**13**	**15**	**28**

Source: Generation factors from ITE Trip Generation Manual, 9th Edition.

Trip ends are one-way traffic movements, entering or leaving.

The numbers in parenthesis are ITE land use codes.

1 Trip Rate based on AM/PM Peak hour ratio of Land Use 411 (City Park)
Calculation - City Park AM Trip Rate (4.5) / City Park PM Trip Rate (3.5) = 1.29 X Regional Park PM Trip Rate (0.2) = .26

2 In/Out Split based on AM Peak hour for Land Use 411 (City Park)

Table 7
SANDAG Regional Park Trip Generation

LAND USE	Quantity	DAILY TRIP ENDS (ADT)		WEEKDAY AM PEAK HOUR		WEEKDAY PM PEAK HOUR	
		RATE	VOLUME	RATE	TOTAL	RATE	TOTAL
Regional Park	139 acres	20	2,780	4% of Daily	111	8% of Daily	222
TOTAL TRIP GENERATION			**2,780**		**111**		**222**

Source: Generation factors from San Diego Association of Governments (SANDAG)

Trip ends are one-way traffic movements, entering or leaving.

Please review this memorandum and contact me by email at jellard@vrpatechnologies.com or by phone at (559) 271-1200 to discuss your questions and comments.

MEMORANDUM

DATE: February 21, 2017

TO: City of Visalia: Nicholas D. Mascia, PE, TE, PTOE, City Engineer, Doug Damko, PE, Project Manager
Caltrans, District 06: David Deel, Associate Transportation Planner

FROM: Jason Ellard, Transportation Engineer, VRPA Technologies, Inc.
Erik Ruehr, P.E., Director of Traffic Engineering, VRPA Technologies, Inc.

SUBJECT: City of Visalia East Side Regional Park & Groundwater Recharge Environmental Impact Report (EIR) Traffic Impact Study (TIS) – Assumptions Memorandum (Analysis Parameters, Trip Distribution, Opening Day and Future Forecasts, and Mitigation)

VRPA Technologies, Inc. (VRPA) is in the process of preparing a Traffic Impact Study (TIS) for the City of Visalia East Side Regional Park and Groundwater Recharge Project (Project). The proposed Project is bounded by Houston Avenue to the north, State Route 198 to the south, Road 152 to the East and the Tower Street (Road 148) alignment to the west. The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Engineering Division, have together acquired approximately 286 acres north of State Route 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 286-acre site will ultimately include a regional park, future freeway interchange improvements, street extension, and the development of groundwater recharge-basins and stormwater-layoff facilities, with a net area of approximately 239 acres for park (139 ac) and recharge basin (100 ac) use. The site is in the optimal location for the development of both groundwater recharge and stormwater-layoff basins as it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the proposed Project site; Mill Creek, Packwood Creek, and the Oakes Ditch. As a result, VRPA Technologies has prepared a memorandum that includes the trip generation for the proposed Project. The remainder of this memorandum includes sections that describe the project description, the proposed methodology for the analysis, and alternative methodologies that were considered.

PROJECT DESCRIPTION

The 139-acre regional park mentioned above will include the following individual components, as shown in Figure 1:

- Four (4) lighted and fenced Adult Softball Fields (325’ to outfield)
- Four (4) lighted and fenced Youth Baseball Fields (225’ to outfield)
- Five (5) lighted full size Soccer Fields (210’ X 330’)

- Cricket Field
- Lighted Tennis Courts
- Lighted Pickleball Courts
- Lighted Full Basketball Court
- Amphitheater with seating capacity of 1,500
- Community Center Building (Approx. 30,000 sq.ft.)
- Various types of Regional Park amenities

STUDY AREA

Intersections

The following intersections (Exhibit A) will be analyzed in the TIS using the Synchro 9 Software program:

✓ **Existing Intersections:** *Traffic counts were taken at intersections 1 through 17 on Thursday, November 6, 2014* during the AM and PM peak periods between 7:00-9:00AM and 4:00-6:00PM

1. McAuliff Street / Mineral King Avenue
2. McAuliff Street / Murray Avenue (Local Street)
3. McAuliff Street / Mill Creek Parkway
4. McAuliff Street / Houston Avenue (SR 216)
5. Road 152/ Mineral King Avenue
6. Road 152 / Ivanhoe Drive (SR 216)
7. Road 156 / Noble Avenue
8. Road 156/ Mineral King Avenue
9. Noble Avenue / SR 198 EB Ramps @ Road 156 IC
10. Mineral King Avenue / SR 198 WB Off-Ramp @ Road 156 IC
11. Mineral King Avenue / SR 198 EB Off-Ramp @ Road 156 IC
12. Lovers Lane / Noble Avenue
13. Lovers Lane / SR 198 EB Ramps
14. Lovers Lane / Mineral King
15. Mineral King Avenue / SR 198 WB Ramps @ Lovers Lane IC
16. Mineral King Avenue / Mineral King Street
17. Houston Avenue / Lovers Lane

✓ **Future Project Street Intersections**

Note: Tower Street will have a raised median for access control to project driveways and planned local street connections (listed below).

18. Tower Street / Mineral King Avenue
19. Tower Street / Murray Avenue (local)
20. Tower Street / Douglas Avenue
21. Tower Street / Ivanhoe Drive (SR 216)
22. Tower Street / Race Avenue

✓ **Future Planned Interchange Intersections**

23. Tower Street / SR 198 EB Ramps
24. Tower Street / SR 198 WB Loop Ramp
25. Tower Street / SR 198 WB Ramps

✓ **Future Project Site Intersections**

26. Project Driveway #1 / Tower Street (Villoy Avenue)
27. Project Driveway #2 / Tower Street (McKinley Avenue)
28. Project Driveway #3 / Road 152

Street Segments

All segments connecting to the study intersections listed above. Segment counts were taken on Thursday, November 6, 2014 for a period of 24-hours at the following locations:

1. Mineral King Avenue between the Tower Street and Road 152 alignments
2. Mineral King Avenue between McAuliff Street and Lovers Lane
3. Houston Avenue/SR 216 between Lovers Lane and McAuliff Street
4. Ivanhoe Drive/SR 216 between the Tower Street and Road 152 alignments

ANALYSIS SCENARIOS

The above intersection and segment locations, as appropriate, will be analyzed for the following scenarios:

1. Existing Conditions (Baseline Condition Without Project / Without Future Interchange / With existing Mineral King Avenue
2. Existing Plus Recharge Basins Only – Trip Generation Analysis Only (Without Future Interchange / With existing Mineral King Avenue)
3. Existing Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) – Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
4. Near-term Opening Year 2018 Projection Without Project (Without Future Interchange / With existing Mineral King Avenue)
5. Near-term Opening Year 2018 Projection Plus Phase 1 only of the Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower at Villoy), (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
6. 2040 Without Project (with the future year land use for the Project Site coded as already identified in the approved 2040 Tulare County Association of Governments (TCAG) Traffic Model) (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
7. 2040 Without Project (with the future year land use for the Project Site coded in the TCAG Traffic Model *as agricultural use*) – Analysis would consist of a Qualitative Assessment Only and, if necessary. If the Project Site is already coded in the 2040 Traffic Model as agricultural use, then this scenario will not be qualitatively assessed (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)
8. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) - Concept B1 (Without Future Interchange / With existing Mineral King Avenue) (Both existing Mineral King intersections at Tower Street)

9. 2040 Without Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152)
10. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (both legs of realigned Mineral King remain) at Tower Street (solid median)
11. 2040 Plus Full Project (as defined, Median Crossover/Directional Left-Turn Bays or "worm" in Tower Street at Villoy Avenue) With Future Interchange and with realigned Mineral King Avenue intersection (west leg of realigned Mineral King remains, east leg eliminated to Road 152) at Tower Street (solid median)
12. 2040 Plus Full Project (With Future Interchange; abandoning the Mineral King Avenue frontage east of McAuliff Avenue and west of Road 152 / With Tower Street as a full access intersection at the Park entrance but with a cul-de-sac at east end of Villoy Avenue)

INTERSECTION AND SEGMENT ANALYSIS

Intersection Analysis

All intersection LOS analyses will be estimated using Synchro 9 Software for the AM and PM peak hours. Merge/diverge analysis along SR 198 will be conducted using the 2010 Highway Capacity Manual. The following inputs and parameters will be applied in order to accurately determine the travel delay and LOS for each study intersection:

- ✓ VRPA will conduct a field study of the specified intersections and segments to verify lane geometry and intersection control as well as to obtain other pertinent data such as signal timing and phasing. VRPA will also request signal timing sheets from Caltrans for State facilities and from the appropriate local agencies for other facilities.
- ✓ Turning movement volumes and 24-hour segment counts were obtained from 2014 traffic counts taken on November 6, 2014 for the purpose of establishing Existing Conditions
- ✓ Peak hour factors (PHF) for each intersection approach will be obtained from the 2014 traffic counts and utilized for Existing Conditions, Existing Plus Project (CEQA requirement), Near-term (Opening Year) Without Project, and Near-term (Opening Year) Plus Park Basin Plus One Half of Park (Initial Project Phase) Conditions. For all future scenarios, a PHF of 0.92 will be applied
- ✓ Existing left- and right-turn storage pockets will be measured in the field and rounded to the nearest 25 feet
- ✓ Roadway link speed limits will be observed in the field and input into the Synchro network to determine roadway link speeds
- ✓ The Right Turn On Red parameter will be set to "Yes"
- ✓ Signal phasing will be based on a field review. Yellow and all-red clearance interval signal timing will be based on existing timing sheets, if available. For locations where existing timing is unavailable, MUTCD methodology will be applied.
- ✓ Lead-lag optimize will be set to "Fixed"
- ✓ Traffic signals will be analyzed as "actuated and uncoordinated" or "actuated and coordinated" depending on existing parameters
- ✓ Pedestrian walk and don't walk times will be determined using existing timing sheets, if available, or the MUTCD methodology
- ✓ Heavy vehicle percentages will be applied as follows and is based on the HCM default or Caltrans' truck data available on its website:
    - SR-198 mainline – 10%
    - SR-216 – 5%
    - All other roadways – 3%

- ✓ All intersection cycle lengths will be assumed to be 90 seconds initially and will be adjusted if needed. All offsets will be optimized.
- ✓ HCM 2010 outputs for delay and level of service will be utilized in the results
- ✓ Queuing conditions for left and right-turn lanes at all study intersections will be conducted initially using the 95th percentile queue results from the Synchro software. The 95th percentile queue is the maximum back of queue with 95th percentile traffic volumes queuing. Adjustments may be needed in cases where it can be concluded that the Synchro results are overly conservative.
- ✓ A merge/diverge analysis will be conducted for ramps located at the two existing SR 198 interchanges within the study area. Results of the analysis will provide LOS estimates considering traffic conditions.

Segment Analysis

All segment LOS analyses will be estimated using the Modified HCM-Based Level of Service Tables for the AM and PM peak hours.

SIGNIFICANT CRITERIA

City of Visalia

The City of Visalia General Plan states the City will plan for LOS "D" for street segments and intersections.

Tulare County

The Tulare County General Plan states the minimum LOS is "D" for street segments and intersections.

Caltrans

Based on guidance from Caltrans, the LOS for operating State highway facilities is based on Measures of Effectiveness (MOE) identified in the Highway Capacity Manual (HCM). Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than this target LOS< the existing MOE should be maintained. In general, the region-wide goal for an acceptable LOS on all freeways, roadways segments, and intersections is "D". For undeveloped or not densely developed locations, the goal may be to achieve LOS "C". As a result, the minimum level of service (LOS) standard will be LOS D within the Visalia city limits and LOS C outside city limits for Caltrans facilities.

RECOMMENDED TRIP GENERATION

The 9th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual includes trip generation rates for a "Regional Park"; however, after reviewing descriptions of the various park-related categories in the Manual, it was considered more accurate to include separate trip generation calculations for the main components of the Project that were listed in the Manual and would be expected to be large trip generators. The trip generation methodology is discussed in a separate memorandum prepared by VRPA Technologies, Inc.

PROJECT TRIP DISTRIBUTION

VRPA will estimate trip distribution associated with the Project based on a select zone analysis conducted using the Tulare County Association of Governments (TCAG) travel demand model. VRPA will review the model's outputs and post-process the results as necessary using engineering judgment and knowledge of the study area.

EXISTING PLUS PROJECT ANALYSIS SCENARIO

VRPA will identify existing conditions plus full Project traffic impacts on the existing specified highway and street/road facilities, and intersections in the Study Area to address CEQA requirements.

CUMULATIVE (NEAR-TERM AND FUTURE) PROJECTS

VRPA will work with the City of Visalia and Tulare County to identify cumulative projects that will affect the study area. If Caltrans is aware of any applicable cumulative projects in the study area, it is requested that a list of these projects be provided to VRPA along with any comments/questions on this Memorandum.

During the traffic modeling process (discussed below), VRPA will confirm with the Tulare County Association of Governments (TCAG) that all of the applicable cumulative projects are included in the model's land use assumptions. Any projects not included will either be added to the model by TCAG, or manually accounted for in the future forecasts by VRPA.

For the Near-Term (Opening Day) analysis, VRPA will estimate AM and PM peak hour trip generation manually and add all applicable cumulative project trips to traffic volumes using relevant traffic analyses and EIRs prepared for these projects or the latest ITE Trip Generation Manual.

SHORT AND LONG-TERM STREET AND HIGHWAY IMPROVEMENT PROJECTS

VRPA will identify short- and long-term planned/programmed highway and street/road improvements along the study facilities. Short-term highway and street/road improvement projects are improvements that will be constructed within one to three (1-3) years of the present. Such improvement projects may provide relief or enhance traffic impacts associated with the Project or other cumulative projects. Long-term highway and street/road improvement projects will be identified and considered during the near-term and Year 2040 impact analysis. Only improvement projects that are fully funded will be assumed as planned roadway projects for purposes of the analysis.

NEAR-TERM (OPENING YEAR) ANALYSIS SCENARIOS

VRPA will identify existing conditions plus near-term (opening year) development traffic impacts on the specified highway and street/road facilities, and intersections in the Study Area. The purpose of this scenario is to determine near-term (opening year) impacts and mitigation with and without the Project.

VRPA will apply an appropriate annual growth rate to existing traffic counts (as adjusted), determined in consultation with the City of Visalia and Caltrans, to reflect opening year conditions.

FUTURE ANALYSIS SCENARIOS AND FORECASTS

VRPA proposes to utilize the TCAG travel demand model to obtain future year traffic forecasts for the Cumulative Year 2040 Without Project scenario.

VRPA will formally request a model run from TCAG for the future year assuming the project site is vacant (as it exists today). VRPA will also request a model run for the existing year (2014) to serve as the baseline for development of future forecasts. Once both model runs are received, VRPA will compare the AM and PM peak hour traffic volumes between both models and determine the difference between the existing (baseline) and the future year volumes. This difference will then be added to the existing traffic counts to determine the 2040 Without Project traffic volumes for use in the TIS analysis.

Future Year 2040 Plus Project traffic volumes will be developed by manually adding the project trips to the Future Year 2040 Without Project traffic volumes.

It should be noted that future year analysis scenarios will include the development of an interchange at Tower Street (Road 148) and SR 198. Tower Street will provide access to the site and shall extend to Ivanhoe Drive (SR 216) to the north and SR 198 to the south.

MITIGATION MEASURES

Where LOS estimates exceed the minimum LOS standard of each agency (City of Visalia, County of Tulare, and/or Caltrans), VRPA will develop appropriate and feasible mitigation measures. Such measures may include, but are not limited to roadway/highway widening, traffic controls, turn pockets, alignment improvements, and any other improvements that would solve potential traffic problems. VRPA will determine the required storage and deceleration length of intersection turn lanes. The recommended mitigation measures will be consistent with adopted plans and programs.

LOS FOLLOWING MITIGATION

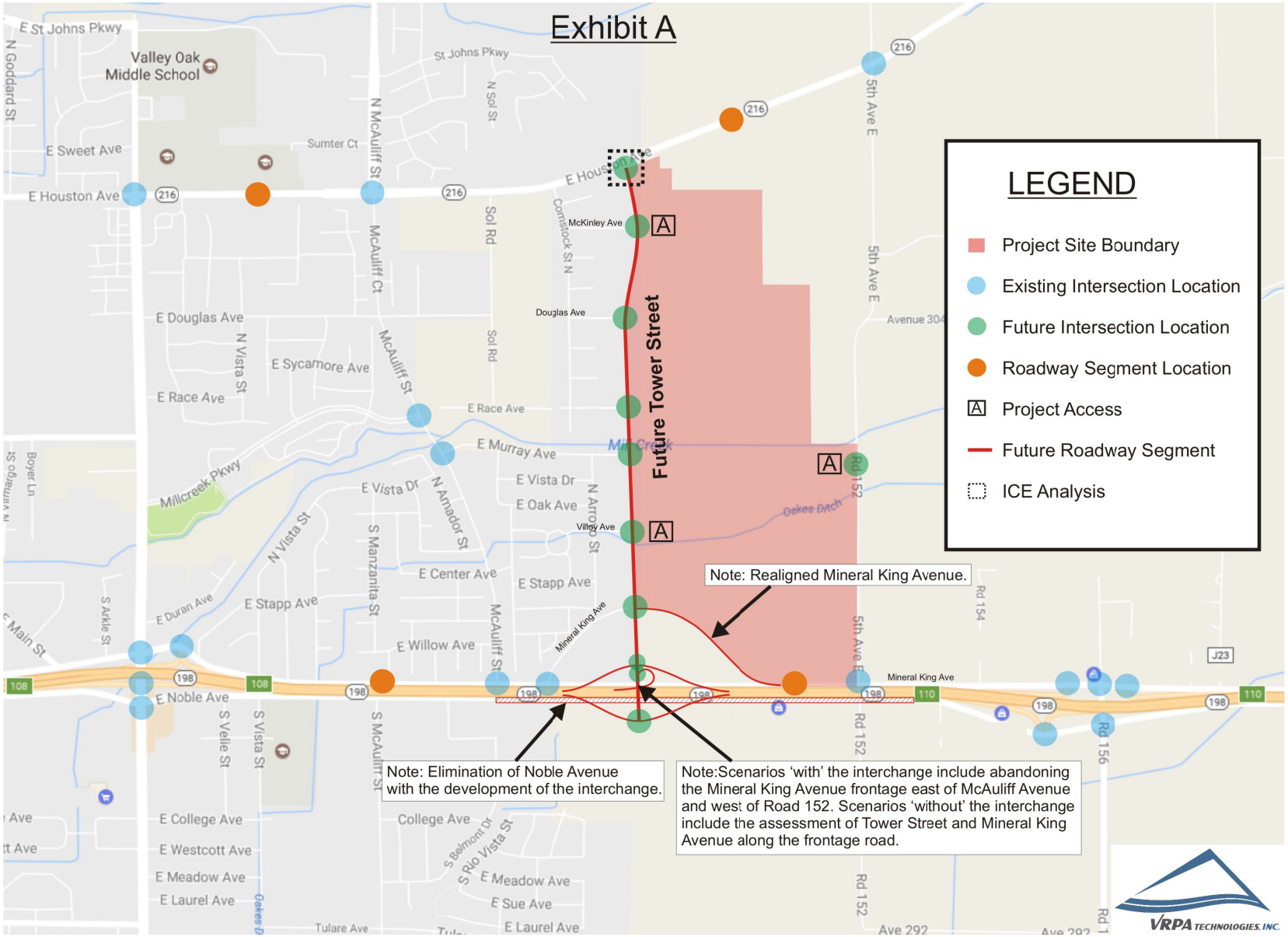
VRPA will identify the resultant LOS for each intersection, highway and street/road segment considering implementation of required mitigation measures to determine whether mitigation measures will be effective. The Project fair share for mitigation costs will be determined considering funding sources and the City of Visalia's responsibilities to local- and State-controlled facilities.

ICE PROTOCOL

Caltrans' Intersection Control Evaluation (ICE) requires the analysis of three intersection control strategies when any new project requires employing of full control at a State Highway intersection or interchange. The three intersection control strategies include, all-way stop control, roundabout control, and signal control. Considering a Cumulative 2040 No Project and Plus Project scenarios discussed above, an analysis of the Tower Street at Ivanhoe Drive (SR 216) intersection will be evaluated for the three intersection control strategies listed above. The ICE Analysis will be documented in a separate stand-alone report.

City of Visalia East Side Regional Park & Groundwater Recharge Facility EIR - Traffic Analysis

Exhibit A



VRPA TECHNOLOGIES, INC.

MEMORANDUM

DATE: October 3rd, 2017

TO: Caltrans, District 06: David Deel, Associate Planner

FROM: Jason Ellard, Transportation Engineer, VRPA Technologies, Inc.
Erik Ruehr, P.E., Director of Traffic Engineering, VRPA Technologies, Inc.

SUBJECT: Intersection Control Evaluation (ICE) for Houston Avenue (SR 216) and Tower Street

The California Department of Transportation's (Caltrans) Traffic Operations Division implemented Policy Directive associated with evaluation procedures used to justify the installation of traffic signal systems, yield-control (roundabouts), and multi-way stop control at state highway intersections and interchanges. Caltrans' ICE protocol requires the analysis of three intersection control strategies when a State Highway intersection or interchange requires full control. The three intersection control strategies, as noted above, include all-way stop control, roundabout control, and signal control. These three control strategies were analyzed in terms of intersection capacity, safety, and additional considerations, as described in the sections below.

INTERSECTION CAPACITY

Considering the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 volumes documented in Figures 1a, 1b, and 1c, the intersection of Houston Avenue (SR-216) at Tower Street was evaluated for the four intersection control strategies. Figures 1a, 1b, and 1c also provide the lane geometry utilized for the analysis of the intersection control strategies and Table 1 provides the results of the analysis.

Results of the analysis show that the signalized and roundabout intersection control are the only strategy that provides LOS C or better operations for both the AM and PM peak hours for the three study scenarios evaluated. The one-way stop and all-way stop intersection control will provide LOS B for the Cumulative Year 2040 Plus Project scenario only. The one-way stop and all-way stop control strategy is expected to result in LOS F operations in the PM peak hours for the Cumulative Year 2040 Plus Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenarios.

SAFETY

Safety considerations for each of the intersection control strategies are described below:

- ✓ All-way stop control typically provides a relatively safe form of control since it requires all traffic to stop at an intersection and resolve conflicts at low speeds. However, this is not the case when all-

way stop control cannot provide the necessary capacity to serve traffic demands. In these situations, the resulting queuing due to the capacity deficiency becomes a safety problem. In the case of the Houston Avenue (SR 216) and Tower Street intersection, level of service F conditions are expected. Due to the speed of traffic along Houston Avenue (SR 216), the queuing would be expected to be especially problematic for safety considerations.

- ✓ The safety benefits of roundabouts are well documented for typical roundabouts that have adequate capacity to serve traffic demands. In this case, LOS C or better conditions are expected for the three study scenarios.

- ✓ Traffic signal control is considered to be a relatively safe form of control when the traffic signal is appropriate for the level of traffic demand and when there are no unusual features that would cause safety problems. In this case, the capacity analysis results indicate level of service B or better operating conditions for the three study scenarios. The site is on relatively flat ground and can de designed to current design standards. No unusual conditions exist that would cause a safety problem from the point of view of traffic signal control.

ADDITIONAL CONSIDERATIONS

For all-way stop and traffic signal control, intersection capacity and safety are the primary factors in the selection of a preferred intersection control type. Roundabouts are a different case due to their relative unfamiliarity in the U.S. The Federal Highway Administration (FHWA) report, Roundabouts: An Informational Guide (FHWA, 2000), lists a number of site-specific conditions that should be considered when evaluation the suitability of a roundabout installation. These are listed below:

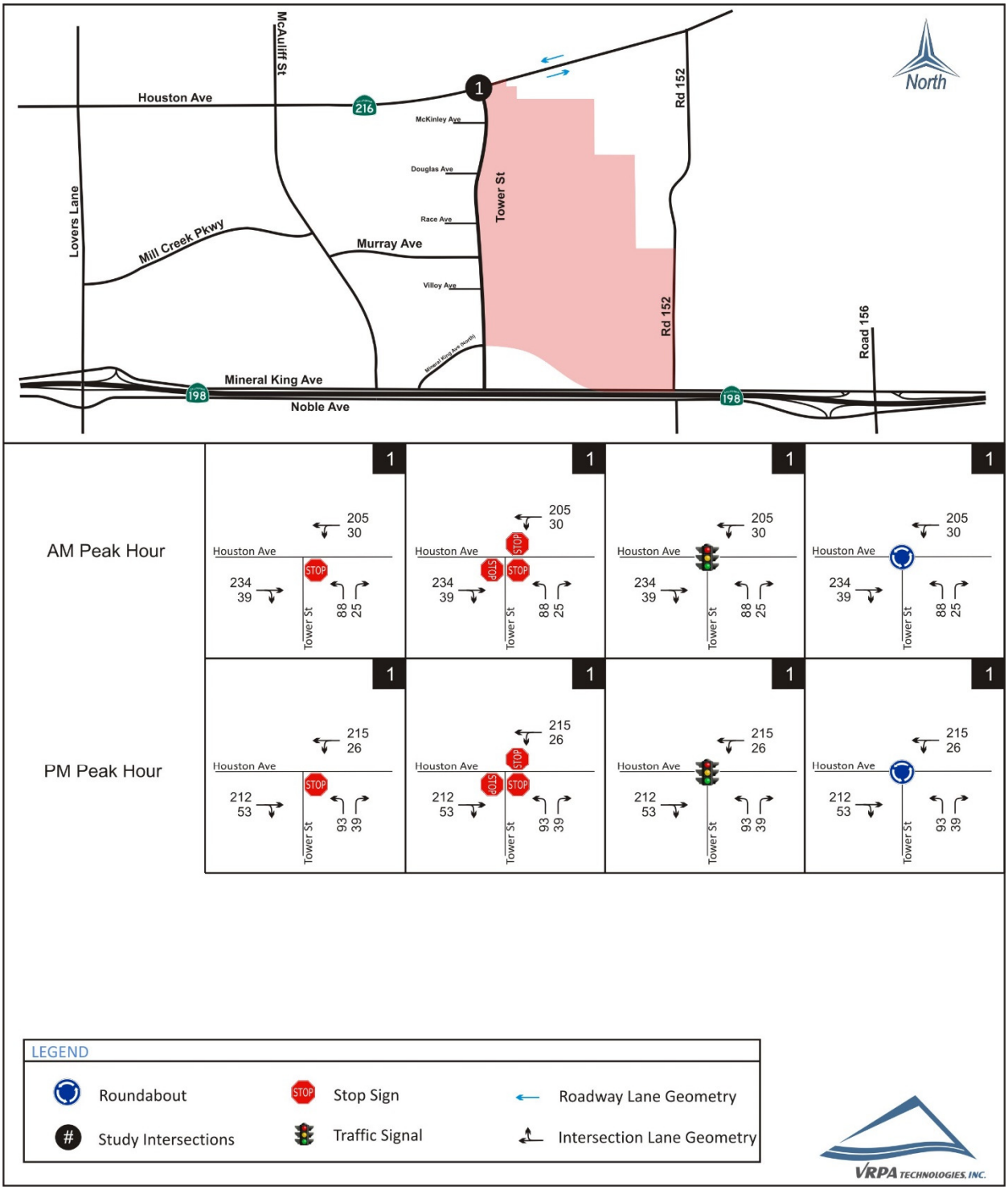
- ✓ Physical/geometric conditions
- ✓ Proximity of atypical traffic generators
- ✓ Proximity of traffic control devices requiring preemption
- ✓ Proximity of bottlenecks that would back up traffic into the roundabout
- ✓ Problems with grades
- ✓ Intersections with unacceptable delays
- ✓ Heavy bicycle or pedestrian traffic
- ✓ Intersections in a coordinated traffic signal network

CONCLUSION

In the case of each of the issues identified above (intersection capacity, safety, and additional considerations), traffic signal or roundabout intersection control are identified as the preferred traffic control options for the reasons noted above.

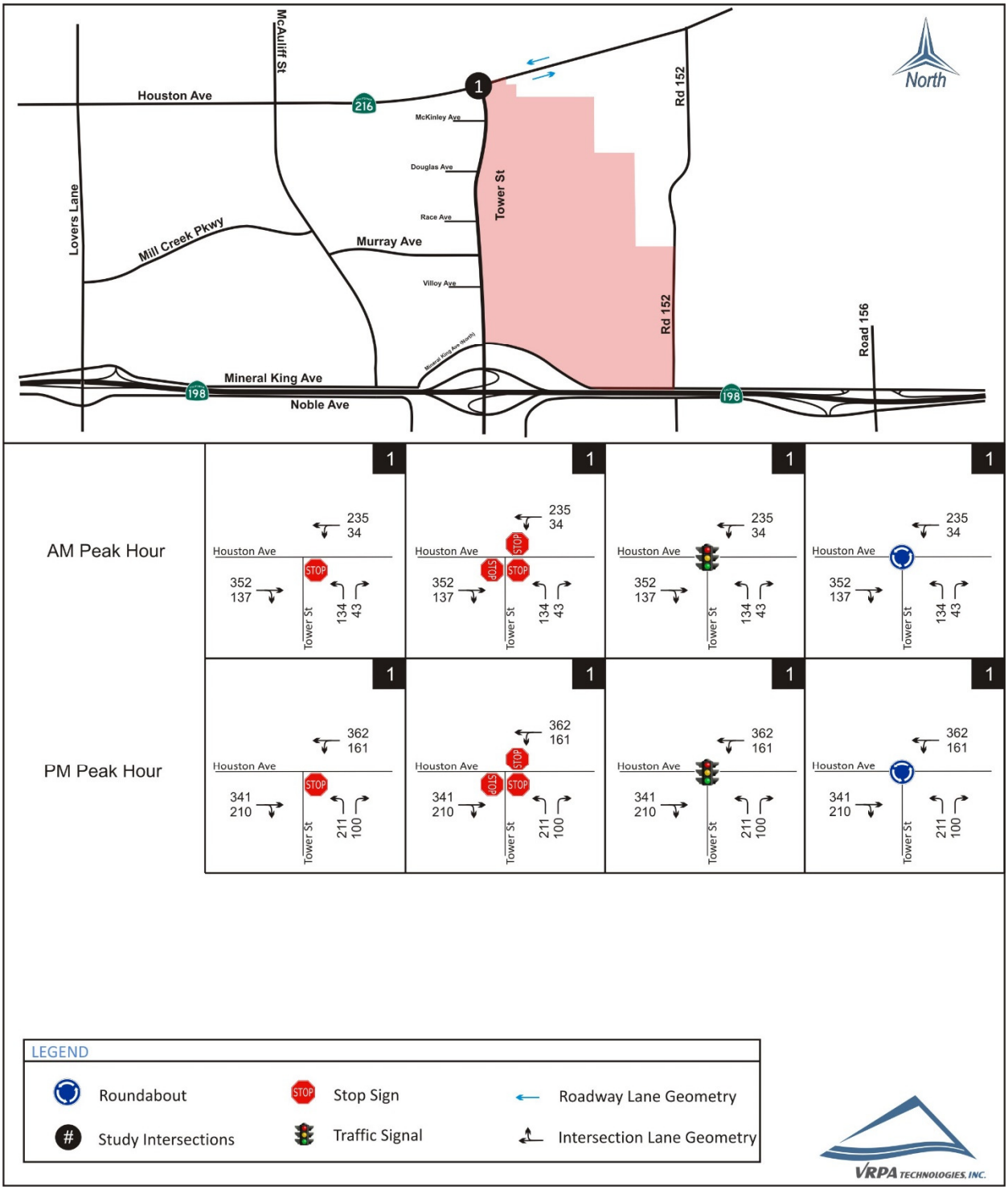
East Side Regional Park & Groundwater Recharge Facility ICE Analysis
Cumulative Year 2040 Plus Project

Figure 1a



East Side Regional Park & Groundwater Recharge Facility ICE Analysis
Cumulative Year 2040 Plus Project With Tower Street Interchange

Figure 1b



East Side Regional Park & Groundwater Recharge Facility ICE Analysis

Cumulative Year 2040 Plus Project With Tower Street Interchange - Alt 1

Figure 1c

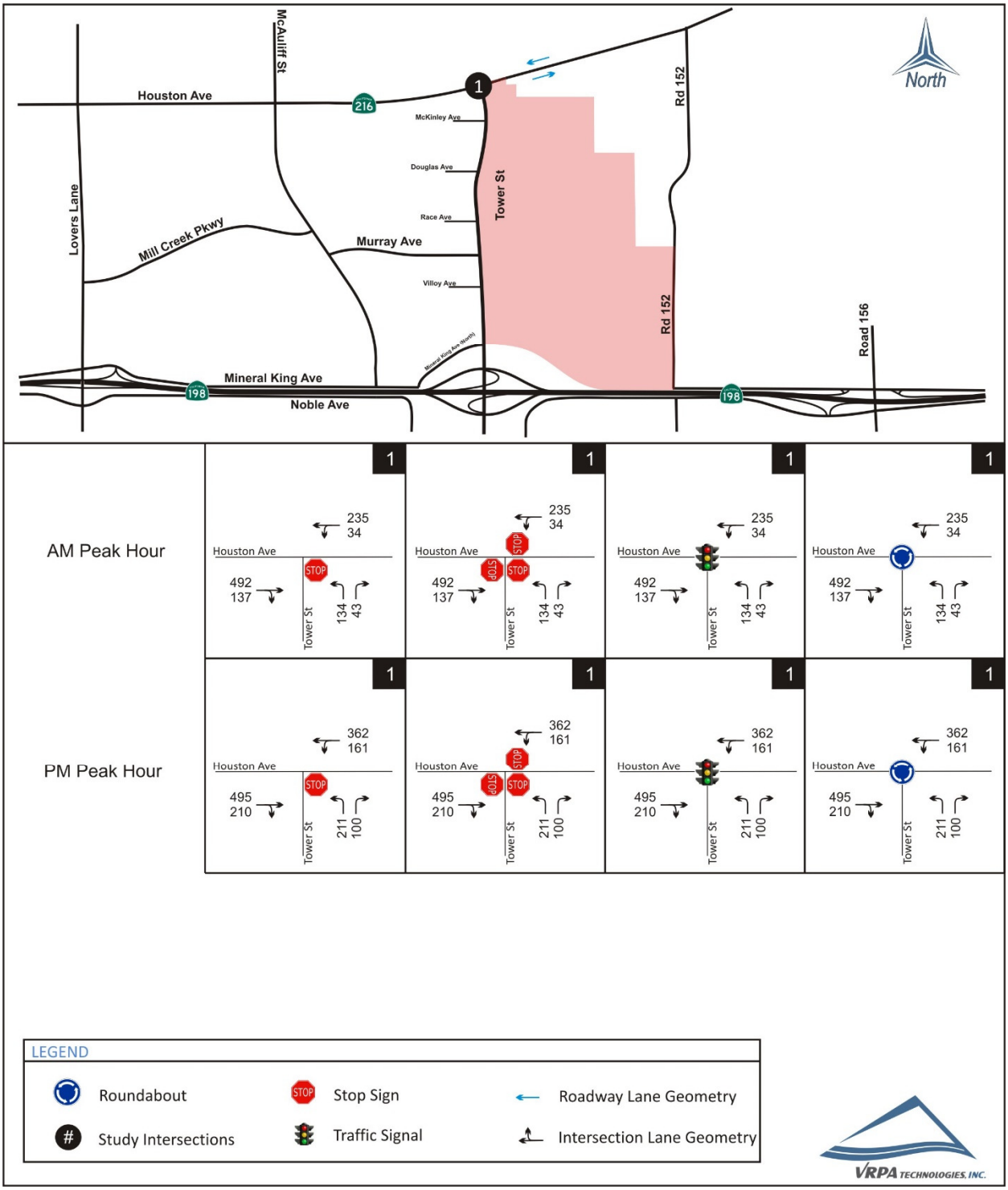


Table 1

Intersection Control Evaluation Analysis

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1	
				DELAY	LOS	DELAY	LOS	DELAY	LOS
Tower Street / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	14.6	B	22.8	C	**31.4**	**D**
			PM	14.4	B	**>50.0**	**F**	**>50.0**	**F**
	All-Way Stop Sign	C	AM	10.1	B	15.4	C	**29.7**	**D**
			PM	10.1	B	**>50.0**	**F**	**>50.0**	**F**
	Signalized	C	AM	6.0	A	6.4	A	6.6	A
			PM	6.0	A	9.6	A	12.5	B
	Roundabout	C	AM	6.0	A	8.2	A	10.5	B
			PM	5.9	A	13.1	B	18.3	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized, all-way stop, and roundabout controlled intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst movement.

APPENDIX B

Modified HCM-Based LOS Tables (Florida Tables)

TABLE 1

Generalized **Annual Average Daily** Volumes for Florida's **Urbanized Areas**

12/18/12

INTERRUPTED FLOW FACILITIES

STATE SIGNALIZED ARTERIALS

Class I (40 mph or higher posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	16,800	17,700	**
4	Divided	*	37,900	39,800	**
6	Divided	*	58,400	59,900	**
8	Divided	*	78,800	80,100	**

Class II (35 mph or slower posted speed limit)

Lanes	Median	B	C	D	E
2	Undivided	*	7,300	14,800	15,600
4	Divided	*	14,500	32,400	33,800
6	Divided	*	23,300	50,000	50,900
8	Divided	*	32,000	67,300	68,100

Non-State Signalized Roadway Adjustments

(Alter corresponding state volumes by the indicated percent.)

Non-State Signalized Roadways - 10%

Median & Turn Lane Adjustments

Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors
2	Divided	Yes	No	+5%
2	Undivided	No	No	-20%
Multi	Undivided	Yes	No	-5%
Multi	Undivided	No	No	-25%
–	–	–	Yes	+ 5%

One-Way Facility Adjustment

Multiply the corresponding two-directional volumes in this table by 0.6

BICYCLE MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Paved Shoulder/Bicycle Lane Coverage	B	C	D	E
0-49%	*	2,900	7,600	19,700
50-84%	2,100	6,700	19,700	>19,700
85-100%	9,300	19,700	>19,700	**

PEDESTRIAN MODE[2]

(Multiply motorized vehicle volumes shown below by number of directional roadway lanes to determine two-way maximum service volumes.)

Sidewalk Coverage	B	C	D	E
0-49%	*	*	2,800	9,500
50-84%	*	1,600	8,700	15,800
85-100%	3,800	10,700	17,400	>19,700

BUS MODE (Scheduled Fixed Route)[3]

(Buses in peak hour in peak direction)

Sidewalk Coverage	B	C	D	E
0-84%	> 5	≥ 4	≥ 3	≥ 2
85-100%	> 4	≥ 3	≥ 2	≥ 1

UNINTERRUPTED FLOW FACILITIES

FREEWAYS

Core Urbanized

Lanes	B	C	D	E
4	47,400	64,000	77,900	84,600
6	69,900	95,200	116,600	130,600
8	92,500	126,400	154,300	176,600
10	115,100	159,700	194,500	222,700
12	162,400	216,700	256,600	268,900

Urbanized

Lanes	B	C	D	E
4	45,800	61,500	74,400	79,900
6	68,100	93,000	111,800	123,300
8	91,500	123,500	148,700	166,800
10	114,800	156,000	187,100	210,300

Freeway Adjustments

Auxiliary Lanes Present in Both Directions	Ramp Metering
+ 20,000	+ 5%

UNINTERRUPTED FLOW HIGHWAYS

Lanes	Median	B	C	D	E
2	Undivided	8,600	17,000	24,200	33,300
4	Divided	36,700	51,800	65,600	72,600
6	Divided	55,000	77,700	98,300	108,800

Uninterrupted Flow Highway Adjustments

Lanes	Median	Exclusive left lanes	Adjustment factors
2	Divided	Yes	+5%
Multi	Undivided	Yes	-5%
Multi	Undivided	No	-25%

[1]Values shown are presented as two-way annual average daily volumes for levels of service and are for the automobile/truck modes unless specifically stated. This table does not constitute a standard and should be used only for general planning applications. The computer models from which this table is derived should be used for more specific planning applications. The table and deriving computer models should not be used for corridor or intersection design, where more refined techniques exist. Calculations are based on planning applications of the Highway Capacity Manual and the Transit Capacity and Quality of Service Manual.

[2] Level of service for the bicycle and pedestrian modes in this table is based on number of motorized vehicles, not number of bicyclists or pedestrians using the facility.

[3] Buses per hour shown are only for the peak hour in the single direction of the higher traffic flow.

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

Source:
Florida Department of Transportation
Systems Planning Office
www.dot.state.fl.us/planning/systems/sm/los/default.shtm

TABLE 1
(continued)

Generalized **Annual Average Daily** Volumes for Florida's **Urbanized Areas**

12/18/12

INPUT VALUE ASSUMPTIONS	Uninterrupted Flow Facilities				Interrupted Flow Facilities					
					State Arterials				Class I	
	Freeways	Core Freeways	Highways		Class I		Class II		Bicycle	Pedestrian
ROADWAY CHARACTERISTICS										
Area type (u,lu)	lu	lu	u	u	u	u	u	u	u	u
Number of through lanes (both dir.)	4-10	4-12	2	4-6	2	4-8	2	4-8	4	4
Posted speed (mph)	70	65	50	50	45	50	30	30	45	45
Free flow speed (mph)	75	70	55	55	50	55	35	35	50	50
Auxiliary Lanes (n,y)	n	n								
Median (n, nr, r)			n	r	n	r	n	r	r	r
Terrain (l,r)	l	l	l	l	l	l	l	l	l	l
% no passing zone			80							
Exclusive left turn lane impact (n, y)			[n]	y	y	y	y	y	y	y
Exclusive right turn lanes (n, y)					n	n	n	n	n	n
Facility length (mi)	4	4	5	5	2	2	1.9	1.8	2	2
Number of basic segments	4	4								
TRAFFIC CHARACTERISTICS										
Planning analysis hour factor (K)	0.090	0.085	0.090	0.090	0.090	0.090	0.090	0.090	0.090	0.090
Directional distribution factor (D)	0.547	0.547	0.550	0.550	0.550	0.560	0.565	0.560	0.565	0.565
Peak hour factor (PHF)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Base saturation flow rate (pcphpl)			1,700	2,100	1,950	1,950	1,950	1,950	1,950	1,950
Heavy vehicle percent	4.0	4.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	2.0
Local adjustment factor	0.91	0.91	0.97	0.98						
% left turns					12	12	12	12	12	12
% right turns					12	12	12	12	12	12
CONTROL CHARACTERISTICS										
Number of signals					4	4	10	10	4	6
Arrival type (1-6)					3	3	4	4	4	4
Signal type (a, c, p)					c	c	c	c	c	c
Cycle length (C)					120	150	120	120	120	120
Effective green ratio (g/C)					0.44	0.45	0.44	0.44	0.44	0.44
MULTIMODAL CHARACTERISTICS										
Paved shoulder/bicycle lane (n, y)									n, 50%, y	n
Outside lane width (n, t, w)									t	t
Pavement condition (d, t, u)									t	
On-street parking (n, y)										
Sidewalk (n, y)										n, 50%, y
Sidewalk/roadway separation(a, t, w)										t
Sidewalk protective barrier (n, y)										n

LEVEL OF SERVICE THRESHOLDS

Level of Service	Freeways	Highways		Arterials		Bicycle	Ped	Bus
	Density	Two-Lane %ffs	Multilane Density	Class I ats	Class II ats	Score	Score	Buses/hr.
B	≤ 17	> 83.3	≤ 17	> 31 mph	> 22 mph	≤ 2.75	≤ 2.75	≤ 6
C	≤ 24	> 75.0	≤ 24	> 23 mph	> 17 mph	≤ 3.50	≤ 3.50	≤ 4
D	≤ 31	> 66.7	≤ 31	> 18 mph	> 13 mph	≤ 4.25	≤ 4.25	< 3
E	≤ 39	> 58.3	≤ 35	> 15 mph	> 10 mph	≤ 5.00	≤ 5.00	< 2

% ffs = Percent free flow speed ats = Average travel speed

APPENDIX C

Traffic Count Data Sheets

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-001 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Rd 140			Rd 140			Houston Ave			Houston Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM	24	47	15	13	28	4	9	24	38	11	19	21	253
7:15 AM	17	40	18	9	44	2	5	25	35	8	30	19	252
7:30 AM	39	56	22	14	56	8	22	32	66	14	40	30	399
7:45 AM	30	128	52	27	99	17	29	47	49	37	32	54	601
8:00 AM	23	109	34	30	84	24	30	60	43	27	72	71	607
8:15 AM	24	42	27	30	78	10	6	41	34	19	46	19	376
8:30 AM	17	22	13	19	21	0	2	36	27	21	28	2	208
8:45 AM	28	23	17	7	19	4	3	36	31	14	21	6	209
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	202	467	198	149	429	69	106	301	323	151	288	222	2905
APPROACH %'s :	23.30%	53.86%	22.84%	23.03%	66.31%	10.66%	14.52%	41.23%	44.25%	22.84%	43.57%	33.59%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	116	335	135	101	317	59	87	180	192	97	190	174	1983
PEAK HR FACTOR :		0.698			0.834			0.863			0.678		0.817

UTURNS	NB	SB	EB	WB
7:00 AM	1	0	0	1
7:15 AM	0	0	0	0
7:30 AM	1	0	0	1
7:45 AM	2	0	0	0
8:00 AM	0	0	0	2
8:15 AM	1	0	0	3
8:30 AM	0	0	0	1
8:45 AM	1	0	0	1
TOTAL VOLUMES :	6	0	0	9

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-001 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Rd 140			Rd 140			Houston Ave			Houston Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
4:00 PM	32	42	33	14	37	4	3	56	39	27	42	22	351
4:15 PM	45	53	33	10	35	6	4	40	35	20	39	14	334
4:30 PM	43	47	21	8	32	2	2	43	38	16	41	8	301
4:45 PM	53	57	30	12	48	1	4	43	46	13	33	20	360
5:00 PM	33	44	27	16	36	6	6	26	43	26	45	17	325
5:15 PM	43	65	21	13	40	6	4	47	33	20	38	14	344
5:30 PM	41	49	29	25	43	7	7	44	35	25	37	16	358
5:45 PM	33	51	40	29	51	8	6	40	34	24	31	18	365
TOTAL VOLUMES :	NL 323	NT 408	NR 234	SL 127	ST 322	SR 40	EL 36	ET 339	ER 303	WL 171	WT 306	WR 129	TOTAL 2738
APPROACH %'s :	33.47%	42.28%	24.25%	25.97%	65.85%	8.18%	5.31%	50.00%	44.69%	28.22%	50.50%	21.29%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	150	209	117	83	170	27	23	157	145	95	151	65	1392
PEAK HR FACTOR :		0.922			0.795			0.945			0.884		0.953

UTURNS	NB	SB	EB	WB
4:00 PM	1	0	0	0
4:15 PM	1	0	0	0
4:30 PM	0	0	0	0
4:45 PM	2	0	0	0
5:00 PM	0	0	0	0
5:15 PM	2	0	0	1
5:30 PM	0	0	0	0
5:45 PM	0	0	0	1
TOTAL VOLUMES :	6	0	0	2

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-002 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	McAuliff St			McAuliff St			Ivanhoe Dr			Ivanhoe Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
7:00 AM	10	62	6	6	84	24	19	23	4	9	14	17	278
7:15 AM	11	39	4	8	75	28	10	31	4	15	19	0	244
7:30 AM	18	39	6	7	97	40	12	18	11	14	27	3	292
7:45 AM	25	91	7	3	126	78	29	22	13	13	41	6	454
8:00 AM	25	117	9	8	133	93	48	26	4	18	29	18	528
8:15 AM	4	44	4	11	95	53	39	38	11	5	9	5	318
8:30 AM	3	31	5	7	44	15	9	26	14	12	22	2	190
8:45 AM	7	23	4	11	53	8	16	25	13	2	18	6	186
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	103	446	45	61	707	339	182	209	74	88	179	57	2490
APPROACH %'s :	17.34%	75.08%	7.58%	5.51%	63.87%	30.62%	39.14%	44.95%	15.91%	27.16%	55.25%	17.59%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	72	291	26	29	451	264	128	104	39	50	106	32	1592
PEAK HR FACTOR :		0.644			0.795			0.770			0.723		0.754

UTURNS	NB	SB	EB	WB
	0	1	0	1
	1	1	0	2
	0	0	0	0
	0	0	1	0
	0	0	1	0
	0	0	0	0
	0	1	0	1
	0	0	0	0
TOTAL VOLUMES :	1	3	2	4

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-002 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	McAuliff St			McAuliff St			Ivanhoe Dr			Ivanhoe Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	TOTAL
4:00 PM	11	56	6	6	49	25	42	20	16	9	34	8	282
4:15 PM	14	47	8	5	46	16	38	29	26	13	35	4	281
4:30 PM	9	65	11	7	49	19	32	29	10	8	22	5	266
4:45 PM	13	51	13	0	51	30	28	31	9	8	23	6	263
5:00 PM	9	83	11	4	71	36	33	14	11	10	26	6	314
5:15 PM	21	74	12	5	57	35	39	23	16	4	24	5	315
5:30 PM	13	80	14	5	59	28	39	18	16	2	19	3	296
5:45 PM	23	60	6	1	54	30	39	15	12	7	22	10	279
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	113	516	81	33	436	219	290	179	116	61	205	47	2296
APPROACH %'s :	15.92%	72.68%	11.41%	4.80%	63.37%	31.83%	49.57%	30.60%	19.83%	19.49%	65.50%	15.02%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	66	297	43	15	241	129	150	70	55	23	91	24	1204
PEAK HR FACTOR :		0.949			0.867			0.881			0.821		0.956

UTURNS	NB	SB	EB	WB
	0	1	0	0
	0	0	2	0
	0	2	0	0
	0	0	0	0
	0	0	0	0
	0	1	0	0
	0	1	0	0
	0	0	0	0
	NB	SB	EB	WB
TOTAL VOLUMES :	0	5	2	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-003 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Rd 152			Rd 152			Ivanhoe Dr			Ivanhoe Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	4	0	1	0	0	0	0	11	13	3	21	0	53
7:15 AM	4	1	2	0	0	0	0	19	11	7	18	0	62
7:30 AM	4	0	2	0	0	0	1	19	10	2	26	0	64
7:45 AM	4	0	0	0	0	0	0	22	8	6	42	0	82
8:00 AM	10	1	6	0	0	0	0	30	11	7	30	0	95
8:15 AM	3	0	2	0	0	0	0	22	24	6	18	0	75
8:30 AM	2	0	5	0	0	0	0	18	16	5	16	0	62
8:45 AM	8	0	4	0	0	0	0	17	14	8	13	0	64
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	39	2	22	0	0	0	1	158	107	44	184	0	557
APPROACH %'s :	61.90%	3.17%	34.92%	#DIV/0!	#DIV/0!	#DIV/0!	0.38%	59.40%	40.23%	19.30%	80.70%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	21	1	10	0	0	0	1	93	53	21	116	0	316
PEAK HR FACTOR :		0.471			0.000			0.799			0.714		0.832

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-003 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Rd 152			Rd 152			Ivanhoe Dr			Ivanhoe Dr			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	6	0	3	0	0	0	0	23	2	4	36	0	74
4:15 PM	8	0	7	0	1	0	0	23	3	1	26	0	69
4:30 PM	6	0	2	0	0	0	0	34	3	0	27	0	72
4:45 PM	5	0	2	0	1	0	0	30	8	3	29	0	78
5:00 PM	8	0	0	0	0	0	0	24	5	0	34	0	71
5:15 PM	2	0	2	0	0	0	0	33	0	0	26	0	63
5:30 PM	2	0	0	0	0	0	0	27	1	2	22	0	54
5:45 PM	5	0	0	0	0	0	0	13	1	0	19	0	38
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	42	0	16	0	2	0	0	207	23	10	219	0	519
APPROACH %'s :	72.41%	0.00%	27.59%	0.00%	100.00%	0.00%	0.00%	90.00%	10.00%	4.37%	95.63%	0.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	25	0	14	0	2	0	0	110	16	8	118	0	293
PEAK HR FACTOR :		0.650			0.500			0.829			0.788		0.939

UTURNS				
NB	SB	EB	WB	
0	0	0	0	

CONTROL : 1 Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-004 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	McAuliff St			McAuliff St			Millcreek Pkwy			Millcreek Pkwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
7:00 AM	4	40	0	0	55	39	22	0	5	0	0	0	165
7:15 AM	6	38	0	0	62	25	10	0	6	0	0	0	147
7:30 AM	6	62	0	0	78	42	12	0	6	0	0	0	206
7:45 AM	14	92	0	0	91	51	21	0	3	0	0	0	272
8:00 AM	12	114	0	0	82	61	30	0	4	0	0	0	303
8:15 AM	7	34	0	0	87	41	13	0	11	0	0	0	193
8:30 AM	2	35	0	0	54	12	11	0	5	0	0	0	119
8:45 AM	5	20	0	0	52	16	8	0	5	0	0	0	106
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	56	435	0	0	561	287	127	0	45	0	0	0	1511
APPROACH %'s :	11.41%	88.59%	0.00%	0.00%	66.16%	33.84%	73.84%	0.00%	26.16%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	39	302	0	0	338	195	76	0	24	0	0	0	974
PEAK HR FACTOR :		0.677			0.932			0.735			0.000		0.804

UTURNS	NB	SB	EB	WB
	NB	SB	EB	WB
	0	0	0	0

CONTROL : 1 Way Stop(EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-004 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	McAuliff St			McAuliff St			Millcreek Pkwy			Millcreek Pkwy			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 0	ST 2	SR 0	EL 1	ET 0	ER 1	WL 0	WT 0	WR 0	TOTAL
4:00 PM	6	42	0	0	49	23	24	0	10	0	0	0	154
4:15 PM	6	46	0	0	63	20	18	0	7	0	0	0	160
4:30 PM	4	48	0	0	53	16	29	0	14	0	0	0	164
4:45 PM	7	59	0	0	50	23	19	0	5	0	0	0	163
5:00 PM	12	66	0	0	57	17	28	0	9	0	0	0	189
5:15 PM	1	67	0	0	58	18	33	0	14	0	0	0	191
5:30 PM	7	69	0	0	54	13	33	0	9	0	0	0	185
5:45 PM	8	57	0	0	62	18	21	0	9	0	0	0	175
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	51	454	0	0	446	148	205	0	77	0	0	0	1381
APPROACH %'s :	10.10%	89.90%	0.00%	0.00%	75.08%	24.92%	72.70%	0.00%	27.30%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	28	259	0	0	231	66	115	0	41	0	0	0	740
PEAK HR FACTOR :		0.920			0.928			0.830			0.000		0.969

UTURNS	NB	SB	EB	WB
	0	0	0	0

CONTROL : 1 Way Stop(EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-005 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	McAuliff St			McAuliff St			Murrey Ave			Murrey Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	0	0	0	1	0	
7:00 AM	0	41	0	1	60	0	0	0	0	4	0	3	109
7:15 AM	0	42	3	1	70	0	0	0	0	4	0	3	123
7:30 AM	0	64	1	1	83	0	0	0	0	9	0	6	164
7:45 AM	0	96	3	6	89	0	0	0	0	3	0	10	207
8:00 AM	0	109	1	2	84	0	0	0	0	2	0	15	213
8:15 AM	0	37	1	10	87	0	0	0	0	2	0	3	140
8:30 AM	0	34	3	1	61	0	0	0	0	0	0	4	103
8:45 AM	0	23	1	2	54	0	0	0	0	2	0	2	84
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	446	13	24	588	0	0	0	0	26	0	46	1143
APPROACH %'s :	0.00%	97.17%	2.83%	3.92%	96.08%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	36.11%	0.00%	63.89%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	306	6	19	343	0	0	0	0	16	0	34	724
PEAK HR FACTOR :		0.709			0.933			0.000			0.735		0.850

UTURNS			
NB	SB	EB	WB
NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-005 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	McAuliff St			McAuliff St			Murrey Ave			Murrey Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	0	2	0	0	0	0	0	1	0	
4:00 PM	0	47	0	5	56	0	0	0	0	4	0	0	112
4:15 PM	0	47	1	3	66	0	0	0	0	2	0	3	122
4:30 PM	0	50	3	5	61	0	0	0	0	1	0	4	124
4:45 PM	0	60	3	8	48	0	0	0	0	3	0	6	128
5:00 PM	0	78	3	5	61	0	0	0	0	0	0	3	150
5:15 PM	0	61	4	6	67	0	0	0	0	1	0	5	144
5:30 PM	0	71	3	5	61	0	0	0	0	1	0	7	148
5:45 PM	0	59	4	9	61	0	0	0	0	4	0	4	141
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	473	21	46	481	0	0	0	0	16	0	32	1069
APPROACH %'s :	0.00%	95.75%	4.25%	8.73%	91.27%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	33.33%	0.00%	66.67%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	269	14	25	250	0	0	0	0	6	0	19	583
PEAK HR FACTOR :		0.873			0.942			0.000			0.781		0.972

UTURNS	NB	SB	EB	WB
	0	0	0	0

CONTROL : 1 Way Stop(WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-006 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Lovers Ln			Lovers Ln			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM	22	96	107	32	113	22	4	4	11	27	15	10	463
7:15 AM	35	87	143	37	97	23	3	12	22	25	15	11	510
7:30 AM	45	122	177	55	142	33	7	6	21	33	17	15	673
7:45 AM	64	195	191	57	173	59	9	11	19	43	25	20	866
8:00 AM	47	163	193	56	160	48	6	14	32	44	20	12	795
8:15 AM	52	137	168	53	118	31	6	21	35	39	36	8	704
8:30 AM	36	86	137	38	68	25	5	19	33	42	36	15	540
8:45 AM	48	86	123	34	72	20	5	14	33	31	24	12	502
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	349	972	1239	362	943	261	45	101	206	284	188	103	5053
APPROACH %'s :	13.63%	37.97%	48.40%	23.12%	60.22%	16.67%	12.78%	28.69%	58.52%	49.39%	32.70%	17.91%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	208	617	729	221	593	171	28	52	107	159	98	55	3038
PEAK HR FACTOR :		0.863			0.852			0.754			0.886		0.877

UTURNS

NB	SB	EB	WB
0	0	0	0
0	0	0	0
0	0	0	0
1	0	0	0
0	0	0	0
0	1	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
1	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-006 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Lovers Ln			Lovers Ln			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
4:00 PM	40	187	130	21	117	25	10	26	56	38	23	20	693
4:15 PM	26	153	129	26	115	15	9	30	53	36	32	24	648
4:30 PM	40	186	142	21	100	14	9	27	42	29	28	21	659
4:45 PM	39	179	153	37	110	26	9	33	45	37	27	26	721
5:00 PM	23	180	152	26	100	26	11	23	94	32	28	20	715
5:15 PM	27	190	144	34	126	21	13	27	46	38	23	14	703
5:30 PM	22	185	166	32	115	21	13	24	44	41	17	18	698
5:45 PM	21	161	131	28	86	21	6	19	31	36	22	16	578
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	238	1421	1147	225	869	169	80	209	411	287	200	159	5415
APPROACH %'s :	8.48%	50.64%	40.88%	17.81%	68.80%	13.38%	11.43%	29.86%	58.71%	44.43%	30.96%	24.61%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	111	734	615	129	451	94	46	107	229	148	95	78	2837
PEAK HR FACTOR :		0.979			0.931			0.746			0.892		0.984

UTURNS	NB	SB	EB	WB
	1	0	0	0
	1	0	0	0
	0	0	0	0
	1	1	0	0
	0	0	0	0
	0	0	0	0
	0	1	0	0
	0	0	0	0
	NB	SB	EB	WB
	3	2	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-007 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	US-198 WB Ramps			US-198 WB Ramps			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	12	0	0	0	0	0	0	49	96	44	38	0	239
7:15 AM	12	0	2	0	0	0	0	71	118	78	40	0	321
7:30 AM	5	0	3	0	0	0	0	77	161	95	58	0	399
7:45 AM	6	0	6	0	0	0	0	82	180	104	80	0	458
8:00 AM	4	0	6	0	0	0	0	94	169	53	75	0	401
8:15 AM	11	0	5	0	0	0	0	118	125	65	71	0	395
8:30 AM	19	0	1	0	0	0	0	98	92	34	72	0	316
8:45 AM	18	0	1	0	0	0	0	93	81	55	48	0	296
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	87	0	24	0	0	0	0	682	1022	528	482	0	2825
APPROACH %'s :	78.38%	0.00%	21.62%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	40.02%	59.98%	52.28%	47.72%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	26	0	20	0	0	0	0	371	635	317	284	0	1653
PEAK HR FACTOR :	0.719			0.000			0.956			0.817			0.902

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-007 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	US-198 WB Ramps			US-198 WB Ramps			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 0	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	24	0	0	0	0	0	0	99	78	38	61	0	300
4:15 PM	25	0	1	0	0	0	0	97	84	37	63	0	307
4:30 PM	28	0	0	0	0	0	0	106	89	38	52	0	313
4:45 PM	35	0	5	0	0	0	0	124	96	39	60	0	359
5:00 PM	21	0	1	0	0	0	0	119	79	34	54	0	308
5:15 PM	25	0	5	0	0	0	0	128	78	41	51	0	328
5:30 PM	24	0	3	0	0	0	0	141	81	38	52	0	339
5:45 PM	22	0	2	0	0	0	0	105	73	40	53	0	295
TOTAL VOLUMES :	NL 204	NT 0	NR 17	SL 0	ST 0	SR 0	EL 0	ET 919	ER 658	WL 305	WT 446	WR 0	TOTAL 2549
APPROACH %'s :	92.31%	0.00%	7.69%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	58.28%	41.72%	40.61%	59.39%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	105	0	14	0	0	0	0	512	334	152	217	0	1334
PEAK HR FACTOR :		0.744			0.000			0.953			0.932		0.929

UTURNS	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-008 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	McAuliff St			McAuliff St			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 1	ST 0	SR 1	EL 1	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	0	0	0	22	0	60	18	37	0	0	15	11	163
7:15 AM	0	0	0	18	0	86	25	46	0	0	22	15	212
7:30 AM	0	0	0	30	0	84	31	35	0	0	29	27	236
7:45 AM	0	0	0	33	0	94	50	25	0	0	33	25	260
8:00 AM	0	0	0	22	0	80	66	49	0	0	40	28	285
8:15 AM	0	0	0	27	0	72	38	61	0	0	36	11	245
8:30 AM	0	0	0	26	0	37	19	64	0	0	43	18	207
8:45 AM	0	0	0	25	0	46	21	70	0	0	38	9	209
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	203	0	559	268	387	0	0	256	144	1817
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	26.64%	0.00%	73.36%	40.92%	59.08%	0.00%	0.00%	64.00%	36.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	112	0	330	185	170	0	0	138	91	1026
PEAK HR FACTOR :	0.000			0.870			0.772			0.842			0.900

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3 Way Stop(SB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-008 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	McAuliff St			McAuliff St			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 1	ST 0	SR 1	EL 1	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	0	0	0	19	0	40	36	29	0	0	33	20	177
4:15 PM	0	0	0	22	0	38	38	25	0	0	36	20	179
4:30 PM	0	0	0	22	0	40	40	29	0	0	29	25	185
4:45 PM	0	0	0	21	0	44	60	26	0	0	34	22	207
5:00 PM	0	0	0	24	0	38	54	24	0	0	28	35	203
5:15 PM	0	0	0	24	0	51	73	19	0	0	21	25	213
5:30 PM	0	0	0	19	0	39	62	25	0	0	21	31	197
5:45 PM	0	0	0	15	0	54	50	21	0	0	20	27	187
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	166	0	344	413	198	0	0	222	205	1548
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	32.55%	0.00%	67.45%	67.59%	32.41%	0.00%	0.00%	51.99%	48.01%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	0	88	0	172	249	94	0	0	104	113	820
PEAK HR FACTOR :		0.000			0.867			0.932			0.861		0.962

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3 Way Stop(SB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-009 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Mineral King Ave			Mineral King Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	0	0	3	0	4	2	56	0	0	23	0	88
7:15 AM	0	0	0	6	0	4	0	62	0	0	32	1	105
7:30 AM	0	0	0	8	0	8	0	63	0	0	49	1	129
7:45 AM	0	0	0	4	0	11	1	58	0	0	50	1	125
8:00 AM	0	0	0	0	0	11	3	66	0	0	50	0	130
8:15 AM	0	0	0	2	0	0	7	78	0	0	47	0	134
8:30 AM	0	0	0	6	0	4	7	82	0	0	57	0	156
8:45 AM	0	0	0	2	0	1	6	92	0	0	45	1	147
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	31	0	43	26	557	0	0	353	4	1014
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	41.89%	0.00%	58.11%	4.46%	95.54%	0.00%	0.00%	98.88%	1.12%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	10	0	16	23	318	0	0	199	1	567
PEAK HR FACTOR :	0.000			0.591			0.870			0.877			0.909

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3 Way Stop(SB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-009 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Mineral King Ave			Mineral King Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	0	0	0	3	0	1	4	43	0	0	53	6	110
4:15 PM	0	0	0	4	0	4	9	42	0	0	52	0	111
4:30 PM	0	0	0	3	0	0	7	43	0	0	52	3	108
4:45 PM	0	0	0	3	0	3	7	39	0	0	54	3	109
5:00 PM	0	0	0	1	0	4	6	37	0	0	58	3	109
5:15 PM	0	0	0	3	0	3	5	41	0	0	43	7	102
5:30 PM	0	0	0	2	0	6	13	31	0	0	44	3	99
5:45 PM	0	0	0	3	0	7	12	24	0	0	41	2	89
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	22	0	28	63	300	0	0	397	27	837
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	44.00%	0.00%	56.00%	17.36%	82.64%	0.00%	0.00%	93.63%	6.37%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	0	0	13	0	8	27	167	0	0	211	12	438
PEAK HR FACTOR :	0.000			0.656			0.951			0.945			0.986

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 3 Way Stop(SB/EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-010 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	5th Ave			5th Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	0	0	8	0	3	30	28	0	0	20	11	100
7:15 AM	0	0	0	6	0	3	32	37	0	0	29	15	122
7:30 AM	0	0	0	10	0	6	17	53	0	0	44	9	139
7:45 AM	0	0	0	13	0	6	8	54	0	0	55	11	147
8:00 AM	0	0	0	11	0	8	20	43	0	0	41	21	144
8:15 AM	0	0	0	17	0	14	22	57	0	0	40	16	166
8:30 AM	0	0	0	9	0	21	20	65	0	0	40	20	175
8:45 AM	0	0	0	14	0	21	28	63	0	0	23	13	162
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	88	0	82	177	400	0	0	292	116	1155
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	51.76%	0.00%	48.24%	30.68%	69.32%	0.00%	0.00%	71.57%	28.43%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	51	0	64	90	228	0	0	144	70	647
PEAK HR FACTOR :	0.000			0.821			0.874			0.863			0.924

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-010 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	5th Ave			5th Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	0	0	1	0	0	1	0	
4:00 PM	0	0	0	5	0	8	5	40	0	0	51	7	116
4:15 PM	0	0	0	5	0	5	1	43	0	0	46	5	105
4:30 PM	0	0	0	9	0	2	0	46	0	0	50	5	112
4:45 PM	0	0	0	11	0	6	1	39	0	0	45	5	107
5:00 PM	0	0	0	5	0	5	1	38	0	0	56	6	111
5:15 PM	0	0	0	3	0	2	4	43	0	0	48	1	101
5:30 PM	0	0	0	4	0	1	1	31	0	0	47	2	86
5:45 PM	0	0	0	0	0	0	0	24	0	0	50	5	79
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	42	0	29	13	304	0	0	393	36	817
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	59.15%	0.00%	40.85%	4.10%	95.90%	0.00%	0.00%	91.61%	8.39%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	0	0	30	0	21	7	168	0	0	192	22	440
PEAK HR FACTOR :		0.000			0.750			0.951			0.922		0.948

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-011 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	US-198 WB On Ramp			US-198 WB On Ramp			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 0	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL
7:00 AM	0	0	0	0	0	0	0	26	1	42	44	0	113
7:15 AM	0	0	0	0	0	0	0	39	0	50	58	0	147
7:30 AM	0	0	0	0	0	0	0	42	1	63	81	1	188
7:45 AM	0	0	0	0	0	0	0	46	4	73	96	0	219
8:00 AM	0	0	0	0	0	0	0	32	0	53	96	0	181
8:15 AM	0	0	0	0	0	0	0	26	2	46	113	0	187
8:30 AM	0	0	0	0	0	0	0	31	1	37	110	0	179
8:45 AM	0	0	0	0	0	0	0	23	1	44	86	1	155
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	0	0	0	0	265	10	408	684	2	1369
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	96.36%	3.64%	37.29%	62.52%	0.18%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	146	7	235	386	1	775
PEAK HR FACTOR :	0.000			0.000			0.765			0.920			0.885

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : No Way Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-011 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	US-198 WB On Ramp			US-198 WB On Ramp			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 0	SR 0	EL 0	ET 0	ER 1	WL 0	WT 1	WR 0	TOTAL
4:00 PM	0	0	0	0	0	0	0	46	2	42	64	1	155
4:15 PM	0	0	0	0	0	1	0	48	1	40	52	2	144
4:30 PM	0	0	0	2	0	1	1	50	3	38	50	0	145
4:45 PM	0	0	0	0	0	0	1	45	4	43	52	0	145
5:00 PM	0	0	0	0	0	0	0	47	2	52	59	0	160
5:15 PM	0	0	0	1	0	0	1	40	4	37	47	1	131
5:30 PM	0	0	0	0	0	0	0	41	2	44	57	0	144
5:45 PM	0	0	0	0	0	0	0	31	1	40	52	0	124
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	3	0	2	3	348	19	336	433	4	1148
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	60.00%	0.00%	40.00%	0.81%	94.05%	5.14%	43.47%	56.02%	0.52%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	0	0	0	2	0	2	2	190	10	173	213	2	594
PEAK HR FACTOR :	0.000			0.333			0.935			0.874			0.928

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : No Way Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-012 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	6th Ave			6th Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	45	4	17	0	1	0	0	6	19	17	37	0	146
7:15 AM	53	1	16	0	1	0	1	4	36	17	57	1	187
7:30 AM	52	0	32	0	2	1	1	10	30	43	83	0	254
7:45 AM	59	2	30	0	1	6	0	10	33	31	99	1	272
8:00 AM	70	6	18	0	0	1	0	10	20	34	76	3	238
8:15 AM	64	0	28	0	3	1	0	11	19	18	89	2	235
8:30 AM	66	0	23	1	0	1	2	14	17	24	77	2	227
8:45 AM	57	0	14	1	1	0	1	11	10	14	69	0	178
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	466	13	178	2	9	10	5	76	184	198	587	9	1737
APPROACH %'s :	70.93%	1.98%	27.09%	9.52%	42.86%	47.62%	1.89%	28.68%	69.43%	24.94%	73.93%	1.13%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	245	8	108	0	6	9	1	41	102	126	347	6	999
PEAK HR FACTOR :	0.960			0.536			0.837			0.914			0.918

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-012 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	6th Ave			6th Ave			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	52	0	44	0	0	1	0	17	30	20	50	0	214
4:15 PM	42	2	41	0	0	0	0	18	29	30	50	3	215
4:30 PM	40	0	52	0	0	1	1	24	30	31	48	0	227
4:45 PM	47	6	43	1	4	0	3	17	27	34	45	0	227
5:00 PM	43	1	43	2	7	4	0	19	26	23	63	0	231
5:15 PM	34	2	59	0	0	0	1	20	20	27	47	0	210
5:30 PM	56	3	37	0	2	0	0	8	31	21	44	0	202
5:45 PM	44	1	39	1	1	2	0	11	22	18	45	0	184
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	358	15	358	4	14	8	5	134	215	204	392	3	1710
APPROACH %'s :	48.97%	2.05%	48.97%	15.38%	53.85%	30.77%	1.41%	37.85%	60.73%	34.06%	65.44%	0.50%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	172	9	179	3	11	5	4	78	112	118	206	3	900
PEAK HR FACTOR :		0.938			0.365			0.882			0.951		0.974

UTURNS				
NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-013 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	US-198 WB Off Ramp			US-198 WB Off Ramp			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	11	0	0	0	0	0	0	22	0	0	42	0	75
7:15 AM	13	0	0	0	0	0	0	21	0	0	63	0	97
7:30 AM	28	0	0	0	0	0	0	39	0	0	101	0	168
7:45 AM	25	0	0	0	0	0	3	36	0	0	100	0	164
8:00 AM	27	0	1	0	0	1	1	29	0	0	84	0	143
8:15 AM	20	0	1	0	0	0	1	38	0	0	96	0	156
8:30 AM	15	0	1	0	0	0	0	37	0	0	86	0	139
8:45 AM	12	0	0	0	0	0	0	28	0	0	74	0	114
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	151	0	3	0	0	1	5	250	0	0	646	0	1056
APPROACH %'s :	98.05%	0.00%	1.95%	0.00%	0.00%	100.00%	1.96%	98.04%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	100	0	2	0	0	1	5	142	0	0	381	0	631
PEAK HR FACTOR :	0.911			0.250			0.942			0.943			0.939

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-013 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	US-198 WB Off Ramp			US-198 WB Off Ramp			E Mineral King Ave			E Mineral King Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	17	0	3	0	0	0	0	60	0	0	55	0	135
4:15 PM	21	0	0	0	0	0	0	55	0	0	64	0	140
4:30 PM	14	0	3	0	0	0	1	75	0	0	64	0	157
4:45 PM	27	0	0	0	0	0	0	59	0	0	53	0	139
5:00 PM	18	0	2	0	0	0	0	65	0	0	67	0	152
5:15 PM	21	0	1	0	0	0	0	74	0	0	57	0	153
5:30 PM	20	1	0	0	0	0	0	45	0	0	48	0	114
5:45 PM	11	0	1	0	0	0	0	51	0	0	54	0	117
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	149	1	10	0	0	0	1	484	0	0	462	0	1107
APPROACH %'s :	93.13%	0.63%	6.25%	#DIV/0!	#DIV/0!	#DIV/0!	0.21%	99.79%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	80	0	6	0	0	0	1	273	0	0	241	0	601
PEAK HR FACTOR :		0.796			0.000			0.901			0.899		0.957

UTURNS	NB	SB	EB	WB

	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	0

CONTROL : 1 Way Stop(NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-014 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	US-198 EB Ramps			US-198 EB Ramps			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	0	0	0	1	1	0	1	0	0	1	0	
7:00 AM	0	0	0	30	0	1	5	9	0	0	12	18	75
7:15 AM	0	0	0	32	0	2	5	15	0	0	17	17	88
7:30 AM	0	0	0	32	0	0	9	11	0	0	21	19	92
7:45 AM	0	0	0	49	0	2	10	11	0	0	28	16	116
8:00 AM	0	0	0	28	0	5	1	9	0	0	23	3	69
8:15 AM	0	0	0	45	0	1	3	16	0	0	15	9	89
8:30 AM	0	0	0	38	0	3	3	16	0	0	20	8	88
8:45 AM	0	0	0	36	0	2	4	10	0	0	12	8	72
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	290	0	16	40	97	0	0	148	98	689
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	94.77%	0.00%	5.23%	29.20%	70.80%	0.00%	0.00%	60.16%	39.84%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	0	0	143	0	5	29	46	0	0	78	70	371
PEAK HR FACTOR :	0.000			0.725			0.893			0.841			0.800

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-014 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	US-198 EB Ramps			US-198 EB Ramps			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 0	NR 0	SL 0	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	0	0	0	62	0	6	1	31	0	0	17	10	127
4:15 PM	0	0	0	47	0	7	4	19	0	0	18	10	105
4:30 PM	0	0	0	70	0	1	5	33	0	0	20	10	139
4:45 PM	0	0	0	53	0	3	5	28	0	0	18	11	118
5:00 PM	0	0	0	67	0	1	3	28	0	0	21	14	134
5:15 PM	0	0	0	81	0	6	2	33	0	0	19	4	145
5:30 PM	0	0	0	47	0	1	1	29	0	0	23	7	108
5:45 PM	0	0	0	47	0	0	2	31	0	0	13	8	101
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	0	0	474	0	25	23	232	0	0	149	74	977
APPROACH %'s :	#DIV/0!	#DIV/0!	#DIV/0!	94.99%	0.00%	5.01%	9.02%	90.98%	0.00%	0.00%	66.82%	33.18%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	0	0	271	0	11	15	122	0	0	78	39	536
PEAK HR FACTOR :		0.000			0.810			0.901			0.836		0.924

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 1 Way Stop(SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-015 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	6th Ave			6th Ave			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
7:00 AM	4	43	5	0	19	17	17	7	15	2	6	4	139
7:15 AM	5	41	4	2	27	24	21	4	20	3	6	7	164
7:30 AM	9	63	5	6	41	28	19	4	22	5	6	5	213
7:45 AM	14	66	12	3	36	22	25	6	18	4	5	5	216
8:00 AM	5	55	1	6	36	16	27	4	13	3	6	1	173
8:15 AM	4	49	2	2	20	16	40	3	19	1	4	8	168
8:30 AM	10	41	5	3	29	11	40	2	14	4	9	4	172
8:45 AM	5	40	2	2	13	9	25	4	18	4	9	7	138
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	56	398	36	24	221	143	214	34	139	26	51	41	1383
APPROACH %'s :	11.43%	81.22%	7.35%	6.19%	56.96%	36.86%	55.30%	8.79%	35.92%	22.03%	43.22%	34.75%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	32	233	20	17	133	82	111	17	72	13	21	19	770
PEAK HR FACTOR :		0.774			0.773			0.806			0.828		0.891

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 2 Way Stop(EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-015 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	6th Ave			6th Ave			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	TOTAL
4:00 PM	7	54	5	1	35	13	39	13	41	3	6	7	224
4:15 PM	3	57	2	4	37	17	23	8	34	3	8	3	199
4:30 PM	17	43	2	5	43	10	46	8	44	3	4	5	230
4:45 PM	13	48	8	6	44	14	30	12	41	0	4	9	229
5:00 PM	11	50	4	2	39	15	38	6	49	4	7	5	230
5:15 PM	6	39	6	4	30	13	47	13	56	2	5	1	222
5:30 PM	11	68	3	6	39	10	29	14	35	2	8	5	230
5:45 PM	7	46	2	5	26	11	31	10	37	2	3	4	184
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	75	405	32	33	293	103	283	84	337	19	45	39	1748
APPROACH %'s :	14.65%	79.10%	6.25%	7.69%	68.30%	24.01%	40.20%	11.93%	47.87%	18.45%	43.69%	37.86%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	41	205	21	18	152	52	144	45	181	8	24	20	911
PEAK HR FACTOR :		0.814			0.867			0.797			0.813		0.990

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : 2 Way Stop(EB/WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-016 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Lovers Ln			Lovers Ln			US-198 EB Ramps			US-198 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 0	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1.5	ET 0	ER 0.5	WL 0	WT 0	WR 0	TOTAL
7:00 AM	0	164	8	24	125	0	62	0	47	0	0	0	430
7:15 AM	0	193	16	37	107	0	79	0	64	0	0	0	496
7:30 AM	0	255	7	25	174	0	81	0	53	0	0	0	595
7:45 AM	0	338	8	28	208	0	110	0	58	0	0	0	750
8:00 AM	0	307	7	23	213	0	96	0	58	0	0	0	704
8:15 AM	0	245	10	19	174	0	103	0	58	0	0	0	609
8:30 AM	0	193	9	28	114	0	72	0	48	0	0	0	464
8:45 AM	0	183	13	24	111	0	65	0	47	0	0	0	443
TOTAL VOLUMES :	0	1878	78	208	1226	0	668	0	433	0	0	0	4491
APPROACH %'s :	0.00%	96.01%	3.99%	14.50%	85.50%	0.00%	60.67%	0.00%	39.33%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	1145	32	95	769	0	390	0	227	0	0	0	2658
PEAK HR FACTOR :		0.850			0.915			0.918			0.000		0.886

UTURNS	NB	SB	EB	WB
TOTAL VOLUMES :	0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-016 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Lovers Ln			Lovers Ln			US-198 EB Ramps			US-198 EB Ramps			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	2	0	1	2	0	1.5	0	0.5	0	0	0	
4:00 PM	0	239	19	33	182	0	121	0	101	0	0	0	695
4:15 PM	0	220	15	31	167	0	91	1	83	0	0	0	608
4:30 PM	0	251	17	33	141	0	112	0	73	0	0	0	627
4:45 PM	0	245	19	29	157	0	120	0	89	0	0	0	659
5:00 PM	0	228	20	44	184	0	130	1	96	0	0	0	703
5:15 PM	0	210	27	36	179	0	156	0	108	0	0	0	716
5:30 PM	0	232	26	28	173	0	135	0	87	0	0	0	681
5:45 PM	0	213	17	20	133	0	103	0	64	0	0	0	550
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	0	1838	160	254	1316	0	968	2	701	0	0	0	5239
APPROACH %'s :	0.00%	91.99%	8.01%	16.18%	83.82%	0.00%	57.93%	0.12%	41.95%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	915	92	137	693	0	541	1	380	0	0	0	2759
PEAK HR FACTOR :		0.954			0.910			0.873			0.000		0.963

UTURNS

NB	SB	EB	WB

NB	SB	EB	WB
0	0	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-017 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

AM

NS/EW Streets:	Lovers Ln			Lovers Ln			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
7:00 AM	8	91	0	32	112	26	16	9	6	4	7	64	375
7:15 AM	7	121	1	39	114	17	19	7	16	3	12	72	428
7:30 AM	11	146	3	50	148	23	13	15	10	10	16	104	549
7:45 AM	11	211	3	61	171	29	26	15	8	10	18	110	673
8:00 AM	7	180	5	79	164	32	27	9	4	11	15	105	638
8:15 AM	14	163	3	62	146	33	20	11	12	7	16	76	563
8:30 AM	10	112	4	25	110	30	27	13	15	7	10	62	425
8:45 AM	11	120	3	29	111	14	22	16	11	7	7	53	404
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	79	1144	22	377	1076	204	170	95	82	59	101	646	4055
APPROACH %'s :	6.35%	91.89%	1.77%	22.75%	64.94%	12.31%	48.99%	27.38%	23.63%	7.32%	12.53%	80.15%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	43	700	14	252	629	117	86	50	34	38	65	395	2423
PEAK HR FACTOR :		0.841			0.907			0.867			0.902		0.900

UTURNS

NB	SB	EB	WB
2	0	0	0
3	1	0	0
1	0	0	0
1	0	0	0
1	0	0	0
3	0	0	0
0	0	0	0
0	0	0	0
NB	SB	EB	WB
11	1	0	0

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 14-8135-017 **Day:** Thursday

City: Visalia **Date:** 11/6/2014

PM

NS/EW Streets:	Lovers Ln			Lovers Ln			Noble Ave			Noble Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
4:00 PM	17	168	8	68	166	40	35	25	36	15	13	54	645
4:15 PM	20	149	6	57	170	33	36	22	29	8	10	52	592
4:30 PM	17	168	4	52	137	21	52	28	46	16	14	47	602
4:45 PM	21	172	12	55	161	31	35	24	37	5	29	55	637
5:00 PM	15	144	8	59	188	31	48	23	34	17	16	53	636
5:15 PM	11	144	11	86	157	35	39	33	31	15	22	52	636
5:30 PM	21	158	4	77	158	39	36	29	28	10	15	67	642
5:45 PM	16	139	5	50	110	27	45	33	27	11	19	47	529
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	138	1242	58	504	1247	257	326	217	268	97	138	427	4919
APPROACH %'s :	9.60%	86.37%	4.03%	25.10%	62.10%	12.80%	40.20%	26.76%	33.05%	14.65%	20.85%	64.50%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	68	618	35	277	664	136	158	109	130	47	82	227	2551
PEAK HR FACTOR :		0.879			0.969			0.945			0.967		0.993

UTURNS	NB	SB	EB	WB
	4	0	0	0
	1	0	0	0
	1	0	0	0
	4	0	0	0
	1	0	0	0
	0	0	0	0
	4	0	0	0
	1	0	0	0
	NB	SB	EB	WB
	16	0	0	0

CONTROL : Signalized

Prepared by NDS/ATD

VOLUME

Houston Ave Bet. Lovers Ln & McAuliff St

Day: Thursday
Date: 11/6/2014

City: Visalia
Project #: CA14_8136_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,598	3,630	7,228

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			11		4		15		12:00			52		106		158	
00:15			4		4		8		12:15			51		55		106	
00:30			7		1		8		12:30			54		71		125	
00:45			2	24	3	12	5	36	12:45			70	227	60	292	130	519
01:00			4		1		5		13:00			68		43		111	
01:15			5		2		7		13:15			54		53		107	
01:30			3		2		5		13:30			49		50		99	
01:45			2	14	1	6	3	20	13:45			50	221	56	202	106	423
02:00			3		3		6		14:00			53		58		111	
02:15			2		1		3		14:15			73		57		130	
02:30			2		0		2		14:30			56		74		130	
02:45			5	12	1	5	6	17	14:45			46	228	70	259	116	487
03:00			1		2		3		15:00			71		75		146	
03:15			1		0		1		15:15			96		107		203	
03:30			2		3		5		15:30			63		116		179	
03:45			2	6	1	6	3	12	15:45			61	291	85	383	146	674
04:00			6		1		7		16:00			87		71		158	
04:15			2		5		7		16:15			89		66		155	
04:30			1		7		8		16:30			71		52		123	
04:45			4	13	8	21	12	34	16:45			74	321	66	255	140	576
05:00			4		5		9		17:00			62		72		134	
05:15			12		5		17		17:15			79		80		159	
05:30			19		7		26		17:30			69		60		129	
05:45			24	59	16	33	40	92	17:45			67	277	69	281	136	558
06:00			24		17		41		18:00			71		48		119	
06:15			22		16		38		18:15			51		36		87	
06:30			35		23		58		18:30			68		41		109	
06:45			40	121	31	87	71	208	18:45			70	260	33	158	103	418
07:00			55		54		109		19:00			52		31		83	
07:15			50		44		94		19:15			38		23		61	
07:30			44		76		120		19:30			37		29		66	
07:45			67	216	117	291	184	507	19:45			37	164	19	102	56	266
08:00			88		117		205		20:00			28		19		47	
08:15			60		85		145		20:15			27		14		41	
08:30			48		45		93		20:30			24		30		54	
08:45			47	243	51	298	98	541	20:45			27	106	35	98	62	204
09:00			46		28		74		21:00			33		62		95	
09:15			42		31		73		21:15			31		69		100	
09:30			45		33		78		21:30			19		32		51	
09:45			53	186	33	125	86	311	21:45			24	107	14	177	38	284
10:00			53		64		117		22:00			17		3		20	
10:15			38		61		99		22:15			13		18		31	
10:30			45		53		98		22:30			12		11		23	
10:45			56	192	44	222	100	414	22:45			12	54	5	37	17	91
11:00			38		59		97		23:00			9		8		17	
11:15			60		65		125		23:15			11		4		15	
11:30			54		63		117		23:30			10		8		18	
11:45			68	220	68	255	136	475	23:45			6	36	5	25	11	61
TOTALS				1306		1361		2667	TOTALS				2292		2269		4561
SPLIT %				49.0%		51.0%		36.9%	SPLIT %				50.3%		49.7%		63.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	3,598	3,630	7,228

AM Peak Hour			07:45	07:30	07:30	PM Peak Hour	16:00	15:00	15:15
AM Pk Volume			263	395	654	PM Pk Volume	321	383	686
Pk Hr Factor			0.747	0.844	0.798	Pk Hr Factor	0.902	0.825	0.845
7 - 9 Volume	0	0	459	589	1048	4 - 6 Volume	0 0	598	536	1134
7 - 9 Peak Hour			07:45	07:30	07:30	4 - 6 Peak Hour		16:00	17:00	16:00
7 - 9 Pk Volume	0	0	263	395	654	4 - 6 Pk Volume	0 0	321	281	576
Pk Hr Factor	0.000	0.000	0.747	0.844	0.798	Pk Hr Factor	0.000 0.000	0.902	0.878	0.911

Prepared by NDS/ATD

VOLUME

Houston Ave Bet. Rd 148 Alignment & Rd 152

Day: Thursday
Date: 11/6/2014

City: Visalia
Project #: CA14_8136_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,070	2,049	4,119

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			5		1		6		12:00			29		50		79	
00:15			1		3		4		12:15			22		36		58	
00:30			3		1		4		12:30			39		38		77	
00:45			0	9	2	7	2	16	12:45			40	130	38	162	78	292
01:00			3		3		6		13:00			42		41		83	
01:15			2		0		2		13:15			31		32		63	
01:30			3		1		4		13:30			29		28		57	
01:45			2	10	0	4	2	14	13:45			25	127	45	146	70	273
02:00			1		0		1		14:00			34		39		73	
02:15			0		0		0		14:15			40		29		69	
02:30			1		3		4		14:30			30		43		73	
02:45			0	2	1	4	1	6	14:45			28	132	52	163	80	295
03:00			1		1		2		15:00			41		60		101	
03:15			2		2		4		15:15			41		41		82	
03:30			0		2		2		15:30			43		47		90	
03:45			2	5	2	7	4	12	15:45			32	157	45	193	77	350
04:00			3		2		5		16:00			30		43		73	
04:15			1		2		3		16:15			42		53		95	
04:30			1		3		4		16:30			45		35		80	
04:45			1	6	7	14	8	20	16:45			45	162	38	169	83	331
05:00			6		3		9		17:00			29		46		75	
05:15			11		3		14		17:15			38		32		70	
05:30			11		8		19		17:30			35		27		62	
05:45			24	52	10	24	34	76	17:45			20	122	35	140	55	262
06:00			19		8		27		18:00			44		26		70	
06:15			26		9		35		18:15			19		23		42	
06:30			29		17		46		18:30			39		19		58	
06:45			31	105	16	50	47	155	18:45			22	124	18	86	40	210
07:00			41		27		68		19:00			20		5		25	
07:15			40		32		72		19:15			18		11		29	
07:30			23		36		59		19:30			16		14		30	
07:45			34	138	58	153	92	291	19:45			23	77	16	46	39	123
08:00			44		51		95		20:00			18		9		27	
08:15			42		33		75		20:15			18		6		24	
08:30			31		29		60		20:30			16		12		28	
08:45			18	135	28	141	46	276	20:45			21	73	9	36	30	109
09:00			24		16		40		21:00			17		11		28	
09:15			18		28		46		21:15			15		13		28	
09:30			27		24		51		21:30			13		12		25	
09:45			41	110	36	104	77	214	21:45			12	57	6	42	18	99
10:00			31		55		86		22:00			11		2		13	
10:15			30		39		69		22:15			8		3		11	
10:30			38		39		77		22:30			11		4		15	
10:45			43	142	32	165	75	307	22:45			3	33	2	11	5	44
11:00			29		34		63		23:00			6		5		11	
11:15			45		37		82		23:15			8		3		11	
11:30			30		41		71		23:30			6		2		8	
11:45			36	140	54	166	90	306	23:45			2	22	6	16	8	38
TOTALS				854		839		1693	TOTALS				1216		1210		2426
SPLIT %				50.4%		49.6%		41.1%	SPLIT %				50.1%		49.9%		58.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,070	2,049	4,119

AM Peak Hour			10:30	11:15	07:45	PM Peak Hour			16:00	14:45	14:45
AM Pk Volume			155	182	322	PM Pk Volume			162	200	353
Pk Hr Factor			0.861	0.843	0.847	Pk Hr Factor			0.900	0.833	0.874
7 - 9 Volume	0	0	273	294	567	4 - 6 Volume	0	0	284	309	593
7 - 9 Peak Hour			07:45	07:30	07:45	4 - 6 Peak Hour			16:00	16:15	16:15
7 - 9 Pk Volume	0	0	151	178	322	4 - 6 Pk Volume	0	0	162	172	333
Pk Hr Factor	0.000	0.000	0.858	0.767	0.847	Pk Hr Factor	0.000	0.000	0.900	0.811	0.876

Prepared by NDS/ATD

VOLUME

Mineral King Ave Bet. Lovers Ln & McAuliff St

Day: Thursday
Date: 11/6/2014

City: Visalia
Project #: CA14_8136_003

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,862	4,978	9,840

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			8		6		14		12:00			100		96		196	
00:15			8		4		12		12:15			97		89		186	
00:30			3		2		5		12:30			86		94		180	
00:45			4	23	5	17	9	40	12:45			83	366	83	362	166	728
01:00			4		6		10		13:00			70		98		168	
01:15			4		1		5		13:15			69		75		144	
01:30			6		2		8		13:30			61		67		128	
01:45			2	16	3	12	5	28	13:45			56	256	77	317	133	573
02:00			2		2		4		14:00			87		79		166	
02:15			1		4		5		14:15			95		73		168	
02:30			2		2		4		14:30			78		61		139	
02:45			3	8	4	12	7	20	14:45			72	332	68	281	140	613
03:00			3		6		9		15:00			84		73		157	
03:15			3		2		5		15:15			81		56		137	
03:30			1		4		5		15:30			94		89		183	
03:45			6	13	9	21	15	34	15:45			89	348	71	289	160	637
04:00			2		5		7		16:00			82		79		161	
04:15			3		15		18		16:15			83		83		166	
04:30			1		14		15		16:30			83		78		161	
04:45			3	9	20	54	23	63	16:45			107	355	73	313	180	668
05:00			5		19		24		17:00			103		79		182	
05:15			5		17		22		17:15			106		73		179	
05:30			8		23		31		17:30			117		66		183	
05:45			10	28	35	94	45	122	17:45			88	414	77	295	165	709
06:00			13		34		47		18:00			86		79		165	
06:15			10		39		49		18:15			73		62		135	
06:30			27		45		72		18:30			61		65		126	
06:45			25	75	60	178	85	253	18:45			66	286	49	255	115	541
07:00			66		63		129		19:00			69		26		95	
07:15			49		117		166		19:15			49		22		71	
07:30			58		122		180		19:30			40		34		74	
07:45			89	262	152	454	241	716	19:45			55	213	27	109	82	322
08:00			125		145		270		20:00			55		31		86	
08:15			137		119		256		20:15			41		17		58	
08:30			66		81		147		20:30			37		29		66	
08:45			74	402	88	433	162	835	20:45			43	176	25	102	68	278
09:00			70		83		153		21:00			50		59		109	
09:15			63		72		135		21:15			43		94		137	
09:30			54		60		114		21:30			40		40		80	
09:45			66	253	72	287	138	540	21:45			25	158	24	217	49	375
10:00			75		60		135		22:00			28		22		50	
10:15			86		74		160		22:15			14		24		38	
10:30			101		98		199		22:30			23		28		51	
10:45			122	384	102	334	224	718	22:45			14	79	12	86	26	165
11:00			101		109		210		23:00			11		15		26	
11:15			82		97		179		23:15			16		3		19	
11:30			84		116		200		23:30			9		6		15	
11:45			95	362	108	430	203	792	23:45			8	44	2	26	10	70
TOTALS				1835		2326		4161	TOTALS				3027		2652		5679
SPLIT %				44.1%		55.9%		42.3%	SPLIT %				53.3%		46.7%		57.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	4,862	4,978	9,840

AM Peak Hour			07:45	07:30	07:30	PM Peak Hour			16:45	12:15	12:00
AM Pk Volume			417	538	947	PM Pk Volume			433	364	728
Pk Hr Factor			0.761	0.885	0.877	Pk Hr Factor			0.925	0.929	0.929
7 - 9 Volume	0	0	664	887	1551	4 - 6 Volume	0	0	769	608	1377
7 - 9 Peak Hour			07:45	07:30	07:30	4 - 6 Peak Hour			16:45	16:00	16:45
7 - 9 Pk Volume	0	0	417	538	947	4 - 6 Pk Volume	0	0	433	313	724
Pk Hr Factor	0.000	0.000	0.761	0.885	0.877	Pk Hr Factor	0.000	0.000	0.925	0.943	0.989

Prepared by NDS/ATD

VOLUME

Mineral King Ave Bet. Rd 148 Alignment & Rd 152

Day: Thursday
Date: 11/6/2014

City: Visalia
Project #: CA14_8136_004

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,937	3,760	6,697

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		2		4		12:00			61		130		191	
00:15			2		0		2		12:15			68		94		162	
00:30			1		0		1		12:30			58		109		167	
00:45			0	5	1	3	1	8	12:45			44	231	102	435	146	666
01:00			0		2		2		13:00			42		118		160	
01:15			0		0		0		13:15			42		73		115	
01:30			0		2		2		13:30			38		87		125	
01:45			1	1	2	6	3	7	13:45			35	157	78	356	113	513
02:00			1		5		6		14:00			43		76		119	
02:15			0		3		3		14:15			38		72		110	
02:30			0		1		1		14:30			41		66		107	
02:45			0	1	0	9	0	10	14:45			36	158	60	274	96	432
03:00			1		0		1		15:00			35		67		102	
03:15			2		0		2		15:15			36		62		98	
03:30			0		0		0		15:30			47		68		115	
03:45			1	4	3	3	4	7	15:45			47	165	73	270	120	435
04:00			2		1		3		16:00			46		58		104	
04:15			5		2		7		16:15			45		52		97	
04:30			1		5		6		16:30			47		53		100	
04:45			5	13	9	17	14	30	16:45			42	180	56	219	98	399
05:00			6		2		8		17:00			42		59		101	
05:15			10		2		12		17:15			44		51		95	
05:30			11		18		29		17:30			33		46		79	
05:45			18	45	15	37	33	82	17:45			28	147	43	199	71	346
06:00			17		20		37		18:00			25		39		64	
06:15			17		22		39		18:15			21		31		52	
06:30			36		30		66		18:30			26		20		46	
06:45			40	110	23	95	63	205	18:45			17	89	20	110	37	199
07:00			55		32		87		19:00			16		10		26	
07:15			68		38		106		19:15			13		15		28	
07:30			66		46		112		19:30			12		13		25	
07:45			74	263	62	178	136	441	19:45			16	57	15	53	31	110
08:00			83		54		137		20:00			14		7		21	
08:15			102		49		151		20:15			9		10		19	
08:30			63		47		110		20:30			6		12		18	
08:45			68	316	49	199	117	515	20:45			13	42	9	38	22	80
09:00			69		48		117		21:00			8		14		22	
09:15			74		38		112		21:15			21		12		33	
09:30			65		40		105		21:30			12		11		23	
09:45			77	285	50	176	127	461	21:45			6	47	7	44	13	91
10:00			80		101		181		22:00			4		8		12	
10:15			94		129		223		22:15			9		6		15	
10:30			72		126		198		22:30			10		1		11	
10:45			88	334	136	492	224	826	22:45			3	26	2	17	5	43
11:00			71		134		205		23:00			4		2		6	
11:15			61		121		182		23:15			4		5		9	
11:30			60		136		196		23:30			1		6		7	
11:45			57	249	123	514	180	763	23:45			3	12	3	16	6	28
TOTALS				1626		1729		3355	TOTALS				1311		2031		3342
SPLIT %				48.5%		51.5%		50.1%	SPLIT %				39.2%		60.8%		49.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	2,937	3,760	6,697

AM Peak Hour			10:00	10:45	10:15	PM Peak Hour	12:00	12:00	12:00
AM Pk Volume			334	527	850	PM Pk Volume	231	435	666
Pk Hr Factor			0.888	0.969	0.949	Pk Hr Factor	0.849	0.837	0.872
7 - 9 Volume	0	0	579	377	956	4 - 6 Volume	0 0	327	418	745
7 - 9 Peak Hour			07:30	07:45	07:30	4 - 6 Peak Hour		16:00	16:15	16:00
7 - 9 Pk Volume	0	0	325	212	536	4 - 6 Pk Volume	0 0	180	220	399
Pk Hr Factor	0.000	0.000	0.797	0.855	0.887	Pk Hr Factor	0.000 0.000	0.957	0.932	0.959

2014 Traffic Volumes on California State Highways

2014 TRAFFIC VOLUMES

ON THE CALIFORNIA STATE HIGHWAY SYSTEM

STATE OF CALIFORNIA

CALIFORNIA STATE TRANSPORTATION AGENCY

DEPARTMENT OF TRANSPORTATION

DIVISION OF TRAFFIC OPERATIONS

Sacramento, CA 95814

916-654-4578

Prepared in Cooperation with the

U.S. DEPARTMENT OF TRANSPORTATION

Federal Highway Administration

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PREFACE

Traffic Trend

A comparison of the 2014 over 2013 annual traffic volume data shows that state highway travel increased in 2014. This year's increase in vehicle miles of travel on California highways compares with prior years as follows:

*2014 over 2013	+ 2.64%
* 2013 over 2012	+ 1.86%
* 2012 over 2011	+ 0.24%
* 2011 over 2010	- 1.10%
2010 over 2009	- 0.20%

Traffic Profile

This booklet lists 2014 traffic volumes for all count locations on the California state highway system. Peak hours, peak month ADTs and annual ADTs are shown at each count location. Significant volume changes (breakpoints) in the traffic profile along each route are counted and identified by name and milepost value. In addition to the profile breakpoints, the booklet lists county lines and landmarks to aid in orientation.

The numbers shown in this booklet apply to the highway immediately back and ahead of the locations. Therefore, between any two successive breakpoints along the route it may be assumed that traffic volumes will vary from one breakpoint to the next at a reasonably uniform rate of increase or decrease. Where only a single set of figures appears between two breakpoints, a constant volume of traffic may be assumed for the intervening section of highway.

All traffic volume figures listed in this booklet include traffic in both directions unless otherwise indicated.

Route Number

All California state highways are listed in this booklet in order of Legislative Route number.

Milepost

Each profile breakpoint is identified by the milepost value corresponding to that point on the highway. The milepost values increase from the beginning of a route within a county to the next county line. The milepost values start over again at each county line. Milepost values usually increase from South to North or West to East depending upon the general direction the route follows within the state.

The milepost at a given location will remain the same year after year. When a section of road is relocated, new mileposts (usually noted by an alphabetical prefix such as "R" or "M") are established for it.

---

* Based on the Traffic Data Branch's Estimated Monthly Vehicle Miles of Travel Report.

Annual Average Daily Traffic (Annual ADT)

Annual average daily traffic is the total traffic volume for the year divided by 365* days. The traffic count year is from October 1st through September 30th. Very few locations in California are actually counted continuously. Traffic counting is generally performed by electronic counting instruments moved from location to location throughout the State in a program of continuous traffic count sampling. The resulting counts are adjusted to an estimate of annual average daily traffic by compensating for seasonal influence, weekly variation and other variables which may be present. Annual ADT is necessary for presenting a statewide picture of traffic flow, evaluating traffic trends, computing accident rates, planning and designing highways and other purposes.

Peak Month ADT

The peak month ADT is the average daily traffic for the month of heaviest traffic flow. This data is obtained because on many routes, high traffic volumes which occur during a certain season of the year are more representative of traffic conditions than the annual ADT.

Peak Hour

This publication includes an estimate of the "peak hour" traffic at all points on the state highway system. This value is useful to traffic engineers in estimating the amount of congestion experienced, and shows how near to capacity the highway is operating. Unless otherwise indicated, peak hour values indicate the volume in both directions.

A few hours each year are higher than the "peak hour," but not many. In urban and suburban areas, the peak hour normally occurs every weekday, during what is considered "rush hour" traffic. On roads with large seasonal fluctuations in traffic, the peak hour is the hour near the maximum for the year but excluding a few (30 to 50 hours) that are exceedingly high and are not typical of the frequency of the high hours occurring during the season.

Peak Hour Traffic Directional Split

The Peak Hour Traffic Directional Split listing is given after the last route. The listing is by district, route, control station, milepost, leg, one-way peak hour volume (1-way PHV) and shows the 2-way peak hour percent of AADT (K Factor), the percent traffic in the peak direction (D Factor), the 1-way peak hour percent of AADT (KD Factor), the ending hour, day, and month for the AM and the PM peak hours. The data given is for the latest year available at each of the control stations counted in the last three years. A glossary is also included.

* The routes listed on page iv were closed during the year for one month or more. The locations are listed in three groups: A. Regular Winter Closure, B. Closure Due to Flooding, Mudslide or Washout, and C. Closure Due to Construction. The ADT shown reflects travel while the route is open.

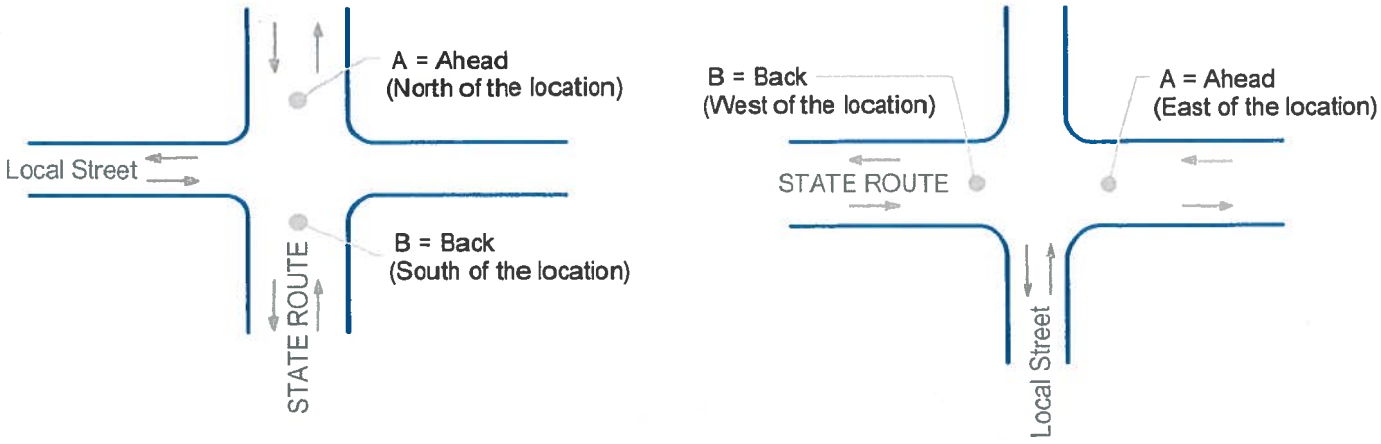
Closures List

A. Regular Winter Closure

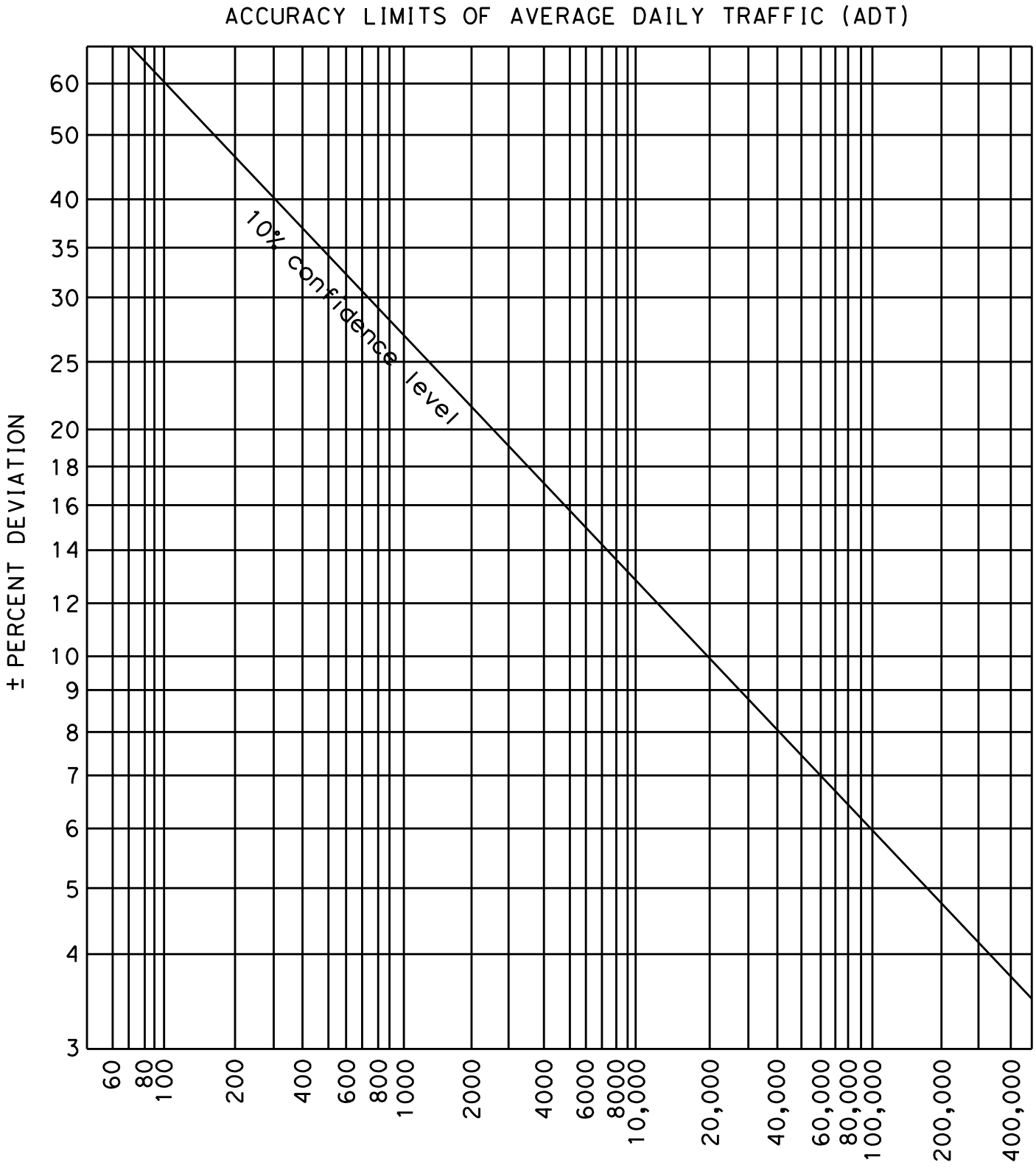
Route	Location/Miles Closed
2	.1 mile East of Kratka Ridge Skilift to Vincent Gap, 11.7 miles.
4	Ebbetts Pass, Mt. Reba Road to Jct. Route 89, 29 miles.
89	Monitor Pass, Jct. Route 395 to Jct. Route 4, 17.5 miles.
108	Sonora Pass, 6 miles East of Strawberry to 7 miles West of Jct. Route 395, 35 miles.
120	Tioga Pass, Crane Flat to 5 miles West of Jct. Route 395, 55 miles.
120	Mono-Milss Road, 2 miles East of Jct. Route 395 to 6 miles West of Jct. Route 6, 37.6 miles.
158	June Lake Loop, Powerhouse to North Jct. Route 395, 8.6 miles.
168	Bishop Creek Road, Aspendell to Lake Sabrina, 1.25 miles.
172	Mill Creek, Mill Creek P.O. to East Jct. Route 36, 3.2 miles.
173	Deer Park Road to Hesperia Road, 1.6 miles.
180	Kings Canyon National Park, Hume Lake Road to Deer Cove Creek, 19.8 miles.
203	Mammoth Lakes Road, Beginning at Mno/Mad. County line to 1 mile East, 1 mile.

Explanation of Traffic Counts

Explanatory Diagram of Traffic Counts



Generally, in California West to East routes are even numbered, while South to North routes are odd numbered. In addition, the postmile values increase from South to North or West to East depending upon the general direction the highway follows within the state, except the following 5 backward routes, Route 71 (North to South), Route 224 (East to West), Route 282 (East to West), Route 580 (East to West), and Route 780 (East to West).


ACCURACY LIMITS OF AVERAGE DAILY TRAFFIC (ADT)
± PERCENT DEVIATION
60
50
40
35
30
25
20
18
16
14
12
10
9
8
7
6
5
4
3
10% confidence level
60
80
100
200
400
600
800
1000
2000
4000
6000
8000
10,000
20,000
40,000
60,000
80,000
100,000
200,000
400,000

2014Traffic Volumes

Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
6	198	KIN	R	16.91	12TH AVENUE	2950	33000	32000	2700	31500	29500
6	198	KIN	R	17.912	HANFORD, 11TH AVENUE	2700	31500	29500	2200	25000	23700
6	198	KIN	R	18.959	HANFORD, 10TH AVENUE	1800	20600	19500	2100	23700	22500
6	198	KIN	R	20.975	JCT. RTE. 43	2100	24000	22500	2400	27500	25000
6	198	KIN		23.32	SIXTH AVENUE	2400	27500	25000	2400	27500	25000
6	198	KIN		28.325	KINGS/TULARE COUNTY LINE	2400	27500	25000			
6	198	TUL		0	KINGS/TULARE COUNTY LINE				2400	27500	25000
6	198	TUL	R	3.835 R	JCT. RTE. 99	870	11200	19000	1450	15900	24250
6	198	TUL	R	3.711 L	JCT. RTE. 99	870	11200	9750	4100	45000	42500
6	198	TUL	R	4.796	ALTA AVENUE; COUNTY ROAD 80	4550	49500	47000	5000	54000	51000
6	198	TUL		7.01	VISALIA, COUNTY ROAD 102	5300	56000	53000	5700	60000	57000
6	198	TUL		8.1	VISALIA, WEST MAIN STREET/ WHITNEY DRIVE	5700	60000	57000	6100	64000	60000
6	198	TUL	R	8.753	VISALIA, JCT. RTE. 63 SOUTH	6100	64000	60000	6200	65000	61000
6	198	TUL	R	9.967	VISALIA, JCT. RTE. 63 NORTH	6200	65000	61000	5100	53000	50000
6	198	TUL	R	10.734	BEN MADDOX WAY	5100	53000	50000	4200	43500	41000
6	198	TUL	R	11.719	LOVERS LANE	4200	43000	41000	2900	32500	31000
6	198	TUL	R	13.737	COUNTY ROAD 156	2900	32500	31000	2400	27500	25500
6	198	TUL	R	14.653	COUNTY ROAD 164	2400	27500	25500	2000	21300	20300
6	198	TUL	R	18.761	JCT. RTE. 65 SOUTH	2000	21300	20300	1350	15900	15000
6	198	TUL	R	19.762	JCT. RTE. 245 NORTH	1350	15900	15000	670	7900	6700
6	198	TUL		26.931	S LIM LEMON COVE	530	9000	4900	530	9000	4900
6	198	TUL		27.96	JCT. RTE. 216 WEST	530	9000	4900	660	5700	4100
6	198	TUL		30.75	LAKE KAWEAH BOAT LAUNCHING MARINA	660	5700	4100	690	6000	4200
6	198	TUL		35.91	MORO ROAD (TO STIVERS RANCH)	660	5900	4000	700	6000	4100
6	198	TUL		37.401	W LIM THREE RIVERS	700	6000	4100	710	6000	4200
6	198	TUL		38.49	THREE RIVERS, N FORK DR (COUNTY RD TO KAWEAH)	710	6000	4200	780	6300	4450
6	198	TUL		39.691	E LIM THREE RIVERS	670	4550	3700	670	4550	3700
6	198	TUL		42.35	THREE RIVERS, MINERAL KING ROAD	670	4550	3700	310	2950	1550
6	198	TUL		44.163	SEQUOIA NATIONAL PARK BOUNDARY	310	2950	1550			
1	199	DN	T	0.506 R	JCT. RTE. 101, BEGIN RIGHT ALIGN				320	3300	2300
1	199	DN	T	0.784 R	END RIGHT ALIGN	320	3300	2300			

Dist	Route	County		Postmile	Description	Back Peak Hour	Back Peak Month	Back AADT	Ahead Peak Hour	Ahead Peak Month	Ahead AADT
8	215	SBD		5.581	SAN BERNARDINO, INLAND CENTER DRIVE	11300	143000	140000	10900	138000	135000
8	215	SBD		6.06	SAN BERNARDINO, MILL STREET	10900	138000	135000	10800	139000	136000
8	215	SBD		6.787	SAN BERNARDINO, SECOND STREET	10800	139000	136000	9900	128000	125000
8	215	SBD		7.183	SAN BERNARDINO, JCT. RTE. 66 WEST	9900	128000	125000	9800	128000	125000
8	215	SBD		8.083	SAN BERNARDINO, BASELINE STREET	9800	128000	125000	9000	118000	115000
8	215	SBD		8.603	SAN BERNARDINO, JCT. RTE. 259 NORTH	9000	118000	115000	5200	67000	65000
8	215	SBD		9.029	SAN BERNARDINO, MASSACHUSETTS AVENUE	5200	67000	65000	5200	65000	63000
8	215	SBD		9.364	SAN BERNARDINO, HIGHLAND AVENUE	5200	65000	63000	4950	60000	58000
8	215	SBD		9.722	SAN BERNARDINO, MOUNT VERNON AVE/27TH ST	4950	60000	58000	5000	59000	56000
8	215	SBD		10.051	JCT. RTE. 210U	5000	59000	56000	6500	76000	72000
8	215	SBD		11.634	UNIVERSITY PARKWAY	6500	76000	72000	4500	56000	53000
8	215	SBD		14.091	PALM AVENUE	4500	56000	53000	4500	56000	53000
8	215	SBD		17.323	DEVORE ROAD	4500	56000	53000	4050	50000	48000
8	215	SBD		17.753	JCT. RTE. 15	4050	50000	48000			
6	216	TUL	R	0	VISALIA, JCT. RTE. 198				1650	17000	15000
6	216	TUL	R	0.349	MILL CREEK PARKWAY	1750	18000	16000	1300	14000	12000
6	216	TUL	R	0.488	VISALIA, GOSHEN AVENUE	1600	17200	14700	1350	13800	11900
6	216	TUL	R	0.824	ROOSEVELT AVENUE	1350	13800	11900	1200	13000	10700
6	216	TUL	R	0.99	LOVERS LANE	1200	13000	10700	990	11100	9200
6	216	TUL		2.46	MACAULIFF AVE, RD 144	990	11100	9200	390	3950	3600
6	216	TUL		6.95	IVANHOE, AVENUE 328	550	5600	5100	450	4500	4100
6	216	TUL		11.732	AVENUE 344	370	4050	3750	430	4700	4350
6	216	TUL		12.01	ROAD 196	430	4700	4350	510	5600	5200
6	216	TUL		14.006	WOODLAKE, JCT. RTE. 245	530	5800	5400	450	4900	4600
6	216	TUL		14.51	WOODLAKE, ROAD 216	450	4900	4600	200	2250	2100
6	216	TUL		18.67	DRY CREEK ROAD	90	1050	970	110	1200	1100
6	216	TUL		19.245	JCT. RTE. 198	140	1200	1100			
5	217	SB		0.464	ENTRANCE TO UC SANTA BARBARA				1500	13900	12200
5	217	SB		0.93	SANTA BARBARA, SANDSPIT ROAD	1500	14000	12000	2300	19000	16800
5	217	SB		2.232	HOLLISTER AVENUE	2400	20000	17800	3100	25000	22000
5	217	SB		2.756	JCT. RTE. 101	3200	26000	23000			

PEAK HOUR VOLUME DATA

Peak hour volume data consists of hourly volume relationships and data location. The hourly volumes are expressed as a percentage of the Annual Average Daily Traffic (AADT). The percentages are shown for both the AM and the PM peak periods.

The principle data described here are the K factor, the D factor and their product (KD). The K factor is the percentage of AADT during the peak hour for both directions of travel. The D factor is the percentage of the peak hour travel in the peak direction. KD multiplied with the AADT gives the one way peak period directional flow rate or the design hourly volume (DHV). The design hourly volume is used for either Operational Analysis or Design Analysis. Refer to the 2010 Highway Capacity Manual for more details.

Following is a glossary of terms used in this listing of peak hour volume data:

Dir	Indicates direction of travel for peak volume
AADT	Annual Average Daily Traffic in vehicles per day (vpd).
AM Peak	Represents the morning peak period for traffic analysis
CS	Control Station Number, Caltrans identification number for monitoring site.
CO	County abbreviation used by Caltrans
D	D factor. The percentage of traffic in the peak direction during the peak hour. Values in this book are derived by dividing the measured PHV by the sum of both directions of travel during the peak hour.
DAY	Day of week for the peak volume.
DDHV	The directional design hour volume, in vehicles per hour (vph) DDHV=AADTxKxD. See equation (3-1) on page 3-11 of the 2010 Highway Capacity Manual.
DI	Caltrans has twelve transportation districts statewide. This abbreviation identifies the district in which the count station is located.
HR	The ending time for the peak hour volume listed. The volume observed from 1 to 2 would be recorded as 2.

K	The percentage of the AADT in both directions during the peak hour. Values in this table are derived by dividing the measured 2-way PHV by the AADT.
KD	The product of K and D. The percentage of AADT in the peak direction during the peak hour. Values in this table are derived by dividing the measured 1-way PHV by the AADT.
LEG	For traffic counting purposes, a highway intersection or interchange is assigned two legs according to increasing postmiles (route direction) and with a postmile reference at the center of the intersection or interchange. The volume of traffic on each leg is denoted by an A, B or O. A = ahead leg, B = back leg, and O – traffic volume being same for both back and ahead legs.
MNTH	The month that the peak volume occurred.
PHV	Peak Hour Volume in the peak direction. A one way volume in vehicles per hour (vph) as used here. The PHV is analogous to the DDHV as used for design purposes.
PM	The Post Mile is the mileage measured from the county line, or from the beginning of a route. Each postmile along a route in a county is a unique location on the state highway system.
PM Peak	Represents the afternoon peak period for traffic analysis.
PRE	The postmile may have a prefix like R, T, L, M, etc. When a length of highway is changed due to construction or realigment, new postmile values are assigned. To distinguish the new values from the old, an alpha code is prefixed to the new postmile.
RTE	The state highway route number
YR	The year when the count was made. Traffic counting is on a 3-year cycle.

CALIFORNIA DEPARTMENT OF TRANSPORT

REPORT : OTM32420

REPORT TITLE : PRINT TRAFFIC BOOK

PARAMETERS

YEAR : 2014

									AM PEAK							PM PEAK						
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH
05	192	SB		4.15	104	B	12	W	132	7.91	66.67	5.28	8	TUE	JUN	E	219	12.07	72.52	8.75	17	FRI	JUN
05	192	SB		11.8	108	A	12	W	246	16.17	72.35	11.7	12	TUE	JUN	E	490	27.87	83.62	23.3	16	THU	JUN
05	192	SB		17.44	110	A	12	W	283	13.13	70.75	9.29	7	THU	DEC	E	305	15.27	65.59	10.01	16	THU	JUN
05	192	SB		17.44	111	B	12	W	812	29.93	66.5	19.9	7	TUE	DEC	W	405	12.26	81	9.93	13	TUE	JUN
03	193	PLA		3	894	B	12	E	521	9.17	61.95	5.68	7	WED	MAR	W	592	10.29	62.71	6.45	17	TUE	DEC
03	193	PLA		3	896	A	12	W	356	9.16	60.14	5.51	7	THU	SEP	E	361	10.43	53.56	5.58	16	FRI	SEP
05	198	MON		14.00	154	B	12	E	73	11.93	70.19	8.37	5	WED	APR	W	70	12.39	64.82	8.03	17	THU	APR
06	198	FRE		0	404	A	14	W	46	10.67	60.53	6.46	11	SUN	MAR	E	62	15.03	57.94	8.71	15	SUN	MAR
06	198	FRE		21.19	128	B	14	E	50	10.02	56.18	5.63	12	SUN	MAR	W	63	10.92	64.95	7.09	13	SAT	MAR
06	198	FRE		22.66	43	A	14	W	102	7.54	72.86	5.49	5	TUE	SEP	E	116	10.07	62.03	6.25	16	WED	SEP
06	198	FRE		26.78	403	A	14	W	175	7.76	61.4	4.76	11	FRI	JUN	E	211	9.72	59.1	5.74	15	FRI	MAR
06	198	KIN		3.011	130	B	14	W	239	6.88	71.56	4.92	5	TUE	JUL	E	311	9.88	64.79	6.4	16	MON	JUL
06	198	KIN		3.011	131	A	14	W	881	8.62	88.81	7.65	6	THU	APR	E	963	11.04	75.77	8.36	16	TUE	JAN
06	198	KIN		8.897	36	B	14	W	1355	8.67	86.75	7.52	6	THU	APR	E	1410	10.09	77.52	7.82	16	TUE	OCT
06	198	KIN	R	10.56	629	B	14	W	1133	7.05	80.53	5.68	6	TUE	JAN	E	1152	9.15	63.12	5.77	16	MON	JUL
06	198	KIN	R	20.98	427	A	14	W	3449	16.83	81.87	13.77	11	MON	JUL	W	3584	15.97	89.65	14.31	19	TUE	JUL
06	198	KIN	R	20.98	39	B	14	W	1150	8.29	61.43	5.09	7	TUE	OCT	E	1169	9.04	57.28	5.18	15	FRI	APR
06	198	TUL	R	3.711	29	B	14	W	1205	8.89	57.96	5.15	7	TUE	SEP	E	1259	9.45	56.99	5.38	16	FRI	NOV
06	198	TUL		7.76	668	B	14	W	2896	9.01	56.32	5.07	7	MON	OCT	E	3151	10.01	55.16	5.52	17	TUE	APR
06	198	TUL	R	8.753	133	B	14	W	2915	9.45	51.19	4.84	7	TUE	FEB	E	3281	9.99	54.51	5.44	17	WED	SEP
06	198	TUL	R	18.76	134	B	14	W	1139	9.8	57.38	5.62	7	WED	AUG	E	1047	9.36	55.25	5.17	17	TUE	APR
06	198	TUL	R	19.76	18	A	14	E	393	8.92	66.05	5.89	11	SAT	JUL	W	381	8.34	68.53	5.71	18	SUN	JUL
06	198	TUL	R	19.76	115	B	14	W	818	9.06	60.28	5.46	7	THU	OCT	E	764	7.07	72.14	5.1	17	THU	APR
06	198	TUL		27.96	408	B	14	E	398	9.3	87.86	8.17	11	SAT	JUL	E	433	10.32	86.08	8.89	13	SUN	JUL
06	198	TUL		42.35	135	A	14	W	196	15.98	79.68	12.74	9	SAT	JUL	E	193	15.6	80.42	12.54	18	SUN	JUL
06	201	FRE		0	136	A	14	E	532	7.44	56.36	4.19	12	THU	FEB	E	601	8.49	55.75	4.74	15	THU	FEB
06	201	TUL		1.4	654	A	14	W	314	7.76	67.38	5.23	5	THU	AUG	E	380	10.13	62.5	6.33	16	THU	NOV
06	201	TUL		13.97	27	B	14	W	92	11.46	82.14	9.42	5	THU	SEP	E	78	12.08	66.1	7.98	15	WED	SEP
06	201	TUL	L	13.98	26	A	14	W	257	9.01	62.68	5.65	7	THU	MAR	W	257	10.33	54.68	5.65	14	MON	MAR
06	201	TUL		23.96	137	B	14	E	93	11.43	67.88	7.76	6	WED	OCT	W	81	10.51	64.29	6.76	15	TUE	OCT
06	204	KER		2.069	139	A	12	N	1464	6.71	65.36	4.38	7	TUE	SEP	S	1529	9	50.88	4.58	16	THU	DEC
06	204	KER		3.76	140	B	12	S	1538	5.8	88.09	5.11	5	SUN	DEC	S	1478	5.25	93.54	4.91	0	WED	DEC
06	204	KER		6.258	204	B	12	S	2247	9.81	62.54	6.13	7	THU	SEP	N	1966	10.19	52.68	5.37	17	WED	MAR

									AM PEAK							PM PEAK						
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH
04	205	ALA		.214	251	A	14	W	5069	4.89	90.73	4.44	4	THU	AUG	E	5469	6.42	74.62	4.79	18	THU	MAY
07	210	LA	R	18.87	252	A	14	E	6155	8.3	60.31	5	7	TUE	NOV	W	6215	9.11	55.49	5.05	17	WED	OCT
08	210	SBD		11.50	202	B	14	W	6566	7.42	55.36	4.11	8	TUE	FEB	E	6775	7.43	57.04	4.24	18	FRI	FEB
06	216	TUL		2.46	171	A	14	W	210	9.54	60.87	5.81	12	SUN	OCT	E	220	11.25	54.05	6.08	15	FRI	OCT
06	216	TUL		11.73	831	B	14	W	220	9.16	64.14	5.88	7	MON	JAN	E	206	10.63	51.76	5.5	16	FRI	APR
06	216	TUL		14.01	143	B	14	W	298	7.68	72.51	5.57	6	FRI	APR	E	293	10.18	53.76	5.47	15	FRI	OCT
06	216	TUL		14.01	144	A	14	W	255	9.13	60.14	5.49	7	WED	APR	E	254	9.38	58.26	5.47	17	THU	APR
06	216	TUL		19.25	145	B	14	W	88	10.77	75.21	8.1	11	SAT	OCT	W	73	11.51	58.4	6.72	15	FRI	APR
05	217	SB		.464	126	A	14	W	1043	11.85	71.88	8.52	8	WED	JUL	E	1167	12.52	76.13	9.53	17	THU	APR
05	218	MON	R	0	269	A	13	W	1106	8.11	58.55	4.75	8	THU	FEB	W	1298	8.82	63.19	5.57	17	WED	FEB
04	220	SOL		0	351	A	13	W	18	23.36	56.25	13.14	10	MON	SEP	E	15	15.33	71.43	10.95	15	MON	JUN
04	221	NAP		2.682	77	B	14	N	1300	8.21	52.53	4.31	12	FRI	JAN	N	1432	8.22	57.79	4.75	16	FRI	JAN
06	223	KER		1.85	161	A	12	W	136	11.01	87.18	9.6	5	TUE	JUN	E	104	10.09	72.73	7.34	16	WED	JUN
06	223	KER	R	10.94	146	A	12	E	274	8.35	55.69	4.65	7	FRI	SEP	E	309	8.49	61.8	5.25	17	TUE	JUN
06	223	KER		20.91	147	B	12	W	416	7.95	51.11	4.06	12	THU	DEC	E	501	9.08	53.87	4.89	17	MON	DEC
06	223	KER		31.92	148	B	12	W	208	18.16	90.04	16.35	8	SAT	DEC	E	86	10.46	64.66	6.76	16	THU	JUN
06	233	MAD		.005	149	A	13	S	160	9.16	53.16	4.87	7	MON	OCT	N	191	8.92	65.19	5.81	17	MON	OCT
06	233	MAD		3.586	150	B	13	N	522	7.9	54.83	4.33	8	WED	JAN	N	595	8.81	56.03	4.94	15	FRI	OCT
05	236	SCR		0	313	A	14	S	355	10.44	55.73	5.82	8	MON	SEP	N	411	9.87	68.27	6.74	17	THU	SEP
04	237	SCL	R	4.599	491	A	13	E	5827	9.38	51.24	4.81	8	TUE	FEB	E	5015	8.02	51.62	4.14	17	TUE	FEB
04	237	SCL		6.866	495	B	13	W	6104	8.78	55.61	4.88	8	WED	MAY	E	5148	7.1	58.02	4.12	13	FRI	NOV
04	237	SCL		8.02	482	A	13	W	5966	6.78	65.99	4.48	10	THU	FEB	E	6118	7.65	59.97	4.59	17	MON	MAY
04	238	ALA		16.28	148	A	12	S	5507	7.79	71.92	5.6	9	FRI	APR	S	6805	8.85	78.2	6.92	17	FRI	APR
06	245	TUL		0	87	A	14	N	177	10.4	56.55	5.88	6	TUE	OCT	S	191	11.27	56.34	6.35	15	MON	OCT
06	245	TUL		7.066	88	A	14	N	294	8.65	50.09	4.33	12	TUE	OCT	N	369	9.36	58.11	5.44	16	FRI	OCT
06	245	TUL		7.066	406	B	14	S	233	7.74	59.14	4.58	7	MON	JAN	S	285	10	55.99	5.6	16	THU	OCT
06	245	TUL		12.00	89	A	14	S	38	9.57	74.51	7.13	7	TUE	APR	N	47	13.32	66.2	8.82	13	SAT	APR
06	245	TUL		12.00	407	B	14	N	60	9.49	64.52	6.12	9	SAT	APR	S	62	10.61	59.62	6.33	14	SAT	OCT
06	245	FRE		8.971	304	B	14	N	22	24.8	70.97	17.6	11	FRI	JUL	S	21	20.8	80.77	16.8	16	SAT	JUL
05	246	SB		9.55	203	B	14	W	569	9.42	54.71	5.16	11	SAT	NOV	W	651	10.07	58.6	5.9	17	WED	NOV
05	246	SB		9.56	205	A	13	E	425	7.75	66.61	5.16	6	WED	MAY	W	506	9.97	61.63	6.14	16	THU	MAY
05	246	SB	R	26.05	207	B	14	E	838	6.89	69.14	4.77	7	WED	AUG	W	911	9.08	57.08	5.18	16	WED	MAY
05	246	SB		26.07	209	A	14	W	1128	8.17	56.06	4.58	12	THU	AUG	W	1375	9.11	61.28	5.58	18	FRI	MAY

APPENDIX D

SYNCHRO 9 (HCM 2010) Worksheets

EXISTING WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	180	192	97	190	174	116	335	135	101	317	59
Future Volume (veh/h)	87	180	192	97	190	174	116	335	135	101	317	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	101	209	223	143	279	256	166	479	193	122	382	71
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.68	0.68	0.68	0.70	0.70	0.70	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	124	648	546	206	619	522	197	1038	451	147	789	145
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.11	0.30	0.30	0.08	0.27	0.27
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1523	1757	2947	542
Grp Volume(v), veh/h	101	209	223	143	279	256	166	479	193	122	226	227
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1523	1757	1752	1737
Q Serve(g_s), s	5.6	8.2	10.8	4.2	11.9	13.1	9.2	11.0	10.1	6.8	10.7	10.9
Cycle Q Clear(g_c), s	5.6	8.2	10.8	4.2	11.9	13.1	9.2	11.0	10.1	6.8	10.7	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	124	648	546	206	619	522	197	1038	451	147	469	465
V/C Ratio(X)	0.81	0.32	0.41	0.70	0.45	0.49	0.84	0.46	0.43	0.83	0.48	0.49
Avail Cap(c_a), veh/h	124	648	546	311	662	557	250	1345	584	147	570	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	23.5	24.3	45.6	25.3	25.7	43.1	28.4	28.1	44.7	30.5	30.5
Incr Delay (d2), s/veh	30.4	1.3	2.3	1.6	1.9	2.6	15.3	0.8	1.7	29.3	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.4	4.9	2.0	6.2	5.9	5.3	5.4	4.4	4.5	5.5	5.5
LnGrp Delay(d),s/veh	75.8	24.8	26.6	47.1	27.2	28.3	58.3	29.2	29.8	73.9	32.5	32.6
LnGrp LOS	E	C	C	D	C	C	E	C	C	E	C	C
Approach Vol, veh/h		533			678			838			575	
Approach Delay, s/veh		35.2			31.8			35.1			41.3	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.3	41.6	15.3	31.8	11.2	40.7	12.5	34.6
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.2	12.8	11.2	12.9	7.6	15.1	8.8	13.0
Green Ext Time (p_c), s	0.1	11.3	0.1	11.4	0.0	11.0	0.0	13.5

Intersection Summary	
HCM 2010 Ctrl Delay	35.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	52	107	159	98	55	208	617	729	221	593	171
Future Volume (veh/h)	28	52	107	159	98	55	208	617	729	221	593	171
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	37	69	143	179	110	62	242	717	848	260	698	201
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	323	157	325	283	325	183	268	749	662	262	1122	323
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.25	0.71	0.71	0.15	0.43	0.43
Sat Flow, veh/h	1188	533	1104	1146	1105	623	1757	1752	1550	1723	2628	757
Grp Volume(v), veh/h	37	0	212	179	0	172	242	717	848	260	457	442
Grp Sat Flow(s),veh/h/ln	1188	0	1636	1146	0	1727	1757	1752	1550	1723	1719	1665
Q Serve(g_s), s	2.8	0.0	11.6	16.5	0.0	8.6	14.7	40.7	47.0	16.6	22.8	22.8
Cycle Q Clear(g_c), s	11.4	0.0	11.6	28.1	0.0	8.6	14.7	40.7	47.0	16.6	22.8	22.8
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	323	0	482	283	0	509	268	749	662	262	734	711
V/C Ratio(X)	0.11	0.00	0.44	0.63	0.00	0.34	0.90	0.96	1.28	0.99	0.62	0.62
Avail Cap(c_a), veh/h	351	0	521	310	0	550	315	749	662	262	734	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.53	0.53	0.53	0.86	0.86	0.86
Uniform Delay (d), s/veh	34.9	0.0	31.5	42.8	0.0	30.4	40.2	14.8	15.7	46.6	24.6	24.6
Incr Delay (d2), s/veh	0.2	0.0	0.6	3.6	0.0	0.4	14.5	15.8	132.5	49.7	3.4	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	5.3	5.5	0.0	4.2	8.1	22.2	43.7	11.5	11.5	11.1
LnGrp Delay(d),s/veh	35.0	0.0	32.1	46.5	0.0	30.8	54.7	30.6	148.2	96.3	28.0	28.1
LnGrp LOS	D		C	D		C	D	C	F	F	C	C
Approach Vol, veh/h		249			351			1807			1159	
Approach Delay, s/veh		32.5			38.8			89.0			43.4	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.4	52.3		37.3	20.5	52.2		37.3
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	18.6	49.0		13.6	16.7	24.8		30.1
Green Ext Time (p_c), s	0.0	0.0		3.0	0.1	15.9		1.4

Intersection Summary	
HCM 2010 Ctrl Delay	65.3
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	0	227	0	0	0	0	1145	32	95	769	0
Future Volume (veh/h)	390	0	227	0	0	0	0	1145	32	95	769	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	336	124	247				0	1347	38	103	836	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	446	139	277				0	1667	47	227	2300	0
Arrive On Green	0.25	0.25	0.25				0.00	0.96	0.96	0.17	0.87	0.00
Sat Flow, veh/h	1757	547	1090				0	3573	98	1757	3597	0
Grp Volume(v), veh/h	336	0	371				0	678	707	103	836	0
Grp Sat Flow(s),veh/h/ln	1757	0	1637				0	1752	1826	1757	1752	0
Q Serve(g_s), s	19.4	0.0	24.1				0.0	7.8	7.9	5.8	4.9	0.0
Cycle Q Clear(g_c), s	19.4	0.0	24.1				0.0	7.8	7.9	5.8	4.9	0.0
Prop In Lane	1.00		0.67				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	446	0	415				0	840	875	227	2300	0
V/C Ratio(X)	0.75	0.00	0.89				0.00	0.81	0.81	0.45	0.36	0.00
Avail Cap(c_a), veh/h	517	0	482				0	840	875	227	2300	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.62	0.62	0.74	0.74	0.00
Uniform Delay (d), s/veh	37.9	0.0	39.6				0.0	1.4	1.4	42.1	2.7	0.0
Incr Delay (d2), s/veh	5.3	0.0	17.1				0.0	5.2	5.1	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	0.0	12.8				0.0	3.5	3.6	2.8	2.4	0.0
LnGrp Delay(d),s/veh	43.2	0.0	56.7				0.0	6.6	6.4	42.5	3.0	0.0
LnGrp LOS	D		E					A	A	D	A	
Approach Vol, veh/h		707						1385			939	
Approach Delay, s/veh		50.3						6.5			7.4	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.5	58.0		32.5		77.5		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	7.8	9.9		26.1		6.9		
Green Ext Time (p_c), s	2.3	27.8		1.9		12.3		

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	50	34	38	65	395	43	700	14	252	629	117
Future Volume (veh/h)	86	50	34	38	65	395	43	700	14	252	629	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	99	57	39	42	72	439	51	833	17	277	691	129
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.84	0.84	0.84	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	125	374	256	485	82	502	76	1069	22	318	1345	251
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.36	0.91	0.91
Sat Flow, veh/h	875	1018	697	1273	224	1366	1757	3511	72	1757	2944	549
Grp Volume(v), veh/h	99	0	96	42	0	511	51	416	434	277	411	409
Grp Sat Flow(s),veh/h/ln	875	0	1715	1273	0	1590	1757	1752	1831	1757	1752	1741
Q Serve(g_s), s	7.4	0.0	4.1	2.5	0.0	33.0	3.1	23.8	23.8	16.2	4.2	4.2
Cycle Q Clear(g_c), s	40.4	0.0	4.1	6.6	0.0	33.0	3.1	23.8	23.8	16.2	4.2	4.2
Prop In Lane	1.00		0.41	1.00		0.86	1.00		0.04	1.00		0.32
Lane Grp Cap(c), veh/h	125	0	630	485	0	584	76	534	558	318	801	795
V/C Ratio(X)	0.79	0.00	0.15	0.09	0.00	0.87	0.67	0.78	0.78	0.87	0.51	0.51
Avail Cap(c_a), veh/h	125	0	630	485	0	584	142	534	558	359	801	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	52.8	0.0	23.3	25.6	0.0	32.4	51.9	34.9	34.9	33.9	2.8	2.8
Incr Delay (d2), s/veh	29.4	0.0	0.1	0.1	0.0	14.1	3.8	10.7	10.3	16.3	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.0	0.9	0.0	16.8	1.6	13.0	13.5	9.1	2.3	2.3
LnGrp Delay(d),s/veh	82.2	0.0	23.5	25.6	0.0	46.5	55.7	45.6	45.2	50.2	5.0	5.0
LnGrp LOS	F		C	C		D	E	D	D	D	A	A
Approach Vol, veh/h		195			553			901			1097	
Approach Delay, s/veh		53.3			44.9			46.0			16.4	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.2	38.8		46.0	8.4	55.6		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	18.2	25.8		42.4	5.1	6.2		35.0
Green Ext Time (p_c), s	0.7	4.9		0.0	0.0	13.1		2.1

Intersection Summary	
HCM 2010 Ctrl Delay	34.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	104	39	50	106	32	72	291	26	29	451	264
Future Volume (veh/h)	128	104	39	50	106	32	72	291	26	29	451	264
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	166	135	51	69	147	44	112	455	41	36	564	330
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.72	0.72	0.72	0.64	0.64	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	280	615	271	122	571	251	140	1733	771	68	1589	703
Arrive On Green	0.08	0.18	0.18	0.07	0.17	0.17	0.08	0.49	0.49	0.04	0.45	0.45
Sat Flow, veh/h	3343	3438	1512	1723	3438	1510	1757	3505	1558	1757	3505	1551
Grp Volume(v), veh/h	166	135	51	69	147	44	112	455	41	36	564	330
Grp Sat Flow(s),veh/h/ln	1672	1719	1512	1723	1719	1510	1757	1752	1558	1757	1752	1551
Q Serve(g_s), s	4.5	3.2	2.7	3.7	3.5	2.4	5.9	7.1	1.3	1.9	9.9	14.0
Cycle Q Clear(g_c), s	4.5	3.2	2.7	3.7	3.5	2.4	5.9	7.1	1.3	1.9	9.9	14.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	280	615	271	122	571	251	140	1733	771	68	1589	703
V/C Ratio(X)	0.59	0.22	0.19	0.57	0.26	0.18	0.80	0.26	0.05	0.53	0.36	0.47
Avail Cap(c_a), veh/h	393	1383	608	161	1299	571	257	1733	771	126	1589	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.7	33.1	33.0	42.5	34.3	33.8	42.7	13.9	12.4	44.5	16.8	17.9
Incr Delay (d2), s/veh	0.8	0.5	0.9	1.5	0.6	0.9	3.9	0.4	0.1	2.3	0.6	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.5	1.2	1.8	1.7	1.0	3.0	3.5	0.6	1.0	4.9	6.4
LnGrp Delay(d),s/veh	42.5	33.6	33.8	44.0	34.9	34.7	46.6	14.2	12.5	46.9	17.4	20.2
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		352			260			608			930	
Approach Delay, s/veh		37.8			37.3			20.1			19.6	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.9	53.5	10.9	22.2	11.8	49.6	12.1	21.0
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	3.9	9.1	5.7	5.2	7.9	16.0	6.5	5.5
Green Ext Time (p_c), s	0.0	24.0	0.0	4.7	0.1	16.8	0.1	4.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	41	102	126	347	6	245	8	108	0	6	9
Future Volume (veh/h)	1	41	102	126	347	6	245	8	108	0	6	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	1	49	121	138	381	7	255	8	112	0	11	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.54	0.54	0.54
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	68	167	167	436	8	286	63	888	0	258	398
Arrive On Green	0.00	0.15	0.15	0.10	0.24	0.24	0.16	0.61	0.61	0.00	0.40	0.40
Sat Flow, veh/h	1757	460	1137	1757	1805	33	1757	105	1467	0	649	1003
Grp Volume(v), veh/h	1	0	170	138	0	388	255	0	120	0	0	28
Grp Sat Flow(s),veh/h/ln	1757	0	1597	1757	0	1838	1757	0	1571	0	0	1653
Q Serve(g_s), s	0.1	0.0	10.2	7.7	0.0	20.3	14.2	0.0	3.3	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.1	0.0	10.2	7.7	0.0	20.3	14.2	0.0	3.3	0.0	0.0	1.0
Prop In Lane	1.00		0.71	1.00		0.02	1.00		0.93	0.00		0.61
Lane Grp Cap(c), veh/h	2	0	235	167	0	444	286	0	951	0	0	656
V/C Ratio(X)	0.57	0.00	0.72	0.82	0.00	0.87	0.89	0.00	0.13	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	0	291	271	0	528	394	0	951	0	0	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.93	0.00	0.93	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	0.0	40.7	44.4	0.0	36.4	41.0	0.0	8.4	0.0	0.0	18.5
Incr Delay (d2), s/veh	77.4	0.0	7.3	4.7	0.0	13.7	13.3	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	5.0	4.0	0.0	11.9	7.9	0.0	1.5	0.0	0.0	0.5
LnGrp Delay(d),s/veh	127.3	0.0	48.0	49.1	0.0	50.1	54.3	0.0	8.7	0.0	0.0	18.6
LnGrp LOS	F		D	D		D	D		A			B
Approach Vol, veh/h		171			526			375			28	
Approach Delay, s/veh		48.4			49.9			39.7			18.6	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.8	14.1	20.0	20.9	45.0	4.7	29.5
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		5.3	9.7	12.2	16.2	3.0	2.1	22.3
Green Ext Time (p_c), s		1.2	0.0	1.8	0.1	0.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	45.4
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	17	72	13	21	19	32	233	20	17	133	82
Future Volume (veh/h)	111	17	72	13	21	19	32	233	20	17	133	82
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.91	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	137	21	89	16	25	23	42	303	26	22	173	106
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	166	42	180	19	49	45	514	614	53	496	380	233
Arrive On Green	0.09	0.14	0.14	0.01	0.06	0.06	0.29	0.37	0.37	0.09	0.12	0.12
Sat Flow, veh/h	1757	299	1267	1757	844	777	1757	1673	144	1757	1066	653
Grp Volume(v), veh/h	137	0	110	16	0	48	42	0	329	22	0	279
Grp Sat Flow(s),veh/h/ln	1757	0	1566	1757	0	1621	1757	0	1817	1757	0	1719
Q Serve(g_s), s	7.7	0.0	6.5	0.9	0.0	2.9	1.7	0.0	14.0	1.1	0.0	15.1
Cycle Q Clear(g_c), s	7.7	0.0	6.5	0.9	0.0	2.9	1.7	0.0	14.0	1.1	0.0	15.1
Prop In Lane	1.00		0.81	1.00		0.48	1.00		0.08	1.00		0.38
Lane Grp Cap(c), veh/h	166	0	222	19	0	94	514	0	667	496	0	614
V/C Ratio(X)	0.82	0.00	0.50	0.85	0.00	0.51	0.08	0.00	0.49	0.04	0.00	0.45
Avail Cap(c_a), veh/h	323	0	481	95	0	305	514	0	667	496	0	614
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	44.4	0.0	39.6	49.4	0.0	45.8	25.6	0.0	24.5	33.0	0.0	35.0
Incr Delay (d2), s/veh	3.8	0.0	4.2	29.4	0.0	1.6	0.0	0.0	2.6	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	3.1	0.6	0.0	1.3	0.8	0.0	7.5	0.6	0.0	7.5
LnGrp Delay(d),s/veh	48.3	0.0	43.8	78.8	0.0	47.4	25.7	0.0	27.1	33.1	0.0	36.9
LnGrp LOS	D		D	E		D	C		C	C		D
Approach Vol, veh/h		247			64			371			301	
Approach Delay, s/veh		46.3			55.2			26.9			36.6	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.9	42.0	5.7	19.5	33.9	41.0	14.1	11.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	16.0	2.9	8.5	3.7	17.1	9.7	4.9
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	2.0	0.0	0.9

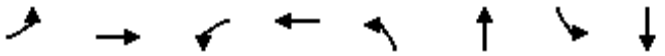
Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	209	223	143	279	256	166	479	193	122	453
v/c Ratio	0.80	0.31	0.32	0.52	0.43	0.36	0.74	0.51	0.36	0.81	0.58
Control Delay	87.6	26.0	5.0	51.5	27.3	4.8	63.1	31.9	5.8	83.4	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.6	26.0	5.0	51.5	27.3	4.8	63.1	31.9	5.8	83.4	35.2
Queue Length 50th (ft)	63	93	0	44	129	0	99	132	0	76	129
Queue Length 95th (ft)	#167	170	46	62	167	10	142	134	16	#180	162
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	127	665	696	317	679	725	256	1380	710	150	1148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.31	0.32	0.45	0.41	0.35	0.65	0.35	0.27	0.81	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	212	179	172	242	1565	260	899
v/c Ratio	0.16	0.47	0.92	0.41	0.82	0.98	0.78	0.57
Control Delay	32.2	20.9	86.4	31.5	68.5	27.4	60.2	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	12.5	0.0	0.0
Total Delay	32.2	20.9	86.4	31.5	68.5	39.9	60.2	23.5
Queue Length 50th (ft)	21	66	124	87	163	~147	170	230
Queue Length 95th (ft)	37	88	190	132	m#245	#634	#323	316
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	316	587	271	569	324	1598	332	1586
Starvation Cap Reductn	0	0	0	0	0	77	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.36	0.66	0.30	0.75	1.03	0.78	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

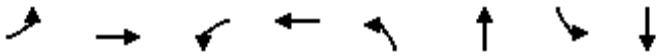
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	352	319	1385	103	836
v/c Ratio	0.84	0.64	0.76	0.58	0.36
Control Delay	56.7	23.2	30.0	51.6	4.1
Queue Delay	0.0	0.3	49.5	0.0	0.3
Total Delay	56.7	23.5	79.5	51.6	4.4
Queue Length 50th (ft)	244	102	536	70	32
Queue Length 95th (ft)	350	195	m573	m125	56
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	554	1812	179	2298
Starvation Cap Reductn	0	0	838	0	783
Spillback Cap Reductn	0	30	224	0	457
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.73	0.61	1.42	0.58	0.55

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

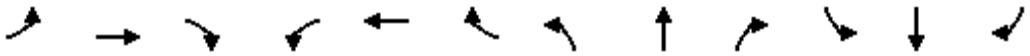


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	96	42	511	51	850	277	820
v/c Ratio	1.48	0.18	0.12	0.77	0.42	0.64	0.77	0.45
Control Delay	309.4	17.2	26.2	20.6	59.8	32.4	50.8	12.7
Queue Delay	11.1	0.0	0.0	15.7	0.0	51.9	57.5	0.4
Total Delay	320.5	17.2	26.2	36.3	59.8	84.3	108.4	13.1
Queue Length 50th (ft)	~90	30	21	124	35	269	195	111
Queue Length 95th (ft)	#185	62	45	239	69	332	#317	175
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	85	652	455	765	141	1335	358	1832
Starvation Cap Reductn	0	0	0	0	0	0	113	487
Spillback Cap Reductn	27	0	0	243	0	664	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.71	0.15	0.09	0.98	0.36	1.27	1.13	0.61

Intersection Summary

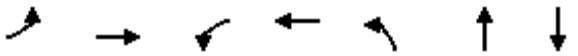
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



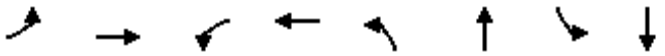
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	166	135	51	69	147	44	113	455	41	36	564	330
v/c Ratio	0.49	0.24	0.14	0.44	0.34	0.14	0.59	0.24	0.05	0.30	0.37	0.39
Control Delay	45.2	36.5	0.8	50.6	39.4	0.9	52.1	13.1	0.1	49.0	19.0	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	36.5	0.8	50.6	39.4	0.9	52.1	13.1	0.1	49.0	19.0	3.7
Queue Length 50th (ft)	48	38	0	40	42	0	65	77	0	21	112	0
Queue Length 95th (ft)	70	56	0	68	58	0	83	81	0	48	153	31
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	406	1434	714	165	1347	680	265	1871	863	130	1531	846
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.09	0.07	0.42	0.11	0.06	0.43	0.24	0.05	0.28	0.37	0.39

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1	170	138	388	255	121	28
v/c Ratio	0.02	0.60	0.71	0.82	0.83	0.12	0.04
Control Delay	47.0	25.0	62.1	48.9	67.2	1.1	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	25.0	62.1	48.9	67.2	1.1	15.6
Queue Length 50th (ft)	1	37	86	230	172	0	4
Queue Length 95th (ft)	6	83	144	327	257	16	13
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	378	269	538	392	998	666
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.45	0.51	0.72	0.65	0.12	0.04

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	137	110	16	48	42	329	22	279
v/c Ratio	0.67	0.34	0.21	0.37	0.41	0.28	0.25	0.26
Control Delay	57.9	14.3	52.0	35.4	56.5	10.8	41.6	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	14.3	52.0	35.4	56.5	10.8	41.6	27.4
Queue Length 50th (ft)	86	11	10	16	26	69	8	143
Queue Length 95th (ft)	125	46	29	45	51	155	m18	194
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	542	94	333	147	1184	129	1084
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.20	0.17	0.14	0.29	0.28	0.17	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	27

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	371	635	317	284	26	20
Future Vol, veh/h	371	635	317	284	26	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	386	661	387	346	36	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1058	0	1857	737
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	1130	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	654	-	80	417
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	307	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	648	-	~ 20	409
Mov Cap-2 Maneuver	-	-	-	-	~ 20	-
Stage 1	-	-	-	-	472	-
Stage 2	-	-	-	-	79	-

Approach	EB	WB	NB
HCM Control Delay, s	0	9.7	$ 667.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	34	-	-	648	-
HCM Lane V/C Ratio	1.879	-	-	0.597	-
HCM Control Delay (s)	$ 667.4	-	-	18.4	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	7.1	-	-	4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	39	302	338	195	76	24
Future Vol, veh/h	39	302	338	195	76	24
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	57	444	363	210	103	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	583	0	-	0	825	307
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	981	-	-	-	309	686
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	684	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	972	-	-	-	279	673
Mov Cap-2 Maneuver	-	-	-	-	279	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	625	-

Approach	NB	SB	NE
HCM Control Delay, s	1.3	0	21.7
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	279	673	972	-	-	-
HCM Lane V/C Ratio	0.368	0.048	0.059	-	-	-
HCM Control Delay (s)	25.2	10.6	8.9	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.6	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	306	6	19	343	16	34
Future Vol, veh/h	306	6	19	343	16	34
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	431	8	20	369	22	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	449	0	680	240
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1101	-	382	758
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	779	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1091	-	366	744
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	754	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1091	-	559
HCM Lane V/C Ratio	-	-	0.019	-	0.121
HCM Control Delay (s)	-	-	8.4	0.1	12.3
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	318	199	1	10	16
Future Vol, veh/h	23	318	199	1	10	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	88	88	59	59
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	366	226	1	17	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	237	0	-	0	665	247
Stage 1	-	-	-	-	237	-
Stage 2	-	-	-	-	428	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1324	-	-	-	424	789
Stage 1	-	-	-	-	800	-
Stage 2	-	-	-	-	655	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1311	-	-	-	406	774
Mov Cap-2 Maneuver	-	-	-	-	406	-
Stage 1	-	-	-	-	792	-
Stage 2	-	-	-	-	633	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1311	-	-	-	574
HCM Lane V/C Ratio	0.02	-	-	-	0.077
HCM Control Delay (s)	7.8	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	93	53	21	116	21	10
Future Vol, veh/h	93	53	21	116	21	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	71	71	47	47
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	116	66	30	163	45	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	193	0	392	169
Stage 1	-	-	-	-	159	-
Stage 2	-	-	-	-	233	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1362	-	610	872
Stage 1	-	-	-	-	867	-
Stage 2	-	-	-	-	803	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1349	-	584	855
Mov Cap-2 Maneuver	-	-	-	-	584	-
Stage 1	-	-	-	-	859	-
Stage 2	-	-	-	-	776	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	651	-	-	1349	-
HCM Lane V/C Ratio	0.101	-	-	0.022	-
HCM Control Delay (s)	11.2	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	90	228	144	70	51	64
Future Vol, veh/h	90	228	144	70	51	64
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	86	86	82	82
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	103	262	167	81	62	78

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	259	0	-	0	697	228
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	479	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1300	-	-	-	406	809
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	621	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1288	-	-	-	361	794
Mov Cap-2 Maneuver	-	-	-	-	361	-
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	557	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1288	-	-	-	518
HCM Lane V/C Ratio	0.08	-	-	-	0.271
HCM Control Delay (s)	8	0	-	-	14.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	46	78	70	143	5
Future Vol, veh/h	29	46	78	70	143	5
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	84	84	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	52	93	83	196	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	186	0	-	0	272	155
Stage 1	-	-	-	-	145	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1382	-	-	-	715	888
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1369	-	-	-	684	871
Mov Cap-2 Maneuver	-	-	-	-	684	-
Stage 1	-	-	-	-	872	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1369	-	-	-	689
HCM Lane V/C Ratio	0.024	-	-	-	0.294
HCM Control Delay (s)	7.7	0	-	-	12.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	142	0	0	381	100	2
Future Vol, veh/h	142	0	0	381	100	2
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	151	0	0	405	110	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	566	161
Stage 1	-	-	-	-	151	-
Stage 2	-	-	-	-	415	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	484	881
Stage 1	-	0	0	-	874	-
Stage 2	-	0	0	-	664	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	479	873
Mov Cap-2 Maneuver	-	-	-	-	479	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	658	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	479	873	-	-
HCM Lane V/C Ratio	0.229	0.003	-	-
HCM Control Delay (s)	14.7	9.1	-	-
HCM Lane LOS	B	A	-	-
HCM 95th %tile Q(veh)	0.9	0	-	-

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	185	170	0	138	91	0	112	330
Future Vol, veh/h	0	185	170	0	138	91	0	112	330
Peak Hour Factor	0.92	0.77	0.77	0.92	0.84	0.84	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	240	221	0	164	108	0	129	379
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	14.7	14.8	16.6
HCM LOS	B	B	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	60%	0%	0%
Vol Right, %	0%	0%	40%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	170	229	112	330
LT Vol	185	0	0	112	0
Through Vol	0	170	138	0	0
RT Vol	0	0	91	0	330
Lane Flow Rate	240	221	273	129	379
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.467	0.398	0.473	0.255	0.622
Departure Headway (Hd)	7	6.491	6.251	7.127	5.908
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	514	552	575	503	611
Service Time	4.76	4.251	4.309	4.883	3.664
HCM Lane V/C Ratio	0.467	0.4	0.475	0.256	0.62
HCM Control Delay	15.8	13.5	14.8	12.3	18
HCM Lane LOS	C	B	B	B	C
HCM 95th-tile Q	2.5	1.9	2.5	1	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	157	145	95	151	65	150	209	117	83	170	27
Future Volume (veh/h)	23	157	145	95	151	65	150	209	117	83	170	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	165	153	108	172	74	163	227	127	104	212	34
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	748	631	179	812	685	197	793	343	139	584	92
Arrive On Green	0.03	0.41	0.41	0.05	0.45	0.45	0.11	0.23	0.23	0.08	0.19	0.19
Sat Flow, veh/h	1757	1845	1556	3343	1810	1528	1757	3505	1518	1757	3022	476
Grp Volume(v), veh/h	24	165	153	108	172	74	163	227	127	104	121	125
Grp Sat Flow(s),veh/h/ln	1757	1845	1556	1672	1810	1528	1757	1752	1518	1757	1752	1746
Q Serve(g_s), s	1.3	5.5	3.9	3.0	5.5	2.7	8.6	5.1	5.1	5.5	5.7	5.9
Cycle Q Clear(g_c), s	1.3	5.5	3.9	3.0	5.5	2.7	8.6	5.1	5.1	5.5	5.7	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	52	748	631	179	812	685	197	793	343	139	339	337
V/C Ratio(X)	0.46	0.22	0.24	0.60	0.21	0.11	0.83	0.29	0.37	0.75	0.36	0.37
Avail Cap(c_a), veh/h	126	748	631	297	812	685	386	1433	621	275	605	603
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	18.4	7.4	43.8	15.9	15.1	41.1	30.3	18.1	42.7	33.1	33.2
Incr Delay (d2), s/veh	2.3	0.7	0.9	1.2	0.5	0.2	3.4	0.5	1.7	3.0	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	2.9	2.5	1.4	2.8	1.2	4.4	2.5	2.7	2.8	2.9	3.0
LnGrp Delay(d),s/veh	47.5	19.0	8.3	45.0	16.4	15.4	44.6	30.8	19.9	45.7	34.8	34.9
LnGrp LOS	D	B	A	D	B	B	D	C	B	D	C	C
Approach Vol, veh/h		342			354			517			350	
Approach Delay, s/veh		16.2			24.9			32.5			38.1	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	44.4	14.8	23.6	7.0	49.3	11.7	26.7
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	5.0	7.5	10.6	7.9	3.3	7.5	7.5	7.1
Green Ext Time (p_c), s	0.3	4.0	0.1	6.8	0.0	3.2	0.1	7.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	107	229	148	95	78	111	734	615	129	451	94
Future Volume (veh/h)	46	107	229	148	95	78	111	734	615	129	451	94
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	61	143	305	166	107	88	113	749	628	139	485	101
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	394	190	406	181	340	280	200	758	619	166	1086	225
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.23	0.83	0.83	0.10	0.38	0.38
Sat Flow, veh/h	1165	523	1115	926	934	768	1757	1823	1490	1723	2830	586
Grp Volume(v), veh/h	61	0	448	166	0	195	113	719	658	139	293	293
Grp Sat Flow(s),veh/h/ln	1165	0	1637	926	0	1702	1757	1752	1560	1723	1719	1697
Q Serve(g_s), s	4.4	0.0	26.3	13.8	0.0	9.0	6.3	42.5	45.7	8.7	14.0	14.1
Cycle Q Clear(g_c), s	13.4	0.0	26.3	40.1	0.0	9.0	6.3	42.5	45.7	8.7	14.0	14.1
Prop In Lane	1.00		0.68	1.00		0.45	1.00		0.95	1.00		0.35
Lane Grp Cap(c), veh/h	394	0	597	181	0	620	200	729	649	166	659	651
V/C Ratio(X)	0.15	0.00	0.75	0.92	0.00	0.31	0.57	0.99	1.01	0.84	0.44	0.45
Avail Cap(c_a), veh/h	394	0	597	181	0	620	220	729	649	166	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.43	0.43	0.43	0.94	0.94	0.94
Uniform Delay (d), s/veh	29.9	0.0	30.6	50.2	0.0	25.1	40.1	9.0	9.3	48.9	25.2	25.2
Incr Delay (d2), s/veh	0.2	0.0	5.3	43.4	0.0	0.3	0.5	19.1	26.8	27.2	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	12.7	7.2	0.0	4.3	3.0	22.6	22.8	5.4	7.0	7.0
LnGrp Delay(d),s/veh	30.1	0.0	35.9	93.6	0.0	25.4	40.6	28.1	36.1	76.1	27.2	27.4
LnGrp LOS	C		D	F		C	D	C	F	E	C	C
Approach Vol, veh/h		509			361			1490			725	
Approach Delay, s/veh		35.2			56.8			32.6			36.7	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	51.0		45.0	17.8	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	10.7	47.7		28.3	8.3	16.1		42.1
Green Ext Time (p_c), s	0.0	0.0		4.0	4.4	5.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	541	1	380	0	0	0	0	915	92	137	693	0
Future Volume (veh/h)	541	1	380	0	0	0	0	915	92	137	693	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	530	130	437				0	963	97	151	762	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87				0.95	0.95	0.95	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	663	140	469				0	1141	115	227	1868	0
Arrive On Green	0.38	0.38	0.38				0.00	0.71	0.71	0.26	1.00	0.00
Sat Flow, veh/h	1757	370	1244				0	3303	323	1757	3597	0
Grp Volume(v), veh/h	530	0	567				0	525	535	151	762	0
Grp Sat Flow(s),veh/h/ln	1757	0	1613				0	1752	1782	1757	1752	0
Q Serve(g_s), s	29.6	0.0	37.1				0.0	23.8	23.8	8.5	0.0	0.0
Cycle Q Clear(g_c), s	29.6	0.0	37.1				0.0	23.8	23.8	8.5	0.0	0.0
Prop In Lane	1.00		0.77				0.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	663	0	608				0	623	633	227	1868	0
V/C Ratio(X)	0.80	0.00	0.93				0.00	0.84	0.84	0.67	0.41	0.00
Avail Cap(c_a), veh/h	700	0	642				0	623	633	227	1868	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.74	0.74	0.80	0.80	0.00
Uniform Delay (d), s/veh	30.6	0.0	32.9				0.0	13.7	13.7	38.7	0.0	0.0
Incr Delay (d2), s/veh	6.3	0.0	20.0				0.0	10.1	10.0	4.7	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	0.0	19.9				0.0	12.8	13.0	4.4	0.1	0.0
LnGrp Delay(d),s/veh	36.9	0.0	52.9				0.0	23.8	23.7	43.4	0.5	0.0
LnGrp LOS	D		D					C	C	D	A	
Approach Vol, veh/h		1097						1060			913	
Approach Delay, s/veh		45.1						23.7			7.6	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.5	44.4		46.1		63.9		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	10.5	25.8		39.1		2.0		
Green Ext Time (p_c), s	1.6	9.1		2.4		10.5		

Intersection Summary	
HCM 2010 Ctrl Delay	26.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	109	130	47	82	227	68	618	35	277	664	136
Future Volume (veh/h)	158	109	130	47	82	227	68	618	35	277	664	136
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	166	115	137	48	85	234	77	702	40	286	685	140
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.88	0.88	0.88	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	253	261	311	314	147	406	166	970	55	418	1250	255
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.29	0.29	0.48	0.86	0.86
Sat Flow, veh/h	1042	764	910	1107	432	1190	1757	3367	192	1757	2894	591
Grp Volume(v), veh/h	166	0	252	48	0	319	77	365	377	286	415	410
Grp Sat Flow(s),veh/h/ln	1042	0	1675	1107	0	1622	1757	1752	1807	1757	1752	1732
Q Serve(g_s), s	17.1	0.0	12.8	3.9	0.0	17.7	4.6	20.6	20.6	13.9	6.7	6.8
Cycle Q Clear(g_c), s	34.8	0.0	12.8	16.7	0.0	17.7	4.6	20.6	20.6	13.9	6.7	6.8
Prop In Lane	1.00		0.54	1.00		0.73	1.00		0.11	1.00		0.34
Lane Grp Cap(c), veh/h	253	0	571	314	0	553	166	505	521	418	757	748
V/C Ratio(X)	0.66	0.00	0.44	0.15	0.00	0.58	0.46	0.72	0.72	0.68	0.55	0.55
Avail Cap(c_a), veh/h	261	0	585	314	0	553	168	505	521	420	757	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.92	0.92	0.92
Uniform Delay (d), s/veh	44.0	0.0	28.1	34.6	0.0	29.7	47.2	35.2	35.2	25.6	4.7	4.7
Incr Delay (d2), s/veh	6.0	0.0	0.6	0.3	0.0	1.6	0.8	8.7	8.5	3.5	2.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	6.1	1.2	0.0	8.2	2.3	11.2	11.5	7.1	3.5	3.5
LnGrp Delay(d),s/veh	50.0	0.0	28.7	34.8	0.0	31.4	47.9	43.9	43.7	29.1	7.3	7.4
LnGrp LOS	D		C	C		C	D	D	D	C	A	A
Approach Vol, veh/h		418			367			819			1111	
Approach Delay, s/veh		37.2			31.8			44.2			12.9	
Approach LOS		D			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.9	37.0		43.1	14.1	52.8		43.1
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	15.9	22.6		36.8	6.6	8.8		19.7
Green Ext Time (p_c), s	0.4	4.9		0.7	0.2	13.2		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	70	55	23	91	24	66	297	43	15	241	129
Future Volume (veh/h)	150	70	55	23	91	24	66	297	43	15	241	129
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	170	80	62	28	111	29	69	313	45	17	277	148
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.95	0.95	0.95	0.87	0.87	0.87
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	288	707	312	77	523	229	88	1795	798	40	1601	708
Arrive On Green	0.09	0.21	0.21	0.04	0.15	0.15	0.05	0.51	0.51	0.02	0.46	0.46
Sat Flow, veh/h	3343	3438	1516	1723	3438	1508	1757	3505	1559	1757	3505	1551
Grp Volume(v), veh/h	170	80	62	28	111	29	69	313	45	17	277	148
Grp Sat Flow(s),veh/h/ln	1672	1719	1516	1723	1719	1508	1757	1752	1559	1757	1752	1551
Q Serve(g_s), s	4.5	1.7	2.4	1.4	2.6	1.3	3.6	4.4	1.3	0.9	4.3	5.3
Cycle Q Clear(g_c), s	4.5	1.7	2.4	1.4	2.6	1.3	3.6	4.4	1.3	0.9	4.3	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	288	707	312	77	523	229	88	1795	798	40	1601	708
V/C Ratio(X)	0.59	0.11	0.20	0.37	0.21	0.13	0.78	0.17	0.06	0.42	0.17	0.21
Avail Cap(c_a), veh/h	430	1424	628	165	1312	575	207	1795	798	130	1601	708
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	29.6	18.5	42.6	34.1	24.3	43.1	12.0	11.2	44.2	14.7	15.0
Incr Delay (d2), s/veh	0.7	0.2	0.8	1.1	0.5	0.6	5.7	0.2	0.1	2.6	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.8	1.3	0.7	1.3	0.7	1.9	2.2	0.6	0.5	2.1	2.4
LnGrp Delay(d),s/veh	41.1	29.8	19.3	43.6	34.6	25.0	48.7	12.2	11.4	46.8	14.9	15.6
LnGrp LOS	D	C	B	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		312			168			427			442	
Approach Delay, s/veh		33.9			34.4			18.0			16.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	53.0	8.3	24.2	10.6	48.7	13.2	19.2
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.8	46.7	* 8.8	38.0	10.8	* 42	11.8	* 35
Max Q Clear Time (g_c+I1), s	2.9	6.4	3.4	4.4	5.6	7.3	6.5	4.6
Green Ext Time (p_c), s	0.0	5.4	0.0	1.6	0.3	6.1	0.7	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	23.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	78	112	118	206	3	172	9	179	3	11	5
Future Volume (veh/h)	4	78	112	118	206	3	172	9	179	3	11	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	89	127	124	217	3	183	10	190	8	30	14
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.94	0.94	0.94	0.37	0.37	0.37
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	104	149	161	452	6	214	47	886	121	435	190
Arrive On Green	0.00	0.15	0.15	0.09	0.25	0.25	0.12	0.59	0.59	0.43	0.43	0.43
Sat Flow, veh/h	1757	674	962	1757	1815	25	1757	78	1489	186	1019	444
Grp Volume(v), veh/h	5	0	216	124	0	220	183	0	200	52	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1637	1757	0	1840	1757	0	1567	1649	0	0
Q Serve(g_s), s	0.3	0.0	12.9	6.9	0.0	10.2	10.2	0.0	5.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	12.9	6.9	0.0	10.2	10.2	0.0	5.9	1.7	0.0	0.0
Prop In Lane	1.00		0.59	1.00		0.01	1.00		0.95	0.15		0.27
Lane Grp Cap(c), veh/h	7	0	253	161	0	459	214	0	932	746	0	0
V/C Ratio(X)	0.73	0.00	0.85	0.77	0.00	0.48	0.85	0.00	0.21	0.07	0.00	0.00
Avail Cap(c_a), veh/h	95	0	339	253	0	546	358	0	932	746	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.00	0.90	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.8	0.0	41.2	44.4	0.0	32.0	43.0	0.0	9.4	16.9	0.0	0.0
Incr Delay (d2), s/veh	42.5	0.0	15.6	2.9	0.0	0.9	4.2	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	6.9	3.5	0.0	5.3	5.2	0.0	2.7	0.9	0.0	0.0
LnGrp Delay(d),s/veh	92.2	0.0	56.7	47.3	0.0	32.9	47.2	0.0	9.9	17.1	0.0	0.0
LnGrp LOS	F		E	D		C	D		A	B		
Approach Vol, veh/h		221			344			383			52	
Approach Delay, s/veh		57.5			38.1			27.7			17.1	
Approach LOS		E			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		64.8	14.5	20.8	16.8	48.0	5.0	30.2
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		7.9	8.9	14.9	12.2	3.7	2.3	12.2
Green Ext Time (p_c), s		2.0	0.6	0.6	0.0	1.7	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	45	181	8	24	20	41	205	21	18	152	52
Future Volume (veh/h)	144	45	181	8	24	20	41	205	21	18	152	52
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	180	56	226	10	30	25	51	253	26	21	175	60
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	211	69	278	13	96	80	455	554	57	420	415	142
Arrive On Green	0.12	0.22	0.22	0.01	0.11	0.11	0.26	0.34	0.34	0.08	0.10	0.10
Sat Flow, veh/h	1757	315	1271	1757	909	758	1757	1643	169	1757	1308	449
Grp Volume(v), veh/h	180	0	282	10	0	55	51	0	279	21	0	235
Grp Sat Flow(s),veh/h/ln	1757	0	1585	1757	0	1667	1757	0	1812	1757	0	1757
Q Serve(g_s), s	10.0	0.0	16.9	0.6	0.0	3.1	2.2	0.0	12.1	1.1	0.0	12.5
Cycle Q Clear(g_c), s	10.0	0.0	16.9	0.6	0.0	3.1	2.2	0.0	12.1	1.1	0.0	12.5
Prop In Lane	1.00		0.80	1.00		0.45	1.00		0.09	1.00		0.26
Lane Grp Cap(c), veh/h	211	0	346	13	0	176	455	0	611	420	0	557
V/C Ratio(X)	0.85	0.00	0.81	0.78	0.00	0.31	0.11	0.00	0.46	0.05	0.00	0.42
Avail Cap(c_a), veh/h	394	0	550	95	0	313	455	0	611	420	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.00	0.85
Uniform Delay (d), s/veh	43.1	0.0	37.1	49.6	0.0	41.4	28.3	0.0	26.0	35.5	0.0	36.2
Incr Delay (d2), s/veh	3.7	0.0	11.0	30.8	0.0	0.4	0.0	0.0	2.5	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	8.4	0.4	0.0	1.4	1.1	0.0	6.5	0.5	0.0	6.4
LnGrp Delay(d),s/veh	46.9	0.0	48.2	80.4	0.0	41.7	28.3	0.0	28.4	35.6	0.0	38.2
LnGrp LOS	D		D	F		D	C		C	D		D
Approach Vol, veh/h		462			65			330			256	
Approach Delay, s/veh		47.7			47.7			28.4			38.0	
Approach LOS		D			D			C			D	

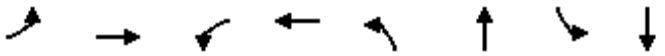
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.5	39.0	5.3	27.2	30.5	37.0	16.6	15.9
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	14.1	2.6	18.9	4.2	14.5	12.0	5.1
Green Ext Time (p_c), s	0.0	1.8	0.0	2.9	0.0	1.6	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	39.7
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	165	153	108	172	74	163	227	127	104	247
v/c Ratio	0.21	0.22	0.21	0.42	0.20	0.09	0.67	0.28	0.27	0.55	0.42
Control Delay	51.9	22.6	4.7	50.4	19.7	0.2	54.8	32.3	3.3	54.2	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	22.6	4.7	50.4	19.7	0.2	54.8	32.3	3.3	54.2	35.5
Queue Length 50th (ft)	14	61	0	31	49	0	92	61	0	59	65
Queue Length 95th (ft)	47	153	44	70	153	0	187	99	22	118	96
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	125	749	717	296	866	790	385	1435	713	274	1190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.22	0.21	0.36	0.20	0.09	0.42	0.16	0.18	0.38	0.21

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	448	166	195	113	1377	139	586
v/c Ratio	0.17	0.70	1.03	0.32	0.52	0.91	0.86	0.43
Control Delay	25.3	29.3	115.4	21.3	37.9	21.0	92.1	24.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	11.4	0.0	0.2
Total Delay	25.3	29.4	115.4	21.3	37.9	32.4	92.1	24.6
Queue Length 50th (ft)	29	201	114	75	77	431	98	152
Queue Length 95th (ft)	50	230	#250	131	m89	#577	#209	204
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	381	665	170	647	219	1521	165	1352
Starvation Cap Reductn	0	0	0	0	0	151	0	0
Spillback Cap Reductn	0	5	0	0	0	0	0	178
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.68	0.98	0.30	0.52	1.01	0.84	0.50

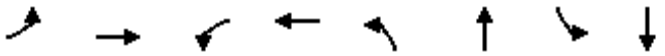
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	554	506	1060	151	762
v/c Ratio	0.90	0.78	0.81	0.70	0.41
Control Delay	50.9	30.3	24.9	75.2	26.1
Queue Delay	0.0	0.4	27.0	0.0	1.3
Total Delay	50.9	30.7	51.9	75.2	27.5
Queue Length 50th (ft)	367	230	396	112	270
Queue Length 95th (ft)	#536	352	482	m#170	m330
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	679	1312	215	1877
Starvation Cap Reductn	0	0	181	0	857
Spillback Cap Reductn	0	23	297	0	581
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	0.77	1.04	0.70	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



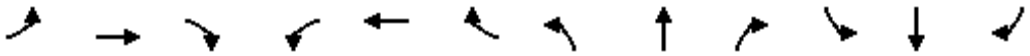
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	166	252	48	319	77	742	286	825
v/c Ratio	1.06	0.52	0.25	0.63	0.55	0.53	0.78	0.44
Control Delay	125.5	28.5	32.7	24.5	63.4	29.1	57.1	8.7
Queue Delay	61.6	0.0	0.0	1.5	0.0	1.4	54.2	0.4
Total Delay	187.1	28.5	32.7	26.0	63.4	30.5	111.4	9.1
Queue Length 50th (ft)	~121	114	27	112	53	213	214	94
Queue Length 95th (ft)	#225	172	55	183	100	308	m300	163
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	210	623	259	640	167	1406	418	1886
Starvation Cap Reductn	0	0	0	0	0	0	155	530
Spillback Cap Reductn	61	0	0	168	0	443	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.40	0.19	0.68	0.46	0.77	1.09	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

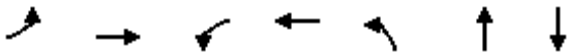
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



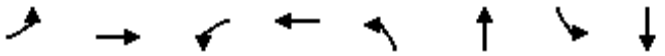
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	80	63	28	111	29	69	313	45	17	277	148
v/c Ratio	0.49	0.11	0.14	0.18	0.27	0.09	0.43	0.16	0.05	0.14	0.16	0.18
Control Delay	43.9	32.0	0.6	43.4	38.9	0.5	48.4	11.2	0.1	44.7	15.0	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	32.0	0.6	43.4	38.9	0.5	48.4	11.2	0.1	44.7	15.0	2.9
Queue Length 50th (ft)	47	17	0	15	30	0	38	36	0	9	46	0
Queue Length 95th (ft)	81	42	0	40	53	0	84	83	0	30	78	26
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	441	1466	736	169	1351	697	212	1957	920	133	1684	810
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.05	0.09	0.17	0.08	0.04	0.33	0.16	0.05	0.13	0.16	0.18

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	216	124	220	183	200	52
v/c Ratio	0.07	0.72	0.69	0.43	0.76	0.20	0.07
Control Delay	48.2	41.2	62.1	31.1	60.8	2.9	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	41.2	62.1	31.1	60.8	2.9	19.4
Queue Length 50th (ft)	3	92	78	110	123	24	14
Queue Length 95th (ft)	15	156	133	176	194	59	16
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	390	252	572	357	991	699
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.55	0.49	0.38	0.51	0.20	0.07

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	282	10	55	51	279	21	235
v/c Ratio	0.74	0.57	0.14	0.41	0.47	0.24	0.25	0.23
Control Delay	59.2	13.2	49.8	36.8	58.9	11.6	64.1	23.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	13.2	49.8	36.8	58.9	11.6	64.1	23.7
Queue Length 50th (ft)	112	31	6	19	32	62	12	132
Queue Length 95th (ft)	151	75	21	49	62	148	m25	197
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	689	94	336	147	1143	112	1026
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.41	0.11	0.16	0.35	0.24	0.19	0.23

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	21

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	512	334	152	217	105	14
Future Vol, veh/h	512	334	152	217	105	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	539	352	163	233	142	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	901	0	1295	735
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	570	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	750	-	178	418
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	564	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	743	-	~ 131	410
Mov Cap-2 Maneuver	-	-	-	-	~ 131	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	418	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	177.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	142	-	-	743	-
HCM Lane V/C Ratio	1.132	-	-	0.22	-
HCM Control Delay (s)	177.7	-	-	11.2	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	9	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.6

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	28	259	231	66	115	41
Future Vol, veh/h	28	259	231	66	115	41
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	93	93	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	30	282	248	71	139	49

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	329	0	-	0	506	180
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	212	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1220	-	-	-	493	829
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	800	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1208	-	-	-	470	813
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	769	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	470	813	1208	-	-	-
HCM Lane V/C Ratio	0.295	0.061	0.025	-	-	-
HCM Control Delay (s)	15.8	9.7	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	269	14	25	250	6	19
Future Vol, veh/h	269	14	25	250	6	19
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	309	16	27	266	8	24

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	335	0	523	183
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1214	-	481	825
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1202	-	460	809
Mov Cap-2 Maneuver	-	-	-	-	460	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	786	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.8	10.5
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1202	-	684
HCM Lane V/C Ratio	-	-	0.022	-	0.047
HCM Control Delay (s)	-	-	8.1	0.1	10.5
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	27	167	211	12	13	8
Future Vol, veh/h	27	167	211	12	13	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	176	222	13	20	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	245	0	-	0	481	248
Stage 1	-	-	-	-	238	-
Stage 2	-	-	-	-	243	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1315	-	-	-	542	788
Stage 1	-	-	-	-	799	-
Stage 2	-	-	-	-	795	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1302	-	-	-	519	773
Mov Cap-2 Maneuver	-	-	-	-	519	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	769	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1302	-	-	-	593
HCM Lane V/C Ratio	0.022	-	-	-	0.054
HCM Control Delay (s)	7.8	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	110	16	8	118	25	14
Future Vol, veh/h	110	16	8	118	25	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	79	79	65	65
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	133	19	10	149	38	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	332	162
Stage 1	-	-	-	-	152	-
Stage 2	-	-	-	-	180	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1399	-	661	880
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	849	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1386	-	643	863
Mov Cap-2 Maneuver	-	-	-	-	643	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	834	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	708	-	-	1386	-
HCM Lane V/C Ratio	0.085	-	-	0.007	-
HCM Control Delay (s)	10.6	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	7	168	192	22	30	21
Future Vol, veh/h	7	168	192	22	30	21
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	92	92	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	7	177	209	24	40	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	243	0	-	0	433	241
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1317	-	-	-	578	795
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	830	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1304	-	-	-	564	780
Mov Cap-2 Maneuver	-	-	-	-	564	-
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	817	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1304	-	-	-	637
HCM Lane V/C Ratio	0.006	-	-	-	0.107
HCM Control Delay (s)	7.8	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	8.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	15	122	78	39	271	11
Future Vol, veh/h	15	122	78	39	271	11
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	136	93	46	335	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	149	0	-	0	305	136
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1426	-	-	-	685	910
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1412	-	-	-	663	893
Mov Cap-2 Maneuver	-	-	-	-	663	-
Stage 1	-	-	-	-	888	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1412	-	-	-	670
HCM Lane V/C Ratio	0.012	-	-	-	0.52
HCM Control Delay (s)	7.6	0	-	-	16
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	273	0	0	241	10	6
Future Vol, veh/h	273	0	0	241	10	6
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	303	0	0	268	13	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	581	313
Stage 1	-	-	-	-	303	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	474	725
Stage 1	-	0	0	-	747	-
Stage 2	-	0	0	-	767	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	469	718
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	469	718	-	-
HCM Lane V/C Ratio	0.027	0.01	-	-
HCM Control Delay (s)	12.9	10.1	-	-
HCM Lane LOS	B	B	-	-
HCM 95th %tile Q(veh)	0.1	0	-	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	249	94	0	104	113	0	88	172
Future Vol, veh/h	0	249	94	0	104	113	0	88	172
Peak Hour Factor	0.92	0.93	0.93	0.92	0.86	0.86	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	268	101	0	121	131	0	101	198
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13	11.8	10.8
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	48%	0%	0%
Vol Right, %	0%	0%	52%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	94	217	88	172
LT Vol	249	0	0	88	0
Through Vol	0	94	104	0	0
RT Vol	0	0	113	0	172
Lane Flow Rate	268	101	252	101	198
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.465	0.161	0.381	0.189	0.304
Departure Headway (Hd)	6.247	5.742	5.431	6.742	5.528
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	578	626	664	533	650
Service Time	3.973	3.467	3.457	4.472	3.257
HCM Lane V/C Ratio	0.464	0.161	0.38	0.189	0.305
HCM Control Delay	14.3	9.6	11.8	11	10.7
HCM Lane LOS	B	A	B	B	B
HCM 95th-tile Q	2.5	0.6	1.8	0.7	1.3

EXISTING PLUS PROJECT WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	182	192	99	191	175	116	335	135	104	317	59
Future Volume (veh/h)	87	182	192	99	191	175	116	335	135	104	317	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	101	212	223	146	281	257	166	479	193	125	382	71
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.68	0.68	0.68	0.70	0.70	0.70	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	124	648	546	209	621	523	197	1037	451	147	788	145
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.11	0.30	0.30	0.08	0.27	0.27
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1523	1757	2947	542
Grp Volume(v), veh/h	101	212	223	146	281	257	166	479	193	125	226	227
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1523	1757	1752	1737
Q Serve(g_s), s	5.6	8.4	10.8	4.2	12.0	13.2	9.2	11.0	10.1	7.0	10.7	10.9
Cycle Q Clear(g_c), s	5.6	8.4	10.8	4.2	12.0	13.2	9.2	11.0	10.1	7.0	10.7	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	124	648	546	209	621	523	197	1037	451	147	469	465
V/C Ratio(X)	0.81	0.33	0.41	0.70	0.45	0.49	0.84	0.46	0.43	0.85	0.48	0.49
Avail Cap(c_a), veh/h	124	648	546	310	661	557	250	1344	584	147	569	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	23.6	24.4	45.6	25.3	25.7	43.1	28.5	28.1	44.8	30.5	30.6
Incr Delay (d2), s/veh	30.6	1.3	2.3	1.6	1.9	2.6	15.3	0.8	1.7	33.5	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	4.5	4.9	2.0	6.3	6.0	5.3	5.4	4.4	4.7	5.5	5.5
LnGrp Delay(d),s/veh	76.0	24.9	26.6	47.1	27.2	28.3	58.5	29.3	29.8	78.3	32.5	32.7
LnGrp LOS	E	C	C	D	C	C	E	C	C	E	C	C
Approach Vol, veh/h		536			684			838			578	
Approach Delay, s/veh		35.3			31.9			35.2			42.5	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	41.6	15.3	31.8	11.2	40.8	12.5	34.6
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.2	12.8	11.2	12.9	7.6	15.2	9.0	13.0
Green Ext Time (p_c), s	0.1	11.4	0.1	11.4	0.0	11.0	0.0	13.5

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	54	107	167	99	55	208	617	757	221	594	172
Future Volume (veh/h)	28	54	107	167	99	55	208	617	757	221	594	172
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	37	72	143	188	111	62	242	717	880	260	699	202
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	329	165	327	287	332	186	268	739	654	262	1106	320
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.25	0.70	0.70	0.15	0.42	0.42
Sat Flow, veh/h	1187	549	1090	1143	1109	619	1757	1752	1549	1723	2625	759
Grp Volume(v), veh/h	37	0	215	188	0	173	242	717	880	260	458	443
Grp Sat Flow(s),veh/h/ln	1187	0	1639	1143	0	1728	1757	1752	1549	1723	1719	1665
Q Serve(g_s), s	2.8	0.0	11.6	17.4	0.0	8.6	14.7	42.0	46.4	16.6	23.1	23.1
Cycle Q Clear(g_c), s	11.3	0.0	11.6	29.1	0.0	8.6	14.7	42.0	46.4	16.6	23.1	23.1
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	329	0	492	287	0	518	268	739	654	262	724	702
V/C Ratio(X)	0.11	0.00	0.44	0.65	0.00	0.33	0.90	0.97	1.35	0.99	0.63	0.63
Avail Cap(c_a), veh/h	351	0	522	308	0	550	315	739	654	262	724	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.51	0.51	0.51	0.86	0.86	0.86
Uniform Delay (d), s/veh	34.4	0.0	31.0	42.7	0.0	30.0	40.2	15.6	16.2	46.6	25.1	25.1
Incr Delay (d2), s/veh	0.1	0.0	0.6	4.5	0.0	0.4	14.1	17.5	161.0	49.7	3.6	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	5.3	5.8	0.0	4.1	8.1	23.2	48.3	11.5	11.7	11.3
LnGrp Delay(d),s/veh	34.5	0.0	31.6	47.2	0.0	30.3	54.3	33.1	177.3	96.3	28.7	28.8
LnGrp LOS	C		C	D		C	D	C	F	F	C	C
Approach Vol, veh/h		252			361			1839			1161	
Approach Delay, s/veh		32.1			39.1			104.9			43.9	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.4	51.7		37.9	20.5	51.6		37.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	18.6	48.4		13.6	16.7	25.1		31.1
Green Ext Time (p_c), s	0.0	0.0		3.0	0.1	15.7		1.2

Intersection Summary		
HCM 2010 Ctrl Delay		73.6
HCM 2010 LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	402	0	227	0	0	0	0	1161	32	95	778	0
Future Volume (veh/h)	402	0	227	0	0	0	0	1161	32	95	778	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	342	133	247				0	1366	38	103	846	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	453	148	275				0	1668	46	219	2285	0
Arrive On Green	0.26	0.26	0.26				0.00	0.96	0.96	0.17	0.87	0.00
Sat Flow, veh/h	1757	575	1067				0	3574	97	1757	3597	0
Grp Volume(v), veh/h	342	0	380				0	687	717	103	846	0
Grp Sat Flow(s),veh/h/ln	1757	0	1642				0	1752	1826	1757	1752	0
Q Serve(g_s), s	19.7	0.0	24.6				0.0	8.3	8.4	5.8	5.2	0.0
Cycle Q Clear(g_c), s	19.7	0.0	24.6				0.0	8.3	8.4	5.8	5.2	0.0
Prop In Lane	1.00		0.65				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	453	0	423				0	840	875	219	2285	0
V/C Ratio(X)	0.75	0.00	0.90				0.00	0.82	0.82	0.47	0.37	0.00
Avail Cap(c_a), veh/h	517	0	484				0	840	875	219	2285	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.60	0.60	0.73	0.73	0.00
Uniform Delay (d), s/veh	37.6	0.0	39.4				0.0	1.4	1.4	42.6	2.9	0.0
Incr Delay (d2), s/veh	5.5	0.0	17.8				0.0	5.4	5.2	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.0	13.3				0.0	3.9	4.1	2.9	2.6	0.0
LnGrp Delay(d),s/veh	43.1	0.0	57.2				0.0	6.8	6.6	43.0	3.2	0.0
LnGrp LOS	D		E					A	A	D	A	
Approach Vol, veh/h		722						1404			949	
Approach Delay, s/veh		50.5						6.7			7.5	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.0	58.0		33.0		77.0		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	7.8	10.4		26.6		7.2		
Green Ext Time (p_c), s	2.3	28.0		1.8		12.5		

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	86	50	34	38	65	396	43	715	14	253	637	117
Future Volume (veh/h)	86	50	34	38	65	396	43	715	14	253	637	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	99	57	39	42	72	440	51	851	17	278	700	129
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.84	0.84	0.84	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	124	374	256	485	82	502	76	1070	21	318	1348	248
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.36	0.91	0.91
Sat Flow, veh/h	874	1018	697	1273	224	1367	1757	3513	70	1757	2951	543
Grp Volume(v), veh/h	99	0	96	42	0	512	51	424	444	278	416	413
Grp Sat Flow(s),veh/h/ln	874	0	1715	1273	0	1590	1757	1752	1831	1757	1752	1742
Q Serve(g_s), s	7.4	0.0	4.1	2.5	0.0	33.0	3.1	24.5	24.5	16.3	4.3	4.3
Cycle Q Clear(g_c), s	40.4	0.0	4.1	6.6	0.0	33.0	3.1	24.5	24.5	16.3	4.3	4.3
Prop In Lane	1.00		0.41	1.00		0.86	1.00		0.04	1.00		0.31
Lane Grp Cap(c), veh/h	124	0	630	485	0	584	76	534	558	318	801	796
V/C Ratio(X)	0.80	0.00	0.15	0.09	0.00	0.88	0.67	0.80	0.80	0.87	0.52	0.52
Avail Cap(c_a), veh/h	124	0	630	485	0	584	142	534	558	359	801	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	52.8	0.0	23.3	25.6	0.0	32.5	51.9	35.1	35.1	33.9	2.8	2.8
Incr Delay (d2), s/veh	30.4	0.0	0.1	0.1	0.0	14.2	3.8	11.6	11.2	16.7	2.2	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.0	0.9	0.0	16.8	1.6	13.5	14.1	9.3	2.3	2.3
LnGrp Delay(d),s/veh	83.3	0.0	23.5	25.6	0.0	46.7	55.7	46.7	46.3	50.6	5.0	5.0
LnGrp LOS	F		C	C		D	E	D	D	D	A	A
Approach Vol, veh/h		195			554			919			1107	
Approach Delay, s/veh		53.8			45.1			47.0			16.5	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.2	38.8		46.0	8.4	55.6		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	18.3	26.5		42.4	5.1	6.3		35.0
Green Ext Time (p_c), s	0.7	4.6		0.0	0.0	13.3		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	34.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	109	39	51	110	33	72	291	27	31	451	264
Future Volume (veh/h)	128	109	39	51	110	33	72	291	27	31	451	264
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	166	142	51	71	153	46	112	455	42	39	564	330
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.72	0.72	0.72	0.64	0.64	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	278	620	273	123	579	254	140	1724	767	71	1586	702
Arrive On Green	0.08	0.18	0.18	0.07	0.17	0.17	0.08	0.49	0.49	0.04	0.45	0.45
Sat Flow, veh/h	3343	3438	1513	1723	3438	1511	1757	3505	1558	1757	3505	1551
Grp Volume(v), veh/h	166	142	51	71	153	46	112	455	42	39	564	330
Grp Sat Flow(s),veh/h/ln	1672	1719	1513	1723	1719	1511	1757	1752	1558	1757	1752	1551
Q Serve(g_s), s	4.5	3.4	2.7	3.8	3.7	2.5	5.9	7.2	1.3	2.1	10.0	14.1
Cycle Q Clear(g_c), s	4.5	3.4	2.7	3.8	3.7	2.5	5.9	7.2	1.3	2.1	10.0	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	278	620	273	123	579	254	140	1724	767	71	1586	702
V/C Ratio(X)	0.60	0.23	0.19	0.58	0.26	0.18	0.80	0.26	0.05	0.55	0.36	0.47
Avail Cap(c_a), veh/h	391	1376	605	160	1293	568	255	1724	767	126	1586	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	33.3	33.0	42.7	34.4	33.9	42.9	14.1	12.6	44.7	17.0	18.1
Incr Delay (d2), s/veh	0.8	0.5	0.9	1.6	0.6	0.9	3.9	0.4	0.1	2.4	0.6	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.6	1.2	1.8	1.8	1.1	3.0	3.6	0.6	1.1	4.9	6.4
LnGrp Delay(d),s/veh	42.8	33.8	33.9	44.3	35.0	34.7	46.8	14.5	12.7	47.1	17.6	20.3
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		359			270			609			933	
Approach Delay, s/veh		37.9			37.4			20.3			19.8	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	53.5	11.0	22.4	11.8	49.8	12.1	21.3
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	4.1	9.2	5.8	5.4	7.9	16.1	6.5	5.7
Green Ext Time (p_c), s	0.0	23.9	0.0	4.9	0.1	16.7	0.1	4.8

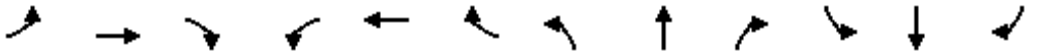
Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	41	108	126	352	6	250	8	108	0	6	9
Future Volume (veh/h)	1	41	108	126	352	6	250	8	108	0	6	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	1	49	129	138	387	7	260	8	112	0	11	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.54	0.54	0.54
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	66	174	167	442	8	291	63	884	0	254	392
Arrive On Green	0.00	0.15	0.15	0.10	0.24	0.24	0.17	0.60	0.60	0.00	0.39	0.39
Sat Flow, veh/h	1757	439	1155	1757	1805	33	1757	105	1467	0	649	1003
Grp Volume(v), veh/h	1	0	178	138	0	394	260	0	120	0	0	28
Grp Sat Flow(s),veh/h/ln	1757	0	1594	1757	0	1838	1757	0	1571	0	0	1652
Q Serve(g_s), s	0.1	0.0	10.7	7.7	0.0	20.6	14.5	0.0	3.3	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.1	0.0	10.7	7.7	0.0	20.6	14.5	0.0	3.3	0.0	0.0	1.0
Prop In Lane	1.00		0.72	1.00		0.02	1.00		0.93	0.00		0.61
Lane Grp Cap(c), veh/h	2	0	240	167	0	450	291	0	947	0	0	646
V/C Ratio(X)	0.57	0.00	0.74	0.82	0.00	0.88	0.89	0.00	0.13	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	0	290	271	0	528	394	0	947	0	0	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.00	0.92	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	0.0	40.6	44.4	0.0	36.3	40.9	0.0	8.6	0.0	0.0	18.9
Incr Delay (d2), s/veh	77.4	0.0	8.7	4.7	0.0	14.1	14.0	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	5.3	4.0	0.0	12.2	8.1	0.0	1.5	0.0	0.0	0.5
LnGrp Delay(d),s/veh	127.3	0.0	49.3	49.1	0.0	50.4	54.9	0.0	8.8	0.0	0.0	19.0
LnGrp LOS	F		D	D		D	D		A			B
Approach Vol, veh/h		179			532			380			28	
Approach Delay, s/veh		49.7			50.1			40.4			19.0	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.5	14.1	20.3	21.1	44.4	4.7	29.8
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		5.3	9.7	12.7	16.5	3.0	2.1	22.6
Green Ext Time (p_c), s		1.2	0.0	1.7	0.1	0.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	111	17	72	13	21	23	32	234	20	19	134	85
Future Volume (veh/h)	111	17	72	13	21	23	32	234	20	19	134	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.92	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	137	21	89	16	25	28	42	304	26	25	174	110
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	166	43	184	19	46	52	508	614	53	491	375	237
Arrive On Green	0.09	0.15	0.15	0.01	0.06	0.06	0.29	0.37	0.37	0.09	0.12	0.12
Sat Flow, veh/h	1757	299	1268	1757	758	848	1757	1674	143	1757	1052	665
Grp Volume(v), veh/h	137	0	110	16	0	53	42	0	330	25	0	284
Grp Sat Flow(s),veh/h/ln	1757	0	1568	1757	0	1606	1757	0	1817	1757	0	1716
Q Serve(g_s), s	7.7	0.0	6.5	0.9	0.0	3.2	1.7	0.0	14.0	1.3	0.0	15.4
Cycle Q Clear(g_c), s	7.7	0.0	6.5	0.9	0.0	3.2	1.7	0.0	14.0	1.3	0.0	15.4
Prop In Lane	1.00		0.81	1.00		0.53	1.00		0.08	1.00		0.39
Lane Grp Cap(c), veh/h	166	0	227	19	0	98	508	0	667	491	0	613
V/C Ratio(X)	0.82	0.00	0.48	0.85	0.00	0.54	0.08	0.00	0.49	0.05	0.00	0.46
Avail Cap(c_a), veh/h	323	0	481	95	0	302	508	0	667	491	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.77	0.00	0.77
Uniform Delay (d), s/veh	44.4	0.0	39.3	49.4	0.0	45.6	25.9	0.0	24.5	33.3	0.0	35.2
Incr Delay (d2), s/veh	3.8	0.0	3.9	29.4	0.0	1.7	0.0	0.0	2.6	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	3.0	0.6	0.0	1.5	0.8	0.0	7.5	0.6	0.0	7.7
LnGrp Delay(d),s/veh	48.3	0.0	43.2	78.8	0.0	47.3	25.9	0.0	27.1	33.3	0.0	37.1
LnGrp LOS	D		D	E		D	C		C	C		D
Approach Vol, veh/h		247			69			372			309	
Approach Delay, s/veh		46.0			54.6			27.0			36.8	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.5	42.0	5.7	19.8	33.5	41.0	14.1	11.4
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.3	16.0	2.9	8.5	3.7	17.4	9.7	5.2
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	2.1	0.0	0.9

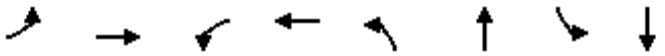
Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	101	212	223	146	281	257	166	479	193	125	453
v/c Ratio	0.80	0.32	0.32	0.53	0.43	0.36	0.75	0.51	0.36	0.83	0.58
Control Delay	87.6	26.1	5.0	51.7	27.4	4.8	63.2	31.9	5.8	86.4	35.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.6	26.1	5.0	51.7	27.4	4.8	63.2	31.9	5.8	86.4	35.3
Queue Length 50th (ft)	63	95	0	45	130	0	99	132	0	78	129
Queue Length 95th (ft)	#167	172	46	63	169	10	142	134	16	#184	162
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	127	665	695	317	679	725	256	1380	710	150	1148
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.32	0.32	0.46	0.41	0.35	0.65	0.35	0.27	0.83	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	37	215	188	173	242	1597	260	901
v/c Ratio	0.16	0.47	0.93	0.40	0.82	1.01	0.79	0.58
Control Delay	31.5	21.5	87.0	30.8	67.9	34.1	61.4	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0
Total Delay	31.5	21.5	87.0	30.8	67.9	51.1	61.4	24.2
Queue Length 50th (ft)	21	70	129	86	163	~562	170	235
Queue Length 95th (ft)	37	93	#214	133	m#232	#654	#323	317
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	318	585	273	569	324	1586	328	1561
Starvation Cap Reductn	0	0	0	0	0	75	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.69	0.30	0.75	1.06	0.79	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

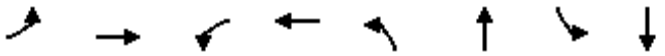
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	358	326	1404	103	846
v/c Ratio	0.85	0.66	0.78	0.58	0.37
Control Delay	57.1	26.0	30.4	51.2	4.2
Queue Delay	0.0	0.5	49.4	0.0	0.3
Total Delay	57.1	26.5	79.9	51.2	4.6
Queue Length 50th (ft)	248	116	545	69	35
Queue Length 95th (ft)	356	214	m581	m124	58
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	545	1804	179	2289
Starvation Cap Reductn	0	0	837	0	781
Spillback Cap Reductn	0	45	274	0	452
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.65	1.45	0.58	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

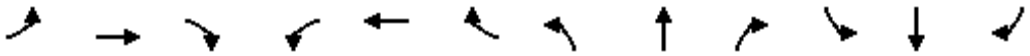


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	96	42	512	51	868	278	829
v/c Ratio	1.50	0.18	0.12	0.77	0.42	0.65	0.78	0.45
Control Delay	316.8	17.1	26.1	20.5	59.8	32.9	51.0	12.8
Queue Delay	11.3	0.0	0.0	16.1	0.0	51.9	57.4	0.4
Total Delay	328.2	17.1	26.1	36.6	59.8	84.8	108.4	13.2
Queue Length 50th (ft)	~91	30	21	123	35	277	197	113
Queue Length 95th (ft)	#185	62	45	239	69	341	#319	179
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	84	652	455	765	141	1332	358	1830
Starvation Cap Reductn	0	0	0	0	0	0	112	478
Spillback Cap Reductn	27	0	0	243	0	670	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.74	0.15	0.09	0.98	0.36	1.31	1.13	0.61

Intersection Summary

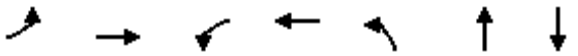
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



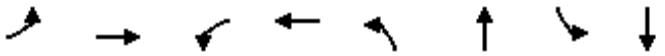
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	166	142	51	71	153	46	113	455	42	39	564	330
v/c Ratio	0.50	0.25	0.14	0.45	0.35	0.14	0.59	0.24	0.05	0.32	0.37	0.39
Control Delay	45.4	36.6	0.7	51.1	39.5	0.9	52.3	13.2	0.1	49.9	19.1	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.4	36.6	0.7	51.1	39.5	0.9	52.3	13.2	0.1	49.9	19.1	3.7
Queue Length 50th (ft)	49	41	0	41	44	0	65	78	0	23	112	0
Queue Length 95th (ft)	70	58	0	70	60	0	83	82	0	51	154	31
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	405	1431	713	165	1344	678	264	1867	862	130	1529	845
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.10	0.07	0.43	0.11	0.07	0.43	0.24	0.05	0.30	0.37	0.39

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1	178	138	394	260	121	28
v/c Ratio	0.02	0.61	0.71	0.82	0.84	0.12	0.04
Control Delay	47.0	24.6	62.1	49.1	67.2	1.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	24.6	62.1	49.1	67.2	1.1	15.7
Queue Length 50th (ft)	1	37	86	233	175	0	4
Queue Length 95th (ft)	6	85	144	333	261	16	13
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	383	269	539	392	994	659
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.46	0.51	0.73	0.66	0.12	0.04

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	137	110	16	53	42	330	25	284
v/c Ratio	0.67	0.34	0.21	0.40	0.41	0.28	0.28	0.26
Control Delay	57.9	14.3	52.0	34.1	56.5	10.8	42.4	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.9	14.3	52.0	34.1	56.5	10.8	42.4	27.2
Queue Length 50th (ft)	86	11	10	16	26	70	10	144
Queue Length 95th (ft)	125	46	29	47	51	157	m20	197
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	542	94	334	147	1183	129	1081
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.20	0.17	0.16	0.29	0.28	0.19	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	35.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	401	635	323	293	26	20
Future Vol, veh/h	401	635	323	293	26	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	418	661	394	357	36	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1089	0	1913	768
Stage 1	-	-	-	-	758	-
Stage 2	-	-	-	-	1155	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	637	-	74	400
Stage 1	-	-	-	-	461	-
Stage 2	-	-	-	-	299	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	631	-	~ 16	392
Mov Cap-2 Maneuver	-	-	-	-	~ 16	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	65	-

Approach	EB	WB	NB
HCM Control Delay, s	0	10.3	$ 932
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	27	-	-	631	-
HCM Lane V/C Ratio	2.366	-	-	0.624	-
HCM Control Delay (s)	$ 932	-	-	19.7	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	7.7	-	-	4.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	39	302	338	195	76	25
Future Vol, veh/h	39	302	338	195	76	25
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	57	444	363	210	103	34

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	583	0	-	0	825	307
Stage 1	-	-	-	-	478	-
Stage 2	-	-	-	-	347	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	981	-	-	-	309	686
Stage 1	-	-	-	-	587	-
Stage 2	-	-	-	-	684	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	972	-	-	-	279	673
Mov Cap-2 Maneuver	-	-	-	-	279	-
Stage 1	-	-	-	-	581	-
Stage 2	-	-	-	-	625	-

Approach	NB	SB	NE
HCM Control Delay, s	1.3	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	279	673	972	-	-	-
HCM Lane V/C Ratio	0.368	0.05	0.059	-	-	-
HCM Control Delay (s)	25.2	10.6	8.9	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.6	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	306	6	20	343	16	34
Future Vol, veh/h	306	6	20	343	16	34
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	431	8	22	369	22	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	449	0	682	240
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	237	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1101	-	381	758
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	777	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1091	-	364	744
Mov Cap-2 Maneuver	-	-	-	-	364	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	750	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.6	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1091	-	558
HCM Lane V/C Ratio	-	-	0.02	-	0.121
HCM Control Delay (s)	-	-	8.4	0.1	12.3
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	348	214	1	10	16
Future Vol, veh/h	23	348	214	1	10	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	88	88	59	59
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	400	243	1	17	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	254	0	-	0	717	264
Stage 1	-	-	-	-	254	-
Stage 2	-	-	-	-	463	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1305	-	-	-	395	772
Stage 1	-	-	-	-	786	-
Stage 2	-	-	-	-	632	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1293	-	-	-	377	757
Mov Cap-2 Maneuver	-	-	-	-	377	-
Stage 1	-	-	-	-	779	-
Stage 2	-	-	-	-	610	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1293	-	-	-	546
HCM Lane V/C Ratio	0.02	-	-	-	0.081
HCM Control Delay (s)	7.8	0	-	-	12.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	94	53	22	118	21	10
Future Vol, veh/h	94	53	22	118	21	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	71	71	47	47
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	118	66	31	166	45	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	194	0	399	171
Stage 1	-	-	-	-	161	-
Stage 2	-	-	-	-	238	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1361	-	605	870
Stage 1	-	-	-	-	865	-
Stage 2	-	-	-	-	799	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1348	-	579	854
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	857	-
Stage 2	-	-	-	-	772	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	646	-	-	1348	-
HCM Lane V/C Ratio	0.102	-	-	0.023	-
HCM Control Delay (s)	11.2	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	90	230	147	77	55	64
Future Vol, veh/h	90	230	147	77	55	64
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	86	86	82	82
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	103	264	171	90	67	78

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	270	0	-	0	707	236
Stage 1	-	-	-	-	226	-
Stage 2	-	-	-	-	481	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1288	-	-	-	400	801
Stage 1	-	-	-	-	809	-
Stage 2	-	-	-	-	620	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1276	-	-	-	355	786
Mov Cap-2 Maneuver	-	-	-	-	355	-
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	556	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1276	-	-	-	503
HCM Lane V/C Ratio	0.081	-	-	-	0.289
HCM Control Delay (s)	8.1	0	-	-	15
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2

Intersection	
Int Delay, s/veh	5.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	46	78	73	143	5
Future Vol, veh/h	29	46	78	73	143	5
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	84	84	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	52	93	87	196	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	190	0	-	0	273	156
Stage 1	-	-	-	-	146	-
Stage 2	-	-	-	-	127	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1378	-	-	-	714	887
Stage 1	-	-	-	-	879	-
Stage 2	-	-	-	-	896	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1365	-	-	-	683	870
Mov Cap-2 Maneuver	-	-	-	-	683	-
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	865	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1365	-	-	-	688
HCM Lane V/C Ratio	0.024	-	-	-	0.295
HCM Control Delay (s)	7.7	0	-	-	12.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	147	0	0	381	105	2
Future Vol, veh/h	147	0	0	381	105	2
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	156	0	0	405	115	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	571	166
Stage 1	-	-	-	-	156	-
Stage 2	-	-	-	-	415	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	481	876
Stage 1	-	0	0	-	870	-
Stage 2	-	0	0	-	664	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	476	868
Mov Cap-2 Maneuver	-	-	-	-	476	-
Stage 1	-	-	-	-	870	-
Stage 2	-	-	-	-	658	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	476	868	-	-
HCM Lane V/C Ratio	0.242	0.003	-	-
HCM Control Delay (s)	15	9.2	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	0.9	0	-	-

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	185	200	0	153	91	0	112	330
Future Vol, veh/h	0	185	200	0	153	91	0	112	330
Peak Hour Factor	0.92	0.77	0.77	0.92	0.84	0.84	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	240	260	0	182	108	0	129	379
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	15.5	15.9	17.3
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	63%	0%	0%
Vol Right, %	0%	0%	37%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	200	244	112	330
LT Vol	185	0	0	112	0
Through Vol	0	200	153	0	0
RT Vol	0	0	91	0	330
Lane Flow Rate	240	260	290	129	379
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.472	0.473	0.511	0.26	0.637
Departure Headway (Hd)	7.065	6.556	6.338	7.261	6.041
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	509	548	566	493	596
Service Time	4.832	4.323	4.403	5.025	3.804
HCM Lane V/C Ratio	0.472	0.474	0.512	0.262	0.636
HCM Control Delay	16	15.1	15.9	12.6	18.9
HCM Lane LOS	C	C	C	B	C
HCM 95th-tile Q	2.5	2.5	2.9	1	4.5

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	159	8	20	137	60	17
Future Vol, veh/h	159	8	20	137	60	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	173	9	22	149	65	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	182	0	369	177
Stage 1	-	-	-	-	177	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1387	-	629	863
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	838	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1387	-	618	863
Mov Cap-2 Maneuver	-	-	-	-	618	-
Stage 1	-	-	-	-	851	-
Stage 2	-	-	-	-	824	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	618	863	-	-	1387	-
HCM Lane V/C Ratio	0.106	0.021	-	-	0.016	-
HCM Control Delay (s)	11.5	9.3	-	-	7.6	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	14	0	0	5	0	72	10	8	38	2
Future Vol, veh/h	0	0	14	0	0	5	0	72	10	8	38	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	15	0	0	5	0	78	11	9	41	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	22	-	-	45	-	0	0	89	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1047	0	0	1012	0	-	-	1497	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1047	-	-	1012	-	-	-	1497	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.6	0	1.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1047	1012	1497	-	-
HCM Lane V/C Ratio	-	-	0.015	0.005	0.006	-	-
HCM Control Delay (s)	-	-	8.5	8.6	7.4	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	14	0	82	50	2
Future Vol, veh/h	0	14	0	82	50	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	15	0	89	54	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	28	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1037	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1037	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1037	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	10	7	65	17	46	1
Future Vol, veh/h	0	10	7	65	17	46	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	11	8	71	18	50	1

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	26	51	0	51	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1040	1546	-	1322	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1040	1546	-	1322	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0.7	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1546	-	1040	1322	-	-
HCM Lane V/C Ratio	0.005	-	0.01	0.014	-	-
HCM Control Delay (s)	7.3	-	8.5	7.8	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	5	19	72	55	1
Future Vol, veh/h	0	5	19	72	55	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	5	21	78	60	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	30	60	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1034	1534	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1034	1534	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1534	-	1034	-	-
HCM Lane V/C Ratio	0.013	-	0.005	-	-
HCM Control Delay (s)	7.4	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	6	0	0	19	3	72	23	3	73	1
Future Vol, veh/h	0	0	6	0	0	19	3	72	23	3	73	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	7	0	0	21	3	78	25	3	79	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	40	-	-	52	80	0	0	103	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1019	0	0	1001	1509	-	-	1479	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1019	-	-	1001	1509	-	-	1479	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	8.7	0.2	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1509	-	-	1019	1001	1479	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.021	0.002	-	-
HCM Control Delay (s)	7.4	-	-	8.6	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	48	328	200	50	28	51
Future Vol, veh/h	48	328	200	50	28	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	52	357	217	54	30	55

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	272	0	-	0	706	245
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	461	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1286	-	-	-	401	791
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	633	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1286	-	-	-	385	791
Mov Cap-2 Maneuver	-	-	-	-	385	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	607	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1286	-	-	-	385	791
HCM Lane V/C Ratio	0.041	-	-	-	0.079	0.07
HCM Control Delay (s)	7.9	-	-	-	15.2	9.9
HCM Lane LOS	A	-	-	-	C	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3	0.2

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	4	7	31	74	1
Future Vol, veh/h	0	4	7	31	74	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	8	34	80	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	130	81	82	0	-	0
Stage 1	81	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	862	976	1509	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	971	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	858	976	1509	-	-	-
Mov Cap-2 Maneuver	858	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	966	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1509	-	976	-	-
HCM Lane V/C Ratio	0.005	-	0.004	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	167	145	102	157	71	150	209	117	93	170	27
Future Volume (veh/h)	23	167	145	102	157	71	150	209	117	93	170	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	176	153	116	178	81	163	227	127	116	212	34
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	747	630	183	813	686	196	779	337	145	584	92
Arrive On Green	0.03	0.41	0.41	0.05	0.45	0.45	0.11	0.22	0.22	0.08	0.19	0.19
Sat Flow, veh/h	1757	1845	1556	3343	1810	1528	1757	3505	1517	1757	3022	476
Grp Volume(v), veh/h	24	176	153	116	178	81	163	227	127	116	121	125
Grp Sat Flow(s),veh/h/ln	1757	1845	1556	1672	1810	1528	1757	1752	1517	1757	1752	1746
Q Serve(g_s), s	1.3	5.9	3.9	3.2	5.7	2.9	8.6	5.1	5.2	6.1	5.7	5.9
Cycle Q Clear(g_c), s	1.3	5.9	3.9	3.2	5.7	2.9	8.6	5.1	5.2	6.1	5.7	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	52	747	630	183	813	686	196	779	337	145	338	337
V/C Ratio(X)	0.46	0.24	0.24	0.63	0.22	0.12	0.83	0.29	0.38	0.80	0.36	0.37
Avail Cap(c_a), veh/h	126	747	630	296	813	686	385	1431	619	274	604	602
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.2	18.5	7.4	43.9	16.0	15.2	41.2	30.6	18.3	42.7	33.2	33.2
Incr Delay (d2), s/veh	2.3	0.7	0.9	1.4	0.5	0.3	3.4	0.5	1.8	3.8	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.2	2.5	1.5	2.9	1.3	4.4	2.5	2.7	3.2	2.9	3.0
LnGrp Delay(d),s/veh	47.6	19.3	8.3	45.2	16.4	15.5	44.6	31.2	20.1	46.5	34.8	35.0
LnGrp LOS	D	B	A	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		353			375			517			362	
Approach Delay, s/veh		16.5			25.1			32.7			38.6	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	44.4	14.8	23.6	7.0	49.4	12.0	26.4
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	5.2	7.9	10.6	7.9	3.3	7.7	8.1	7.2
Green Ext Time (p_c), s	0.3	4.1	0.1	6.8	0.0	3.3	0.1	7.4

Intersection Summary	
HCM 2010 Ctrl Delay	28.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	117	229	183	99	78	111	734	723	129	455	97
Future Volume (veh/h)	46	117	229	183	99	78	111	734	723	129	455	97
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	61	156	305	206	111	88	113	749	738	139	489	104
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	391	203	396	172	347	275	203	732	647	166	1081	229
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.19	0.70	0.70	0.10	0.38	0.38
Sat Flow, veh/h	1161	556	1087	916	951	754	1757	1752	1549	1723	2818	596
Grp Volume(v), veh/h	61	0	461	206	0	199	113	749	738	139	297	296
Grp Sat Flow(s),veh/h/ln	1161	0	1642	916	0	1704	1757	1752	1549	1723	1719	1695
Q Serve(g_s), s	4.4	0.0	27.3	12.8	0.0	9.2	6.4	45.9	45.9	8.7	14.2	14.3
Cycle Q Clear(g_c), s	13.6	0.0	27.3	40.1	0.0	9.2	6.4	45.9	45.9	8.7	14.2	14.3
Prop In Lane	1.00		0.66	1.00		0.44	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	391	0	599	172	0	621	203	732	647	166	659	650
V/C Ratio(X)	0.16	0.00	0.77	1.20	0.00	0.32	0.56	1.02	1.14	0.84	0.45	0.45
Avail Cap(c_a), veh/h	391	0	599	172	0	621	220	732	647	166	659	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.33	0.33	0.33	0.94	0.94	0.94
Uniform Delay (d), s/veh	30.0	0.0	30.9	51.0	0.0	25.1	41.8	16.6	16.6	48.9	25.3	25.3
Incr Delay (d2), s/veh	0.2	0.0	6.1	131.3	0.0	0.3	0.4	25.4	70.1	27.2	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	13.3	11.5	0.0	4.4	3.1	26.5	31.5	5.4	7.1	7.0
LnGrp Delay(d),s/veh	30.2	0.0	37.0	182.3	0.0	25.4	42.2	42.1	86.8	76.0	27.3	27.5
LnGrp LOS	C		D	F		C	D	F	F	E	C	C
Approach Vol, veh/h		522			405			1600			732	
Approach Delay, s/veh		36.2			105.2			62.7			36.6	
Approach LOS		D			F			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	51.3		45.0	18.0	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	10.7	47.9		29.3	8.4	16.3		42.1
Green Ext Time (p_c), s	0.0	0.0		4.1	4.2	5.8		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		57.9
HCM 2010 LOS		E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	587	1	380	0	0	0	0	977	92	137	732	0
Future Volume (veh/h)	587	1	380	0	0	0	0	977	92	137	732	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	556	167	437				0	1028	97	151	804	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87				0.95	0.95	0.95	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	685	175	459				0	1149	108	204	1822	0
Arrive On Green	0.39	0.39	0.39				0.00	0.71	0.71	0.23	1.00	0.00
Sat Flow, veh/h	1757	450	1177				0	3325	305	1757	3597	0
Grp Volume(v), veh/h	556	0	604				0	557	568	151	804	0
Grp Sat Flow(s),veh/h/ln	1757	0	1626				0	1752	1786	1757	1752	0
Q Serve(g_s), s	31.1	0.0	39.6				0.0	27.7	27.8	8.8	0.0	0.0
Cycle Q Clear(g_c), s	31.1	0.0	39.6				0.0	27.7	27.8	8.8	0.0	0.0
Prop In Lane	1.00		0.72				0.00		0.17	1.00		0.00
Lane Grp Cap(c), veh/h	685	0	635				0	623	635	204	1822	0
V/C Ratio(X)	0.81	0.00	0.95				0.00	0.89	0.89	0.74	0.44	0.00
Avail Cap(c_a), veh/h	700	0	648				0	623	635	216	1822	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.70	0.70	0.72	0.72	0.00
Uniform Delay (d), s/veh	29.9	0.0	32.5				0.0	14.3	14.3	40.7	0.0	0.0
Incr Delay (d2), s/veh	7.1	0.0	23.9				0.0	13.3	13.2	7.6	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.3	0.0	22.0				0.0	15.0	15.3	4.6	0.1	0.0
LnGrp Delay(d),s/veh	37.0	0.0	56.4				0.0	27.6	27.5	48.3	0.6	0.0
LnGrp LOS	D		E					C	C	D	A	
Approach Vol, veh/h		1160						1125			955	
Approach Delay, s/veh		47.1						27.5			8.1	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	18.1	44.4		47.5		62.5		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	10.8	29.8		41.6		2.0		
Green Ext Time (p_c), s	1.3	7.1		1.3		11.4		

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	109	130	47	82	231	68	674	35	280	699	137
Future Volume (veh/h)	160	109	130	47	82	231	68	674	35	280	699	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	168	115	137	48	85	238	77	766	40	289	721	141
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.88	0.88	0.88	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	251	262	312	316	146	409	163	976	51	415	1260	246
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.29	0.29	0.47	0.86	0.86
Sat Flow, veh/h	1038	764	910	1107	427	1195	1757	3385	177	1757	2918	570
Grp Volume(v), veh/h	168	0	252	48	0	323	77	396	410	289	433	429
Grp Sat Flow(s),veh/h/ln	1038	0	1675	1107	0	1621	1757	1752	1810	1757	1752	1736
Q Serve(g_s), s	17.4	0.0	12.8	3.9	0.0	18.0	4.6	22.9	22.9	14.2	7.3	7.3
Cycle Q Clear(g_c), s	35.4	0.0	12.8	16.7	0.0	18.0	4.6	22.9	22.9	14.2	7.3	7.3
Prop In Lane	1.00		0.54	1.00		0.74	1.00		0.10	1.00		0.33
Lane Grp Cap(c), veh/h	251	0	574	316	0	556	163	505	522	415	757	750
V/C Ratio(X)	0.67	0.00	0.44	0.15	0.00	0.58	0.47	0.78	0.79	0.70	0.57	0.57
Avail Cap(c_a), veh/h	258	0	585	316	0	556	168	505	522	420	757	750
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	44.2	0.0	28.0	34.4	0.0	29.7	47.3	36.0	36.0	25.9	4.8	4.8
Incr Delay (d2), s/veh	6.7	0.0	0.6	0.3	0.0	1.7	0.8	11.6	11.3	3.7	2.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	6.1	1.2	0.0	8.3	2.3	12.6	13.0	7.2	3.7	3.7
LnGrp Delay(d),s/veh	50.9	0.0	28.6	34.7	0.0	31.4	48.1	47.6	47.3	29.6	7.6	7.6
LnGrp LOS	D		C	C		C	D	D	D	C	A	A
Approach Vol, veh/h		420			371			883			1151	
Approach Delay, s/veh		37.5			31.8			47.5			13.1	
Approach LOS		D			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.7	37.0		43.3	13.9	52.8		43.3
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	16.2	24.9		37.4	6.6	9.3		20.0
Green Ext Time (p_c), s	0.4	4.2		0.3	0.2	13.9		5.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	90	55	23	110	29	66	297	45	23	241	129
Future Volume (veh/h)	150	90	55	23	110	29	66	297	45	23	241	129
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	170	102	62	28	134	35	69	313	47	26	277	148
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.95	0.95	0.95	0.87	0.87	0.87
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	286	702	310	76	520	228	100	1776	790	56	1588	703
Arrive On Green	0.09	0.20	0.20	0.04	0.15	0.15	0.06	0.51	0.51	0.03	0.45	0.45
Sat Flow, veh/h	3343	3438	1516	1723	3438	1508	1757	3505	1559	1757	3505	1551
Grp Volume(v), veh/h	170	102	62	28	134	35	69	313	47	26	277	148
Grp Sat Flow(s),veh/h/ln	1672	1719	1516	1723	1719	1508	1757	1752	1559	1757	1752	1551
Q Serve(g_s), s	4.5	2.2	2.4	1.5	3.2	1.6	3.6	4.5	1.4	1.3	4.3	5.3
Cycle Q Clear(g_c), s	4.5	2.2	2.4	1.5	3.2	1.6	3.6	4.5	1.4	1.3	4.3	5.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	702	310	76	520	228	100	1776	790	56	1588	703
V/C Ratio(X)	0.60	0.15	0.20	0.37	0.26	0.15	0.69	0.18	0.06	0.47	0.17	0.21
Avail Cap(c_a), veh/h	427	1413	623	164	1301	571	205	1776	790	129	1588	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	30.2	18.3	42.9	34.7	24.2	42.8	12.4	11.6	44.0	15.0	15.3
Incr Delay (d2), s/veh	0.7	0.2	0.8	1.1	0.7	0.8	3.1	0.2	0.1	2.3	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.1	1.3	0.7	1.6	0.8	1.8	2.2	0.6	0.7	2.1	2.4
LnGrp Delay(d),s/veh	41.5	30.4	19.1	44.0	35.3	25.0	45.9	12.6	11.7	46.3	15.3	16.0
LnGrp LOS	D	C	B	D	D	C	D	B	B	D	B	B
Approach Vol, veh/h		334			197			429			451	
Approach Delay, s/veh		34.0			34.7			17.8			17.3	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	52.9	8.3	24.2	11.3	48.7	13.2	19.3
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.8	46.7	* 8.8	38.0	10.8	* 42	11.8	* 35
Max Q Clear Time (g_c+I1), s	3.3	6.5	3.5	4.4	5.6	7.3	6.5	5.2
Green Ext Time (p_c), s	0.0	5.4	0.0	1.9	1.0	6.1	0.8	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	78	136	118	226	3	190	9	179	3	11	5
Future Volume (veh/h)	4	78	136	118	226	3	190	9	179	3	11	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	89	155	124	238	3	202	10	190	8	30	14
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.94	0.94	0.94	0.37	0.37	0.37
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	102	177	162	485	6	233	45	859	114	408	177
Arrive On Green	0.00	0.17	0.17	0.09	0.27	0.27	0.13	0.58	0.58	0.40	0.40	0.40
Sat Flow, veh/h	1757	593	1033	1757	1817	23	1757	78	1488	182	1024	444
Grp Volume(v), veh/h	5	0	244	124	0	241	202	0	200	52	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1626	1757	0	1840	1757	0	1567	1651	0	0
Q Serve(g_s), s	0.3	0.0	14.6	6.9	0.0	11.0	11.3	0.0	6.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	14.6	6.9	0.0	11.0	11.3	0.0	6.2	1.8	0.0	0.0
Prop In Lane	1.00		0.64	1.00		0.01	1.00		0.95	0.15		0.27
Lane Grp Cap(c), veh/h	7	0	279	162	0	491	233	0	904	699	0	0
V/C Ratio(X)	0.73	0.00	0.87	0.77	0.00	0.49	0.87	0.00	0.22	0.07	0.00	0.00
Avail Cap(c_a), veh/h	95	0	337	253	0	547	358	0	904	699	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.00	0.90	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.8	0.0	40.4	44.3	0.0	30.9	42.5	0.0	10.2	18.6	0.0	0.0
Incr Delay (d2), s/veh	42.5	0.0	19.8	2.8	0.0	0.9	7.8	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	8.1	3.5	0.0	5.7	5.9	0.0	2.8	0.9	0.0	0.0
LnGrp Delay(d),s/veh	92.2	0.0	60.1	47.2	0.0	31.8	50.3	0.0	10.7	18.8	0.0	0.0
LnGrp LOS	F		E	D		C	D		B	B		
Approach Vol, veh/h		249			365			402			52	
Approach Delay, s/veh		60.8			37.0			30.6			18.8	
Approach LOS		E			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.0	14.5	22.5	17.9	45.2	5.0	32.0
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		8.2	8.9	16.6	13.3	3.8	2.3	13.0
Green Ext Time (p_c), s		2.0	0.6	0.5	0.1	1.7	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	39.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	144	45	181	8	24	34	41	209	21	27	154	65
Future Volume (veh/h)	144	45	181	8	24	34	41	209	21	27	154	65
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	180	56	226	10	30	42	51	258	26	31	177	75
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	211	69	278	13	72	100	455	555	56	419	388	164
Arrive On Green	0.12	0.22	0.22	0.01	0.11	0.11	0.26	0.34	0.34	0.08	0.10	0.10
Sat Flow, veh/h	1757	315	1271	1757	676	947	1757	1647	166	1757	1224	519
Grp Volume(v), veh/h	180	0	282	10	0	72	51	0	284	31	0	252
Grp Sat Flow(s),veh/h/ln	1757	0	1585	1757	0	1623	1757	0	1812	1757	0	1743
Q Serve(g_s), s	10.0	0.0	16.9	0.6	0.0	4.2	2.2	0.0	12.3	1.6	0.0	13.6
Cycle Q Clear(g_c), s	10.0	0.0	16.9	0.6	0.0	4.2	2.2	0.0	12.3	1.6	0.0	13.6
Prop In Lane	1.00		0.80	1.00		0.58	1.00		0.09	1.00		0.30
Lane Grp Cap(c), veh/h	211	0	347	13	0	172	455	0	611	419	0	553
V/C Ratio(X)	0.85	0.00	0.81	0.78	0.00	0.42	0.11	0.00	0.46	0.07	0.00	0.46
Avail Cap(c_a), veh/h	394	0	550	95	0	305	455	0	611	419	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.00	0.85
Uniform Delay (d), s/veh	43.1	0.0	37.1	49.6	0.0	41.8	28.3	0.0	26.1	35.8	0.0	36.7
Incr Delay (d2), s/veh	3.7	0.0	10.9	30.8	0.0	0.6	0.0	0.0	2.5	0.0	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	0.0	8.4	0.4	0.0	1.9	1.1	0.0	6.6	0.8	0.0	6.9
LnGrp Delay(d),s/veh	46.9	0.0	48.0	80.4	0.0	42.4	28.3	0.0	28.6	35.8	0.0	39.0
LnGrp LOS	D		D	F		D	C		C	D		D
Approach Vol, veh/h		462			82			335			283	
Approach Delay, s/veh		47.6			47.0			28.6			38.6	
Approach LOS		D			D			C			D	

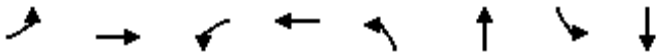
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.5	39.0	5.3	27.2	30.5	37.0	16.6	15.9
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.6	14.3	2.6	18.9	4.2	15.6	12.0	6.2
Green Ext Time (p_c), s	0.0	1.8	0.0	3.0	0.0	1.7	0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	176	153	116	178	81	163	227	127	116	247
v/c Ratio	0.21	0.23	0.21	0.45	0.21	0.10	0.67	0.33	0.30	0.59	0.42
Control Delay	51.9	22.8	4.7	50.9	19.8	0.9	54.9	34.0	3.7	55.5	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	22.8	4.7	50.9	19.8	0.9	54.9	34.0	3.7	55.5	35.6
Queue Length 50th (ft)	14	65	0	34	51	0	92	62	0	66	66
Queue Length 95th (ft)	47	162	44	74	158	4	187	99	22	129	96
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	125	749	716	296	866	791	385	1434	713	274	1189
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.23	0.21	0.39	0.21	0.10	0.42	0.16	0.18	0.42	0.21

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	461	206	199	113	1487	139	593
v/c Ratio	0.16	0.70	1.18	0.31	0.52	1.00	0.86	0.46
Control Delay	25.1	29.4	160.2	21.1	36.5	34.7	92.1	25.5
Queue Delay	0.0	0.1	0.0	0.0	0.0	35.1	0.0	0.5
Total Delay	25.1	29.5	160.2	21.1	36.5	69.9	92.1	26.1
Queue Length 50th (ft)	29	217	~175	77	75	~557	98	154
Queue Length 95th (ft)	50	246	#318	134	m83	#648	#209	206
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	382	662	174	648	219	1480	165	1291
Starvation Cap Reductn	0	0	0	0	0	147	0	0
Spillback Cap Reductn	0	9	0	0	0	0	0	331
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.71	1.18	0.31	0.52	1.12	0.84	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

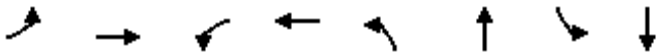
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	580	533	1125	151	804
v/c Ratio	0.92	0.82	0.88	0.70	0.43
Control Delay	53.5	34.0	28.1	74.4	27.5
Queue Delay	0.0	0.6	47.8	0.0	2.0
Total Delay	53.5	34.6	76.0	74.4	29.5
Queue Length 50th (ft)	393	266	427	112	290
Queue Length 95th (ft)	#578	398	#544	m156	m335
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	674	1285	215	1849
Starvation Cap Reductn	0	0	179	0	855
Spillback Cap Reductn	0	21	351	0	578
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.88	0.82	1.20	0.70	0.81

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



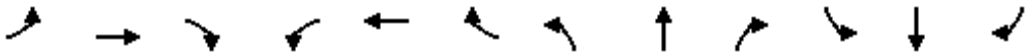
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	168	252	48	323	77	806	289	862
v/c Ratio	1.06	0.52	0.24	0.63	0.55	0.58	0.79	0.46
Control Delay	127.7	28.2	32.3	24.3	63.4	30.4	56.5	8.5
Queue Delay	61.2	0.0	0.0	1.7	0.0	2.2	55.2	0.4
Total Delay	188.9	28.2	32.3	26.0	63.4	32.6	111.7	8.9
Queue Length 50th (ft)	~127	113	27	112	53	239	217	99
Queue Length 95th (ft)	#231	172	54	186	100	340	m297	171
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	208	623	261	640	167	1395	418	1875
Starvation Cap Reductn	0	0	0	0	0	0	153	475
Spillback Cap Reductn	63	0	0	174	0	430	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.40	0.18	0.69	0.46	0.84	1.09	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

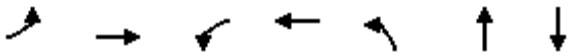
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



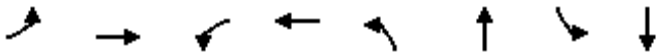
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	102	63	28	134	35	69	313	47	26	277	148
v/c Ratio	0.49	0.13	0.14	0.18	0.31	0.10	0.43	0.16	0.05	0.21	0.17	0.18
Control Delay	44.4	31.8	0.6	43.9	39.2	0.6	48.6	11.5	0.1	46.6	15.4	2.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.4	31.8	0.6	43.9	39.2	0.6	48.6	11.5	0.1	46.6	15.4	2.9
Queue Length 50th (ft)	48	23	0	15	37	0	38	37	0	14	47	0
Queue Length 95th (ft)	82	51	0	40	62	0	85	84	0	42	80	27
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	438	1454	731	168	1339	693	210	1940	913	132	1670	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.07	0.09	0.17	0.10	0.05	0.33	0.16	0.05	0.20	0.17	0.18

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	244	124	241	202	200	52
v/c Ratio	0.07	0.76	0.69	0.46	0.78	0.20	0.08
Control Delay	48.2	41.9	62.1	31.2	62.5	2.8	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	41.9	62.1	31.2	62.5	2.8	20.3
Queue Length 50th (ft)	3	101	78	120	135	23	15
Queue Length 95th (ft)	15	172	133	194	210	54	16
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	398	252	581	357	981	670
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.61	0.49	0.41	0.57	0.20	0.08

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	282	10	72	51	284	31	252
v/c Ratio	0.74	0.57	0.14	0.47	0.45	0.26	0.35	0.25
Control Delay	59.2	13.0	49.8	32.6	56.9	12.9	66.0	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.2	13.0	49.8	32.6	56.9	12.9	66.0	24.4
Queue Length 50th (ft)	112	31	6	19	32	87	17	140
Queue Length 95th (ft)	151	74	21	52	62	153	m33	209
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	689	94	341	147	1101	112	1009
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.41	0.11	0.21	0.35	0.26	0.28	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	46.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	630	334	181	256	105	14
Future Vol, veh/h	630	334	181	256	105	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	663	352	195	275	142	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1025	0	1524	859
Stage 1	-	-	-	-	849	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	673	-	~ 129	355
Stage 1	-	-	-	-	418	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	667	-	~ 83	348
Mov Cap-2 Maneuver	-	-	-	-	~ 83	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	327	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.2	$ 464.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	-	-	667	-
HCM Lane V/C Ratio	1.767	-	-	0.292	-
HCM Control Delay (s)	$ 464.7	-	-	12.6	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	13.3	-	-	1.2	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.7

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	31	259	231	66	115	45
Future Vol, veh/h	31	259	231	66	115	45
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	93	93	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	34	282	248	71	139	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	329	0	-	0	512	180
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	218	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1220	-	-	-	489	829
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1208	-	-	-	464	813
Mov Cap-2 Maneuver	-	-	-	-	464	-
Stage 1	-	-	-	-	720	-
Stage 2	-	-	-	-	760	-

Approach	NB	SB	NE
HCM Control Delay, s	1	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	464	813	1208	-	-	-
HCM Lane V/C Ratio	0.299	0.067	0.028	-	-	-
HCM Control Delay (s)	16	9.7	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	269	14	29	250	19	9
Future Vol, veh/h	269	14	29	250	19	9
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	309	16	31	266	24	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	335	0	532	183
Stage 1	-	-	-	-	327	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1214	-	475	825
Stage 1	-	-	-	-	700	-
Stage 2	-	-	-	-	806	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1202	-	452	809
Mov Cap-2 Maneuver	-	-	-	-	452	-
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	774	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.9	12.3
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1202	-	527
HCM Lane V/C Ratio	-	-	0.026	-	0.068
HCM Control Delay (s)	-	-	8.1	0.1	12.3
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	27	285	279	12	13	8
Future Vol, veh/h	27	285	279	12	13	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	28	300	294	13	20	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	316	0	-	0	677	320
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	367	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1239	-	-	-	417	718
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	699	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1227	-	-	-	398	704
Mov Cap-2 Maneuver	-	-	-	-	398	-
Stage 1	-	-	-	-	734	-
Stage 2	-	-	-	-	674	-

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1227	-	-	-	477
HCM Lane V/C Ratio	0.023	-	-	-	0.067
HCM Control Delay (s)	8	0	-	-	13.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	114	16	12	124	25	17
Future Vol, veh/h	114	16	12	124	25	17
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	79	79	65	65
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	137	19	15	157	38	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	354	167
Stage 1	-	-	-	-	157	-
Stage 2	-	-	-	-	197	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1393	-	642	875
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	834	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1380	-	622	858
Mov Cap-2 Maneuver	-	-	-	-	622	-
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	816	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	700	-	-	1380	-
HCM Lane V/C Ratio	0.092	-	-	0.011	-
HCM Control Delay (s)	10.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	7	174	202	50	39	30
Future Vol, veh/h	7	174	202	50	39	30
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	92	92	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	7	183	220	54	52	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	284	0	-	0	465	267
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1273	-	-	-	554	769
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	824	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1261	-	-	-	540	754
Mov Cap-2 Maneuver	-	-	-	-	540	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1261	-	-	-	616
HCM Lane V/C Ratio	0.006	-	-	-	0.149
HCM Control Delay (s)	7.9	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection	
Int Delay, s/veh	8.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	15	122	78	52	271	11
Future Vol, veh/h	15	122	78	52	271	11
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	136	93	62	335	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	165	0	-	0	313	144
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	179	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1407	-	-	-	678	901
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1394	-	-	-	657	884
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	831	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1394	-	-	-	664
HCM Lane V/C Ratio	0.012	-	-	-	0.524
HCM Control Delay (s)	7.6	0	-	-	16.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.1

Intersection	
Int Delay, s/veh	2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	274	0	0	241	100	6
Future Vol, veh/h	274	0	0	241	100	6
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	304	0	0	268	125	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	582	314
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	278	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	474	724
Stage 1	-	0	0	-	746	-
Stage 2	-	0	0	-	767	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	469	717
Mov Cap-2 Maneuver	-	-	-	-	469	-
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	760	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	469	717	-	-
HCM Lane V/C Ratio	0.267	0.01	-	-
HCM Control Delay (s)	15.4	10.1	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	1.1	0	-	-

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	249	212	0	172	113	0	88	172
Future Vol, veh/h	0	249	212	0	172	113	0	88	172
Peak Hour Factor	0.92	0.93	0.93	0.92	0.86	0.86	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	268	228	0	200	131	0	101	198
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13.7	14.8	11.7
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	60%	0%	0%
Vol Right, %	0%	0%	40%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	249	212	285	88	172
LT Vol	249	0	0	88	0
Through Vol	0	212	172	0	0
RT Vol	0	0	113	0	172
Lane Flow Rate	268	228	331	101	198
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.478	0.375	0.524	0.202	0.328
Departure Headway (Hd)	6.429	5.922	5.689	7.199	5.98
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	562	609	633	499	601
Service Time	4.164	3.657	3.723	4.943	3.723
HCM Lane V/C Ratio	0.477	0.374	0.523	0.202	0.329
HCM Control Delay	14.9	12.2	14.8	11.8	11.6
HCM Lane LOS	B	B	B	B	B
HCM 95th-tile Q	2.6	1.7	3.1	0.7	1.4

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	126	49	22	147	67	26
Future Vol, veh/h	126	49	22	147	67	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	137	53	24	160	73	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	190	0	372	164
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	208	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1378	-	627	878
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	824	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1378	-	615	878
Mov Cap-2 Maneuver	-	-	-	-	615	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	615	878	-	-	1378	-
HCM Lane V/C Ratio	0.118	0.032	-	-	0.017	-
HCM Control Delay (s)	11.6	9.2	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	21	0	72	38	30	34	7
Future Vol, veh/h	0	0	9	0	0	21	0	72	38	30	34	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	23	0	78	41	33	37	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	22	-	-	60	-	0	0	120	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1047	0	0	990	0	-	-	1458	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1047	-	-	990	-	-	-	1458	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.7	0	3.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1047	990	1458	-	-
HCM Lane V/C Ratio	-	-	0.009	0.023	0.022	-	-
HCM Control Delay (s)	-	-	8.5	8.7	7.5	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	0	110	36	7
Future Vol, veh/h	0	9	0	110	36	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	0	120	39	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	23	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1045	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1045	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1045	-	-
HCM Lane V/C Ratio	-	0.009	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	6	23	99	11	29	5
Future Vol, veh/h	0	6	23	99	11	29	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	7	25	108	12	32	5

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	18	37	0	78	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1053	1565	-	1271	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1053	1565	-	1271	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.4	1.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1565	-	1053	1271	-	-
HCM Lane V/C Ratio	0.016	-	0.006	0.009	-	-
HCM Control Delay (s)	7.3	-	8.4	7.9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	81	122	33	2
Future Vol, veh/h	0	9	81	122	33	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	88	133	36	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	18	36	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1053	1566	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1053	1566	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1566	-	1053	-	-
HCM Lane V/C Ratio	0.056	-	0.009	-	-
HCM Control Delay (s)	7.4	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	84	5	119	90	10	104	2
Future Vol, veh/h	0	0	8	0	0	84	5	119	90	10	104	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	91	5	129	98	11	113	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	58	-	-	114	115	0	0	227	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	993	0	0	914	1464	-	-	1331	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	993	-	-	914	1464	-	-	1331	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	9.4	0.2	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1464	-	-	993	914	1331	-	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.1	0.008	-	-
HCM Control Delay (s)	7.5	-	-	8.7	9.4	7.7	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	157	180	223	57	19	93
Future Vol, veh/h	157	180	223	57	19	93
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	171	196	242	62	21	101

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	304	0	-	0	810	273
Stage 1	-	-	-	-	273	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1251	-	-	-	348	763
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	584	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1251	-	-	-	300	763
Mov Cap-2 Maneuver	-	-	-	-	300	-
Stage 1	-	-	-	-	771	-
Stage 2	-	-	-	-	504	-

Approach	EB	WB	SB
HCM Control Delay, s	3.9	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1251	-	-	-	300	763
HCM Lane V/C Ratio	0.136	-	-	-	0.069	0.132
HCM Control Delay (s)	8.3	-	-	-	17.9	10.4
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	0.5

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	3	18	28	39	24	4
Future Vol, veh/h	3	18	28	39	24	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	3	20	30	42	26	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	131	28	30	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	103	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	861	1044	1576	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	845	1044	1576	-	-	-
Mov Cap-2 Maneuver	845	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	902	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	3.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1576	-	1010	-	-
HCM Lane V/C Ratio	0.019	-	0.023	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	27	0	75	160	126	53	7
Future Vol, veh/h	0	0	9	0	0	27	0	75	160	126	53	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	29	0	82	174	137	58	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	33	-	-	128	-	0	0	255	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1030	0	0	895	0	-	-	1300	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1030	-	-	895	-	-	-	1300	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.2	0	5.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1030	895	1300	-	-
HCM Lane V/C Ratio	-	-	0.009	0.033	0.105	-	-
HCM Control Delay (s)	-	-	8.5	9.2	8.1	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	115	5	241	378	42	132	2
Future Vol, veh/h	0	0	8	0	0	115	5	241	378	42	132	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	125	5	262	411	46	143	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	73	-	-	336	146	0	0	673	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	971	0	0	657	1426	-	-	907	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	971	-	-	657	1426	-	-	907	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	11.8	0.1	2.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1426	-	-	971	657	907	-	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.19	0.05	-	-
HCM Control Delay (s)	7.5	-	-	8.7	11.8	9.2	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	130	0	111	44	35	35	7
Future Vol, veh/h	0	0	9	0	0	130	0	111	44	35	35	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	141	0	121	48	38	38	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	23	-	-	84	-	0	0	168	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1045	0	0	955	0	-	-	1400	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1045	-	-	955	-	-	-	1400	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.4	0	3.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1045	955	1400	-	-
HCM Lane V/C Ratio	-	-	0.009	0.148	0.027	-	-
HCM Control Delay (s)	-	-	8.5	9.4	7.6	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	552	5	125	105	12	521	2
Future Vol, veh/h	0	0	8	0	0	552	5	125	105	12	521	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	600	5	136	114	13	566	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	284	-	-	125	568	0	0	250	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	710	0	0	899	993	-	-	1305	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	710	-	-	899	993	-	-	1305	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	16.7	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	993	-	-	710	899	1305	-	-
HCM Lane V/C Ratio	0.005	-	-	0.012	0.667	0.01	-	-
HCM Control Delay (s)	8.6	-	-	10.1	16.7	7.8	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	5.3	0	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	41	0	73	43	33	32	6
Future Vol, veh/h	0	0	8	0	0	41	0	73	43	33	32	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	45	0	79	47	36	35	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	21	-	-	63	-	0	0	126	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1048	0	0	985	0	-	-	1451	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1048	-	-	985	-	-	-	1451	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.8	0	3.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1048	985	1451	-	-
HCM Lane V/C Ratio	-	-	0.008	0.045	0.025	-	-
HCM Control Delay (s)	-	-	8.5	8.8	7.5	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	7	0	0	159	5	116	100	11	168	2
Future Vol, veh/h	0	0	7	0	0	159	5	116	100	11	168	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	8	0	0	173	5	126	109	12	183	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	92	-	-	117	185	0	0	235	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	944	0	0	910	1380	-	-	1322	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	944	-	-	910	1380	-	-	1322	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.9	0.2	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1380	-	-	944	910	1322	-	-
HCM Lane V/C Ratio	0.004	-	-	0.008	0.19	0.009	-	-
HCM Control Delay (s)	7.6	-	-	8.8	9.9	7.7	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0	-	-

NEAR-TERM (YEAR 2018) WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	184	196	99	194	177	118	342	138	103	323	60
Future Volume (veh/h)	89	184	196	99	194	177	118	342	138	103	323	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	103	214	228	146	285	260	169	489	197	124	389	72
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.68	0.68	0.68	0.70	0.70	0.70	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	124	645	544	209	619	521	200	1046	454	147	790	145
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.11	0.30	0.30	0.08	0.27	0.27
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1523	1757	2949	541
Grp Volume(v), veh/h	103	214	228	146	285	260	169	489	197	124	230	231
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1523	1757	1752	1737
Q Serve(g_s), s	5.8	8.5	11.1	4.3	12.2	13.5	9.4	11.3	10.4	6.9	11.0	11.2
Cycle Q Clear(g_c), s	5.8	8.5	11.1	4.3	12.2	13.5	9.4	11.3	10.4	6.9	11.0	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	124	645	544	209	619	521	200	1046	454	147	469	465
V/C Ratio(X)	0.83	0.33	0.42	0.70	0.46	0.50	0.84	0.47	0.43	0.85	0.49	0.50
Avail Cap(c_a), veh/h	124	645	544	309	658	555	249	1339	582	147	567	562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	23.8	24.6	45.7	25.6	26.0	43.2	28.5	28.1	45.0	30.7	30.8
Incr Delay (d2), s/veh	34.5	1.4	2.4	1.6	1.9	2.7	16.2	0.9	1.7	32.8	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.6	5.1	2.0	6.4	6.1	5.5	5.6	4.6	4.7	5.6	5.6
LnGrp Delay(d),s/veh	80.2	25.2	27.0	47.3	27.5	28.6	59.4	29.3	29.8	77.8	32.7	32.9
LnGrp LOS	F	C	C	D	C	C	E	C	C	E	C	C
Approach Vol, veh/h		545			691			855			585	
Approach Delay, s/veh		36.3			32.1			35.4			42.4	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	41.6	15.5	31.9	11.2	40.8	12.5	35.0
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.3	13.1	11.4	13.2	7.8	15.5	8.9	13.3
Green Ext Time (p_c), s	0.1	11.4	0.1	11.5	0.0	11.1	0.0	13.6

Intersection Summary	
HCM 2010 Ctrl Delay	36.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	53	109	162	100	56	212	629	744	225	605	174
Future Volume (veh/h)	29	53	109	162	100	56	212	629	744	225	605	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	39	71	145	182	112	63	247	731	865	265	712	205
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	324	160	327	283	329	185	273	744	657	262	1106	318
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.26	0.71	0.71	0.15	0.42	0.42
Sat Flow, veh/h	1185	538	1099	1142	1106	622	1757	1752	1549	1723	2628	756
Grp Volume(v), veh/h	39	0	216	182	0	175	247	731	865	265	466	451
Grp Sat Flow(s),veh/h/ln	1185	0	1638	1142	0	1727	1757	1752	1549	1723	1719	1665
Q Serve(g_s), s	2.9	0.0	11.7	16.9	0.0	8.7	15.0	44.1	46.7	16.7	23.7	23.7
Cycle Q Clear(g_c), s	11.6	0.0	11.7	28.6	0.0	8.7	15.0	44.1	46.7	16.7	23.7	23.7
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	324	0	487	283	0	514	273	744	657	262	724	701
V/C Ratio(X)	0.12	0.00	0.44	0.64	0.00	0.34	0.91	0.98	1.32	1.01	0.64	0.64
Avail Cap(c_a), veh/h	349	0	521	307	0	550	315	744	657	262	724	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.50	0.50	0.85	0.85	0.85
Uniform Delay (d), s/veh	34.7	0.0	31.3	42.8	0.0	30.2	40.0	15.7	16.0	46.7	25.3	25.3
Incr Delay (d2), s/veh	0.2	0.0	0.6	4.0	0.0	0.4	14.5	19.8	147.6	54.7	3.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	5.4	5.6	0.0	4.2	8.3	24.7	46.1	11.9	11.9	11.7
LnGrp Delay(d),s/veh	34.9	0.0	31.9	46.9	0.0	30.6	54.5	35.4	163.7	101.4	29.0	29.2
LnGrp LOS	C		C	D		C	D	D	F	F	C	C
Approach Vol, veh/h		255			357			1843			1182	
Approach Delay, s/veh		32.4			38.9			98.2			45.3	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.4	52.0		37.6	20.8	51.6		37.6
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	18.7	48.7		13.7	17.0	25.7		30.6
Green Ext Time (p_c), s	0.0	0.0		3.0	0.1	15.2		1.3

Intersection Summary		
HCM 2010 Ctrl Delay		70.6
HCM 2010 LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	398	0	232	0	0	0	0	1168	33	97	784	0
Future Volume (veh/h)	398	0	232	0	0	0	0	1168	33	97	784	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	342	127	252				0	1374	39	105	852	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	453	142	281				0	1667	47	219	2286	0
Arrive On Green	0.26	0.26	0.26				0.00	0.96	0.96	0.17	0.87	0.00
Sat Flow, veh/h	1757	549	1089				0	3572	99	1757	3597	0
Grp Volume(v), veh/h	342	0	379				0	691	722	105	852	0
Grp Sat Flow(s),veh/h/ln	1757	0	1637				0	1752	1826	1757	1752	0
Q Serve(g_s), s	19.7	0.0	24.6				0.0	8.6	8.7	6.0	5.2	0.0
Cycle Q Clear(g_c), s	19.7	0.0	24.6				0.0	8.6	8.7	6.0	5.2	0.0
Prop In Lane	1.00		0.66				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	453	0	422				0	840	875	219	2286	0
V/C Ratio(X)	0.75	0.00	0.90				0.00	0.82	0.83	0.48	0.37	0.00
Avail Cap(c_a), veh/h	517	0	482				0	840	875	219	2286	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.56	0.56	0.72	0.72	0.00
Uniform Delay (d), s/veh	37.6	0.0	39.4				0.0	1.4	1.4	42.6	2.9	0.0
Incr Delay (d2), s/veh	5.5	0.0	17.9				0.0	5.2	5.1	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.3	0.0	13.3				0.0	3.9	4.0	2.9	2.6	0.0
LnGrp Delay(d),s/veh	43.1	0.0	57.3				0.0	6.6	6.4	43.1	3.2	0.0
LnGrp LOS	D		E					A	A	D	A	
Approach Vol, veh/h		721						1413			957	
Approach Delay, s/veh		50.5						6.5			7.6	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.0	58.0		33.0		77.0		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	8.0	10.7		26.6		7.2		
Green Ext Time (p_c), s	2.2	28.1		1.8		12.6		

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	51	35	39	66	403	44	714	14	257	642	119
Future Volume (veh/h)	88	51	35	39	66	403	44	714	14	257	642	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	101	59	40	43	73	448	52	850	17	282	705	131
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.84	0.84	0.84	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	376	255	483	82	502	76	1070	21	318	1345	250
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.36	0.91	0.91
Sat Flow, veh/h	867	1022	693	1270	223	1367	1757	3513	70	1757	2946	547
Grp Volume(v), veh/h	101	0	99	43	0	521	52	424	443	282	419	417
Grp Sat Flow(s),veh/h/ln	867	0	1716	1270	0	1590	1757	1752	1831	1757	1752	1741
Q Serve(g_s), s	6.5	0.0	4.3	2.6	0.0	33.9	3.2	24.4	24.4	16.6	4.4	4.4
Cycle Q Clear(g_c), s	40.4	0.0	4.3	6.9	0.0	33.9	3.2	24.4	24.4	16.6	4.4	4.4
Prop In Lane	1.00		0.40	1.00		0.86	1.00		0.04	1.00		0.31
Lane Grp Cap(c), veh/h	117	0	630	483	0	584	76	534	558	318	800	795
V/C Ratio(X)	0.87	0.00	0.16	0.09	0.00	0.89	0.68	0.79	0.79	0.89	0.52	0.52
Avail Cap(c_a), veh/h	117	0	630	483	0	584	142	534	558	359	800	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	53.4	0.0	23.4	25.7	0.0	32.7	51.9	35.1	35.1	34.0	2.8	2.8
Incr Delay (d2), s/veh	45.7	0.0	0.1	0.1	0.0	16.1	3.9	11.6	11.1	18.5	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	2.0	0.9	0.0	17.5	1.6	13.5	14.0	9.6	2.4	2.4
LnGrp Delay(d),s/veh	99.1	0.0	23.5	25.8	0.0	48.8	55.8	46.7	46.2	52.5	5.1	5.1
LnGrp LOS	F		C	C		D	E	D	D	D	A	A
Approach Vol, veh/h		200			564			919			1118	
Approach Delay, s/veh		61.7			47.1			47.0			17.0	
Approach LOS		E			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.2	38.8		46.0	8.5	55.5		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	18.6	26.4		42.4	5.2	6.4		35.9
Green Ext Time (p_c), s	0.7	4.6		0.0	0.0	13.4		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	36.1
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	106	40	51	109	33	73	297	27	30	460	269
Future Volume (veh/h)	131	106	40	51	109	33	73	297	27	30	460	269
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	170	138	52	71	151	46	114	464	42	38	575	336
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.72	0.72	0.72	0.64	0.64	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	279	618	272	123	576	253	143	1727	768	70	1582	700
Arrive On Green	0.08	0.18	0.18	0.07	0.17	0.17	0.08	0.49	0.49	0.04	0.45	0.45
Sat Flow, veh/h	3343	3438	1512	1723	3438	1511	1757	3505	1558	1757	3505	1551
Grp Volume(v), veh/h	170	138	52	71	151	46	114	464	42	38	575	336
Grp Sat Flow(s),veh/h/ln	1672	1719	1512	1723	1719	1511	1757	1752	1558	1757	1752	1551
Q Serve(g_s), s	4.7	3.3	2.8	3.8	3.6	2.5	6.0	7.3	1.3	2.0	10.2	14.4
Cycle Q Clear(g_c), s	4.7	3.3	2.8	3.8	3.6	2.5	6.0	7.3	1.3	2.0	10.2	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	618	272	123	576	253	143	1727	768	70	1582	700
V/C Ratio(X)	0.61	0.22	0.19	0.58	0.26	0.18	0.80	0.27	0.05	0.54	0.36	0.48
Avail Cap(c_a), veh/h	392	1378	606	160	1295	569	256	1727	768	126	1582	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.9	33.2	33.0	42.6	34.3	33.9	42.8	14.1	12.5	44.6	17.1	18.2
Incr Delay (d2), s/veh	0.8	0.5	0.9	1.6	0.6	0.9	3.9	0.4	0.1	2.4	0.6	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.6	1.2	1.8	1.8	1.1	3.1	3.6	0.6	1.0	5.1	6.6
LnGrp Delay(d),s/veh	42.8	33.7	33.9	44.2	35.0	34.8	46.6	14.4	12.7	47.0	17.7	20.6
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		360			268			620			949	
Approach Delay, s/veh		38.0			37.4			20.2			19.9	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	53.5	11.0	22.3	11.9	49.6	12.1	21.2
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	4.0	9.3	5.8	5.3	8.0	16.4	6.7	5.6
Green Ext Time (p_c), s	0.0	24.3	0.0	4.8	0.1	16.8	0.1	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	42	104	129	352	6	250	8	110	0	6	9
Future Volume (veh/h)	1	42	104	129	352	6	250	8	110	0	6	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	1	50	124	142	387	7	260	8	115	0	11	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.54	0.54	0.54
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	68	168	172	442	8	291	62	885	0	254	392
Arrive On Green	0.00	0.15	0.15	0.10	0.24	0.24	0.17	0.60	0.60	0.00	0.39	0.39
Sat Flow, veh/h	1757	459	1138	1757	1805	33	1757	102	1469	0	649	1003
Grp Volume(v), veh/h	1	0	174	142	0	394	260	0	123	0	0	28
Grp Sat Flow(s),veh/h/ln	1757	0	1597	1757	0	1838	1757	0	1571	0	0	1652
Q Serve(g_s), s	0.1	0.0	10.4	7.9	0.0	20.6	14.5	0.0	3.4	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.1	0.0	10.4	7.9	0.0	20.6	14.5	0.0	3.4	0.0	0.0	1.0
Prop In Lane	1.00		0.71	1.00		0.02	1.00		0.93	0.00		0.61
Lane Grp Cap(c), veh/h	2	0	236	172	0	450	291	0	947	0	0	646
V/C Ratio(X)	0.57	0.00	0.74	0.83	0.00	0.88	0.89	0.00	0.13	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	0	291	271	0	528	394	0	947	0	0	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.00	0.92	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	0.0	40.8	44.3	0.0	36.3	40.9	0.0	8.6	0.0	0.0	18.9
Incr Delay (d2), s/veh	77.4	0.0	8.1	5.9	0.0	14.1	14.0	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	5.1	4.1	0.0	12.2	8.1	0.0	1.5	0.0	0.0	0.5
LnGrp Delay(d),s/veh	127.3	0.0	48.9	50.2	0.0	50.5	54.9	0.0	8.8	0.0	0.0	19.0
LnGrp LOS	F		D	D		D	D		A			B
Approach Vol, veh/h		175			536			383			28	
Approach Delay, s/veh		49.3			50.4			40.1			19.0	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.6	14.4	20.1	21.1	44.4	4.7	29.8
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		5.4	9.9	12.4	16.5	3.0	2.1	22.6
Green Ext Time (p_c), s		1.2	0.0	1.8	0.1	0.9	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	45.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	17	73	13	21	19	33	238	20	17	136	84
Future Volume (veh/h)	113	17	73	13	21	19	33	238	20	17	136	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.91	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	140	21	90	16	25	23	43	309	26	22	177	109
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	170	43	182	19	49	45	511	615	52	493	380	234
Arrive On Green	0.10	0.14	0.14	0.01	0.06	0.06	0.29	0.37	0.37	0.09	0.12	0.12
Sat Flow, veh/h	1757	296	1270	1757	844	777	1757	1676	141	1757	1063	655
Grp Volume(v), veh/h	140	0	111	16	0	48	43	0	335	22	0	286
Grp Sat Flow(s),veh/h/ln	1757	0	1567	1757	0	1621	1757	0	1817	1757	0	1718
Q Serve(g_s), s	7.8	0.0	6.5	0.9	0.0	2.9	1.8	0.0	14.3	1.1	0.0	15.5
Cycle Q Clear(g_c), s	7.8	0.0	6.5	0.9	0.0	2.9	1.8	0.0	14.3	1.1	0.0	15.5
Prop In Lane	1.00		0.81	1.00		0.48	1.00		0.08	1.00		0.38
Lane Grp Cap(c), veh/h	170	0	225	19	0	94	511	0	667	493	0	613
V/C Ratio(X)	0.83	0.00	0.49	0.85	0.00	0.51	0.08	0.00	0.50	0.04	0.00	0.47
Avail Cap(c_a), veh/h	323	0	481	95	0	305	511	0	667	493	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.76	0.00	0.76
Uniform Delay (d), s/veh	44.3	0.0	39.5	49.4	0.0	45.7	25.8	0.0	24.6	33.2	0.0	35.2
Incr Delay (d2), s/veh	3.8	0.0	4.1	29.4	0.0	1.6	0.0	0.0	2.7	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	3.1	0.6	0.0	1.3	0.9	0.0	7.7	0.6	0.0	7.7
LnGrp Delay(d),s/veh	48.2	0.0	43.6	78.8	0.0	47.3	25.8	0.0	27.3	33.2	0.0	37.1
LnGrp LOS	D		D	E		D	C		C	C		D
Approach Vol, veh/h		251			64			378			308	
Approach Delay, s/veh		46.1			55.2			27.1			36.9	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.7	42.0	5.7	19.7	33.7	41.0	14.3	11.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	16.3	2.9	8.5	3.8	17.5	9.8	4.9
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	2.1	0.0	1.0

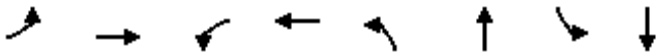
Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	214	228	146	285	260	169	489	197	124	461
v/c Ratio	0.82	0.32	0.33	0.53	0.44	0.37	0.75	0.52	0.36	0.83	0.59
Control Delay	90.5	26.3	5.0	51.9	27.6	4.8	64.0	32.0	5.7	86.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.5	26.3	5.0	51.9	27.6	4.8	64.0	32.0	5.7	86.0	35.5
Queue Length 50th (ft)	65	97	0	45	133	0	102	136	0	78	133
Queue Length 95th (ft)	#170	174	46	63	171	10	144	136	15	#183	165
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	126	663	697	316	676	726	255	1376	711	150	1145
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.32	0.33	0.46	0.42	0.36	0.66	0.36	0.28	0.83	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	216	182	175	247	1596	265	917
v/c Ratio	0.17	0.47	0.93	0.41	0.82	1.01	0.78	0.59
Control Delay	32.1	21.3	88.0	31.3	67.7	35.6	59.9	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	18.1	0.0	0.0
Total Delay	32.1	21.3	88.0	31.3	67.7	53.7	59.9	24.3
Queue Length 50th (ft)	22	69	125	88	167	~564	173	241
Queue Length 95th (ft)	38	91	#207	134	m#243	#657	#331	325
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	315	587	269	569	326	1577	339	1565
Starvation Cap Reductn	0	0	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.68	0.31	0.76	1.06	0.78	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

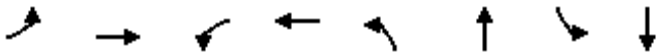
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	359	326	1413	105	852
v/c Ratio	0.85	0.65	0.78	0.59	0.37
Control Delay	57.1	23.9	30.1	51.6	4.2
Queue Delay	0.0	0.5	49.4	0.0	0.3
Total Delay	57.1	24.4	79.5	51.6	4.5
Queue Length 50th (ft)	248	107	549	71	34
Queue Length 95th (ft)	357	204	m582	m126	57
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	554	1801	179	2287
Starvation Cap Reductn	0	0	837	0	778
Spillback Cap Reductn	0	46	278	0	454
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.64	1.47	0.59	0.56

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

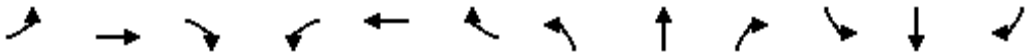


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	101	99	43	521	52	867	282	836
v/c Ratio	1.53	0.18	0.11	0.76	0.43	0.68	0.79	0.47
Control Delay	328.5	16.9	25.4	20.1	60.2	34.4	51.6	13.5
Queue Delay	11.2	0.0	0.0	17.9	0.0	51.7	57.1	0.4
Total Delay	339.7	16.9	25.4	38.0	60.2	86.0	108.6	13.9
Queue Length 50th (ft)	~92	30	20	123	36	290	200	114
Queue Length 95th (ft)	#193	64	46	247	71	341	#325	178
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	80	652	454	766	141	1282	358	1779
Starvation Cap Reductn	0	0	0	0	0	0	111	443
Spillback Cap Reductn	25	0	0	240	0	608	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	0.15	0.09	0.99	0.37	1.29	1.14	0.63

Intersection Summary

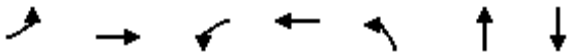
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



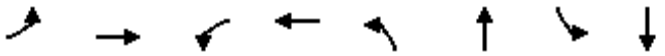
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	138	52	71	151	46	114	464	42	38	575	336
v/c Ratio	0.50	0.24	0.14	0.45	0.34	0.14	0.59	0.25	0.05	0.31	0.38	0.40
Control Delay	45.5	36.5	0.8	51.1	39.5	0.9	52.4	13.3	0.1	49.6	19.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	36.5	0.8	51.1	39.5	0.9	52.4	13.3	0.1	49.6	19.2	3.7
Queue Length 50th (ft)	50	39	0	41	43	0	66	80	0	22	115	0
Queue Length 95th (ft)	72	57	0	70	60	0	84	83	0	49	156	31
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	405	1431	713	165	1344	678	265	1869	862	130	1528	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.10	0.07	0.43	0.11	0.07	0.43	0.25	0.05	0.29	0.38	0.40

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1	174	142	394	260	123	28
v/c Ratio	0.02	0.61	0.72	0.82	0.84	0.12	0.04
Control Delay	47.0	25.7	62.6	48.8	67.5	1.1	15.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	25.7	62.6	48.8	67.5	1.1	15.7
Queue Length 50th (ft)	1	39	89	233	175	0	4
Queue Length 95th (ft)	6	86	147	333	262	16	13
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	378	269	540	392	993	658
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.46	0.53	0.73	0.66	0.12	0.04

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	111	16	48	43	335	22	286
v/c Ratio	0.68	0.34	0.21	0.37	0.42	0.28	0.25	0.26
Control Delay	58.0	14.2	52.0	35.4	56.7	10.9	41.6	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	14.2	52.0	35.4	56.7	10.9	41.6	27.8
Queue Length 50th (ft)	87	11	10	16	27	71	8	148
Queue Length 95th (ft)	127	46	29	45	52	159	m18	200
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	542	94	333	147	1181	129	1080
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.20	0.17	0.14	0.29	0.28	0.17	0.26

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	34

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	378	648	323	290	27	20
Future Vol, veh/h	378	648	323	290	27	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	394	675	394	354	38	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1079	0	1892	751
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	1151	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	643	-	76	409
Stage 1	-	-	-	-	470	-
Stage 2	-	-	-	-	300	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	637	-	~ 17	401
Mov Cap-2 Maneuver	-	-	-	-	~ 17	-
Stage 1	-	-	-	-	466	-
Stage 2	-	-	-	-	68	-

Approach	EB	WB	NB
HCM Control Delay, s	0	10.2	$ 863.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	29	-	-	637	-
HCM Lane V/C Ratio	2.251	-	-	0.618	-
HCM Control Delay (s)	$ 863.3	-	-	19.4	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	7.7	-	-	4.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	40	308	345	199	78	24
Future Vol, veh/h	40	308	345	199	78	24
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	453	371	214	105	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	595	0	-	0	842	312
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	970	-	-	-	301	681
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	961	-	-	-	271	668
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	616	-

Approach	NB	SB	NE
HCM Control Delay, s	1.3	0	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	271	668	961	-	-	-
HCM Lane V/C Ratio	0.389	0.049	0.061	-	-	-
HCM Control Delay (s)	26.5	10.7	9	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.8	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	312	6	19	350	16	35
Future Vol, veh/h	312	6	19	350	16	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	439	8	20	376	22	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	458	0	693	244
Stage 1	-	-	-	-	454	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1092	-	375	753
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1082	-	359	739
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	750	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1082	-	555
HCM Lane V/C Ratio	-	-	0.019	-	0.124
HCM Control Delay (s)	-	-	8.4	0.1	12.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	324	203	1	10	16
Future Vol, veh/h	23	324	203	1	10	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	88	88	59	59
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	372	231	1	17	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	242	0	-	0	676	251
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	435	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1319	-	-	-	417	785
Stage 1	-	-	-	-	797	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1306	-	-	-	399	770
Mov Cap-2 Maneuver	-	-	-	-	399	-
Stage 1	-	-	-	-	789	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1306	-	-	-	567
HCM Lane V/C Ratio	0.02	-	-	-	0.078
HCM Control Delay (s)	7.8	0	-	-	11.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	95	54	21	118	21	10
Future Vol, veh/h	95	54	21	118	21	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	71	71	47	47
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	119	68	30	166	45	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	196	0	398	173
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1359	-	605	868
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1346	-	579	852
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	646	-	-	1346	-
HCM Lane V/C Ratio	0.102	-	-	0.022	-
HCM Control Delay (s)	11.2	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	92	233	147	71	52	65
Future Vol, veh/h	92	233	147	71	52	65
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	86	86	82	82
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	106	268	171	83	63	79

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	263	0	-	0	711	232
Stage 1	-	-	-	-	222	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1295	-	-	-	398	805
Stage 1	-	-	-	-	813	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1283	-	-	-	353	790
Mov Cap-2 Maneuver	-	-	-	-	353	-
Stage 1	-	-	-	-	805	-
Stage 2	-	-	-	-	549	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	14.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1283	-	-	-	510
HCM Lane V/C Ratio	0.082	-	-	-	0.28
HCM Control Delay (s)	8.1	0	-	-	14.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.1

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	30	47	80	71	146	5
Future Vol, veh/h	30	47	80	71	146	5
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	84	84	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	34	53	95	85	200	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	190	0	-	0	278	158
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1378	-	-	-	710	885
Stage 1	-	-	-	-	877	-
Stage 2	-	-	-	-	894	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1365	-	-	-	678	868
Mov Cap-2 Maneuver	-	-	-	-	678	-
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	862	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1365	-	-	-	683
HCM Lane V/C Ratio	0.025	-	-	-	0.303
HCM Control Delay (s)	7.7	0	-	-	12.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.3

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	150	0	0	389	102	2
Future Vol, veh/h	150	0	0	389	102	2
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	160	0	0	414	112	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	584	170
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	472	871
Stage 1	-	0	0	-	866	-
Stage 2	-	0	0	-	658	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	468	863
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	468	863	-	-
HCM Lane V/C Ratio	0.24	0.003	-	-
HCM Control Delay (s)	15.1	9.2	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	0.9	0	-	-

Intersection	
Intersection Delay, s/veh	16
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	189	173	0	141	93	0	114	337
Future Vol, veh/h	0	189	173	0	141	93	0	114	337
Peak Hour Factor	0.92	0.77	0.77	0.92	0.84	0.84	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	245	225	0	168	111	0	131	387
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	15.1	15.2	17.2
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	60%	0%	0%
Vol Right, %	0%	0%	40%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	173	234	114	337
LT Vol	189	0	0	114	0
Through Vol	0	173	141	0	0
RT Vol	0	0	93	0	337
Lane Flow Rate	245	225	279	131	387
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.481	0.408	0.487	0.261	0.64
Departure Headway (Hd)	7.052	6.543	6.299	7.17	5.951
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	511	548	571	499	604
Service Time	4.815	4.305	4.36	4.931	3.711
HCM Lane V/C Ratio	0.479	0.411	0.489	0.263	0.641
HCM Control Delay	16.2	13.8	15.2	12.5	18.8
HCM Lane LOS	C	B	C	B	C
HCM 95th-tile Q	2.6	2	2.7	1	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	160	148	97	154	66	153	213	119	85	173	28
Future Volume (veh/h)	23	160	148	97	154	66	153	213	119	85	173	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	168	156	110	175	75	166	232	129	106	216	35
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	745	628	179	808	682	200	804	348	139	588	94
Arrive On Green	0.03	0.40	0.40	0.05	0.45	0.45	0.11	0.23	0.23	0.08	0.19	0.19
Sat Flow, veh/h	1757	1845	1556	3343	1810	1528	1757	3505	1518	1757	3017	480
Grp Volume(v), veh/h	24	168	156	110	175	75	166	232	129	106	124	127
Grp Sat Flow(s),veh/h/ln	1757	1845	1556	1672	1810	1528	1757	1752	1518	1757	1752	1745
Q Serve(g_s), s	1.3	5.7	4.0	3.1	5.6	2.7	8.8	5.2	5.2	5.6	5.8	6.0
Cycle Q Clear(g_c), s	1.3	5.7	4.0	3.1	5.6	2.7	8.8	5.2	5.2	5.6	5.8	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	52	745	628	179	808	682	200	804	348	139	341	340
V/C Ratio(X)	0.46	0.23	0.25	0.61	0.22	0.11	0.83	0.29	0.37	0.76	0.36	0.37
Avail Cap(c_a), veh/h	126	745	628	295	808	682	384	1426	618	273	602	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	18.6	7.5	44.1	16.1	15.3	41.3	30.2	18.1	42.9	33.2	33.3
Incr Delay (d2), s/veh	2.4	0.7	0.9	1.3	0.5	0.3	3.4	0.5	1.7	3.3	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.0	2.5	1.5	2.9	1.2	4.5	2.6	2.7	2.9	3.0	3.1
LnGrp Delay(d),s/veh	47.8	19.3	8.4	45.3	16.6	15.6	44.7	30.8	19.8	46.2	34.9	35.0
LnGrp LOS	D	B	A	D	B	B	D	C	B	D	C	D
Approach Vol, veh/h		348			360			527			357	
Approach Delay, s/veh		16.4			25.2			32.5			38.3	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.9	44.4	15.0	23.8	7.0	49.3	11.7	27.1
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	5.1	7.7	10.8	8.0	3.3	7.6	7.6	7.2
Green Ext Time (p_c), s	0.3	4.0	0.1	7.0	0.0	3.2	0.1	7.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	109	234	151	97	80	113	749	627	132	460	96
Future Volume (veh/h)	47	109	234	151	97	80	113	749	627	132	460	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	63	145	312	170	109	90	115	764	640	142	495	103
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	391	189	407	174	340	281	217	778	633	166	1086	225
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.25	0.85	0.85	0.10	0.38	0.38
Sat Flow, veh/h	1161	519	1117	919	932	769	1757	1827	1487	1723	2830	586
Grp Volume(v), veh/h	63	0	457	170	0	199	115	732	672	142	300	298
Grp Sat Flow(s),veh/h/ln	1161	0	1637	919	0	1701	1757	1752	1562	1723	1719	1697
Q Serve(g_s), s	4.5	0.0	27.1	13.0	0.0	9.3	6.2	41.5	46.8	8.9	14.3	14.5
Cycle Q Clear(g_c), s	13.8	0.0	27.1	40.1	0.0	9.3	6.2	41.5	46.8	8.9	14.3	14.5
Prop In Lane	1.00		0.68	1.00		0.45	1.00		0.95	1.00		0.35
Lane Grp Cap(c), veh/h	391	0	597	174	0	620	217	746	664	166	659	651
V/C Ratio(X)	0.16	0.00	0.77	0.98	0.00	0.32	0.53	0.98	1.01	0.86	0.45	0.46
Avail Cap(c_a), veh/h	391	0	597	174	0	620	220	746	664	166	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.40	0.40	0.40	0.94	0.94	0.94
Uniform Delay (d), s/veh	30.1	0.0	30.8	50.8	0.0	25.2	38.6	7.8	8.2	48.9	25.3	25.4
Incr Delay (d2), s/veh	0.2	0.0	5.9	60.9	0.0	0.3	0.4	16.9	25.0	30.2	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	13.2	8.1	0.0	4.4	3.0	21.4	22.7	5.7	7.1	7.2
LnGrp Delay(d),s/veh	30.3	0.0	36.7	111.7	0.0	25.4	39.1	24.7	33.2	79.1	27.4	27.5
LnGrp LOS	C		D	F		C	D	C	F	E	C	C
Approach Vol, veh/h		520			369			1519			740	
Approach Delay, s/veh		36.0			65.2			29.5			37.4	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	52.1		45.0	18.9	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	10.9	48.8		29.1	8.2	16.5		42.1
Green Ext Time (p_c), s	0.0	0.0		4.0	4.4	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	552	1	388	0	0	0	0	933	94	140	707	0
Future Volume (veh/h)	552	1	388	0	0	0	0	933	94	140	707	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	540	132	446				0	982	99	154	777	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87				0.95	0.95	0.95	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	671	141	475				0	1141	115	219	1851	0
Arrive On Green	0.38	0.38	0.38				0.00	0.71	0.71	0.25	1.00	0.00
Sat Flow, veh/h	1757	368	1245				0	3303	324	1757	3597	0
Grp Volume(v), veh/h	540	0	578				0	536	545	154	777	0
Grp Sat Flow(s),veh/h/ln	1757	0	1613				0	1752	1782	1757	1752	0
Q Serve(g_s), s	30.2	0.0	38.0				0.0	25.0	25.1	8.8	0.0	0.0
Cycle Q Clear(g_c), s	30.2	0.0	38.0				0.0	25.0	25.1	8.8	0.0	0.0
Prop In Lane	1.00		0.77				0.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	671	0	616				0	623	633	219	1851	0
V/C Ratio(X)	0.80	0.00	0.94				0.00	0.86	0.86	0.70	0.42	0.00
Avail Cap(c_a), veh/h	700	0	642				0	623	633	219	1851	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.72	0.72	0.79	0.79	0.00
Uniform Delay (d), s/veh	30.3	0.0	32.7				0.0	13.9	13.9	39.5	0.0	0.0
Incr Delay (d2), s/veh	6.6	0.0	21.2				0.0	11.0	10.8	6.7	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.8	0.0	20.5				0.0	13.5	13.7	4.6	0.1	0.0
LnGrp Delay(d),s/veh	37.0	0.0	53.9				0.0	24.8	24.7	46.2	0.6	0.0
LnGrp LOS	D		D					C	C	D	A	
Approach Vol, veh/h		1118						1081			931	
Approach Delay, s/veh		45.7						24.8			8.1	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.0	44.4		46.6		63.4		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	10.8	27.1		40.0		2.0		
Green Ext Time (p_c), s	1.3	8.6		2.1		10.8		

Intersection Summary	
HCM 2010 Ctrl Delay	27.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	111	133	48	84	232	69	630	36	283	677	139
Future Volume (veh/h)	161	111	133	48	84	232	69	630	36	283	677	139
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	169	117	140	49	87	239	78	716	41	292	698	143
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.88	0.88	0.88	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	252	263	314	314	149	410	159	970	56	412	1249	256
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.29	0.29	0.47	0.86	0.86
Sat Flow, veh/h	1035	762	912	1102	433	1189	1757	3366	193	1757	2892	592
Grp Volume(v), veh/h	169	0	257	49	0	326	78	373	384	292	423	418
Grp Sat Flow(s),veh/h/ln	1035	0	1674	1102	0	1622	1757	1752	1807	1757	1752	1732
Q Serve(g_s), s	17.6	0.0	13.1	4.0	0.0	18.1	4.6	21.1	21.2	14.6	7.0	7.0
Cycle Q Clear(g_c), s	35.7	0.0	13.1	17.0	0.0	18.1	4.6	21.1	21.2	14.6	7.0	7.0
Prop In Lane	1.00		0.54	1.00		0.73	1.00		0.11	1.00		0.34
Lane Grp Cap(c), veh/h	252	0	577	314	0	559	159	505	521	412	757	748
V/C Ratio(X)	0.67	0.00	0.45	0.16	0.00	0.58	0.49	0.74	0.74	0.71	0.56	0.56
Avail Cap(c_a), veh/h	256	0	584	314	0	559	168	505	521	420	757	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	44.2	0.0	27.9	34.5	0.0	29.6	47.6	35.4	35.4	26.2	4.7	4.7
Incr Delay (d2), s/veh	6.9	0.0	0.7	0.3	0.0	1.7	0.9	9.3	9.1	4.1	2.7	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	6.1	1.2	0.0	8.3	2.3	11.5	11.9	7.4	3.6	3.6
LnGrp Delay(d),s/veh	51.1	0.0	28.5	34.8	0.0	31.3	48.5	44.7	44.5	30.4	7.5	7.5
LnGrp LOS	D		C	C		C	D	D	D	C	A	A
Approach Vol, veh/h		426			375			835			1133	
Approach Delay, s/veh		37.5			31.7			44.9			13.4	
Approach LOS		D			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.5	37.0		43.5	13.7	52.8		43.5
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	16.6	23.2		37.7	6.6	9.0		20.1
Green Ext Time (p_c), s	0.4	4.8		0.2	0.2	13.5		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	71	56	23	93	24	67	303	44	15	246	132
Future Volume (veh/h)	153	71	56	23	93	24	67	303	44	15	246	132
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	174	81	64	28	113	29	71	319	46	17	283	152
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.95	0.95	0.95	0.87	0.87	0.87
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	288	706	311	77	522	229	91	1797	799	40	1598	707
Arrive On Green	0.09	0.21	0.21	0.04	0.15	0.15	0.05	0.51	0.51	0.02	0.46	0.46
Sat Flow, veh/h	3343	3438	1516	1723	3438	1508	1757	3505	1559	1757	3505	1551
Grp Volume(v), veh/h	174	81	64	28	113	29	71	319	46	17	283	152
Grp Sat Flow(s),veh/h/ln	1672	1719	1516	1723	1719	1508	1757	1752	1559	1757	1752	1551
Q Serve(g_s), s	4.6	1.8	2.5	1.5	2.6	1.3	3.7	4.5	1.4	0.9	4.4	5.4
Cycle Q Clear(g_c), s	4.6	1.8	2.5	1.5	2.6	1.3	3.7	4.5	1.4	0.9	4.4	5.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	288	706	311	77	522	229	91	1797	799	40	1598	707
V/C Ratio(X)	0.61	0.11	0.21	0.37	0.22	0.13	0.78	0.18	0.06	0.42	0.18	0.21
Avail Cap(c_a), veh/h	429	1422	627	165	1309	574	206	1797	799	130	1598	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	29.7	18.4	42.7	34.2	24.4	43.1	12.0	11.2	44.3	14.8	15.1
Incr Delay (d2), s/veh	0.8	0.2	0.8	1.1	0.5	0.6	5.5	0.2	0.1	2.6	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.9	1.4	0.7	1.3	0.7	1.9	2.2	0.6	0.5	2.2	2.5
LnGrp Delay(d),s/veh	41.3	29.9	19.3	43.7	34.7	25.1	48.5	12.2	11.4	46.9	15.0	15.8
LnGrp LOS	D	C	B	D	C	C	D	B	B	D	B	B
Approach Vol, veh/h		319			170			436			452	
Approach Delay, s/veh		34.0			34.6			18.0			16.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.3	53.1	8.3	24.2	10.7	48.7	13.2	19.3
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.8	46.7	* 8.8	38.0	10.8	* 42	11.8	* 35
Max Q Clear Time (g_c+I1), s	2.9	6.5	3.5	4.5	5.7	7.4	6.6	4.6
Green Ext Time (p_c), s	0.0	5.5	0.0	1.7	0.3	6.2	0.7	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	23.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	80	114	120	210	3	175	9	183	3	11	5
Future Volume (veh/h)	4	80	114	120	210	3	175	9	183	3	11	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	91	130	126	221	3	186	10	195	8	30	14
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.94	0.94	0.94	0.37	0.37	0.37
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	106	152	163	460	6	217	45	880	120	429	187
Arrive On Green	0.00	0.16	0.16	0.09	0.25	0.25	0.12	0.59	0.59	0.42	0.42	0.42
Sat Flow, veh/h	1757	674	963	1757	1815	25	1757	76	1490	185	1019	444
Grp Volume(v), veh/h	5	0	221	126	0	224	186	0	205	52	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1638	1757	0	1840	1757	0	1567	1648	0	0
Q Serve(g_s), s	0.3	0.0	13.1	7.0	0.0	10.4	10.4	0.0	6.2	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	13.1	7.0	0.0	10.4	10.4	0.0	6.2	1.8	0.0	0.0
Prop In Lane	1.00		0.59	1.00		0.01	1.00		0.95	0.15		0.27
Lane Grp Cap(c), veh/h	7	0	258	163	0	466	217	0	925	736	0	0
V/C Ratio(X)	0.73	0.00	0.86	0.77	0.00	0.48	0.86	0.00	0.22	0.07	0.00	0.00
Avail Cap(c_a), veh/h	95	0	339	253	0	546	358	0	925	736	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.90	0.00	0.90	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.8	0.0	41.0	44.3	0.0	31.7	43.0	0.0	9.6	17.3	0.0	0.0
Incr Delay (d2), s/veh	42.5	0.0	16.2	2.9	0.0	0.9	4.8	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	7.1	3.5	0.0	5.3	5.3	0.0	2.8	0.9	0.0	0.0
LnGrp Delay(d),s/veh	92.2	0.0	57.3	47.2	0.0	32.7	47.7	0.0	10.1	17.5	0.0	0.0
LnGrp LOS	F		E	D		C	D		B	B		
Approach Vol, veh/h		226			350			391			52	
Approach Delay, s/veh		58.0			37.9			28.0			17.5	
Approach LOS		E			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		64.4	14.6	21.0	17.0	47.4	5.0	30.6
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		8.2	9.0	15.1	12.4	3.8	2.3	12.4
Green Ext Time (p_c), s		2.1	0.6	0.6	0.0	1.8	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	37.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	46	185	8	24	20	42	209	21	18	155	53
Future Volume (veh/h)	147	46	185	8	24	20	42	209	21	18	155	53
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	58	231	10	30	25	52	258	26	21	178	61
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	71	282	13	98	81	448	555	56	413	415	142
Arrive On Green	0.12	0.22	0.22	0.01	0.11	0.11	0.26	0.34	0.34	0.08	0.10	0.10
Sat Flow, veh/h	1757	318	1268	1757	909	758	1757	1647	166	1757	1309	448
Grp Volume(v), veh/h	184	0	289	10	0	55	52	0	284	21	0	239
Grp Sat Flow(s),veh/h/ln	1757	0	1587	1757	0	1667	1757	0	1812	1757	0	1757
Q Serve(g_s), s	10.3	0.0	17.3	0.6	0.0	3.0	2.3	0.0	12.3	1.1	0.0	12.8
Cycle Q Clear(g_c), s	10.3	0.0	17.3	0.6	0.0	3.0	2.3	0.0	12.3	1.1	0.0	12.8
Prop In Lane	1.00		0.80	1.00		0.45	1.00		0.09	1.00		0.26
Lane Grp Cap(c), veh/h	215	0	353	13	0	179	448	0	611	413	0	557
V/C Ratio(X)	0.86	0.00	0.82	0.78	0.00	0.31	0.12	0.00	0.46	0.05	0.00	0.43
Avail Cap(c_a), veh/h	394	0	551	95	0	313	448	0	611	413	0	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.00	0.85
Uniform Delay (d), s/veh	43.0	0.0	37.0	49.6	0.0	41.2	28.6	0.0	26.1	35.8	0.0	36.3
Incr Delay (d2), s/veh	3.8	0.0	11.3	30.8	0.0	0.4	0.0	0.0	2.5	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	8.7	0.4	0.0	1.4	1.1	0.0	6.6	0.5	0.0	6.5
LnGrp Delay(d),s/veh	46.8	0.0	48.3	80.4	0.0	41.6	28.6	0.0	28.6	35.8	0.0	38.3
LnGrp LOS	D		D	F		D	C		C	D		D
Approach Vol, veh/h		473			65			336			260	
Approach Delay, s/veh		47.7			47.5			28.6			38.1	
Approach LOS		D			D			C			D	

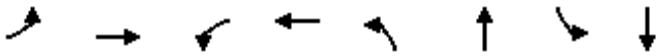
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.1	39.0	5.3	27.6	30.1	37.0	16.8	16.0
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	14.3	2.6	19.3	4.3	14.8	12.3	5.0
Green Ext Time (p_c), s	0.0	1.8	0.0	2.9	0.0	1.6	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	39.8
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	168	156	110	175	75	166	232	129	106	251
v/c Ratio	0.21	0.22	0.22	0.43	0.20	0.10	0.68	0.33	0.30	0.55	0.42
Control Delay	52.0	22.7	4.9	50.7	19.8	0.3	55.3	33.6	3.8	54.5	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	22.7	4.9	50.7	19.8	0.3	55.3	33.6	3.8	54.5	35.7
Queue Length 50th (ft)	14	62	0	32	51	0	94	63	0	60	67
Queue Length 95th (ft)	47	155	46	71	156	0	191	101	24	120	97
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	125	747	716	295	864	789	384	1431	712	273	1187
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.22	0.22	0.37	0.20	0.10	0.43	0.16	0.18	0.39	0.21

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	457	170	199	115	1404	142	598
v/c Ratio	0.17	0.69	0.99	0.31	0.53	0.95	0.88	0.46
Control Delay	25.2	28.5	102.6	21.0	37.7	25.7	94.2	25.4
Queue Delay	0.0	0.1	0.0	0.0	0.0	27.3	0.0	0.2
Total Delay	25.2	28.6	102.6	21.0	37.7	53.1	94.2	25.6
Queue Length 50th (ft)	30	207	117	76	78	454	100	156
Queue Length 95th (ft)	51	237	#256	133	m89	#597	#215	208
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	382	666	174	648	219	1475	165	1302
Starvation Cap Reductn	0	0	0	0	0	151	0	0
Spillback Cap Reductn	0	6	0	0	0	0	0	182
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.69	0.98	0.31	0.53	1.06	0.86	0.53

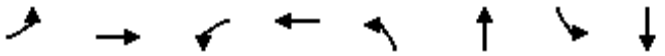
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	564	517	1081	154	777
v/c Ratio	0.91	0.80	0.83	0.72	0.42
Control Delay	52.0	31.8	25.7	75.6	26.0
Queue Delay	0.0	0.5	44.6	0.0	1.5
Total Delay	52.0	32.3	70.3	75.6	27.5
Queue Length 50th (ft)	376	244	406	114	276
Queue Length 95th (ft)	#552	370	#508	m#173	m336
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	677	1302	215	1867
Starvation Cap Reductn	0	0	181	0	853
Spillback Cap Reductn	0	23	311	0	587
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.79	1.09	0.72	0.77

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



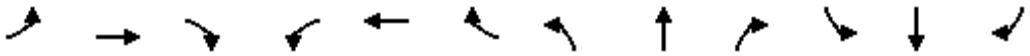
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	169	257	49	326	78	757	292	841
v/c Ratio	1.06	0.52	0.25	0.63	0.56	0.55	0.79	0.45
Control Delay	126.0	28.3	32.2	24.7	63.7	29.9	58.0	9.0
Queue Delay	61.1	0.0	0.0	1.9	0.0	1.6	58.5	0.4
Total Delay	187.0	28.3	32.2	26.6	63.7	31.5	116.5	9.4
Queue Length 50th (ft)	~123	116	27	116	54	222	219	99
Queue Length 95th (ft)	#232	176	56	190	100	316	m303	174
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	208	623	258	639	167	1382	418	1863
Starvation Cap Reductn	0	0	0	0	0	0	154	496
Spillback Cap Reductn	64	0	0	177	0	422	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.41	0.19	0.71	0.47	0.79	1.11	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

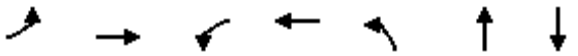
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



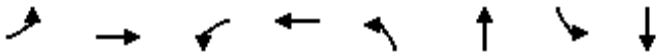
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	81	64	28	113	29	71	319	46	17	283	152
v/c Ratio	0.50	0.11	0.14	0.18	0.28	0.09	0.44	0.16	0.05	0.14	0.17	0.19
Control Delay	44.1	31.9	0.6	43.5	39.0	0.5	48.9	11.3	0.1	44.7	15.1	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	31.9	0.6	43.5	39.0	0.5	48.9	11.3	0.1	44.7	15.1	3.1
Queue Length 50th (ft)	49	18	0	15	31	0	39	37	0	9	47	0
Queue Length 95th (ft)	84	43	0	40	54	0	86	84	0	30	80	28
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	440	1464	735	169	1348	696	212	1955	919	133	1681	809
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.06	0.09	0.17	0.08	0.04	0.33	0.16	0.05	0.13	0.17	0.19

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	221	126	224	186	205	52
v/c Ratio	0.07	0.73	0.70	0.43	0.76	0.21	0.08
Control Delay	48.2	41.8	62.4	30.9	60.7	2.9	19.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	41.8	62.4	30.9	60.7	2.9	19.6
Queue Length 50th (ft)	3	95	79	111	125	26	15
Queue Length 95th (ft)	15	161	134	180	196	60	16
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	390	252	575	357	989	690
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.57	0.50	0.39	0.52	0.21	0.08

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	289	10	55	52	284	21	239
v/c Ratio	0.75	0.59	0.14	0.41	0.48	0.25	0.25	0.23
Control Delay	59.4	14.1	49.8	36.8	59.2	11.8	64.4	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	14.1	49.8	36.8	59.2	11.8	64.4	24.0
Queue Length 50th (ft)	114	35	6	19	33	65	12	135
Queue Length 95th (ft)	153	82	21	49	63	152	m25	201
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	687	94	336	147	1139	112	1022
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.11	0.16	0.35	0.25	0.19	0.23

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	24.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	522	341	155	221	107	14
Future Vol, veh/h	522	341	155	221	107	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	549	359	167	238	145	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	918	0	1320	749
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	581	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	739	-	172	410
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	557	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	732	-	~ 124	402
Mov Cap-2 Maneuver	-	-	-	-	~ 124	-
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	407	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	208.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	135	-	-	732	-
HCM Lane V/C Ratio	1.211	-	-	0.228	-
HCM Control Delay (s)	208.8	-	-	11.4	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	9.8	-	-	0.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.7

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	29	264	236	67	117	42
Future Vol, veh/h	29	264	236	67	117	42
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	93	93	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	287	254	72	141	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	336	0	-	0	517	183
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	217	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1213	-	-	-	485	825
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	795	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1201	-	-	-	461	809
Mov Cap-2 Maneuver	-	-	-	-	461	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	762	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	461	809	1201	-	-	-
HCM Lane V/C Ratio	0.306	0.063	0.026	-	-	-
HCM Control Delay (s)	16.2	9.7	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.3	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	274	14	26	255	19	6
Future Vol, veh/h	274	14	26	255	19	6
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	315	16	28	271	24	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	341	0	534	186
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	201	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1208	-	474	821
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1196	-	452	805
Mov Cap-2 Maneuver	-	-	-	-	452	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	780	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.8	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1196	-	505
HCM Lane V/C Ratio	-	-	0.023	-	0.063
HCM Control Delay (s)	-	-	8.1	0.1	12.6
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.2

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	28	170	215	12	13	8
Future Vol, veh/h	28	170	215	12	13	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	179	226	13	20	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	249	0	-	0	491	253
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	248	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1311	-	-	-	535	783
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	791	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1299	-	-	-	512	768
Mov Cap-2 Maneuver	-	-	-	-	512	-
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	764	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1299	-	-	-	586
HCM Lane V/C Ratio	0.023	-	-	-	0.054
HCM Control Delay (s)	7.8	0	-	-	11.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	112	16	8	120	26	14
Future Vol, veh/h	112	16	8	120	26	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	79	79	65	65
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	135	19	10	152	40	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	164	0	337	165
Stage 1	-	-	-	-	155	-
Stage 2	-	-	-	-	182	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1396	-	656	877
Stage 1	-	-	-	-	871	-
Stage 2	-	-	-	-	847	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1383	-	638	860
Mov Cap-2 Maneuver	-	-	-	-	638	-
Stage 1	-	-	-	-	863	-
Stage 2	-	-	-	-	832	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	701	-	-	1383	-
HCM Lane V/C Ratio	0.088	-	-	0.007	-
HCM Control Delay (s)	10.6	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	7	171	196	22	31	21
Future Vol, veh/h	7	171	196	22	31	21
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	92	92	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	7	180	213	24	41	28

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	247	0	-	0	440	245
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1313	-	-	-	573	791
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1300	-	-	-	559	776
Mov Cap-2 Maneuver	-	-	-	-	559	-
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	814	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1300	-	-	-	630
HCM Lane V/C Ratio	0.006	-	-	-	0.11
HCM Control Delay (s)	7.8	0	-	-	11.4
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Intersection	
Int Delay, s/veh	9.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	15	124	80	40	276	11
Future Vol, veh/h	15	124	80	40	276	11
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	138	95	48	341	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	153	0	-	0	310	139
Stage 1	-	-	-	-	129	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1421	-	-	-	680	907
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1407	-	-	-	658	890
Mov Cap-2 Maneuver	-	-	-	-	658	-
Stage 1	-	-	-	-	885	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1407	-	-	-	665
HCM Lane V/C Ratio	0.012	-	-	-	0.533
HCM Control Delay (s)	7.6	0	-	-	16.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.2

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	279	0	0	246	82	6
Future Vol, veh/h	279	0	0	246	82	6
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	310	0	0	273	103	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	593	320
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	467	718
Stage 1	-	0	0	-	741	-
Stage 2	-	0	0	-	763	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	463	711
Mov Cap-2 Maneuver	-	-	-	-	463	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	756	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	463	711	-	-
HCM Lane V/C Ratio	0.221	0.011	-	-
HCM Control Delay (s)	15	10.1	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	0.8	0	-	-

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	254	96	0	106	115	0	90	175
Future Vol, veh/h	0	254	96	0	106	115	0	90	175
Peak Hour Factor	0.92	0.93	0.93	0.92	0.86	0.86	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	273	103	0	123	134	0	103	201
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13.2	12	10.9
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	48%	0%	0%
Vol Right, %	0%	0%	52%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	96	221	90	175
LT Vol	254	0	0	90	0
Through Vol	0	96	106	0	0
RT Vol	0	0	115	0	175
Lane Flow Rate	273	103	257	103	201
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.476	0.165	0.39	0.195	0.311
Departure Headway (Hd)	6.276	5.77	5.463	6.776	5.561
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	576	622	660	531	648
Service Time	4.004	3.498	3.491	4.507	3.292
HCM Lane V/C Ratio	0.474	0.166	0.389	0.194	0.31
HCM Control Delay	14.6	9.6	12	11.1	10.8
HCM Lane LOS	B	A	B	B	B
HCM 95th-tile Q	2.6	0.6	1.8	0.7	1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	89	185	196	100	194	177	118	342	138	104	323	60
Future Volume (veh/h)	89	185	196	100	194	177	118	342	138	104	323	60
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	103	215	228	147	285	260	169	489	197	125	389	72
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.86	0.86	0.86	0.68	0.68	0.68	0.70	0.70	0.70	0.83	0.83	0.83
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	124	645	544	210	619	522	200	1045	454	147	790	145
Arrive On Green	0.07	0.35	0.35	0.06	0.34	0.34	0.11	0.30	0.30	0.08	0.27	0.27
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1523	1757	2949	541
Grp Volume(v), veh/h	103	215	228	147	285	260	169	489	197	125	230	231
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1523	1757	1752	1737
Q Serve(g_s), s	5.8	8.5	11.1	4.3	12.2	13.5	9.4	11.3	10.4	7.0	11.0	11.2
Cycle Q Clear(g_c), s	5.8	8.5	11.1	4.3	12.2	13.5	9.4	11.3	10.4	7.0	11.0	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	124	645	544	210	619	522	200	1045	454	147	469	465
V/C Ratio(X)	0.83	0.33	0.42	0.70	0.46	0.50	0.84	0.47	0.43	0.85	0.49	0.50
Avail Cap(c_a), veh/h	124	645	544	309	658	555	249	1338	581	147	567	562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	23.8	24.7	45.7	25.6	26.0	43.2	28.5	28.1	45.0	30.7	30.8
Incr Delay (d2), s/veh	34.6	1.4	2.4	1.6	1.9	2.7	16.2	0.9	1.7	34.3	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	4.6	5.1	2.0	6.4	6.1	5.5	5.6	4.6	4.8	5.6	5.6
LnGrp Delay(d),s/veh	80.3	25.2	27.0	47.3	27.5	28.6	59.5	29.3	29.9	79.3	32.8	32.9
LnGrp LOS	F	C	C	D	C	C	E	C	C	E	C	C
Approach Vol, veh/h		546			692			855			586	
Approach Delay, s/veh		36.4			32.1			35.4			42.8	
Approach LOS		D			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	41.6	15.5	31.9	11.2	40.8	12.5	35.0
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.3	13.1	11.4	13.2	7.8	15.5	9.0	13.3
Green Ext Time (p_c), s	0.1	11.4	0.1	11.5	0.0	11.1	0.0	13.6

Intersection Summary	
HCM 2010 Ctrl Delay	36.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	53	109	164	100	56	212	629	749	225	606	174
Future Volume (veh/h)	29	53	109	164	100	56	212	629	749	225	606	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	39	71	145	184	112	63	247	731	871	265	713	205
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	325	161	328	285	330	186	273	742	656	262	1104	317
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.26	0.71	0.71	0.15	0.42	0.42
Sat Flow, veh/h	1185	538	1099	1142	1106	622	1757	1752	1549	1723	2629	756
Grp Volume(v), veh/h	39	0	216	184	0	175	247	731	871	265	466	452
Grp Sat Flow(s),veh/h/ln	1185	0	1638	1142	0	1727	1757	1752	1549	1723	1719	1665
Q Serve(g_s), s	2.9	0.0	11.7	17.1	0.0	8.7	15.0	44.3	46.6	16.7	23.7	23.7
Cycle Q Clear(g_c), s	11.6	0.0	11.7	28.8	0.0	8.7	15.0	44.3	46.6	16.7	23.7	23.7
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	325	0	489	285	0	516	273	742	656	262	722	699
V/C Ratio(X)	0.12	0.00	0.44	0.65	0.00	0.34	0.91	0.99	1.33	1.01	0.65	0.65
Avail Cap(c_a), veh/h	349	0	521	307	0	550	315	742	656	262	722	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.50	0.50	0.85	0.85	0.85
Uniform Delay (d), s/veh	34.7	0.0	31.2	42.8	0.0	30.1	40.0	15.8	16.1	46.7	25.4	25.4
Incr Delay (d2), s/veh	0.2	0.0	0.6	4.2	0.0	0.4	14.5	20.2	153.0	54.7	3.8	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	5.4	5.7	0.0	4.2	8.3	24.8	47.0	11.9	12.0	11.7
LnGrp Delay(d),s/veh	34.8	0.0	31.8	47.0	0.0	30.5	54.4	36.0	169.1	101.4	29.2	29.3
LnGrp LOS	C		C	D		C	D	D	F	F	C	C
Approach Vol, veh/h		255			359			1849			1183	
Approach Delay, s/veh		32.3			39.0			101.2			45.4	
Approach LOS		C			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.4	51.9		37.7	20.8	51.5		37.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	18.7	48.6		13.7	17.0	25.7		30.8
Green Ext Time (p_c), s	0.0	0.0		3.0	0.1	15.1		1.3

Intersection Summary		
HCM 2010 Ctrl Delay		72.1
HCM 2010 LOS		E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	0	232	0	0	0	0	1171	33	97	787	0
Future Volume (veh/h)	400	0	232	0	0	0	0	1171	33	97	787	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	344	128	252				0	1378	39	105	855	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.85	0.85	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	454	143	281				0	1667	47	218	2284	0
Arrive On Green	0.26	0.26	0.26				0.00	0.96	0.96	0.17	0.87	0.00
Sat Flow, veh/h	1757	552	1086				0	3572	98	1757	3597	0
Grp Volume(v), veh/h	344	0	380				0	693	724	105	855	0
Grp Sat Flow(s),veh/h/ln	1757	0	1638				0	1752	1826	1757	1752	0
Q Serve(g_s), s	19.9	0.0	24.6				0.0	8.7	8.8	6.0	5.3	0.0
Cycle Q Clear(g_c), s	19.9	0.0	24.6				0.0	8.7	8.8	6.0	5.3	0.0
Prop In Lane	1.00		0.66				0.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	454	0	423				0	840	875	218	2284	0
V/C Ratio(X)	0.76	0.00	0.90				0.00	0.83	0.83	0.48	0.37	0.00
Avail Cap(c_a), veh/h	517	0	482				0	840	875	218	2284	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.55	0.55	0.72	0.72	0.00
Uniform Delay (d), s/veh	37.6	0.0	39.4				0.0	1.4	1.4	42.7	2.9	0.0
Incr Delay (d2), s/veh	5.6	0.0	17.9				0.0	5.2	5.1	0.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.4	0.0	13.2				0.0	3.9	4.1	2.9	2.6	0.0
LnGrp Delay(d),s/veh	43.2	0.0	57.3				0.0	6.6	6.5	43.1	3.2	0.0
LnGrp LOS	D		E					A	A	D	A	
Approach Vol, veh/h		724						1417			960	
Approach Delay, s/veh		50.6						6.6			7.6	
Approach LOS		D						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	19.0	58.0		33.0		77.0		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	8.0	10.8		26.6		7.3		
Green Ext Time (p_c), s	2.2	28.1		1.8		12.7		

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	88	51	35	39	66	403	44	717	14	257	645	119
Future Volume (veh/h)	88	51	35	39	66	403	44	717	14	257	645	119
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	101	59	40	43	73	448	52	854	17	282	709	131
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.84	0.84	0.84	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	117	376	255	483	82	502	76	1070	21	318	1347	249
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.36	0.91	0.91
Sat Flow, veh/h	867	1022	693	1270	223	1367	1757	3513	70	1757	2949	545
Grp Volume(v), veh/h	101	0	99	43	0	521	52	426	445	282	421	419
Grp Sat Flow(s),veh/h/ln	867	0	1716	1270	0	1590	1757	1752	1831	1757	1752	1741
Q Serve(g_s), s	6.5	0.0	4.3	2.6	0.0	33.9	3.2	24.6	24.6	16.6	4.4	4.4
Cycle Q Clear(g_c), s	40.4	0.0	4.3	6.9	0.0	33.9	3.2	24.6	24.6	16.6	4.4	4.4
Prop In Lane	1.00		0.40	1.00		0.86	1.00		0.04	1.00		0.31
Lane Grp Cap(c), veh/h	117	0	630	483	0	584	76	534	558	318	800	795
V/C Ratio(X)	0.87	0.00	0.16	0.09	0.00	0.89	0.68	0.80	0.80	0.89	0.53	0.53
Avail Cap(c_a), veh/h	117	0	630	483	0	584	142	534	558	359	800	795
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	53.4	0.0	23.4	25.7	0.0	32.7	51.9	35.1	35.1	34.0	2.8	2.8
Incr Delay (d2), s/veh	45.7	0.0	0.1	0.1	0.0	16.1	3.9	11.8	11.3	18.5	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	2.0	0.9	0.0	17.5	1.6	13.6	14.1	9.6	2.4	2.4
LnGrp Delay(d),s/veh	99.1	0.0	23.5	25.8	0.0	48.8	55.8	46.9	46.5	52.5	5.1	5.1
LnGrp LOS	F		C	C		D	E	D	D	D	A	A
Approach Vol, veh/h		200			564			923			1122	
Approach Delay, s/veh		61.7			47.1			47.2			17.0	
Approach LOS		E			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	25.2	38.8		46.0	8.5	55.5		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	18.6	26.6		42.4	5.2	6.4		35.9
Green Ext Time (p_c), s	0.7	4.5		0.0	0.0	13.5		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	36.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	131	108	40	51	110	33	73	297	27	30	460	269
Future Volume (veh/h)	131	108	40	51	110	33	73	297	27	30	460	269
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	170	140	52	71	153	46	114	464	42	38	575	336
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.77	0.77	0.77	0.72	0.72	0.72	0.64	0.64	0.64	0.80	0.80	0.80
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	279	620	273	123	579	254	143	1725	767	70	1581	699
Arrive On Green	0.08	0.18	0.18	0.07	0.17	0.17	0.08	0.49	0.49	0.04	0.45	0.45
Sat Flow, veh/h	3343	3438	1513	1723	3438	1511	1757	3505	1558	1757	3505	1551
Grp Volume(v), veh/h	170	140	52	71	153	46	114	464	42	38	575	336
Grp Sat Flow(s),veh/h/ln	1672	1719	1513	1723	1719	1511	1757	1752	1558	1757	1752	1551
Q Serve(g_s), s	4.7	3.3	2.8	3.8	3.7	2.5	6.0	7.4	1.3	2.0	10.2	14.4
Cycle Q Clear(g_c), s	4.7	3.3	2.8	3.8	3.7	2.5	6.0	7.4	1.3	2.0	10.2	14.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	279	620	273	123	579	254	143	1725	767	70	1581	699
V/C Ratio(X)	0.61	0.23	0.19	0.58	0.26	0.18	0.80	0.27	0.05	0.54	0.36	0.48
Avail Cap(c_a), veh/h	391	1377	606	160	1294	568	256	1725	767	126	1581	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.0	33.2	33.0	42.7	34.3	33.8	42.8	14.1	12.6	44.7	17.1	18.3
Incr Delay (d2), s/veh	0.8	0.5	0.9	1.6	0.6	0.9	3.9	0.4	0.1	2.4	0.6	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.6	1.2	1.8	1.8	1.1	3.1	3.6	0.6	1.0	5.1	6.6
LnGrp Delay(d),s/veh	42.8	33.7	33.9	44.3	35.0	34.7	46.7	14.5	12.7	47.1	17.8	20.6
LnGrp LOS	D	C	C	D	C	C	D	B	B	D	B	C
Approach Vol, veh/h		362			270			620			949	
Approach Delay, s/veh		38.0			37.4			20.3			19.9	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	53.5	11.0	22.4	11.9	49.6	12.1	21.3
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	4.0	9.4	5.8	5.3	8.0	16.4	6.7	5.7
Green Ext Time (p_c), s	0.0	24.3	0.0	4.8	0.1	16.8	0.1	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	25.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	42	105	129	353	6	251	8	110	0	6	9
Future Volume (veh/h)	1	42	105	129	353	6	251	8	110	0	6	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	1	50	125	142	388	7	261	8	115	0	11	17
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.84	0.84	0.84	0.91	0.91	0.91	0.96	0.96	0.96	0.54	0.54	0.54
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	2	68	169	172	443	8	292	62	884	0	253	391
Arrive On Green	0.00	0.15	0.15	0.10	0.25	0.25	0.17	0.60	0.60	0.00	0.39	0.39
Sat Flow, veh/h	1757	456	1140	1757	1806	33	1757	102	1469	0	649	1003
Grp Volume(v), veh/h	1	0	175	142	0	395	261	0	123	0	0	28
Grp Sat Flow(s),veh/h/ln	1757	0	1597	1757	0	1838	1757	0	1571	0	0	1652
Q Serve(g_s), s	0.1	0.0	10.5	7.9	0.0	20.7	14.6	0.0	3.4	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.1	0.0	10.5	7.9	0.0	20.7	14.6	0.0	3.4	0.0	0.0	1.1
Prop In Lane	1.00		0.71	1.00		0.02	1.00		0.93	0.00		0.61
Lane Grp Cap(c), veh/h	2	0	237	172	0	451	292	0	946	0	0	644
V/C Ratio(X)	0.57	0.00	0.74	0.83	0.00	0.88	0.89	0.00	0.13	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	0	291	271	0	528	394	0	946	0	0	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.92	0.00	0.92	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.9	0.0	40.7	44.3	0.0	36.3	40.8	0.0	8.6	0.0	0.0	18.9
Incr Delay (d2), s/veh	77.4	0.0	8.3	5.9	0.0	14.2	14.2	0.0	0.3	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	5.2	4.1	0.0	12.2	8.2	0.0	1.5	0.0	0.0	0.5
LnGrp Delay(d),s/veh	127.3	0.0	49.0	50.2	0.0	50.5	55.0	0.0	8.9	0.0	0.0	19.1
LnGrp LOS	F		D	D		D	D		A			B
Approach Vol, veh/h		176			537			384			28	
Approach Delay, s/veh		49.5			50.4			40.2			19.1	
Approach LOS		D			D			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.5	14.4	20.1	21.2	44.3	4.7	29.8
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		5.4	9.9	12.5	16.6	3.1	2.1	22.7
Green Ext Time (p_c), s		1.2	0.0	1.8	0.1	0.9	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	46.0
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	113	17	73	13	21	20	33	238	20	17	136	85
Future Volume (veh/h)	113	17	73	13	21	20	33	238	20	17	136	85
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.91	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	140	21	90	16	25	24	43	309	26	22	177	110
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	170	43	183	19	48	46	509	615	52	492	378	235
Arrive On Green	0.10	0.14	0.14	0.01	0.06	0.06	0.29	0.37	0.37	0.09	0.12	0.12
Sat Flow, veh/h	1757	296	1270	1757	825	792	1757	1676	141	1757	1059	658
Grp Volume(v), veh/h	140	0	111	16	0	49	43	0	335	22	0	287
Grp Sat Flow(s),veh/h/ln	1757	0	1567	1757	0	1618	1757	0	1817	1757	0	1717
Q Serve(g_s), s	7.8	0.0	6.5	0.9	0.0	2.9	1.8	0.0	14.3	1.1	0.0	15.6
Cycle Q Clear(g_c), s	7.8	0.0	6.5	0.9	0.0	2.9	1.8	0.0	14.3	1.1	0.0	15.6
Prop In Lane	1.00		0.81	1.00		0.49	1.00		0.08	1.00		0.38
Lane Grp Cap(c), veh/h	170	0	226	19	0	95	509	0	667	492	0	613
V/C Ratio(X)	0.83	0.00	0.49	0.85	0.00	0.52	0.08	0.00	0.50	0.04	0.00	0.47
Avail Cap(c_a), veh/h	323	0	481	95	0	304	509	0	667	492	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.76	0.00	0.76
Uniform Delay (d), s/veh	44.3	0.0	39.4	49.4	0.0	45.7	25.8	0.0	24.6	33.2	0.0	35.2
Incr Delay (d2), s/veh	3.8	0.0	4.1	29.4	0.0	1.6	0.0	0.0	2.7	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	3.1	0.6	0.0	1.4	0.9	0.0	7.7	0.6	0.0	7.8
LnGrp Delay(d),s/veh	48.2	0.0	43.5	78.8	0.0	47.3	25.9	0.0	27.3	33.2	0.0	37.2
LnGrp LOS	D		D	E		D	C		C	C		D
Approach Vol, veh/h		251			65			378			309	
Approach Delay, s/veh		46.1			55.1			27.1			36.9	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.6	42.0	5.7	19.7	33.6	41.0	14.3	11.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	16.3	2.9	8.5	3.8	17.6	9.8	4.9
Green Ext Time (p_c), s	0.0	2.2	0.0	1.2	0.0	2.1	0.0	1.0

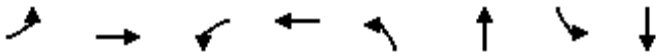
Intersection Summary	
HCM 2010 Ctrl Delay	36.7
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	103	215	228	147	285	260	169	489	197	125	461
v/c Ratio	0.82	0.32	0.33	0.53	0.44	0.37	0.75	0.52	0.36	0.83	0.59
Control Delay	90.5	26.3	5.0	52.0	27.6	4.8	64.0	32.0	5.7	87.0	35.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.5	26.3	5.0	52.0	27.6	4.8	64.0	32.0	5.7	87.0	35.5
Queue Length 50th (ft)	65	97	0	45	133	0	102	136	0	78	133
Queue Length 95th (ft)	#170	175	46	63	171	10	144	136	15	#184	165
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	126	663	697	316	676	726	255	1376	711	150	1145
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.32	0.33	0.47	0.42	0.36	0.66	0.36	0.28	0.83	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	39	216	184	175	247	1602	265	918
v/c Ratio	0.17	0.47	0.92	0.41	0.82	1.02	0.78	0.59
Control Delay	32.0	21.2	87.4	31.2	67.7	37.5	60.0	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	19.1	0.0	0.0
Total Delay	32.0	21.2	87.4	31.2	67.7	56.6	60.0	24.4
Queue Length 50th (ft)	22	69	127	88	167	~571	173	242
Queue Length 95th (ft)	38	91	#210	134	m#242	#663	#331	325
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	315	587	270	569	326	1572	338	1561
Starvation Cap Reductn	0	0	0	0	0	76	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.37	0.68	0.31	0.76	1.07	0.78	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

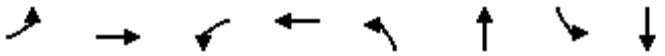
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	357	330	1417	105	855
v/c Ratio	0.85	0.67	0.79	0.59	0.37
Control Delay	57.0	25.8	30.0	51.6	4.1
Queue Delay	0.0	0.6	49.4	0.0	0.3
Total Delay	57.0	26.4	79.4	51.6	4.5
Queue Length 50th (ft)	247	116	551	71	34
Queue Length 95th (ft)	356	215	m584	m125	57
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	548	1804	179	2291
Starvation Cap Reductn	0	0	837	0	779
Spillback Cap Reductn	0	50	286	0	454
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.74	0.66	1.47	0.59	0.57

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

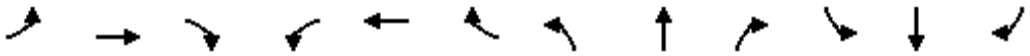


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	101	99	43	521	52	871	282	840
v/c Ratio	1.53	0.18	0.11	0.76	0.43	0.68	0.79	0.47
Control Delay	328.5	16.9	25.4	20.1	60.2	34.4	51.6	13.5
Queue Delay	11.2	0.0	0.0	17.9	0.0	51.6	57.1	0.4
Total Delay	339.7	16.9	25.4	38.0	60.2	86.1	108.7	13.9
Queue Length 50th (ft)	~92	30	20	123	36	292	200	123
Queue Length 95th (ft)	#193	64	46	247	71	342	#324	180
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	80	652	454	766	141	1282	358	1781
Starvation Cap Reductn	0	0	0	0	0	0	111	444
Spillback Cap Reductn	25	0	0	240	0	604	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.84	0.15	0.09	0.99	0.37	1.28	1.14	0.63

Intersection Summary

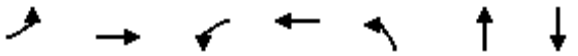
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



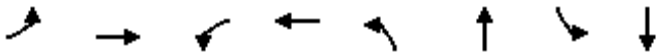
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	170	140	52	71	153	46	114	464	42	38	575	336
v/c Ratio	0.50	0.24	0.14	0.45	0.35	0.14	0.59	0.25	0.05	0.31	0.38	0.40
Control Delay	45.5	36.5	0.8	51.2	39.5	0.9	52.5	13.3	0.1	49.7	19.2	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	36.5	0.8	51.2	39.5	0.9	52.5	13.3	0.1	49.7	19.2	3.7
Queue Length 50th (ft)	50	40	0	41	44	0	66	81	0	22	115	0
Queue Length 95th (ft)	72	58	0	70	60	0	84	83	0	49	156	31
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	405	1429	713	165	1343	678	264	1867	861	130	1527	848
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.10	0.07	0.43	0.11	0.07	0.43	0.25	0.05	0.29	0.38	0.40

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1	175	142	395	261	123	28
v/c Ratio	0.02	0.61	0.72	0.82	0.84	0.12	0.04
Control Delay	47.0	25.5	62.6	48.8	67.5	1.1	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.0	25.5	62.6	48.8	67.5	1.1	15.8
Queue Length 50th (ft)	1	39	89	233	177	0	4
Queue Length 95th (ft)	6	87	147	334	263	16	13
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	379	269	540	392	993	657
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.46	0.53	0.73	0.67	0.12	0.04

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	111	16	49	43	335	22	287
v/c Ratio	0.68	0.34	0.21	0.38	0.42	0.28	0.25	0.27
Control Delay	58.0	14.1	52.0	35.1	56.7	10.9	41.9	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	14.1	52.0	35.1	56.7	10.9	41.9	27.8
Queue Length 50th (ft)	87	11	10	16	27	71	8	148
Queue Length 95th (ft)	127	46	29	46	52	160	m18	200
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	542	94	333	147	1181	129	1080
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.20	0.17	0.15	0.29	0.28	0.17	0.27

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	37

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	383	648	324	292	27	20
Future Vol, veh/h	383	648	324	292	27	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	399	675	395	356	38	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1084	0	1902	756
Stage 1	-	-	-	-	746	-
Stage 2	-	-	-	-	1156	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	640	-	75	406
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	298	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	634	-	~ 16	398
Mov Cap-2 Maneuver	-	-	-	-	~ 16	-
Stage 1	-	-	-	-	463	-
Stage 2	-	-	-	-	66	-

Approach	EB	WB	NB
HCM Control Delay, s	0	10.3	$ 954.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	27	-	-	634	-
HCM Lane V/C Ratio	2.418	-	-	0.623	-
HCM Control Delay (s)	$ 954.1	-	-	19.6	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	7.9	-	-	4.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	40	308	345	199	78	24
Future Vol, veh/h	40	308	345	199	78	24
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	68	68	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	59	453	371	214	105	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	595	0	-	0	842	312
Stage 1	-	-	-	-	488	-
Stage 2	-	-	-	-	354	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	970	-	-	-	301	681
Stage 1	-	-	-	-	580	-
Stage 2	-	-	-	-	678	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	961	-	-	-	271	668
Mov Cap-2 Maneuver	-	-	-	-	271	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	616	-

Approach	NB	SB	NE
HCM Control Delay, s	1.3	0	22.8
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	271	668	961	-	-	-
HCM Lane V/C Ratio	0.389	0.049	0.061	-	-	-
HCM Control Delay (s)	26.5	10.7	9	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.8	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	312	6	19	350	16	35
Future Vol, veh/h	312	6	19	350	16	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	71	71	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	439	8	20	376	22	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	458	0	693	244
Stage 1	-	-	-	-	454	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1092	-	375	753
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	775	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1082	-	359	739
Mov Cap-2 Maneuver	-	-	-	-	359	-
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	750	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	12.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1082	-	555
HCM Lane V/C Ratio	-	-	0.019	-	0.124
HCM Control Delay (s)	-	-	8.4	0.1	12.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.4

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	329	206	1	10	16
Future Vol, veh/h	23	329	206	1	10	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	88	88	59	59
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	378	234	1	17	27

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	245	0	-	0	686	255
Stage 1	-	-	-	-	245	-
Stage 2	-	-	-	-	441	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1315	-	-	-	412	781
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	646	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1302	-	-	-	394	766
Mov Cap-2 Maneuver	-	-	-	-	394	-
Stage 1	-	-	-	-	785	-
Stage 2	-	-	-	-	624	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	12
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1302	-	-	-	562
HCM Lane V/C Ratio	0.02	-	-	-	0.078
HCM Control Delay (s)	7.8	0	-	-	12
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	95	54	21	118	21	10
Future Vol, veh/h	95	54	21	118	21	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	71	71	47	47
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	119	68	30	166	45	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	196	0	398	173
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	235	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1359	-	605	868
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1346	-	579	852
Mov Cap-2 Maneuver	-	-	-	-	579	-
Stage 1	-	-	-	-	856	-
Stage 2	-	-	-	-	775	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	646	-	-	1346	-
HCM Lane V/C Ratio	0.102	-	-	0.022	-
HCM Control Delay (s)	11.2	-	-	7.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	92	233	148	72	53	66
Future Vol, veh/h	92	233	148	72	53	66
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	87	87	86	86	82	82
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	106	268	172	84	65	80

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	266	0	-	0	713	234
Stage 1	-	-	-	-	224	-
Stage 2	-	-	-	-	489	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1292	-	-	-	397	803
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	614	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1280	-	-	-	352	788
Mov Cap-2 Maneuver	-	-	-	-	352	-
Stage 1	-	-	-	-	803	-
Stage 2	-	-	-	-	549	-

Approach	EB	WB	SB
HCM Control Delay, s	2.3	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1280	-	-	-	508
HCM Lane V/C Ratio	0.083	-	-	-	0.286
HCM Control Delay (s)	8.1	0	-	-	14.9
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.3	-	-	-	1.2

Intersection	
Int Delay, s/veh	6.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	30	47	80	72	146	5
Future Vol, veh/h	30	47	80	72	146	5
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	84	84	73	73
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	34	53	95	86	200	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	191	0	-	0	278	158
Stage 1	-	-	-	-	148	-
Stage 2	-	-	-	-	130	-
Critical Hdwy	4.13	-	-	-	7.13	6.23
Critical Hdwy Stg 1	-	-	-	-	6.13	-
Critical Hdwy Stg 2	-	-	-	-	6.13	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1377	-	-	-	672	885
Stage 1	-	-	-	-	852	-
Stage 2	-	-	-	-	871	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1364	-	-	-	646	868
Mov Cap-2 Maneuver	-	-	-	-	646	-
Stage 1	-	-	-	-	822	-
Stage 2	-	-	-	-	840	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1364	-	-	-	652
HCM Lane V/C Ratio	0.025	-	-	-	0.317
HCM Control Delay (s)	7.7	0	-	-	13.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	150	0	0	389	103	2
Future Vol, veh/h	150	0	0	389	103	2
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	160	0	0	414	113	2

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	584	170
Stage 1	-	-	-	-	160	-
Stage 2	-	-	-	-	424	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	472	871
Stage 1	-	0	0	-	866	-
Stage 2	-	0	0	-	658	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	468	863
Mov Cap-2 Maneuver	-	-	-	-	468	-
Stage 1	-	-	-	-	866	-
Stage 2	-	-	-	-	652	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	468	863	-	-
HCM Lane V/C Ratio	0.242	0.003	-	-
HCM Control Delay (s)	15.1	9.2	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	0.9	0	-	-

Intersection	
Intersection Delay, s/veh	16.2
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	189	178	0	144	93	0	114	337
Future Vol, veh/h	0	189	178	0	144	93	0	114	337
Peak Hour Factor	0.92	0.77	0.77	0.92	0.84	0.84	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	245	231	0	171	111	0	131	387
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	15.2	15.5	17.4
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	61%	0%	0%
Vol Right, %	0%	0%	39%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	189	178	237	114	337
LT Vol	189	0	0	114	0
Through Vol	0	178	144	0	0
RT Vol	0	0	93	0	337
Lane Flow Rate	245	231	282	131	387
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.482	0.421	0.495	0.262	0.643
Departure Headway (Hd)	7.064	6.555	6.315	7.194	5.975
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	508	548	570	498	600
Service Time	4.83	4.32	4.378	4.957	3.737
HCM Lane V/C Ratio	0.482	0.422	0.495	0.263	0.645
HCM Control Delay	16.3	14	15.5	12.5	19
HCM Lane LOS	C	B	C	B	C
HCM 95th-tile Q	2.6	2.1	2.7	1	4.6

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	159	23	18	139	57	16
Future Vol, veh/h	159	23	18	139	57	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	173	25	20	151	62	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	198	0	375	185
Stage 1	-	-	-	-	185	-
Stage 2	-	-	-	-	190	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1369	-	624	855
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	840	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1369	-	614	855
Mov Cap-2 Maneuver	-	-	-	-	614	-
Stage 1	-	-	-	-	844	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	614	855	-	-	1369	-
HCM Lane V/C Ratio	0.101	0.02	-	-	0.014	-
HCM Control Delay (s)	11.5	9.3	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	14	0	0	2	0	71	3	2	37	2
Future Vol, veh/h	0	0	14	0	0	2	0	71	3	2	37	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	15	0	0	2	0	77	3	2	40	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	21	-	-	40	-	0	0	80	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1048	0	0	1019	0	-	-	1509	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1048	-	-	1019	-	-	-	1509	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.5	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1048	1019	1509	-	-
HCM Lane V/C Ratio	-	-	0.015	0.002	0.001	-	-
HCM Control Delay (s)	-	-	8.5	8.5	7.4	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	14	0	74	49	2
Future Vol, veh/h	0	14	0	74	49	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	15	0	80	53	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	28	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1037	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1037	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1037	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	10	7	57	17	45	1
Future Vol, veh/h	0	10	7	57	17	45	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	11	8	62	18	49	1

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	25	50	0	45	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1042	1547	-	1333	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1042	1547	-	1333	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0.8	2.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1547	-	1042	1333	-	-
HCM Lane V/C Ratio	0.005	-	0.01	0.014	-	-
HCM Control Delay (s)	7.3	-	8.5	7.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	4	4	64	54	1
Future Vol, veh/h	0	4	4	64	54	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	4	70	59	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	29	59	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1036	1536	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1036	1536	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0.4	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1536	-	1036	-	-
HCM Lane V/C Ratio	0.003	-	0.004	-	-
HCM Control Delay (s)	7.3	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	6	0	0	2	3	66	3	0	59	1
Future Vol, veh/h	0	0	6	0	0	2	3	66	3	0	59	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	7	0	0	2	3	72	3	0	64	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	33	-	-	38	65	0	0	75	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1030	0	0	1022	1528	-	-	1515	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1030	-	-	1022	1528	-	-	1515	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.5	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1528	-	-	1030	1022	1515	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	0.002	-	-	-
HCM Control Delay (s)	7.4	-	-	8.5	8.5	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	334	204	49	27	40
Future Vol, veh/h	23	334	204	49	27	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	25	363	222	53	29	43

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	275	0	-	0	661	248
Stage 1	-	-	-	-	248	-
Stage 2	-	-	-	-	413	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1282	-	-	-	426	788
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1282	-	-	-	418	788
Mov Cap-2 Maneuver	-	-	-	-	418	-
Stage 1	-	-	-	-	791	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1282	-	-	-	418	788
HCM Lane V/C Ratio	0.02	-	-	-	0.07	0.055
HCM Control Delay (s)	7.9	-	-	-	14.3	9.8
HCM Lane LOS	A	-	-	-	B	A
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2	0.2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	2	1	31	75	0
Future Vol, veh/h	0	2	1	31	75	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	2	1	34	82	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	118	82	82	0	-	0
Stage 1	82	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	875	975	1509	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	874	975	1509	-	-	-
Mov Cap-2 Maneuver	874	-	-	-	-	-
Stage 1	939	-	-	-	-	-
Stage 2	983	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1509	-	975	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	168	148	105	158	69	153	213	119	93	173	28
Future Volume (veh/h)	23	168	148	105	158	69	153	213	119	93	173	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	177	156	119	180	78	166	232	129	116	216	35
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.88	0.88	0.88	0.92	0.92	0.92	0.80	0.80	0.80
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	743	626	186	810	684	199	790	342	145	587	93
Arrive On Green	0.03	0.40	0.40	0.06	0.45	0.45	0.11	0.23	0.23	0.08	0.19	0.19
Sat Flow, veh/h	1757	1845	1556	3343	1810	1528	1757	3505	1518	1757	3017	480
Grp Volume(v), veh/h	24	177	156	119	180	78	166	232	129	116	124	127
Grp Sat Flow(s),veh/h/ln	1757	1845	1556	1672	1810	1528	1757	1752	1518	1757	1752	1745
Q Serve(g_s), s	1.3	6.0	4.0	3.3	5.8	2.8	8.8	5.2	5.2	6.2	5.8	6.0
Cycle Q Clear(g_c), s	1.3	6.0	4.0	3.3	5.8	2.8	8.8	5.2	5.2	6.2	5.8	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	52	743	626	186	810	684	199	790	342	145	341	339
V/C Ratio(X)	0.46	0.24	0.25	0.64	0.22	0.11	0.83	0.29	0.38	0.80	0.36	0.37
Avail Cap(c_a), veh/h	125	743	626	294	810	684	383	1422	616	273	601	598
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	18.8	7.5	44.1	16.2	15.3	41.4	30.6	18.3	43.0	33.3	33.4
Incr Delay (d2), s/veh	2.4	0.8	1.0	1.4	0.5	0.3	3.4	0.5	1.8	3.8	1.7	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.2	2.5	1.6	3.0	1.2	4.5	2.6	2.8	3.2	3.0	3.1
LnGrp Delay(d),s/veh	47.9	19.6	8.5	45.5	16.7	15.6	44.8	31.2	20.1	46.8	35.0	35.2
LnGrp LOS	D	B	A	D	B	B	D	C	C	D	D	D
Approach Vol, veh/h		357			377			527			367	
Approach Delay, s/veh		16.6			25.5			32.8			38.8	
Approach LOS		B			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.1	44.4	15.0	23.8	7.0	49.5	12.1	26.8
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	5.3	8.0	10.8	8.0	3.3	7.8	8.2	7.2
Green Ext Time (p_c), s	0.3	4.2	0.1	7.0	0.0	3.3	0.1	7.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	117	234	169	100	80	113	749	710	132	466	98
Future Volume (veh/h)	47	117	234	169	100	80	113	749	710	132	466	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	63	156	312	190	112	90	115	764	724	142	501	105
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	389	199	399	166	344	277	220	748	662	166	1084	226
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.21	0.71	0.71	0.10	0.38	0.38
Sat Flow, veh/h	1158	547	1094	910	944	759	1757	1752	1550	1723	2826	589
Grp Volume(v), veh/h	63	0	468	190	0	202	115	764	724	142	304	302
Grp Sat Flow(s),veh/h/ln	1158	0	1641	910	0	1703	1757	1752	1550	1723	1719	1696
Q Serve(g_s), s	4.6	0.0	27.9	12.2	0.0	9.4	6.4	47.0	47.0	8.9	14.5	14.7
Cycle Q Clear(g_c), s	14.0	0.0	27.9	40.1	0.0	9.4	6.4	47.0	47.0	8.9	14.5	14.7
Prop In Lane	1.00		0.67	1.00		0.45	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	389	0	598	166	0	621	220	748	662	166	659	651
V/C Ratio(X)	0.16	0.00	0.78	1.14	0.00	0.33	0.52	1.02	1.09	0.86	0.46	0.46
Avail Cap(c_a), veh/h	389	0	598	166	0	621	220	748	662	166	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.31	0.31	0.31	0.94	0.94	0.94
Uniform Delay (d), s/veh	30.2	0.0	31.1	51.3	0.0	25.2	40.6	15.8	15.8	48.9	25.4	25.4
Incr Delay (d2), s/veh	0.2	0.0	6.7	112.9	0.0	0.3	0.3	24.0	50.7	30.1	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	13.7	10.3	0.0	4.5	3.1	26.8	28.6	5.6	7.3	7.3
LnGrp Delay(d),s/veh	30.4	0.0	37.7	164.2	0.0	25.5	40.9	39.8	66.5	79.0	27.5	27.7
LnGrp LOS	C		D	F		C	D	F	F	E	C	C
Approach Vol, veh/h		531			392			1603			748	
Approach Delay, s/veh		36.9			92.7			51.9			37.4	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	52.3		45.0	19.1	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	10.9	49.0		29.9	8.4	16.7		42.1
Green Ext Time (p_c), s	0.0	0.0		3.9	4.2	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	587	1	388	0	0	0	0	981	94	140	731	0
Future Volume (veh/h)	587	1	388	0	0	0	0	981	94	140	731	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	561	161	446				0	1033	99	154	803	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.87	0.87	0.87				0.95	0.95	0.95	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	688	169	467				0	1147	110	202	1817	0
Arrive On Green	0.39	0.39	0.39				0.00	0.71	0.71	0.23	1.00	0.00
Sat Flow, veh/h	1757	431	1193				0	3320	309	1757	3597	0
Grp Volume(v), veh/h	561	0	607				0	561	571	154	803	0
Grp Sat Flow(s),veh/h/ln	1757	0	1623				0	1752	1785	1757	1752	0
Q Serve(g_s), s	31.4	0.0	40.0				0.0	28.2	28.3	9.0	0.0	0.0
Cycle Q Clear(g_c), s	31.4	0.0	40.0				0.0	28.2	28.3	9.0	0.0	0.0
Prop In Lane	1.00		0.73				0.00		0.17	1.00		0.00
Lane Grp Cap(c), veh/h	688	0	636				0	623	634	202	1817	0
V/C Ratio(X)	0.82	0.00	0.95				0.00	0.90	0.90	0.76	0.44	0.00
Avail Cap(c_a), veh/h	700	0	646				0	623	634	216	1817	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.69	0.69	0.74	0.74	0.00
Uniform Delay (d), s/veh	29.9	0.0	32.5				0.0	14.3	14.3	41.0	0.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	24.5				0.0	13.7	13.6	9.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.5	0.0	22.2				0.0	15.4	15.7	4.9	0.1	0.0
LnGrp Delay(d),s/veh	37.2	0.0	57.0				0.0	28.0	27.9	50.3	0.6	0.0
LnGrp LOS	D		E					C	C	D	A	
Approach Vol, veh/h		1168						1132			957	
Approach Delay, s/veh		47.5						28.0			8.6	
Approach LOS		D						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.9	44.4		47.7		62.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	11.0	30.3		42.0		2.0		
Green Ext Time (p_c), s	1.1	6.8		1.1		11.4		

Intersection Summary	
HCM 2010 Ctrl Delay	29.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	111	133	48	84	235	69	673	36	285	698	140
Future Volume (veh/h)	163	111	133	48	84	235	69	673	36	285	698	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	172	117	140	49	87	242	78	765	41	294	720	144
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.97	0.97	0.97	0.88	0.88	0.88	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	253	265	317	319	149	415	154	974	52	406	1255	251
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.46	0.86	0.86
Sat Flow, veh/h	1032	762	912	1102	429	1193	1757	3380	181	1757	2906	581
Grp Volume(v), veh/h	172	0	257	49	0	329	78	396	410	294	434	430
Grp Sat Flow(s),veh/h/ln	1032	0	1674	1102	0	1622	1757	1752	1809	1757	1752	1734
Q Serve(g_s), s	18.0	0.0	13.0	3.9	0.0	18.2	4.7	22.9	22.9	14.9	7.4	7.4
Cycle Q Clear(g_c), s	36.2	0.0	13.0	16.9	0.0	18.2	4.7	22.9	22.9	14.9	7.4	7.4
Prop In Lane	1.00		0.54	1.00		0.74	1.00		0.10	1.00		0.33
Lane Grp Cap(c), veh/h	253	0	583	319	0	565	154	505	521	406	757	749
V/C Ratio(X)	0.68	0.00	0.44	0.15	0.00	0.58	0.51	0.79	0.79	0.72	0.57	0.57
Avail Cap(c_a), veh/h	255	0	585	319	0	565	168	505	521	420	757	749
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	44.1	0.0	27.6	34.1	0.0	29.3	47.9	36.0	36.0	26.8	4.8	4.8
Incr Delay (d2), s/veh	7.4	0.0	0.6	0.3	0.0	1.7	1.0	11.6	11.3	4.5	2.8	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	6.1	1.2	0.0	8.4	2.3	12.6	13.0	7.5	3.7	3.7
LnGrp Delay(d),s/veh	51.6	0.0	28.3	34.4	0.0	31.0	48.9	47.6	47.3	31.3	7.6	7.6
LnGrp LOS	D		C	C		C	D	D	D	C	A	A
Approach Vol, veh/h		429			378			884			1158	
Approach Delay, s/veh		37.6			31.5			47.6			13.6	
Approach LOS		D			C			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.1	37.0		43.9	13.3	52.8		43.9
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	16.9	24.9		38.2	6.7	9.4		20.2
Green Ext Time (p_c), s	0.4	4.2		0.0	0.2	14.0		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	87	56	24	108	27	67	303	46	21	246	132
Future Volume (veh/h)	153	87	56	24	108	27	67	303	46	21	246	132
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	174	99	64	29	132	33	71	319	48	24	283	152
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.95	0.95	0.95	0.87	0.87	0.87
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	286	700	308	78	521	228	98	1780	792	52	1590	703
Arrive On Green	0.09	0.20	0.20	0.05	0.15	0.15	0.06	0.51	0.51	0.03	0.45	0.45
Sat Flow, veh/h	3343	3438	1515	1723	3438	1508	1757	3505	1559	1757	3505	1551
Grp Volume(v), veh/h	174	99	64	29	132	33	71	319	48	24	283	152
Grp Sat Flow(s),veh/h/ln	1672	1719	1515	1723	1719	1508	1757	1752	1559	1757	1752	1551
Q Serve(g_s), s	4.6	2.2	2.5	1.5	3.1	1.5	3.7	4.6	1.4	1.2	4.4	5.5
Cycle Q Clear(g_c), s	4.6	2.2	2.5	1.5	3.1	1.5	3.7	4.6	1.4	1.2	4.4	5.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	700	308	78	521	228	98	1780	792	52	1590	703
V/C Ratio(X)	0.61	0.14	0.21	0.37	0.25	0.14	0.72	0.18	0.06	0.46	0.18	0.22
Avail Cap(c_a), veh/h	427	1415	624	164	1303	571	205	1780	792	129	1590	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	30.2	18.4	42.8	34.6	24.2	42.9	12.3	11.5	44.1	15.0	15.3
Incr Delay (d2), s/veh	0.8	0.2	0.9	1.1	0.7	0.8	3.7	0.2	0.1	2.3	0.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.1	1.4	0.7	1.5	0.8	1.9	2.2	0.7	0.6	2.2	2.5
LnGrp Delay(d),s/veh	41.5	30.4	19.3	43.9	35.2	24.9	46.6	12.5	11.7	46.4	15.2	16.0
LnGrp LOS	D	C	B	D	D	C	D	B	B	D	B	B
Approach Vol, veh/h		337			194			438			459	
Approach Delay, s/veh		34.0			34.8			18.0			17.1	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.0	52.9	8.4	24.1	11.2	48.7	13.2	19.3
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.8	46.7	* 8.8	38.0	10.8	* 42	11.8	* 35
Max Q Clear Time (g_c+I1), s	3.2	6.6	3.5	4.5	5.7	7.5	6.6	5.1
Green Ext Time (p_c), s	0.0	5.5	0.0	1.9	0.7	6.2	0.8	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	80	128	120	225	3	190	9	183	3	11	5
Future Volume (veh/h)	4	80	128	120	225	3	190	9	183	3	11	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	91	145	126	237	3	202	10	195	8	30	14
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.94	0.94	0.94	0.37	0.37	0.37
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	105	167	164	478	6	233	44	866	115	412	179
Arrive On Green	0.00	0.17	0.17	0.09	0.26	0.26	0.13	0.58	0.58	0.40	0.40	0.40
Sat Flow, veh/h	1757	629	1002	1757	1817	23	1757	76	1490	183	1023	444
Grp Volume(v), veh/h	5	0	236	126	0	240	202	0	205	52	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1631	1757	0	1840	1757	0	1566	1649	0	0
Q Serve(g_s), s	0.3	0.0	14.1	7.0	0.0	11.1	11.3	0.0	6.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.3	0.0	14.1	7.0	0.0	11.1	11.3	0.0	6.3	1.8	0.0	0.0
Prop In Lane	1.00		0.61	1.00		0.01	1.00		0.95	0.15		0.27
Lane Grp Cap(c), veh/h	7	0	272	164	0	484	233	0	910	705	0	0
V/C Ratio(X)	0.73	0.00	0.87	0.77	0.00	0.50	0.87	0.00	0.23	0.07	0.00	0.00
Avail Cap(c_a), veh/h	95	0	338	253	0	547	358	0	910	705	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.89	0.00	0.89	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.8	0.0	40.6	44.3	0.0	31.2	42.5	0.0	10.1	18.4	0.0	0.0
Incr Delay (d2), s/veh	42.5	0.0	18.5	2.8	0.0	1.0	7.8	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	7.8	3.5	0.0	5.7	5.9	0.0	2.9	0.9	0.0	0.0
LnGrp Delay(d),s/veh	92.2	0.0	59.1	47.1	0.0	32.2	50.3	0.0	10.6	18.6	0.0	0.0
LnGrp LOS	F		E	D		C	D		B	B		
Approach Vol, veh/h		241			366			407			52	
Approach Delay, s/veh		59.8			37.3			30.3			18.6	
Approach LOS		E			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.4	14.6	22.0	17.9	45.5	5.0	31.6
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		8.3	9.0	16.1	13.3	3.8	2.3	13.1
Green Ext Time (p_c), s		2.1	0.6	0.6	0.1	1.8	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	38.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	46	185	8	24	31	42	213	21	23	156	61
Future Volume (veh/h)	147	46	185	8	24	31	42	213	21	23	156	61
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.95	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	58	231	10	30	38	52	263	26	26	179	70
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.80	0.80	0.80	0.81	0.81	0.81	0.81	0.81	0.81	0.87	0.87	0.87
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	71	283	13	78	98	448	556	55	412	398	156
Arrive On Green	0.12	0.22	0.22	0.01	0.11	0.11	0.25	0.34	0.34	0.08	0.10	0.10
Sat Flow, veh/h	1757	318	1268	1757	720	912	1757	1650	163	1757	1257	492
Grp Volume(v), veh/h	184	0	289	10	0	68	52	0	289	26	0	249
Grp Sat Flow(s),veh/h/ln	1757	0	1587	1757	0	1632	1757	0	1813	1757	0	1749
Q Serve(g_s), s	10.3	0.0	17.3	0.6	0.0	3.9	2.3	0.0	12.6	1.4	0.0	13.4
Cycle Q Clear(g_c), s	10.3	0.0	17.3	0.6	0.0	3.9	2.3	0.0	12.6	1.4	0.0	13.4
Prop In Lane	1.00		0.80	1.00		0.56	1.00		0.09	1.00		0.28
Lane Grp Cap(c), veh/h	215	0	354	13	0	176	448	0	611	412	0	554
V/C Ratio(X)	0.86	0.00	0.82	0.78	0.00	0.39	0.12	0.00	0.47	0.06	0.00	0.45
Avail Cap(c_a), veh/h	394	0	551	95	0	307	448	0	611	412	0	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.85	0.00	0.85
Uniform Delay (d), s/veh	43.0	0.0	36.9	49.6	0.0	41.5	28.6	0.0	26.1	35.9	0.0	36.6
Incr Delay (d2), s/veh	3.8	0.0	11.2	30.8	0.0	0.5	0.0	0.0	2.6	0.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	8.6	0.4	0.0	1.8	1.1	0.0	6.7	0.7	0.0	6.8
LnGrp Delay(d),s/veh	46.8	0.0	48.1	80.4	0.0	42.0	28.7	0.0	28.8	35.9	0.0	38.8
LnGrp LOS	D		D	F		D	C		C	D		D
Approach Vol, veh/h		473			78			341			275	
Approach Delay, s/veh		47.6			47.0			28.7			38.5	
Approach LOS		D			D			C			D	

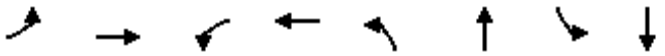
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.1	39.0	5.3	27.6	30.1	37.0	16.8	16.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.4	14.6	2.6	19.3	4.3	15.4	12.3	5.9
Green Ext Time (p_c), s	0.0	1.8	0.0	3.0	0.0	1.7	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	39.9
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	177	156	119	180	78	166	232	129	116	251
v/c Ratio	0.21	0.24	0.22	0.46	0.21	0.10	0.68	0.34	0.30	0.59	0.42
Control Delay	52.0	22.9	4.9	51.2	19.8	0.6	55.3	34.0	3.8	55.7	35.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.0	22.9	4.9	51.2	19.8	0.6	55.3	34.0	3.8	55.7	35.7
Queue Length 50th (ft)	14	66	0	35	52	0	94	64	0	66	67
Queue Length 95th (ft)	47	162	46	76	160	2	191	101	24	129	97
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	125	747	715	295	865	790	384	1430	711	273	1186
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.24	0.22	0.40	0.21	0.10	0.43	0.16	0.18	0.42	0.21

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	63	468	190	202	115	1488	142	606
v/c Ratio	0.17	0.71	1.13	0.31	0.53	1.01	0.88	0.47
Control Delay	25.2	29.8	143.8	21.3	36.4	35.6	94.2	25.8
Queue Delay	0.0	0.1	0.0	0.0	0.0	33.7	0.0	0.5
Total Delay	25.2	29.9	143.8	21.3	36.4	69.3	94.2	26.3
Queue Length 50th (ft)	30	221	~156	79	76	~562	100	159
Queue Length 95th (ft)	51	251	#296	137	m82	#655	#215	212
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	380	662	168	647	219	1473	165	1291
Starvation Cap Reductn	0	0	0	0	0	147	0	0
Spillback Cap Reductn	0	9	0	0	0	0	0	310
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.72	1.13	0.31	0.53	1.12	0.86	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

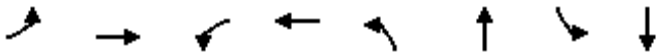
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	587	535	1132	154	803
v/c Ratio	0.92	0.82	0.89	0.72	0.44
Control Delay	54.2	33.9	28.7	75.0	27.2
Queue Delay	0.0	0.6	47.6	0.0	2.1
Total Delay	54.2	34.5	76.3	75.0	29.2
Queue Length 50th (ft)	401	269	432	114	288
Queue Length 95th (ft)	#589	401	#550	m#163	m339
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	673	1276	215	1840
Starvation Cap Reductn	0	0	180	0	851
Spillback Cap Reductn	0	21	354	0	585
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.89	0.82	1.23	0.72	0.81

Intersection Summary

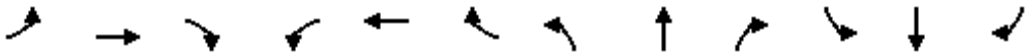
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	172	257	49	329	78	806	294	864
v/c Ratio	1.04	0.51	0.24	0.62	0.56	0.59	0.80	0.47
Control Delay	120.4	27.7	31.5	24.2	63.7	31.3	57.5	9.1
Queue Delay	60.6	0.0	0.0	2.0	0.0	2.3	58.4	0.4
Total Delay	181.1	27.7	31.5	26.1	63.7	33.6	115.9	9.5
Queue Length 50th (ft)	121	114	27	115	54	244	222	102
Queue Length 95th (ft)	#237	176	56	192	100	341	m301	176
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	210	623	262	640	167	1361	418	1845
Starvation Cap Reductn	0	0	0	0	0	0	153	450
Spillback Cap Reductn	65	0	0	179	0	401	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.41	0.19	0.71	0.47	0.84	1.11	0.62

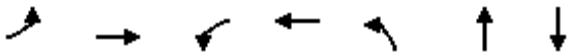
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



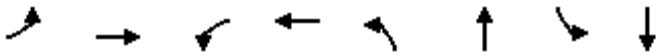
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	174	99	64	29	132	33	71	319	48	24	283	152
v/c Ratio	0.50	0.15	0.15	0.19	0.31	0.10	0.44	0.16	0.05	0.20	0.17	0.19
Control Delay	44.6	34.0	0.7	44.0	39.2	0.6	49.1	11.5	0.1	46.3	15.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.6	34.0	0.7	44.0	39.2	0.6	49.1	11.5	0.1	46.3	15.4	3.1
Queue Length 50th (ft)	50	26	0	16	36	0	40	38	0	13	48	0
Queue Length 95th (ft)	84	50	0	42	62	0	86	85	0	40	82	29
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	438	1454	731	168	1339	692	210	1942	914	132	1670	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.07	0.09	0.17	0.10	0.05	0.34	0.16	0.05	0.18	0.17	0.19

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	236	126	240	202	205	52
v/c Ratio	0.07	0.75	0.70	0.45	0.78	0.21	0.08
Control Delay	48.2	42.2	62.4	31.2	62.1	2.9	20.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.2	42.2	62.4	31.2	62.1	2.9	20.2
Queue Length 50th (ft)	3	100	79	119	135	25	15
Queue Length 95th (ft)	15	169	134	193	210	56	16
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	394	252	580	357	983	670
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.60	0.50	0.41	0.57	0.21	0.08

Intersection Summary



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	289	10	68	52	289	26	249
v/c Ratio	0.75	0.58	0.14	0.46	0.48	0.25	0.30	0.25
Control Delay	59.4	13.9	49.8	33.3	59.0	12.0	65.3	24.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	13.9	49.8	33.3	59.0	12.0	65.3	24.4
Queue Length 50th (ft)	114	35	6	19	33	67	15	140
Queue Length 95th (ft)	153	81	21	51	63	156	m29	207
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	687	94	340	147	1136	112	1014
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.42	0.11	0.20	0.35	0.25	0.23	0.25

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	41.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	613	341	172	242	107	14
Future Vol, veh/h	613	341	172	242	107	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	645	359	185	260	145	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1014	0	1475	845
Stage 1	-	-	-	-	835	-
Stage 2	-	-	-	-	640	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	680	-	~ 138	361
Stage 1	-	-	-	-	424	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	674	-	~ 92	354
Mov Cap-2 Maneuver	-	-	-	-	~ 92	-
Stage 1	-	-	-	-	420	-
Stage 2	-	-	-	-	352	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	$ 392.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	101	-	-	674	-
HCM Lane V/C Ratio	1.619	-	-	0.274	-
HCM Control Delay (s)	$ 392.9	-	-	12.3	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	12.7	-	-	1.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.7

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	30	264	236	67	117	45
Future Vol, veh/h	30	264	236	67	117	45
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	93	93	83	83
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	33	287	254	72	141	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	336	0	-	0	519	183
Stage 1	-	-	-	-	300	-
Stage 2	-	-	-	-	219	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1213	-	-	-	484	825
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	793	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1201	-	-	-	459	809
Mov Cap-2 Maneuver	-	-	-	-	459	-
Stage 1	-	-	-	-	715	-
Stage 2	-	-	-	-	760	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	14.5
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	459	809	1201	-	-	-
HCM Lane V/C Ratio	0.307	0.067	0.027	-	-	-
HCM Control Delay (s)	16.3	9.8	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.3	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	274	14	29	255	19	7
Future Vol, veh/h	274	14	29	255	19	7
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	87	87	94	94	78	78
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	315	16	31	271	24	9

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	341	0	540	186
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	207	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1208	-	469	821
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1196	-	446	805
Mov Cap-2 Maneuver	-	-	-	-	446	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	772	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.9	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1196	-	507
HCM Lane V/C Ratio	-	-	0.026	-	0.066
HCM Control Delay (s)	-	-	8.1	0.1	12.6
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	28	261	253	12	13	8
Future Vol, veh/h	28	261	253	12	13	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	66	66
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	275	266	13	20	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	289	0	-	0	627	293
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	344	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1267	-	-	-	446	744
Stage 1	-	-	-	-	763	-
Stage 2	-	-	-	-	716	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1255	-	-	-	426	730
Mov Cap-2 Maneuver	-	-	-	-	426	-
Stage 1	-	-	-	-	756	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1255	-	-	-	506
HCM Lane V/C Ratio	0.023	-	-	-	0.063
HCM Control Delay (s)	7.9	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Intersection	
Int Delay, s/veh	2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	114	16	11	125	26	16
Future Vol, veh/h	114	16	11	125	26	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	83	83	79	79	65	65
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	137	19	14	158	40	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	167	0	353	167
Stage 1	-	-	-	-	157	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1393	-	643	875
Stage 1	-	-	-	-	869	-
Stage 2	-	-	-	-	835	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1380	-	624	858
Mov Cap-2 Maneuver	-	-	-	-	624	-
Stage 1	-	-	-	-	861	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	10.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	696	-	-	1380	-
HCM Lane V/C Ratio	0.093	-	-	0.01	-
HCM Control Delay (s)	10.7	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	7	171	204	44	35	39
Future Vol, veh/h	7	171	204	44	35	39
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	92	92	75	75
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	7	180	222	48	47	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	280	0	-	0	461	266
Stage 1	-	-	-	-	256	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1277	-	-	-	557	770
Stage 1	-	-	-	-	784	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1265	-	-	-	543	755
Mov Cap-2 Maneuver	-	-	-	-	543	-
Stage 1	-	-	-	-	777	-
Stage 2	-	-	-	-	814	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	11.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1265	-	-	-	637
HCM Lane V/C Ratio	0.006	-	-	-	0.155
HCM Control Delay (s)	7.9	0	-	-	11.7
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	15	124	80	48	276	11
Future Vol, veh/h	15	124	80	48	276	11
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	84	84	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	17	138	95	57	341	14

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	162	0	-	0	315	144
Stage 1	-	-	-	-	134	-
Stage 2	-	-	-	-	181	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1411	-	-	-	676	901
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	848	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1398	-	-	-	655	884
Mov Cap-2 Maneuver	-	-	-	-	655	-
Stage 1	-	-	-	-	882	-
Stage 2	-	-	-	-	829	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1398	-	-	-	662
HCM Lane V/C Ratio	0.012	-	-	-	0.535
HCM Control Delay (s)	7.6	0	-	-	16.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	3.2

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	279	0	0	246	97	6
Future Vol, veh/h	279	0	0	246	97	6
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	80	80
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	310	0	0	273	121	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	593	320
Stage 1	-	-	-	-	310	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	467	718
Stage 1	-	0	0	-	741	-
Stage 2	-	0	0	-	763	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	463	711
Mov Cap-2 Maneuver	-	-	-	-	463	-
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	756	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	463	711	-	-
HCM Lane V/C Ratio	0.262	0.011	-	-
HCM Control Delay (s)	15.5	10.1	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	1	0	-	-

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	254	187	0	144	115	0	90	175
Future Vol, veh/h	0	254	187	0	144	115	0	90	175
Peak Hour Factor	0.92	0.93	0.93	0.92	0.86	0.86	0.92	0.87	0.87
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	273	201	0	167	134	0	103	201
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	13.5	13.6	11.5
HCM LOS	B	B	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	56%	0%	0%
Vol Right, %	0%	0%	44%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	254	187	259	90	175
LT Vol	254	0	0	90	0
Through Vol	0	187	144	0	0
RT Vol	0	0	115	0	175
Lane Flow Rate	273	201	301	103	201
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.485	0.329	0.472	0.204	0.328
Departure Headway (Hd)	6.388	5.882	5.642	7.086	5.868
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	565	611	638	507	611
Service Time	4.123	3.616	3.677	4.828	3.609
HCM Lane V/C Ratio	0.483	0.329	0.472	0.203	0.329
HCM Control Delay	15	11.5	13.6	11.6	11.5
HCM Lane LOS	B	B	B	B	B
HCM 95th-tile Q	2.6	1.4	2.5	0.8	1.4

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	128	44	21	147	63	24
Future Vol, veh/h	128	44	21	147	63	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	139	48	23	160	68	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	187	0	368	163
Stage 1	-	-	-	-	163	-
Stage 2	-	-	-	-	205	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1381	-	630	879
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	827	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1381	-	619	879
Mov Cap-2 Maneuver	-	-	-	-	619	-
Stage 1	-	-	-	-	864	-
Stage 2	-	-	-	-	812	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	619	879	-	-	1381	-
HCM Lane V/C Ratio	0.111	0.03	-	-	0.017	-
HCM Control Delay (s)	11.5	9.2	-	-	7.7	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	21	0	66	45	29	29	7
Future Vol, veh/h	0	0	9	0	0	21	0	66	45	29	29	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	23	0	72	49	32	32	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	20	-	-	60	-	0	0	121	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1050	0	0	990	0	-	-	1457	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1050	-	-	990	-	-	-	1457	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.7	0	3.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1050	990	1457	-	-
HCM Lane V/C Ratio	-	-	0.009	0.023	0.022	-	-
HCM Control Delay (s)	-	-	8.5	8.7	7.5	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	0	111	31	7
Future Vol, veh/h	0	9	0	111	31	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	0	121	34	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	21	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1048	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1048	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1048	-	-
HCM Lane V/C Ratio	-	0.009	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	6	24	100	11	24	5
Future Vol, veh/h	0	6	24	100	11	24	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	7	26	109	12	26	5

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	16	32	0	79	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1056	1571	-	1269	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1056	1571	-	1269	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.4	2.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1571	-	1056	1269	-	-
HCM Lane V/C Ratio	0.017	-	0.006	0.009	-	-
HCM Control Delay (s)	7.3	-	8.4	7.9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	8	35	124	28	2
Future Vol, veh/h	0	8	35	124	28	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	9	38	135	30	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	15	30	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1057	1574	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1057	1574	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1574	-	1057	-	-
HCM Lane V/C Ratio	0.024	-	0.008	-	-
HCM Control Delay (s)	7.3	-	8.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	31	5	128	54	3	61	2
Future Vol, veh/h	0	0	8	0	0	31	5	128	54	3	61	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	34	5	139	59	3	66	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	34	-	-	99	68	0	0	198	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1028	0	0	934	1524	-	-	1365	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1028	-	-	934	1524	-	-	1365	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9	0.2	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1524	-	-	1028	934	1365	-	-
HCM Lane V/C Ratio	0.004	-	-	0.008	0.036	0.002	-	-
HCM Control Delay (s)	7.4	-	-	8.5	9	7.6	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	131	183	235	56	13	56
Future Vol, veh/h	131	183	235	56	13	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	142	199	255	61	14	61

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	316	0	-	0	770	286
Stage 1	-	-	-	-	286	-
Stage 2	-	-	-	-	484	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1239	-	-	-	367	751
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	618	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1239	-	-	-	325	751
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	760	-
Stage 2	-	-	-	-	547	-

Approach	EB	WB	SB
HCM Control Delay, s	3.5	0	11.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1239	-	-	-	325	751
HCM Lane V/C Ratio	0.115	-	-	-	0.043	0.081
HCM Control Delay (s)	8.3	-	-	-	16.6	10.2
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.4	-	-	-	0.1	0.3

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	2	22	22	40	24	3
Future Vol, veh/h	2	22	22	40	24	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	2	24	24	43	26	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	28	29	0	-	0
Stage 1	28	-	-	-	-	-
Stage 2	91	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	874	1044	1578	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	860	1044	1578	-	-	-
Mov Cap-2 Maneuver	860	-	-	-	-	-
Stage 1	992	-	-	-	-	-
Stage 2	915	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1578	-	1026	-	-
HCM Lane V/C Ratio	0.015	-	0.025	-	-
HCM Control Delay (s)	7.3	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	59	0	74	57	35	33	6
Future Vol, veh/h	0	0	8	0	0	59	0	74	57	35	33	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	64	0	80	62	38	36	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	21	-	-	71	-	0	0	142	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1048	0	0	974	0	-	-	1431	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1048	-	-	974	-	-	-	1431	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9	0	3.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1048	974	1431	-	-
HCM Lane V/C Ratio	-	-	0.008	0.066	0.027	-	-
HCM Control Delay (s)	-	-	8.5	9	7.6	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.2	0.1	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	7	0	0	87	5	132	68	4	111	2
Future Vol, veh/h	0	0	7	0	0	87	5	132	68	4	111	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	8	0	0	95	5	143	74	4	121	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	61	-	-	109	123	0	0	217	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	988	0	0	921	1454	-	-	1343	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	988	-	-	921	1454	-	-	1343	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	9.4	0.2	0.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1454	-	-	988	921	1343	-	-
HCM Lane V/C Ratio	0.004	-	-	0.008	0.103	0.003	-	-
HCM Control Delay (s)	7.5	-	-	8.7	9.4	7.7	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

CUMULATIVE YEAR 2040 WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	288	236	165	304	278	144	399	216	162	379	59
Future Volume (veh/h)	87	288	236	165	304	278	144	399	216	162	379	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	95	313	257	179	330	302	157	434	235	176	412	64
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	119	634	534	242	629	530	187	1052	457	144	836	129
Arrive On Green	0.07	0.34	0.34	0.07	0.35	0.35	0.11	0.30	0.30	0.08	0.28	0.28
Sat Flow, veh/h	1757	1845	1554	3343	1810	1525	1757	3505	1523	1757	3036	468
Grp Volume(v), veh/h	95	313	257	179	330	302	157	434	235	176	236	240
Grp Sat Flow(s),veh/h/ln	1757	1845	1554	1672	1810	1525	1757	1752	1523	1757	1752	1752
Q Serve(g_s), s	5.4	13.6	13.2	5.3	14.7	16.3	8.9	10.0	12.9	8.3	11.5	11.6
Cycle Q Clear(g_c), s	5.4	13.6	13.2	5.3	14.7	16.3	8.9	10.0	12.9	8.3	11.5	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	119	634	534	242	629	530	187	1052	457	144	482	482
V/C Ratio(X)	0.80	0.49	0.48	0.74	0.52	0.57	0.84	0.41	0.51	1.22	0.49	0.50
Avail Cap(c_a), veh/h	121	634	534	304	646	545	244	1314	571	144	557	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.5	26.3	26.2	46.1	26.4	26.9	44.4	28.3	29.4	46.5	30.8	30.8
Incr Delay (d2), s/veh	27.2	2.7	3.1	5.0	2.5	3.6	14.2	0.7	2.3	147.2	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.4	6.1	2.6	7.8	7.4	5.1	4.9	5.7	9.9	5.8	5.9
LnGrp Delay(d),s/veh	73.7	29.0	29.3	51.1	28.8	30.4	58.6	29.0	31.7	193.7	32.8	32.9
LnGrp LOS	E	C	C	D	C	C	E	C	C	F	C	C
Approach Vol, veh/h		665			811			826			652	
Approach Delay, s/veh		35.5			34.3			35.4			76.3	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	41.6	15.0	33.2	11.1	42.0	12.5	35.7
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	7.3	15.6	10.9	13.6	7.4	18.3	10.3	14.9
Green Ext Time (p_c), s	0.1	12.6	0.1	11.2	0.0	12.0	0.0	12.9

Intersection Summary	
HCM 2010 Ctrl Delay	44.1
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	58	178	217	122	88	239	987	869	354	949	274
Future Volume (veh/h)	45	58	178	217	122	88	239	987	869	354	949	274
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	49	63	193	236	133	96	260	1073	945	385	1032	298
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	266	116	355	234	290	209	287	863	656	234	1130	324
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.46	0.46	0.14	0.43	0.43
Sat Flow, veh/h	1129	397	1217	1102	993	717	1757	1889	1436	1723	2631	754
Grp Volume(v), veh/h	49	0	256	236	0	229	260	983	1035	385	672	658
Grp Sat Flow(s),veh/h/ln	1129	0	1615	1102	0	1709	1757	1752	1573	1723	1719	1666
Q Serve(g_s), s	4.5	0.0	16.0	19.0	0.0	13.1	17.4	54.8	54.8	16.3	43.9	44.7
Cycle Q Clear(g_c), s	17.6	0.0	16.0	35.0	0.0	13.1	17.4	54.8	54.8	16.3	43.9	44.7
Prop In Lane	1.00		0.75	1.00		0.42	1.00		0.91	1.00		0.45
Lane Grp Cap(c), veh/h	266	0	471	234	0	499	287	800	718	234	738	715
V/C Ratio(X)	0.18	0.00	0.54	1.01	0.00	0.46	0.91	1.23	1.44	1.64	0.91	0.92
Avail Cap(c_a), veh/h	266	0	471	234	0	499	335	800	718	234	738	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.83	0.83	0.83
Uniform Delay (d), s/veh	42.0	0.0	35.8	52.9	0.0	34.8	49.3	32.6	32.6	51.8	32.1	32.3
Incr Delay (d2), s/veh	0.3	0.0	1.3	60.6	0.0	0.7	3.0	103.9	199.2	305.5	14.9	16.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	7.3	11.7	0.0	6.3	8.7	49.5	63.5	27.6	23.8	23.7
LnGrp Delay(d),s/veh	42.3	0.0	37.1	113.6	0.0	35.4	52.4	136.5	231.8	357.4	47.0	48.7
LnGrp LOS	D		D	F		D	D	F	F	F	D	D
Approach Vol, veh/h		305			465			2278			1715	
Approach Delay, s/veh		37.9			75.1			170.2			117.3	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	60.1		39.9	23.3	56.8		39.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	18.3	56.8		19.6	19.4	46.7		37.0
Green Ext Time (p_c), s	0.0	0.0		3.6	0.1	1.5		0.0

Intersection Summary			
HCM 2010 Ctrl Delay		133.4	
HCM 2010 LOS		F	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	589	0	363	0	0	0	0	1506	54	193	1151	0
Future Volume (veh/h)	589	0	363	0	0	0	0	1506	54	193	1151	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	518	171	395				0	1637	59	210	1251	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	517	145	335				0	1653	59	839	3522	0
Arrive On Green	0.29	0.29	0.29				0.00	0.96	0.96	0.48	1.00	0.00
Sat Flow, veh/h	1757	492	1138				0	3542	124	1757	3597	0
Grp Volume(v), veh/h	518	0	566				0	829	867	210	1251	0
Grp Sat Flow(s),veh/h/ln	1757	0	1630				0	1752	1821	1757	1752	0
Q Serve(g_s), s	32.4	0.0	32.4				0.0	40.1	46.1	7.8	0.0	0.0
Cycle Q Clear(g_c), s	32.4	0.0	32.4				0.0	40.1	46.1	7.8	0.0	0.0
Prop In Lane	1.00		0.70				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	517	0	480				0	840	873	839	3522	0
V/C Ratio(X)	1.00	0.00	1.18				0.00	0.99	0.99	0.25	0.36	0.00
Avail Cap(c_a), veh/h	517	0	480				0	840	873	839	3522	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.20	0.20	0.00
Uniform Delay (d), s/veh	38.8	0.0	38.8				0.0	2.0	2.2	17.1	0.0	0.0
Incr Delay (d2), s/veh	39.8	0.0	100.3				0.0	7.2	8.3	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.4	0.0	27.9				0.0	12.7	15.5	3.8	0.0	0.0
LnGrp Delay(d),s/veh	78.6	0.0	139.1				0.0	9.2	10.4	17.1	0.1	0.0
LnGrp LOS	F		F					A	B	B	A	
Approach Vol, veh/h		1084						1696			1461	
Approach Delay, s/veh		110.2						9.8			2.5	
Approach LOS		F						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	58.1	58.0		37.0		116.1		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	9.8	48.1		34.4		2.0		
Green Ext Time (p_c), s	0.2	4.4		0.0		24.1		

Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	50	40	46	65	440	50	1028	17	287	1102	125
Future Volume (veh/h)	92	50	40	46	65	440	50	1028	17	287	1102	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	100	54	43	50	71	478	54	1117	18	312	1198	136
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	93	348	277	484	75	508	77	1075	17	374	1546	175
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.43	0.98	0.98
Sat Flow, veh/h	845	949	755	1272	205	1382	1757	3529	57	1757	3170	359
Grp Volume(v), veh/h	100	0	97	50	0	549	54	555	580	312	661	673
Grp Sat Flow(s),veh/h/ln	845	0	1704	1272	0	1587	1757	1752	1834	1757	1752	1777
Q Serve(g_s), s	3.6	0.0	4.2	3.0	0.0	36.8	3.3	33.5	33.5	17.4	4.2	4.3
Cycle Q Clear(g_c), s	40.4	0.0	4.2	7.2	0.0	36.8	3.3	33.5	33.5	17.4	4.2	4.3
Prop In Lane	1.00		0.44	1.00		0.87	1.00		0.03	1.00		0.20
Lane Grp Cap(c), veh/h	93	0	626	484	0	583	77	534	558	374	855	866
V/C Ratio(X)	1.07	0.00	0.15	0.10	0.00	0.94	0.70	1.04	1.04	0.84	0.77	0.78
Avail Cap(c_a), veh/h	93	0	626	484	0	583	142	534	558	374	855	866
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Uniform Delay (d), s/veh	54.5	0.0	23.3	25.8	0.0	33.7	51.9	38.3	38.3	29.9	0.7	0.7
Incr Delay (d2), s/veh	114.7	0.0	0.1	0.1	0.0	23.9	4.2	49.5	48.7	11.6	5.4	5.4
Initial Q Delay(d3),s/veh	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	2.0	1.1	0.0	19.9	1.7	23.5	24.5	9.5	2.0	2.0
LnGrp Delay(d),s/veh	169.6	0.0	23.5	25.9	0.0	57.5	56.0	87.8	86.9	41.5	6.1	6.2
LnGrp LOS	F		C	C		E	E	F	F	D	A	A
Approach Vol, veh/h		197			599			1189			1646	
Approach Delay, s/veh		97.7			54.9			85.9			12.9	
Approach LOS		F			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.7	38.8		46.0	8.5	58.9		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	19.4	35.5		42.4	5.3	6.3		38.8
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	25.6		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	48.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	166	71	80	170	51	120	325	42	46	552	422
Future Volume (veh/h)	205	166	71	80	170	51	120	325	42	46	552	422
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	223	180	77	87	185	55	130	353	46	50	600	459
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	290	668	294	128	625	275	160	1671	743	80	1512	669
Arrive On Green	0.09	0.19	0.19	0.07	0.18	0.18	0.09	0.48	0.48	0.05	0.43	0.43
Sat Flow, veh/h	3343	3438	1514	1723	3438	1513	1757	3505	1558	1757	3505	1550
Grp Volume(v), veh/h	223	180	77	87	185	55	130	353	46	50	600	459
Grp Sat Flow(s),veh/h/ln	1672	1719	1514	1723	1719	1513	1757	1752	1558	1757	1752	1550
Q Serve(g_s), s	6.4	4.4	4.2	4.8	4.6	3.0	7.1	5.7	1.6	2.7	11.5	23.4
Cycle Q Clear(g_c), s	6.4	4.4	4.2	4.8	4.6	3.0	7.1	5.7	1.6	2.7	11.5	23.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	290	668	294	128	625	275	160	1671	743	80	1512	669
V/C Ratio(X)	0.77	0.27	0.26	0.68	0.30	0.20	0.81	0.21	0.06	0.62	0.40	0.69
Avail Cap(c_a), veh/h	379	1334	587	155	1253	551	248	1671	743	122	1512	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	33.5	33.5	44.2	34.7	34.0	43.7	14.9	13.8	45.9	19.1	22.5
Incr Delay (d2), s/veh	4.8	0.6	1.2	5.7	0.7	0.9	5.8	0.3	0.2	3.0	0.8	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.1	1.9	2.5	2.2	1.3	3.7	2.8	0.7	1.4	5.7	11.1
LnGrp Delay(d),s/veh	48.6	34.1	34.7	49.9	35.3	34.9	49.5	15.2	14.0	48.9	19.9	28.2
LnGrp LOS	D	C	C	D	D	C	D	B	B	D	B	C
Approach Vol, veh/h		480			327			529			1109	
Approach Delay, s/veh		40.9			39.1			23.5			24.6	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	53.5	11.5	24.3	13.1	49.1	12.7	23.1
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	4.7	7.7	6.8	6.4	9.1	25.4	8.4	6.6
Green Ext Time (p_c), s	0.0	25.5	0.0	6.2	0.1	11.0	0.1	6.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	90	266	342	432	6	397	8	164	0	6	15
Future Volume (veh/h)	5	90	266	342	432	6	397	8	164	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	98	289	372	470	7	432	9	178	0	7	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	74	217	271	602	9	394	39	763	0	119	272
Arrive On Green	0.00	0.18	0.18	0.15	0.33	0.33	0.22	0.51	0.51	0.00	0.24	0.24
Sat Flow, veh/h	1757	404	1191	1757	1812	27	1757	75	1489	0	492	1126
Grp Volume(v), veh/h	5	0	387	372	0	477	432	0	187	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	0	1595	1757	0	1839	1757	0	1565	0	0	1618
Q Serve(g_s), s	0.3	0.0	18.2	15.4	0.0	23.4	22.4	0.0	6.6	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.3	0.0	18.2	15.4	0.0	23.4	22.4	0.0	6.6	0.0	0.0	1.1
Prop In Lane	1.00		0.75	1.00		0.01	1.00		0.95	0.00		0.70
Lane Grp Cap(c), veh/h	7	0	290	271	0	611	394	0	801	0	0	392
V/C Ratio(X)	0.73	0.00	1.33	1.37	0.00	0.78	1.10	0.00	0.23	0.00	0.00	0.06
Avail Cap(c_a), veh/h	86	0	290	271	0	611	394	0	801	0	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.8	0.0	40.9	42.3	0.0	30.1	38.8	0.0	13.5	0.0	0.0	29.1
Incr Delay (d2), s/veh	42.5	0.0	171.6	190.4	0.0	6.6	70.5	0.0	0.6	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	21.8	21.7	0.0	12.9	18.5	0.0	3.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	92.2	0.0	212.5	232.7	0.0	36.8	109.3	0.0	14.1	0.0	0.0	29.4
LnGrp LOS	F		F	F		D	F		B			C
Approach Vol, veh/h		392			849			619			23	
Approach Delay, s/veh		211.0			122.6			80.5			29.4	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		56.5	20.0	23.5	27.0	29.5	5.0	38.5
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		8.6	17.4	20.2	24.4	3.1	2.3	25.4
Green Ext Time (p_c), s		1.7	0.0	0.0	0.0	1.4	0.0	1.7

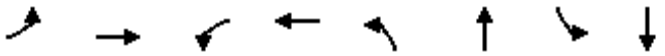
Intersection Summary	
HCM 2010 Ctrl Delay	126.0
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	28	271	74	80	37	153	347	40	18	459	137
Future Volume (veh/h)	187	28	271	74	80	37	153	347	40	18	459	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	203	30	295	80	87	40	166	377	43	20	499	149
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	234	35	346	95	196	90	258	596	68	240	486	145
Arrive On Green	0.13	0.24	0.24	0.05	0.17	0.17	0.15	0.37	0.37	0.05	0.12	0.12
Sat Flow, veh/h	1757	144	1416	1757	1184	544	1757	1624	185	1757	1360	406
Grp Volume(v), veh/h	203	0	325	80	0	127	166	0	420	20	0	648
Grp Sat Flow(s),veh/h/ln	1757	0	1560	1757	0	1729	1757	0	1809	1757	0	1766
Q Serve(g_s), s	11.3	0.0	19.9	4.5	0.0	6.6	8.9	0.0	19.1	1.1	0.0	35.7
Cycle Q Clear(g_c), s	11.3	0.0	19.9	4.5	0.0	6.6	8.9	0.0	19.1	1.1	0.0	35.7
Prop In Lane	1.00		0.91	1.00		0.31	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	234	0	381	95	0	285	258	0	664	240	0	631
V/C Ratio(X)	0.87	0.00	0.85	0.84	0.00	0.44	0.64	0.00	0.63	0.08	0.00	1.03
Avail Cap(c_a), veh/h	323	0	479	95	0	325	258	0	664	240	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	42.5	0.0	36.1	46.9	0.0	37.6	40.2	0.0	26.1	41.7	0.0	44.1
Incr Delay (d2), s/veh	13.1	0.0	15.6	44.5	0.0	0.4	4.2	0.0	4.5	0.0	0.0	18.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	10.2	3.4	0.0	3.2	4.6	0.0	10.4	0.5	0.0	20.7
LnGrp Delay(d),s/veh	55.5	0.0	51.6	91.4	0.0	38.0	44.5	0.0	30.6	41.7	0.0	62.9
LnGrp LOS	E		D	F		D	D		C	D		F
Approach Vol, veh/h		528			207			586			668	
Approach Delay, s/veh		53.1			58.7			34.5			62.3	
Approach LOS		D			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	42.0	10.0	29.7	19.3	41.0	17.9	21.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	21.1	6.5	21.9	10.9	37.7	13.3	8.6
Green Ext Time (p_c), s	0.0	2.7	0.0	2.5	0.0	0.0	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	51.3
HCM 2010 LOS	D

Notes



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	256	236	229	260	2018	385	1330
v/c Ratio	0.19	0.46	1.00	0.44	0.86	1.27	1.65	0.95
Control Delay	34.4	19.5	102.1	32.8	74.9	153.4	345.3	47.8
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.6	0.0	0.0
Total Delay	34.4	19.5	102.1	32.8	75.0	154.0	345.3	47.8
Queue Length 50th (ft)	29	76	183	124	194	~985	~432	518
Queue Length 95th (ft)	63	156	#352	201	#319	#1126	#627	#689
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	258	561	236	521	334	1590	233	1404
Starvation Cap Reductn	0	0	0	0	1	267	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.46	1.00	0.44	0.78	1.53	1.65	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	544	491	1696	210	1251
v/c Ratio	1.12	1.00	1.02	1.17	0.58
Control Delay	115.6	73.4	48.6	165.5	14.0
Queue Delay	0.0	46.1	35.1	0.0	10.7
Total Delay	115.6	119.6	83.6	165.5	24.7
Queue Length 50th (ft)	~467	318	~688	~177	257
Queue Length 95th (ft)	#688	#555	m#744	#326	319
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	493	1670	179	2157
Starvation Cap Reductn	0	0	832	0	889
Spillback Cap Reductn	0	316	0	0	450
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.12	2.77	2.02	1.17	0.99

Intersection Summary

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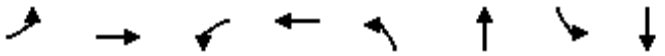
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	97	50	549	54	1135	312	1334
v/c Ratio	1.25	0.16	0.12	0.73	0.45	0.97	0.87	0.79
Control Delay	214.1	14.8	24.7	17.5	60.8	58.6	55.1	22.1
Queue Delay	10.6	0.0	0.0	25.5	0.0	44.6	53.7	1.7
Total Delay	224.7	14.8	24.7	43.0	60.8	103.3	108.8	23.8
Queue Length 50th (ft)	~83	26	23	120	37	~467	220	466
Queue Length 95th (ft)	#193	62	51	254	78	#603	m#332	m546
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	87	652	454	784	141	1165	358	1678
Starvation Cap Reductn	0	0	0	0	0	0	115	187
Spillback Cap Reductn	27	0	0	247	0	629	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.67	0.15	0.11	1.02	0.38	2.12	1.28	0.89

Intersection Summary

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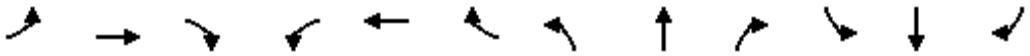

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	180	77	87	185	55	130	353	46	50	600	459
v/c Ratio	0.63	0.34	0.22	0.56	0.40	0.17	0.64	0.20	0.06	0.42	0.40	0.51
Control Delay	49.7	37.9	1.4	58.1	40.5	1.1	55.6	14.5	0.2	55.2	20.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	37.9	1.4	58.1	40.5	1.1	55.6	14.5	0.2	55.2	20.9	4.2
Queue Length 50th (ft)	68	52	0	52	55	0	78	63	0	30	132	0
Queue Length 95th (ft)	110	84	0	#116	89	0	140	98	2	70	197	62
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	391	1382	694	160	1299	660	255	1767	821	126	1487	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	0.11	0.54	0.14	0.08	0.51	0.20	0.06	0.40	0.40	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
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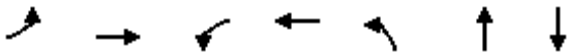

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	387	372	477	432	187	23
v/c Ratio	0.07	0.98	1.38	0.71	1.10	0.21	0.06
Control Delay	48.2	69.7	228.1	35.6	113.1	2.7	16.9
Queue Delay	0.0	50.8	0.2	0.0	0.0	0.0	0.1
Total Delay	48.2	120.6	228.3	35.6	113.1	2.7	17.0
Queue Length 50th (ft)	3	172	~316	249	~328	16	3
Queue Length 95th (ft)	15	#365	#495	#479	#515	23	23
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	394	269	669	392	873	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	255	4	0	0	0	161
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	2.78	1.40	0.71	1.10	0.21	0.09

Intersection Summary

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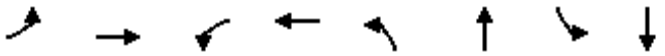

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	325	80	127	166	420	20	648
v/c Ratio	0.81	0.62	0.85	0.63	1.13	0.41	0.22	0.76
Control Delay	64.4	10.9	107.6	49.3	156.4	17.2	45.1	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.9
Total Delay	64.4	10.9	107.6	49.3	156.4	17.2	45.1	101.5
Queue Length 50th (ft)	126	16	52	66	~123	126	9	432
Queue Length 95th (ft)	198	86	#138	120	#254	301	m7	m371
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	675	94	341	147	1018	129	854
Starvation Cap Reductn	0	0	0	0	0	0	0	294
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.48	0.85	0.37	1.13	0.41	0.16	1.16

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	11.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	470	811	408	351	73	45
Future Vol, veh/h	470	811	408	351	73	45
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	511	882	443	382	79	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1402	0	2240	972
Stage 1	-	-	-	-	962	-
Stage 2	-	-	-	-	1278	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	484	-	~ 46	305
Stage 1	-	-	-	-	369	-
Stage 2	-	-	-	-	260	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	479	-	0	299
Mov Cap-2 Maneuver	-	-	-	-	0	-
Stage 1	-	-	-	-	365	-
Stage 2	-	-	-	-	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0	29.1	25.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	299	-	-	479	-
HCM Lane V/C Ratio	0.429	-	-	0.926	-
HCM Control Delay (s)	25.8	-	-	54.2	0
HCM Lane LOS	D	-	-	F	A
HCM 95th %tile Q(veh)	2.1	-	-	10.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.6

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	43	374	432	200	83	29
Future Vol, veh/h	43	374	432	200	83	29
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	47	407	470	217	90	32

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	697	0	-	0	895	363
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	888	-	-	-	278	631
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	717	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	880	-	-	-	254	619
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	661	-

Approach	NB	SB	NE
HCM Control Delay, s	1.2	0	22.7
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	254	619	880	-	-	-
HCM Lane V/C Ratio	0.355	0.051	0.053	-	-	-
HCM Control Delay (s)	26.8	11.1	9.3	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.5	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	382	10	24	439	25	35
Future Vol, veh/h	382	10	24	439	25	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	415	11	26	477	27	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	436	0	732	233
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	301	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1113	-	354	766
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	722	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1102	-	336	751
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	692	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1102	-	496
HCM Lane V/C Ratio	-	-	0.024	-	0.131
HCM Control Delay (s)	-	-	8.3	0.1	13.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.5

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	493	431	3	15	16
Future Vol, veh/h	23	493	431	3	15	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	25	536	468	3	16	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	482	0	-	0	1076	490
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	596	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1075	-	-	-	242	576
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	548	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1065	-	-	-	230	565
Mov Cap-2 Maneuver	-	-	-	-	230	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	525	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1065	-	-	-	331
HCM Lane V/C Ratio	0.023	-	-	-	0.102
HCM Control Delay (s)	8.5	0	-	-	17.1
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	149	85	34	186	22	11
Future Vol, veh/h	149	85	34	186	22	11
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	162	92	37	202	24	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	264	0	504	228
Stage 1	-	-	-	-	218	-
Stage 2	-	-	-	-	286	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1283	-	526	809
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	760	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1271	-	499	794
Mov Cap-2 Maneuver	-	-	-	-	499	-
Stage 1	-	-	-	-	808	-
Stage 2	-	-	-	-	728	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	570	-	-	1271	-
HCM Lane V/C Ratio	0.063	-	-	0.029	-
HCM Control Delay (s)	11.7	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	12.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	131	383	286	100	104	148
Future Vol, veh/h	131	383	286	100	104	148
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	142	416	311	109	113	161

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	430	0	-	0	1086	385
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	711	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1124	-	-	-	238	660
Stage 1	-	-	-	-	693	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1113	-	-	-	195	647
Mov Cap-2 Maneuver	-	-	-	-	195	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	401	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	51.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1113	-	-	-	331
HCM Lane V/C Ratio	0.128	-	-	-	0.828
HCM Control Delay (s)	8.7	0	-	-	51.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	7.2

Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	193	142	228	293	8
Future Vol, veh/h	29	193	142	228	293	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	210	154	248	318	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	412	0	-	0	571	298
Stage 1	-	-	-	-	288	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1142	-	-	-	481	739
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1131	-	-	-	457	725
Mov Cap-2 Maneuver	-	-	-	-	457	-
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	732	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	29.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1131	-	-	-	462
HCM Lane V/C Ratio	0.028	-	-	-	0.708
HCM Control Delay (s)	8.3	0	-	-	29.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	5.5

Intersection	
Int Delay, s/veh	21.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	248	0	0	471	309	3
Future Vol, veh/h	248	0	0	471	309	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	0	0	512	336	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	792	280
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	522	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	357	756
Stage 1	-	0	0	-	773	-
Stage 2	-	0	0	-	593	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	354	749
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	69.9
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	354	749	-	-
HCM Lane V/C Ratio	0.949	0.004	-	-
HCM Control Delay (s)	70.5	9.8	-	-
HCM Lane LOS	F	A	-	-
HCM 95th %tile Q(veh)	10.1	0	-	-

Intersection	
Intersection Delay, s/veh	29.7
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	205	277	0	256	191	0	239	369
Future Vol, veh/h	0	205	277	0	256	191	0	239	369
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	223	301	0	278	208	0	260	401
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	20.5	46.8	24.4
HCM LOS	C	E	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	57%	0%	0%
Vol Right, %	0%	0%	43%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	277	447	239	369
LT Vol	205	0	0	239	0
Through Vol	0	277	256	0	0
RT Vol	0	0	191	0	369
Lane Flow Rate	223	301	486	260	401
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.497	0.628	0.913	0.571	0.745
Departure Headway (Hd)	8.026	7.511	6.762	8.019	6.788
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	452	485	534	452	537
Service Time	5.726	5.211	4.849	5.719	4.488
HCM Lane V/C Ratio	0.493	0.621	0.91	0.575	0.747
HCM Control Delay	18.4	22.1	46.8	20.9	26.7
HCM Lane LOS	C	C	E	C	D
HCM 95th-tile Q	2.7	4.3	10.9	3.5	6.4

Intersection	
Int Delay, s/veh	2.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	234	31	28	205	82	24
Future Vol, veh/h	234	31	28	205	82	24
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	254	34	30	223	89	26

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	288	0	555	271
Stage 1	-	-	-	-	271	-
Stage 2	-	-	-	-	284	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1268	-	491	765
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	762	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	478	765
Mov Cap-2 Maneuver	-	-	-	-	478	-
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	741	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	13.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	478	765	-	-	1268	-
HCM Lane V/C Ratio	0.186	0.034	-	-	0.024	-
HCM Control Delay (s)	14.3	9.9	-	-	7.9	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	14	0	0	0	0	106	0	0	57	2
Future Vol, veh/h	0	0	14	0	0	0	0	106	0	0	57	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	15	0	0	0	0	115	0	0	62	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	32	-	-	58	-	0	0	115	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1031	0	0	993	0	-	-	1464	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1031	-	-	993	-	-	-	1464	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1031	-	1464	-	-
HCM Lane V/C Ratio	-	-	0.015	-	-	-	-
HCM Control Delay (s)	-	-	8.5	0	0	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	14	0	106	69	2
Future Vol, veh/h	0	14	0	106	69	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	15	0	115	75	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	39	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1021	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1021	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1021	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	8.6	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	10	7	89	17	65	1
Future Vol, veh/h	0	10	7	89	17	65	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	11	8	97	18	71	1

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	36	72	0	70	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1025	1519	-	1286	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1025	1519	-	1286	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.5	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1519	-	1025	1286	-	-
HCM Lane V/C Ratio	0.005	-	0.011	0.014	-	-
HCM Control Delay (s)	7.4	-	8.6	7.8	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	4	2	96	74	1
Future Vol, veh/h	0	4	2	96	74	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	2	104	80	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	40	80	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1019	1509	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1019	1509	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1509	-	1019	-	-
HCM Lane V/C Ratio	0.001	-	0.004	-	-
HCM Control Delay (s)	7.4	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	6	0	0	0	3	98	0	0	77	1
Future Vol, veh/h	0	0	6	0	0	0	3	98	0	0	77	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	7	0	0	0	3	107	0	0	84	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	42	-	-	53	85	0	0	107	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1016	0	0	1000	1502	-	-	1474	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1016	-	-	1000	1502	-	-	1474	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	0	0.2	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1502	-	-	1016	-	1474	-	-
HCM Lane V/C Ratio	0.002	-	-	0.006	-	-	-	-
HCM Control Delay (s)	7.4	-	-	8.6	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	28	508	434	73	35	48
Future Vol, veh/h	28	508	434	73	35	48
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	30	552	472	79	38	52

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	551	0	-	0	1124	511
Stage 1	-	-	-	-	511	-
Stage 2	-	-	-	-	613	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1014	-	-	-	226	561
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	539	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1014	-	-	-	219	561
Mov Cap-2 Maneuver	-	-	-	-	219	-
Stage 1	-	-	-	-	600	-
Stage 2	-	-	-	-	523	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	17.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1014	-	-	-	219	561
HCM Lane V/C Ratio	0.03	-	-	-	0.174	0.093
HCM Control Delay (s)	8.7	-	-	-	24.9	12.1
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6	0.3

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	0	33	76	0
Future Vol, veh/h	0	0	0	33	76	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	36	83	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	119	83	83	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	874	974	1508	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	874	974	1508	-	-	-
Mov Cap-2 Maneuver	874	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	984	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1508	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	251	184	199	242	104	182	275	219	133	228	27
Future Volume (veh/h)	23	251	184	199	242	104	182	275	219	133	228	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	25	273	200	216	263	113	198	299	238	145	248	29
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	668	563	265	776	655	229	875	379	174	689	80
Arrive On Green	0.03	0.36	0.36	0.08	0.43	0.43	0.13	0.25	0.25	0.10	0.22	0.22
Sat Flow, veh/h	1757	1845	1555	3343	1810	1527	1757	3505	1520	1757	3158	365
Grp Volume(v), veh/h	25	273	200	216	263	113	198	299	238	145	136	141
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1527	1757	1752	1520	1757	1752	1770
Q Serve(g_s), s	1.5	11.8	6.4	6.7	10.3	4.8	11.7	7.4	11.0	8.6	7.0	7.2
Cycle Q Clear(g_c), s	1.5	11.8	6.4	6.7	10.3	4.8	11.7	7.4	11.0	8.6	7.0	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	52	668	563	265	776	655	229	875	379	174	383	387
V/C Ratio(X)	0.48	0.41	0.36	0.82	0.34	0.17	0.86	0.34	0.63	0.83	0.36	0.36
Avail Cap(c_a), veh/h	113	668	563	265	776	655	344	1279	554	245	540	546
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.7	25.3	10.3	48.1	20.3	18.7	45.2	32.7	19.5	46.9	35.1	35.2
Incr Delay (d2), s/veh	2.6	1.9	1.8	16.6	0.9	0.5	9.5	0.6	4.4	11.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.3	3.9	3.7	5.3	2.1	6.3	3.7	5.6	4.7	3.5	3.7
LnGrp Delay(d),s/veh	53.3	27.2	12.1	64.7	21.2	19.2	54.7	33.3	23.9	58.1	36.6	36.7
LnGrp LOS	D	C	B	E	C	B	D	C	C	E	D	D
Approach Vol, veh/h		498			592			735			422	
Approach Delay, s/veh		22.4			36.7			36.0			44.0	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	44.4	18.0	28.5	7.3	52.3	14.7	31.8
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	8.7	13.8	13.7	9.2	3.5	12.3	10.6	13.0
Green Ext Time (p_c), s	0.0	5.8	0.1	9.1	0.0	5.0	0.1	9.5

Intersection Summary	
HCM 2010 Ctrl Delay	34.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	109	291	210	140	127	127	1174	751	206	722	150
Future Volume (veh/h)	74	109	291	210	140	127	127	1174	751	206	722	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	80	118	316	228	152	138	138	1276	816	224	785	163
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	315	161	431	190	324	294	229	924	530	166	1085	225
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.86	0.86	0.10	0.38	0.38
Sat Flow, veh/h	1070	442	1183	938	888	806	1757	2138	1226	1723	2829	587
Grp Volume(v), veh/h	80	0	434	228	0	290	138	1019	1073	224	477	471
Grp Sat Flow(s),veh/h/ln	1070	0	1624	938	0	1694	1757	1752	1611	1723	1719	1697
Q Serve(g_s), s	6.8	0.0	25.5	14.6	0.0	14.4	7.6	47.6	47.6	10.6	26.0	26.0
Cycle Q Clear(g_c), s	21.2	0.0	25.5	40.1	0.0	14.4	7.6	47.6	47.6	10.6	26.0	26.0
Prop In Lane	1.00		0.73	1.00		0.48	1.00		0.76	1.00		0.35
Lane Grp Cap(c), veh/h	315	0	592	190	0	618	229	758	697	166	659	651
V/C Ratio(X)	0.25	0.00	0.73	1.20	0.00	0.47	0.60	1.35	1.54	1.35	0.72	0.72
Avail Cap(c_a), veh/h	315	0	592	190	0	618	229	758	697	166	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.86	0.86	0.86
Uniform Delay (d), s/veh	34.9	0.0	30.3	50.2	0.0	26.8	38.1	7.4	7.4	49.7	28.9	28.9
Incr Delay (d2), s/veh	0.4	0.0	4.7	129.2	0.0	0.6	0.3	156.2	243.6	187.1	5.8	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	12.2	12.6	0.0	6.9	3.7	53.1	65.7	13.7	13.4	13.2
LnGrp Delay(d),s/veh	35.4	0.0	35.0	179.4	0.0	27.4	38.4	163.6	251.1	236.8	34.8	34.8
LnGrp LOS	D		C	F		C	D	F	F	F	C	C
Approach Vol, veh/h		514			518			2230			1172	
Approach Delay, s/veh		35.0			94.3			197.9			73.4	
Approach LOS		D			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	52.9		45.0	19.7	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	12.6	49.6		27.5	9.6	28.0		42.1
Green Ext Time (p_c), s	0.0	0.0		4.9	2.9	7.3		0.0

Intersection Summary		
HCM 2010 Ctrl Delay	134.0	
HCM 2010 LOS	F	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	799	1	608	0	0	0	0	1253	147	219	1004	0
Future Volume (veh/h)	799	1	608	0	0	0	0	1253	147	219	1004	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	765	145	661				0	1362	160	238	1091	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	700	115	523				0	1122	131	519	2449	0
Arrive On Green	0.40	0.40	0.40				0.00	0.71	0.71	0.59	1.00	0.00
Sat Flow, veh/h	1757	288	1313				0	3250	368	1757	3597	0
Grp Volume(v), veh/h	765	0	806				0	752	770	238	1091	0
Grp Sat Flow(s),veh/h/ln	1757	0	1601				0	1752	1773	1757	1752	0
Q Serve(g_s), s	43.8	0.0	43.8				0.0	39.1	39.1	8.4	0.0	0.0
Cycle Q Clear(g_c), s	43.8	0.0	43.8				0.0	39.1	39.1	8.4	0.0	0.0
Prop In Lane	1.00		0.82				0.00		0.21	1.00		0.00
Lane Grp Cap(c), veh/h	700	0	638				0	623	630	519	2449	0
V/C Ratio(X)	1.09	0.00	1.26				0.00	1.21	1.22	0.46	0.45	0.00
Avail Cap(c_a), veh/h	700	0	638				0	623	630	519	2449	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.47	0.47	0.00
Uniform Delay (d), s/veh	33.1	0.0	33.1				0.0	15.9	15.9	17.6	0.0	0.0
Incr Delay (d2), s/veh	62.4	0.0	131.1				0.0	97.4	103.9	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	33.3	0.0	42.5				0.0	34.8	36.4	4.0	0.1	0.0
LnGrp Delay(d),s/veh	95.5	0.0	164.2				0.0	113.3	119.8	17.7	0.3	0.0
LnGrp LOS	F		F					F	F	B	A	
Approach Vol, veh/h		1571						1522			1329	
Approach Delay, s/veh		130.8						116.6			3.4	
Approach LOS		F						F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	37.9	44.4		48.4		82.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	10.4	41.1		45.8		2.0		
Green Ext Time (p_c), s	1.7	0.0		0.0		18.2		

Intersection Summary	
HCM 2010 Ctrl Delay	87.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	166	109	144	57	82	264	77	942	43	332	1113	147
Future Volume (veh/h)	166	109	144	57	82	264	77	942	43	332	1113	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	180	118	157	62	89	287	84	1024	47	361	1210	160
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	250	332	305	133	430	152	983	45	404	1343	177
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.46	0.86	0.86
Sat Flow, veh/h	989	715	952	1084	382	1232	1757	3410	156	1757	3110	410
Grp Volume(v), veh/h	180	0	275	62	0	376	84	526	545	361	680	690
Grp Sat Flow(s),veh/h/ln	989	0	1667	1084	0	1615	1757	1752	1814	1757	1752	1767
Q Serve(g_s), s	16.7	0.0	14.1	5.2	0.0	21.7	5.0	31.7	31.7	20.7	26.0	26.8
Cycle Q Clear(g_c), s	38.4	0.0	14.1	19.3	0.0	21.7	5.0	31.7	31.7	20.7	26.0	26.8
Prop In Lane	1.00		0.57	1.00		0.76	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	215	0	582	305	0	564	152	505	523	404	757	763
V/C Ratio(X)	0.84	0.00	0.47	0.20	0.00	0.67	0.55	1.04	1.04	0.89	0.90	0.90
Avail Cap(c_a), veh/h	215	0	582	305	0	564	168	505	523	420	757	763
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.76	0.76	0.76
Uniform Delay (d), s/veh	48.1	0.0	27.9	35.4	0.0	30.4	48.2	39.2	39.2	28.5	6.0	6.1
Incr Delay (d2), s/veh	24.3	0.0	0.7	0.4	0.0	3.2	1.2	51.4	50.8	15.8	12.5	13.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	6.6	1.6	0.0	10.2	2.5	22.5	23.2	11.6	13.6	14.3
LnGrp Delay(d),s/veh	72.4	0.0	28.6	35.8	0.0	33.6	49.4	90.6	89.9	44.3	18.6	19.1
LnGrp LOS	E		C	D		C	D	F	F	D	B	B
Approach Vol, veh/h		455			438			1155			1731	
Approach Delay, s/veh		45.9			33.9			87.3			24.2	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.0	37.0		44.0	13.2	52.8		44.0
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	22.7	33.7		40.4	7.0	28.8		23.7
Green Ext Time (p_c), s	0.3	0.0		0.0	0.3	14.6		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	112	183	37	146	38	196	410	69	24	321	206
Future Volume (veh/h)	240	112	183	37	146	38	196	410	69	24	321	206
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	261	122	199	40	159	41	213	446	75	26	349	224
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	349	716	316	92	503	221	245	1798	800	54	1327	586
Arrive On Green	0.10	0.21	0.21	0.05	0.15	0.15	0.14	0.51	0.51	0.03	0.38	0.38
Sat Flow, veh/h	3343	3438	1516	1723	3438	1507	1757	3505	1559	1757	3505	1547
Grp Volume(v), veh/h	261	122	199	40	159	41	213	446	75	26	349	224
Grp Sat Flow(s),veh/h/ln	1672	1719	1516	1723	1719	1507	1757	1752	1559	1757	1752	1547
Q Serve(g_s), s	7.7	2.9	8.3	2.3	4.2	2.1	12.0	7.2	2.5	1.5	7.0	10.6
Cycle Q Clear(g_c), s	7.7	2.9	8.3	2.3	4.2	2.1	12.0	7.2	2.5	1.5	7.0	10.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	349	716	316	92	503	221	245	1798	800	54	1327	586
V/C Ratio(X)	0.75	0.17	0.63	0.43	0.32	0.19	0.87	0.25	0.09	0.48	0.26	0.38
Avail Cap(c_a), veh/h	406	1291	569	141	1155	506	259	1798	800	109	1327	586
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.0	32.9	17.0	46.4	38.7	27.6	42.6	13.7	12.6	48.2	21.7	22.8
Incr Delay (d2), s/veh	5.0	0.3	5.3	1.2	0.9	1.1	23.4	0.3	0.2	2.5	0.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.4	4.8	1.1	2.1	1.0	7.4	3.6	1.1	0.8	3.4	4.8
LnGrp Delay(d),s/veh	49.1	33.2	22.4	47.6	39.6	28.7	66.1	14.1	12.8	50.7	22.2	24.7
LnGrp LOS	D	C	C	D	D	C	E	B	B	D	C	C
Approach Vol, veh/h		582			240			734			599	
Approach Delay, s/veh		36.6			39.1			29.0			24.4	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	57.9	9.6	26.4	20.1	45.1	15.8	20.1
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.3	47.7	* 8.3	38.0	14.9	* 38	12.3	* 34
Max Q Clear Time (g_c+I1), s	3.5	9.2	4.3	10.3	14.0	12.6	9.7	6.2
Green Ext Time (p_c), s	0.0	8.0	0.0	3.5	0.2	7.5	0.9	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	127	225	224	332	3	469	11	223	3	13	9
Future Volume (veh/h)	7	127	225	224	332	3	469	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	8	138	245	243	361	3	510	12	242	3	14	10
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	11	122	216	253	643	5	358	54	1088	99	437	292
Arrive On Green	0.01	0.21	0.21	0.14	0.35	0.35	0.20	0.73	0.73	0.48	0.48	0.48
Sat Flow, veh/h	1757	587	1043	1757	1827	15	1757	74	1495	123	914	610
Grp Volume(v), veh/h	8	0	383	243	0	364	510	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1630	1757	0	1842	1757	0	1569	1647	0	0
Q Serve(g_s), s	0.5	0.0	20.7	13.7	0.0	16.0	20.4	0.0	5.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.7	13.7	0.0	16.0	20.4	0.0	5.3	0.8	0.0	0.0
Prop In Lane	1.00		0.64	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	11	0	337	253	0	648	358	0	1142	827	0	0
V/C Ratio(X)	0.76	0.00	1.13	0.96	0.00	0.56	1.42	0.00	0.22	0.03	0.00	0.00
Avail Cap(c_a), veh/h	95	0	337	253	0	648	358	0	1142	827	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.00	0.50	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	39.7	42.5	0.0	26.2	39.8	0.0	4.4	13.8	0.0	0.0
Incr Delay (d2), s/veh	33.4	0.0	90.7	45.3	0.0	1.2	198.5	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	17.8	9.9	0.0	8.3	29.6	0.0	2.3	0.4	0.0	0.0
LnGrp Delay(d),s/veh	83.1	0.0	130.4	87.8	0.0	27.4	238.3	0.0	4.6	13.9	0.0	0.0
LnGrp LOS	F		F	F		C	F		A	B		
Approach Vol, veh/h		391			607			764			27	
Approach Delay, s/veh		129.4			51.6			160.6			13.9	
Approach LOS		F			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		78.8	19.7	26.0	25.0	53.8	5.2	40.5
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		7.3	15.7	22.7	22.4	2.8	2.5	18.0
Green Ext Time (p_c), s		2.4	0.0	0.0	0.0	2.0	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	114.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	110	400	56	113	52	308	482	105	31	355	77
Future Volume (veh/h)	169	110	400	56	113	52	308	482	105	31	355	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	120	435	61	123	57	335	524	114	34	386	84
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	120	436	78	319	148	164	493	107	129	464	101
Arrive On Green	0.12	0.35	0.35	0.04	0.27	0.27	0.09	0.34	0.34	0.02	0.10	0.10
Sat Flow, veh/h	1757	346	1255	1757	1186	550	1757	1464	319	1757	1464	319
Grp Volume(v), veh/h	184	0	555	61	0	180	335	0	638	34	0	470
Grp Sat Flow(s),veh/h/ln	1757	0	1602	1757	0	1735	1757	0	1783	1757	0	1782
Q Serve(g_s), s	10.3	0.0	34.6	3.4	0.0	8.5	9.4	0.0	33.7	1.9	0.0	25.9
Cycle Q Clear(g_c), s	10.3	0.0	34.6	3.4	0.0	8.5	9.4	0.0	33.7	1.9	0.0	25.9
Prop In Lane	1.00		0.78	1.00		0.32	1.00		0.18	1.00		0.18
Lane Grp Cap(c), veh/h	215	0	556	78	0	467	164	0	601	129	0	565
V/C Ratio(X)	0.86	0.00	1.00	0.78	0.00	0.39	2.04	0.00	1.06	0.26	0.00	0.83
Avail Cap(c_a), veh/h	394	0	556	95	0	467	164	0	601	129	0	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.37	0.00	0.37
Uniform Delay (d), s/veh	43.0	0.0	32.6	47.3	0.0	29.8	45.3	0.0	33.2	46.1	0.0	42.2
Incr Delay (d2), s/veh	3.8	0.0	37.8	23.0	0.0	0.2	487.2	0.0	54.2	0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	21.1	2.2	0.0	4.1	26.8	0.0	25.6	0.9	0.0	13.6
LnGrp Delay(d),s/veh	46.8	0.0	70.5	70.3	0.0	30.0	532.5	0.0	87.4	46.3	0.0	47.5
LnGrp LOS	D		E	E		C	F		F	D		D
Approach Vol, veh/h		739			241			973			504	
Approach Delay, s/veh		64.6			40.2			240.7			47.4	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	39.0	9.0	40.0	14.0	37.0	16.8	32.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.9	35.7	5.4	36.6	11.4	27.9	12.3	10.5
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	1.3	0.0	4.2

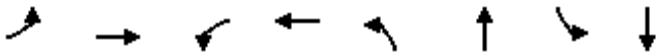
Intersection Summary	
HCM 2010 Ctrl Delay	128.4
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	273	200	216	263	113	198	299	238	145	277
v/c Ratio	0.23	0.38	0.28	0.76	0.31	0.15	0.75	0.42	0.48	0.69	0.46
Control Delay	53.5	26.0	4.9	64.3	21.7	3.5	59.8	35.8	7.5	60.8	37.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.5	26.0	4.9	64.3	21.7	3.5	59.8	35.8	7.5	60.8	37.9
Queue Length 50th (ft)	15	117	0	68	87	0	117	87	0	86	80
Queue Length 95th (ft)	48	249	53	#162	239	28	226	127	57	#193	125
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	120	719	720	284	850	778	370	1377	736	263	1147
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.38	0.28	0.76	0.31	0.15	0.54	0.22	0.32	0.55	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	434	228	290	138	2092	224	948
v/c Ratio	0.26	0.64	1.18	0.45	0.63	1.46	1.36	0.73
Control Delay	27.5	24.3	153.6	24.6	33.0	227.5	233.9	32.4
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.3	0.0	50.8
Total Delay	27.5	24.4	153.6	24.6	33.0	227.8	233.9	83.2
Queue Length 50th (ft)	39	172	~193	128	89	~1027	~208	290
Queue Length 95th (ft)	80	284	#347	206	m72	m#733	#363	368
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	306	678	194	648	219	1432	165	1291
Starvation Cap Reductn	0	0	0	0	0	119	0	0
Spillback Cap Reductn	0	22	0	0	0	0	0	548
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.66	1.18	0.45	0.63	1.59	1.36	1.28

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	781	749	1522	238	1091
v/c Ratio	1.19	1.19	1.24	1.11	0.61
Control Delay	131.2	131.9	132.8	130.7	26.5
Queue Delay	0.6	3.8	3.5	0.0	50.0
Total Delay	131.8	135.7	136.3	130.7	76.5
Queue Length 50th (ft)	~701	~649	~726	~196	411
Queue Length 95th (ft)	#947	#897	m#858	m#302	m470
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	627	1228	215	1793
Starvation Cap Reductn	0	0	133	0	822
Spillback Cap Reductn	56	231	587	0	648
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.30	1.89	2.37	1.11	1.12

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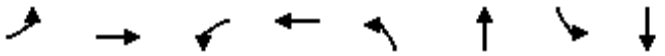

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	180	275	62	376	84	1071	361	1370
v/c Ratio	1.03	0.49	0.26	0.63	0.57	0.90	0.92	0.80
Control Delay	114.4	25.1	30.3	22.7	63.0	48.0	61.9	17.3
Queue Delay	56.8	0.0	0.0	13.2	0.0	46.6	54.9	2.5
Total Delay	171.2	25.1	30.3	35.8	63.0	94.7	116.8	19.8
Queue Length 50th (ft)	120	110	31	122	57	~441	274	542
Queue Length 95th (ft)	#260	187	67	220	109	#575	m318	m394
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	196	625	267	652	167	1185	418	1714
Starvation Cap Reductn	0	0	0	0	0	0	169	222
Spillback Cap Reductn	87	0	0	253	0	234	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.65	0.44	0.23	0.94	0.50	1.13	1.45	0.92

Intersection Summary

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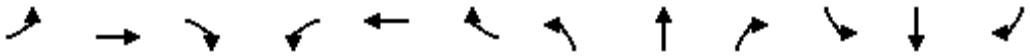
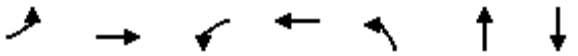


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	261	122	199	40	159	41	213	446	75	26	349	224
v/c Ratio	0.68	0.17	0.42	0.28	0.37	0.12	0.79	0.23	0.08	0.24	0.25	0.31
Control Delay	50.9	34.0	8.3	48.3	41.8	0.7	62.5	12.6	0.2	49.9	20.8	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	34.0	8.3	48.3	41.8	0.7	62.5	12.6	0.2	49.9	20.8	4.1
Queue Length 50th (ft)	80	35	0	24	48	0	130	63	0	16	76	0
Queue Length 95th (ft)	125	61	60	58	80	0	#257	121	0	44	114	47
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	422	1346	710	147	1204	640	269	1955	919	113	1383	732
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.09	0.28	0.27	0.13	0.06	0.79	0.23	0.08	0.23	0.25	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	8	383	243	364	510	254	27
v/c Ratio	0.11	0.96	0.96	0.52	1.43	0.29	0.06
Control Delay	49.1	68.4	92.5	28.4	238.5	6.5	21.5
Queue Delay	0.0	6.5	38.4	0.0	0.0	0.0	0.1
Total Delay	49.1	75.0	130.9	28.4	238.5	6.5	21.6
Queue Length 50th (ft)	5	197	156	171	~460	26	8
Queue Length 95th (ft)	20	#383	#308	303	m#632	m46	30
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	399	252	695	357	885	418
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	13	30	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.99	1.09	0.52	1.43	0.29	0.09

Intersection Summary

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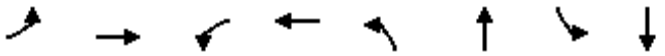
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	555	61	180	335	638	34	470
v/c Ratio	0.75	0.89	0.69	0.46	2.28	0.81	0.36	0.70
Control Delay	59.9	37.5	83.5	33.4	620.1	38.3	65.9	47.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8
Total Delay	59.9	37.5	83.5	33.4	620.1	38.3	65.9	49.3
Queue Length 50th (ft)	114	213	39	81	~349	~440	20	316
Queue Length 95th (ft)	176	#405	#102	155	#521	#658	m22	m333
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	676	94	419	147	786	112	671
Starvation Cap Reductn	0	0	0	0	0	0	0	88
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.82	0.65	0.43	2.28	0.81	0.30	0.81

Intersection Summary

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Intersection	
Int Delay, s/veh	364.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	642	424	262	265	213	38
Future Vol, veh/h	642	424	262	265	213	38
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	698	461	285	288	232	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1169	0	1806	948
Stage 1	-	-	-	-	938	-
Stage 2	-	-	-	-	868	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	594	-	~ 86	315
Stage 1	-	-	-	-	379	-
Stage 2	-	-	-	-	409	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	588	-	~ 36	309
Mov Cap-2 Maneuver	-	-	-	-	~ 36	-
Stage 1	-	-	-	-	375	-
Stage 2	-	-	-	-	~ 171	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.3	$ 2661.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	42	-	-	588	-
HCM Lane V/C Ratio	6.496	-	-	0.484	-
HCM Control Delay (s)	$ 2661.3	-	-	16.7	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	32	-	-	2.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4.9

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	33	482	445	76	122	46
Future Vol, veh/h	33	482	445	76	122	46
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	36	524	484	83	133	50

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	576	0	-	0	879	303
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	344	-
Critical Hdwy	4.16	-	-	-	7.56	6.96
Critical Hdwy Stg 1	-	-	-	-	6.56	-
Critical Hdwy Stg 2	-	-	-	-	6.56	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	987	-	-	-	240	690
Stage 1	-	-	-	-	494	-
Stage 2	-	-	-	-	642	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	978	-	-	-	226	677
Mov Cap-2 Maneuver	-	-	-	-	226	-
Stage 1	-	-	-	-	464	-
Stage 2	-	-	-	-	603	-

Approach	NB	SB	NE
HCM Control Delay, s	0.8	0	32.9
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	226	677	978	-	-	-
HCM Lane V/C Ratio	0.587	0.074	0.037	-	-	-
HCM Control Delay (s)	41.3	10.7	8.8	0.2	-	-
HCM Lane LOS	E	B	A	A	-	-
HCM 95th %tile Q(veh)	3.3	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	502	26	44	447	43	13
Future Vol, veh/h	502	26	44	447	43	13
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	546	28	48	486	47	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	584	0	919	307
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	349	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	980	-	269	686
Stage 1	-	-	-	-	526	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	971	-	246	673
Mov Cap-2 Maneuver	-	-	-	-	246	-
Stage 1	-	-	-	-	521	-
Stage 2	-	-	-	-	630	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1.1	20.8
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	971	-	288
HCM Lane V/C Ratio	-	-	0.049	-	0.211
HCM Control Delay (s)	-	-	8.9	0.3	20.8
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.2	-	0.8

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	27	394	529	17	16	8
Future Vol, veh/h	27	394	529	17	16	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	428	575	18	17	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	603	0	-	0	1091	604
Stage 1	-	-	-	-	594	-
Stage 2	-	-	-	-	497	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	970	-	-	-	237	496
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	961	-	-	-	223	487
Mov Cap-2 Maneuver	-	-	-	-	223	-
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	579	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	19.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	961	-	-	-	272
HCM Lane V/C Ratio	0.031	-	-	-	0.096
HCM Control Delay (s)	8.9	0	-	-	19.6
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	176	26	13	189	26	16
Future Vol, veh/h	176	26	13	189	26	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	191	28	14	205	28	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	230	0	459	225
Stage 1	-	-	-	-	215	-
Stage 2	-	-	-	-	244	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1320	-	558	812
Stage 1	-	-	-	-	818	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1307	-	541	797
Mov Cap-2 Maneuver	-	-	-	-	541	-
Stage 1	-	-	-	-	810	-
Stage 2	-	-	-	-	777	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	616	-	-	1307	-
HCM Lane V/C Ratio	0.074	-	-	0.011	-
HCM Control Delay (s)	11.3	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	330	420	106	42	116
Future Vol, veh/h	75	330	420	106	42	116
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	359	457	115	46	126

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	582	0	-	0	1056	534
Stage 1	-	-	-	-	524	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	987	-	-	-	248	544
Stage 1	-	-	-	-	592	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	978	-	-	-	218	534
Mov Cap-2 Maneuver	-	-	-	-	218	-
Stage 1	-	-	-	-	586	-
Stage 2	-	-	-	-	520	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	21.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	978	-	-	-	385
HCM Lane V/C Ratio	0.083	-	-	-	0.446
HCM Control Delay (s)	9	0	-	-	21.7
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.3	-	-	-	2.2

Intersection	
Int Delay, s/veh	91

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	167	196	301	512	18
Future Vol, veh/h	29	167	196	301	512	18
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	182	213	327	557	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	550	0	-	0	642	397
Stage 1	-	-	-	-	387	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1015	-	-	-	~ 437	650
Stage 1	-	-	-	-	684	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1005	-	-	-	~ 414	638
Mov Cap-2 Maneuver	-	-	-	-	~ 414	-
Stage 1	-	-	-	-	677	-
Stage 2	-	-	-	-	750	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	209.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1005	-	-	-	419
HCM Lane V/C Ratio	0.031	-	-	-	1.375
HCM Control Delay (s)	8.7	0	-	-	209.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	27.5

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	342	210	10
Future Vol, veh/h	353	0	0	342	210	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	372	228	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	766	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	369	653
Stage 1	-	0	0	-	686	-
Stage 2	-	0	0	-	688	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	365	647
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	29.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	365	647	-	-
HCM Lane V/C Ratio	0.625	0.017	-	-
HCM Control Delay (s)	30	10.7	-	-
HCM Lane LOS	D	B	-	-
HCM 95th %tile Q(veh)	4	0.1	-	-

Intersection	
Intersection Delay, s/veh	37.7
Intersection LOS	E

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	335	156	0	182	355	0	265	249
Future Vol, veh/h	0	335	156	0	182	355	0	265	249
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	364	170	0	198	386	0	288	271
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	26.9	64.1	20.3
HCM LOS	D	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	34%	0%	0%
Vol Right, %	0%	0%	66%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	335	156	537	265	249
LT Vol	335	0	0	265	0
Through Vol	0	156	182	0	0
RT Vol	0	0	355	0	249
Lane Flow Rate	364	170	584	288	271
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.781	0.34	1	0.64	0.511
Departure Headway (Hd)	7.721	7.221	6.544	7.999	6.8
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	470	499	555	452	530
Service Time	5.462	4.962	4.599	5.724	4.525
HCM Lane V/C Ratio	0.774	0.341	1.052	0.637	0.511
HCM Control Delay	33	13.7	64.1	23.9	16.4
HCM Lane LOS	D	B	F	C	C
HCM 95th-tile Q	6.9	1.5	14.3	4.4	2.9

Intersection	
Int Delay, s/veh	2.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	212	23	20	215	69	35
Future Vol, veh/h	212	23	20	215	69	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	230	25	22	234	75	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	255	0	520	243
Stage 1	-	-	-	-	243	-
Stage 2	-	-	-	-	277	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1304	-	515	793
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	767	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1304	-	505	793
Mov Cap-2 Maneuver	-	-	-	-	505	-
Stage 1	-	-	-	-	795	-
Stage 2	-	-	-	-	752	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	12.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	505	793	-	-	1304	-
HCM Lane V/C Ratio	0.149	0.048	-	-	0.017	-
HCM Control Delay (s)	13.4	9.8	-	-	7.8	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	0	0	104	0	0	36	7
Future Vol, veh/h	0	0	9	0	0	0	0	104	0	0	36	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	0	0	113	0	0	39	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	23	-	-	57	-	0	0	113	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1045	0	0	994	0	-	-	1467	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1045	-	-	994	-	-	-	1467	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1045	-	1467	-	-
HCM Lane V/C Ratio	-	-	0.009	-	-	-	-
HCM Control Delay (s)	-	-	8.5	0	0	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	0	104	38	7
Future Vol, veh/h	0	9	0	104	38	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	0	113	41	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	24	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1044	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1044	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1044	-	-
HCM Lane V/C Ratio	-	0.009	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	6	23	93	11	31	5
Future Vol, veh/h	0	6	23	93	11	31	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	7	25	101	12	34	5

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	20	39	0	74	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1050	1562	-	1279	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1050	1562	-	1279	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.5	1.8
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1562	-	1050	1279	-	-
HCM Lane V/C Ratio	0.016	-	0.006	0.009	-	-
HCM Control Delay (s)	7.3	-	8.5	7.8	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	5	4	116	35	2
Future Vol, veh/h	0	5	4	116	35	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	5	4	126	38	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	19	38	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1051	1563	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1051	1563	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.4	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	1051	-	-
HCM Lane V/C Ratio	0.003	-	0.005	-	-
HCM Control Delay (s)	7.3	-	8.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	0	5	120	0	0	38	2
Future Vol, veh/h	0	0	8	0	0	0	5	120	0	0	38	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	0	5	130	0	0	41	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	22	-	-	65	43	0	0	130	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1047	0	0	982	1557	-	-	1446	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1047	-	-	982	1557	-	-	1446	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	0	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1557	-	-	1047	-	1446	-	-
HCM Lane V/C Ratio	0.003	-	-	0.008	-	-	-	-
HCM Control Delay (s)	7.3	-	-	8.5	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	55	410	516	67	16	30
Future Vol, veh/h	55	410	516	67	16	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	60	446	561	73	17	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	634	0	-	0	1162	597
Stage 1	-	-	-	-	597	-
Stage 2	-	-	-	-	565	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	944	-	-	-	215	501
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	567	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	944	-	-	-	201	501
Mov Cap-2 Maneuver	-	-	-	-	201	-
Stage 1	-	-	-	-	548	-
Stage 2	-	-	-	-	531	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	944	-	-	-	201	501
HCM Lane V/C Ratio	0.063	-	-	-	0.087	0.065
HCM Control Delay (s)	9.1	-	-	-	24.6	12.7
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	0.2

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	0	42	28	0
Future Vol, veh/h	0	0	0	42	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	46	30	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	76	30	30	0	-	0
Stage 1	30	-	-	-	-	-
Stage 2	46	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	925	1042	1576	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	925	1042	1576	-	-	-
Mov Cap-2 Maneuver	925	-	-	-	-	-
Stage 1	990	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1576	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	290	236	167	305	279	144	399	216	165	379	59
Future Volume (veh/h)	87	290	236	167	305	279	144	399	216	165	379	59
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	95	315	257	182	332	303	157	434	235	179	412	64
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	119	633	533	245	630	531	187	1051	457	144	835	129
Arrive On Green	0.07	0.34	0.34	0.07	0.35	0.35	0.11	0.30	0.30	0.08	0.27	0.27
Sat Flow, veh/h	1757	1845	1554	3343	1810	1525	1757	3505	1523	1757	3036	468
Grp Volume(v), veh/h	95	315	257	182	332	303	157	434	235	179	236	240
Grp Sat Flow(s),veh/h/ln	1757	1845	1554	1672	1810	1525	1757	1752	1523	1757	1752	1752
Q Serve(g_s), s	5.4	13.7	13.2	5.4	14.9	16.4	8.9	10.0	13.0	8.3	11.5	11.6
Cycle Q Clear(g_c), s	5.4	13.7	13.2	5.4	14.9	16.4	8.9	10.0	13.0	8.3	11.5	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h	119	633	533	245	630	531	187	1051	457	144	482	482
V/C Ratio(X)	0.80	0.50	0.48	0.74	0.53	0.57	0.84	0.41	0.51	1.25	0.49	0.50
Avail Cap(c_a), veh/h	121	633	533	303	646	544	244	1313	570	144	556	556
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.6	26.4	26.2	46.1	26.4	26.9	44.4	28.4	29.4	46.6	30.8	30.9
Incr Delay (d2), s/veh	27.2	2.8	3.1	5.4	2.5	3.6	14.3	0.7	2.3	155.5	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	7.5	6.1	2.7	7.8	7.4	5.1	5.0	5.7	10.2	5.8	5.9
LnGrp Delay(d),s/veh	73.8	29.2	29.3	51.5	28.9	30.5	58.7	29.1	31.7	202.1	32.8	33.0
LnGrp LOS	E	C	C	D	C	C	E	C	C	F	C	C
Approach Vol, veh/h		667			817			826			655	
Approach Delay, s/veh		35.6			34.5			35.5			79.1	
Approach LOS		D			C			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	41.6	15.0	33.2	11.1	42.1	12.5	35.7
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	7.4	15.7	10.9	13.6	7.4	18.4	10.3	15.0
Green Ext Time (p_c), s	0.1	12.6	0.1	11.2	0.0	12.0	0.0	12.9

Intersection Summary	
HCM 2010 Ctrl Delay	44.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	60	178	225	123	88	239	987	897	354	950	275
Future Volume (veh/h)	45	60	178	225	123	88	239	987	897	354	950	275
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	49	65	193	245	134	96	260	1073	975	385	1033	299
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	265	119	353	233	291	208	287	852	665	234	1129	324
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.46	0.46	0.14	0.43	0.43
Sat Flow, veh/h	1128	407	1209	1100	996	714	1757	1865	1456	1723	2629	756
Grp Volume(v), veh/h	49	0	258	245	0	230	260	998	1050	385	673	659
Grp Sat Flow(s),veh/h/ln	1128	0	1616	1100	0	1710	1757	1752	1569	1723	1719	1666
Q Serve(g_s), s	4.5	0.0	16.1	18.9	0.0	13.2	17.4	54.8	54.8	16.3	44.0	44.8
Cycle Q Clear(g_c), s	17.7	0.0	16.1	35.0	0.0	13.2	17.4	54.8	54.8	16.3	44.0	44.8
Prop In Lane	1.00		0.75	1.00		0.42	1.00		0.93	1.00		0.45
Lane Grp Cap(c), veh/h	265	0	471	233	0	499	287	800	716	234	738	715
V/C Ratio(X)	0.19	0.00	0.55	1.05	0.00	0.46	0.91	1.25	1.47	1.64	0.91	0.92
Avail Cap(c_a), veh/h	265	0	471	233	0	499	335	800	716	234	738	715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.83	0.83	0.83
Uniform Delay (d), s/veh	42.0	0.0	35.8	53.0	0.0	34.8	49.3	32.6	32.6	51.8	32.1	32.3
Incr Delay (d2), s/veh	0.3	0.0	1.3	73.4	0.0	0.7	3.0	112.1	210.4	305.5	15.1	16.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	7.3	12.4	0.0	6.4	8.7	51.4	65.6	27.6	23.8	23.8
LnGrp Delay(d),s/veh	42.3	0.0	37.2	126.4	0.0	35.4	52.4	144.7	243.0	357.3	47.1	48.9
LnGrp LOS	D		D	F		D	D	F	F	F	D	D
Approach Vol, veh/h		307			475			2308			1717	
Approach Delay, s/veh		38.0			82.3			179.0			117.4	
Approach LOS		D			F			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	60.1		39.9	23.3	56.8		39.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	18.3	56.8		19.7	19.4	46.8		37.0
Green Ext Time (p_c), s	0.0	0.0		3.7	0.1	1.4		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		138.4
HCM 2010 LOS		F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	601	0	363	0	0	0	0	1522	54	193	1160	0
Future Volume (veh/h)	601	0	363	0	0	0	0	1522	54	193	1160	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	524	181	395				0	1654	59	210	1261	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	517	151	330				0	1653	59	839	3522	0
Arrive On Green	0.29	0.29	0.29				0.00	0.96	0.96	0.48	1.00	0.00
Sat Flow, veh/h	1757	513	1120				0	3543	123	1757	3597	0
Grp Volume(v), veh/h	524	0	576				0	837	876	210	1261	0
Grp Sat Flow(s),veh/h/ln	1757	0	1633				0	1752	1821	1757	1752	0
Q Serve(g_s), s	32.4	0.0	32.4				0.0	48.9	52.7	7.8	0.0	0.0
Cycle Q Clear(g_c), s	32.4	0.0	32.4				0.0	48.9	52.7	7.8	0.0	0.0
Prop In Lane	1.00		0.69				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	517	0	481				0	840	873	839	3522	0
V/C Ratio(X)	1.01	0.00	1.20				0.00	1.00	1.00	0.25	0.36	0.00
Avail Cap(c_a), veh/h	517	0	481				0	840	873	839	3522	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.09	0.09	0.18	0.18	0.00
Uniform Delay (d), s/veh	38.8	0.0	38.8				0.0	2.2	2.3	17.1	0.0	0.0
Incr Delay (d2), s/veh	42.8	0.0	107.5				0.0	8.6	10.1	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.8	0.0	28.9				0.0	15.5	18.0	3.8	0.0	0.0
LnGrp Delay(d),s/veh	81.6	0.0	146.3				0.0	10.8	12.4	17.1	0.1	0.0
LnGrp LOS	F		F					B	F	B	A	
Approach Vol, veh/h		1100						1713			1471	
Approach Delay, s/veh		115.5						11.6			2.5	
Approach LOS		F						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	58.1	58.0		37.0		116.1		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	9.8	54.7		34.4		2.0		
Green Ext Time (p_c), s	0.2	0.0		0.0		24.4		

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	50	40	46	65	441	50	1043	17	288	1110	125
Future Volume (veh/h)	92	50	40	46	65	441	50	1043	17	288	1110	125
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	100	54	43	50	71	479	54	1134	18	313	1207	136
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	92	348	277	484	75	508	77	1075	17	376	1552	174
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.43	0.98	0.98
Sat Flow, veh/h	844	949	755	1272	205	1382	1757	3530	56	1757	3173	357
Grp Volume(v), veh/h	100	0	97	50	0	550	54	563	589	313	665	678
Grp Sat Flow(s),veh/h/ln	844	0	1704	1272	0	1587	1757	1752	1834	1757	1752	1777
Q Serve(g_s), s	3.5	0.0	4.2	3.0	0.0	36.9	3.3	33.5	33.5	17.4	3.8	3.9
Cycle Q Clear(g_c), s	40.4	0.0	4.2	7.2	0.0	36.9	3.3	33.5	33.5	17.4	3.8	3.9
Prop In Lane	1.00		0.44	1.00		0.87	1.00		0.03	1.00		0.20
Lane Grp Cap(c), veh/h	92	0	626	484	0	583	77	534	558	376	857	869
V/C Ratio(X)	1.08	0.00	0.15	0.10	0.00	0.94	0.70	1.05	1.05	0.83	0.78	0.78
Avail Cap(c_a), veh/h	92	0	626	484	0	583	142	534	558	376	857	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	54.5	0.0	23.3	25.8	0.0	33.7	51.9	38.3	38.3	29.7	0.7	0.7
Incr Delay (d2), s/veh	118.1	0.0	0.1	0.1	0.0	24.2	4.2	54.2	53.4	11.2	5.4	5.5
Initial Q Delay(d3),s/veh	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	2.0	1.1	0.0	20.0	1.7	24.2	25.2	9.5	2.0	2.0
LnGrp Delay(d),s/veh	172.9	0.0	23.5	25.9	0.0	57.9	56.0	92.4	91.6	40.9	6.1	6.1
LnGrp LOS	F		C	C		E	E	F	F	D	A	A
Approach Vol, veh/h		197			600			1206			1656	
Approach Delay, s/veh		99.3			55.2			90.4			12.7	
Approach LOS		F			E			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	28.8	38.8		46.0	8.5	59.1		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	19.4	35.5		42.4	5.3	5.9		38.9
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	26.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	49.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	171	71	81	174	52	120	325	43	46	552	422
Future Volume (veh/h)	205	171	71	81	174	52	120	325	43	46	552	422
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	223	186	77	88	189	57	130	353	47	50	600	459
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	289	674	297	128	631	278	160	1667	741	80	1508	667
Arrive On Green	0.09	0.20	0.20	0.07	0.18	0.18	0.09	0.48	0.48	0.05	0.43	0.43
Sat Flow, veh/h	3343	3438	1515	1723	3438	1513	1757	3505	1558	1757	3505	1550
Grp Volume(v), veh/h	223	186	77	88	189	57	130	353	47	50	600	459
Grp Sat Flow(s),veh/h/ln	1672	1719	1515	1723	1719	1513	1757	1752	1558	1757	1752	1550
Q Serve(g_s), s	6.4	4.5	4.2	4.9	4.7	3.1	7.1	5.8	1.6	2.7	11.6	23.5
Cycle Q Clear(g_c), s	6.4	4.5	4.2	4.9	4.7	3.1	7.1	5.8	1.6	2.7	11.6	23.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	289	674	297	128	631	278	160	1667	741	80	1508	667
V/C Ratio(X)	0.77	0.28	0.26	0.69	0.30	0.21	0.81	0.21	0.06	0.63	0.40	0.69
Avail Cap(c_a), veh/h	378	1331	586	154	1250	550	247	1667	741	122	1508	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.9	33.5	33.4	44.4	34.6	34.0	43.8	15.0	13.9	46.0	19.2	22.6
Incr Delay (d2), s/veh	4.9	0.6	1.2	6.2	0.7	0.9	5.9	0.3	0.2	3.0	0.8	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.2	1.9	2.5	2.3	1.4	3.7	2.9	0.7	1.4	5.7	11.1
LnGrp Delay(d),s/veh	48.8	34.1	34.6	50.6	35.3	35.0	49.7	15.3	14.1	49.0	20.0	28.4
LnGrp LOS	D	C	C	D	D	C	D	B	B	D	C	C
Approach Vol, veh/h		486			334			530			1109	
Approach Delay, s/veh		40.9			39.3			23.6			24.8	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.7	53.5	11.5	24.5	13.1	49.0	12.7	23.3
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 6.8	* 47	* 8.8	38.0	* 14	38.9	* 11	35.7
Max Q Clear Time (g_c+I1), s	4.7	7.8	6.9	6.5	9.1	25.5	8.4	6.7
Green Ext Time (p_c), s	0.0	25.5	0.0	6.4	0.1	11.0	0.1	6.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.7
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	90	272	342	437	6	402	8	164	0	6	15
Future Volume (veh/h)	5	90	272	342	437	6	402	8	164	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	98	296	372	475	7	437	9	178	0	7	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	7	72	218	271	602	9	394	39	763	0	119	272
Arrive On Green	0.00	0.18	0.18	0.15	0.33	0.33	0.22	0.51	0.51	0.00	0.24	0.24
Sat Flow, veh/h	1757	396	1197	1757	1813	27	1757	75	1489	0	492	1126
Grp Volume(v), veh/h	5	0	394	372	0	482	437	0	187	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	0	1594	1757	0	1839	1757	0	1565	0	0	1618
Q Serve(g_s), s	0.3	0.0	18.2	15.4	0.0	23.7	22.4	0.0	6.6	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.3	0.0	18.2	15.4	0.0	23.7	22.4	0.0	6.6	0.0	0.0	1.1
Prop In Lane	1.00		0.75	1.00		0.01	1.00		0.95	0.00		0.70
Lane Grp Cap(c), veh/h	7	0	290	271	0	611	394	0	801	0	0	392
V/C Ratio(X)	0.73	0.00	1.36	1.37	0.00	0.79	1.11	0.00	0.23	0.00	0.00	0.06
Avail Cap(c_a), veh/h	86	0	290	271	0	611	394	0	801	0	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.8	0.0	40.9	42.3	0.0	30.2	38.8	0.0	13.5	0.0	0.0	29.1
Incr Delay (d2), s/veh	42.5	0.0	182.1	190.4	0.0	7.1	74.9	0.0	0.6	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	22.6	21.7	0.0	13.2	19.0	0.0	3.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	92.2	0.0	223.0	232.7	0.0	37.3	113.7	0.0	14.1	0.0	0.0	29.4
LnGrp LOS	F		F	F		D	F		B			C
Approach Vol, veh/h		399			854			624			23	
Approach Delay, s/veh		221.4			122.4			83.8			29.4	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		56.5	20.0	23.5	27.0	29.5	5.0	38.5
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		8.6	17.4	20.2	24.4	3.1	2.3	25.7
Green Ext Time (p_c), s		1.7	0.0	0.0	0.0	1.4	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	129.4
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	28	271	74	80	41	153	348	40	20	460	140
Future Volume (veh/h)	187	28	271	74	80	41	153	348	40	20	460	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	203	30	295	80	87	45	166	378	43	22	500	152
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	234	35	346	95	187	97	258	596	68	240	483	147
Arrive On Green	0.13	0.24	0.24	0.05	0.17	0.17	0.15	0.37	0.37	0.05	0.12	0.12
Sat Flow, veh/h	1757	144	1416	1757	1133	586	1757	1624	185	1757	1354	412
Grp Volume(v), veh/h	203	0	325	80	0	132	166	0	421	22	0	652
Grp Sat Flow(s),veh/h/ln	1757	0	1560	1757	0	1720	1757	0	1809	1757	0	1765
Q Serve(g_s), s	11.3	0.0	19.9	4.5	0.0	6.9	8.9	0.0	19.2	1.2	0.0	35.7
Cycle Q Clear(g_c), s	11.3	0.0	19.9	4.5	0.0	6.9	8.9	0.0	19.2	1.2	0.0	35.7
Prop In Lane	1.00		0.91	1.00		0.34	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	234	0	381	95	0	284	258	0	664	240	0	630
V/C Ratio(X)	0.87	0.00	0.85	0.84	0.00	0.46	0.64	0.00	0.63	0.09	0.00	1.03
Avail Cap(c_a), veh/h	323	0	479	95	0	323	258	0	664	240	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	42.5	0.0	36.1	46.9	0.0	37.7	40.2	0.0	26.1	41.8	0.0	44.1
Incr Delay (d2), s/veh	13.1	0.0	15.5	44.5	0.0	0.4	4.3	0.0	4.6	0.0	0.0	21.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.0	10.2	3.4	0.0	3.3	4.6	0.0	10.4	0.6	0.0	21.2
LnGrp Delay(d),s/veh	55.5	0.0	51.6	91.4	0.0	38.2	44.5	0.0	30.7	41.8	0.0	65.3
LnGrp LOS	E		D	F		D	D		C	D		F
Approach Vol, veh/h		528			212			587			674	
Approach Delay, s/veh		53.1			58.3			34.6			64.6	
Approach LOS		D			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.3	42.0	10.0	29.7	19.3	41.0	17.9	21.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.2	6.5	21.9	10.9	37.7	13.3	8.9
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	0.0	0.0	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	52.1
HCM 2010 LOS	D

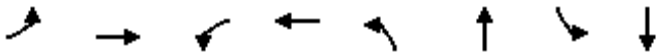
Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	95	315	257	182	332	303	157	434	235	179	476
v/c Ratio	0.75	0.48	0.36	0.63	0.50	0.41	0.73	0.47	0.41	1.19	0.60
Control Delay	82.0	29.1	5.0	55.0	28.9	4.8	62.6	31.2	5.8	176.7	36.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	29.1	5.0	55.0	28.9	4.8	62.6	31.2	5.8	176.7	36.0
Queue Length 50th (ft)	60	153	0	57	159	0	95	119	0	~138	138
Queue Length 95th (ft)	#165	273	57	103	285	60	#200	163	52	#308	190
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	126	662	715	316	675	752	254	1373	733	150	1145
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.48	0.36	0.58	0.49	0.40	0.62	0.32	0.32	1.19	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	258	245	230	260	2048	385	1332
v/c Ratio	0.19	0.46	1.04	0.44	0.86	1.29	1.65	0.95
Control Delay	34.4	20.2	112.5	33.0	74.9	160.7	345.3	48.0
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.6	0.0	0.0
Total Delay	34.4	20.2	112.5	33.0	75.0	161.4	345.3	48.0
Queue Length 50th (ft)	29	80	~205	125	194	~1008	~432	520
Queue Length 95th (ft)	63	161	#370	202	#319	#1148	#627	#691
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	257	559	235	520	334	1592	233	1404
Starvation Cap Reductn	0	0	0	0	1	257	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.46	1.04	0.44	0.78	1.53	1.65	0.95

Intersection Summary

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Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	549	499	1713	210	1261
v/c Ratio	1.13	1.01	1.03	1.17	0.58
Control Delay	119.1	76.9	50.9	165.5	14.1
Queue Delay	0.0	43.0	31.9	0.0	11.4
Total Delay	119.1	119.9	82.8	165.5	25.5
Queue Length 50th (ft)	~474	~333	~702	~177	261
Queue Length 95th (ft)	#696	#567	m#737	#326	323
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	494	1670	179	2157
Starvation Cap Reductn	0	0	832	0	884
Spillback Cap Reductn	0	320	0	0	451
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	2.87	2.04	1.17	0.99

Intersection Summary

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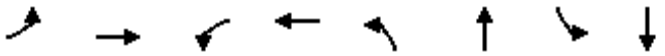
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



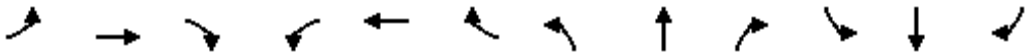
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	100	97	50	550	54	1152	313	1343
v/c Ratio	1.20	0.16	0.12	0.73	0.45	1.00	0.87	0.80
Control Delay	200.2	14.8	24.6	17.3	60.8	63.7	55.2	22.4
Queue Delay	10.2	0.0	0.0	26.1	0.0	40.6	53.5	2.0
Total Delay	210.4	14.8	24.6	43.4	60.8	104.4	108.7	24.4
Queue Length 50th (ft)	~82	26	23	120	37	~481	221	471
Queue Length 95th (ft)	#192	62	51	255	78	#616	m#332	m549
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	89	652	454	784	141	1156	358	1669
Starvation Cap Reductn	0	0	0	0	0	0	115	187
Spillback Cap Reductn	27	0	0	247	0	629	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.61	0.15	0.11	1.02	0.38	2.19	1.29	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

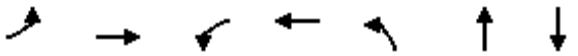
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	223	186	77	88	189	57	130	353	47	50	600	459
v/c Ratio	0.63	0.35	0.22	0.57	0.40	0.17	0.64	0.20	0.06	0.42	0.40	0.51
Control Delay	49.8	38.0	1.4	58.6	40.5	1.1	55.7	14.6	0.3	55.3	21.0	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.8	38.0	1.4	58.6	40.5	1.1	55.7	14.6	0.3	55.3	21.0	4.2
Queue Length 50th (ft)	68	54	0	53	57	0	78	63	0	30	132	0
Queue Length 95th (ft)	110	87	0	#117	91	0	140	98	2	70	198	62
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	391	1381	693	159	1298	660	255	1765	820	125	1485	905
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.13	0.11	0.55	0.15	0.09	0.51	0.20	0.06	0.40	0.40	0.51

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

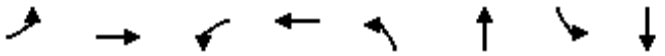


Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	394	372	482	437	187	23
v/c Ratio	0.07	0.99	1.38	0.72	1.11	0.21	0.06
Control Delay	48.2	72.6	228.1	35.9	117.1	2.8	16.9
Queue Delay	0.0	48.2	0.1	0.0	0.0	0.0	0.1
Total Delay	48.2	120.8	228.2	35.9	117.1	2.8	17.0
Queue Length 50th (ft)	3	176	~316	253	~336	15	3
Queue Length 95th (ft)	15	#372	#495	#486	#525	24	23
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	396	269	669	392	873	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	257	3	0	0	0	164
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	2.83	1.40	0.72	1.11	0.21	0.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	325	80	132	166	421	22	652
v/c Ratio	0.81	0.62	0.85	0.64	1.13	0.42	0.24	0.77
Control Delay	64.4	10.8	107.6	48.6	156.4	17.4	45.5	49.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.8
Total Delay	64.4	10.8	107.6	48.6	156.4	17.4	45.5	101.4
Queue Length 50th (ft)	126	16	52	67	~123	127	10	435
Queue Length 95th (ft)	198	86	#138	122	#254	304	m8	m372
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	675	94	342	147	1014	129	849
Starvation Cap Reductn	0	0	0	0	0	0	0	289
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.48	0.85	0.39	1.13	0.42	0.17	1.16

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	11.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	500	811	414	360	73	45
Future Vol, veh/h	500	811	414	360	73	45
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	543	882	450	391	79	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1435	0	2295	1004
Stage 1	-	-	-	-	994	-
Stage 2	-	-	-	-	1301	-
Critical Hdwy	-	-	4.13	-	7.13	6.23
Critical Hdwy Stg 1	-	-	-	-	6.13	-
Critical Hdwy Stg 2	-	-	-	-	6.13	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	470	-	~ 27	292
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	197	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	466	-	-	286
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	33.9	
HCM LOS			-

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	466	-
HCM Lane V/C Ratio	-	-	-	0.966	-
HCM Control Delay (s)	-	-	-	63.5	0
HCM Lane LOS	-	-	-	F	A
HCM 95th %tile Q(veh)	-	-	-	12	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.6

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	43	374	432	200	83	30
Future Vol, veh/h	43	374	432	200	83	30
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	47	407	470	217	90	33

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	697	0	-	0	895	363
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	888	-	-	-	278	631
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	717	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	880	-	-	-	254	619
Mov Cap-2 Maneuver	-	-	-	-	254	-
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	661	-

Approach	NB	SB	NE
HCM Control Delay, s	1.2	0	22.6
HCM LOS			C

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	254	619	880	-	-	-
HCM Lane V/C Ratio	0.355	0.053	0.053	-	-	-
HCM Control Delay (s)	26.8	11.1	9.3	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.5	0.2	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	382	10	25	439	25	35
Future Vol, veh/h	382	10	25	439	25	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	415	11	27	477	27	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	436	0	734	233
Stage 1	-	-	-	-	431	-
Stage 2	-	-	-	-	303	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1113	-	353	766
Stage 1	-	-	-	-	620	-
Stage 2	-	-	-	-	720	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1102	-	335	751
Mov Cap-2 Maneuver	-	-	-	-	335	-
Stage 1	-	-	-	-	614	-
Stage 2	-	-	-	-	690	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1102	-	495
HCM Lane V/C Ratio	-	-	0.025	-	0.132
HCM Control Delay (s)	-	-	8.3	0.1	13.4
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0.1	-	0.5

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	23	523	446	3	15	16
Future Vol, veh/h	23	523	446	3	15	16
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	25	568	485	3	16	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	498	0	-	0	1124	506
Stage 1	-	-	-	-	496	-
Stage 2	-	-	-	-	628	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1061	-	-	-	226	564
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1051	-	-	-	214	553
Mov Cap-2 Maneuver	-	-	-	-	214	-
Stage 1	-	-	-	-	604	-
Stage 2	-	-	-	-	507	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	17.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1051	-	-	-	313
HCM Lane V/C Ratio	0.024	-	-	-	0.108
HCM Control Delay (s)	8.5	0	-	-	17.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	150	85	35	188	22	11
Future Vol, veh/h	150	85	35	188	22	11
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	163	92	38	204	24	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	265	0	509	229
Stage 1	-	-	-	-	219	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1282	-	522	808
Stage 1	-	-	-	-	815	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1270	-	495	793
Mov Cap-2 Maneuver	-	-	-	-	495	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	724	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	11.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	566	-	-	1270	-
HCM Lane V/C Ratio	0.063	-	-	0.03	-
HCM Control Delay (s)	11.8	-	-	7.9	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	13.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	131	385	289	107	108	148
Future Vol, veh/h	131	385	289	107	108	148
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	142	418	314	116	117	161

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	440	0	-	0	1095	392
Stage 1	-	-	-	-	382	-
Stage 2	-	-	-	-	713	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1115	-	-	-	235	655
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	484	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1104	-	-	-	192	643
Mov Cap-2 Maneuver	-	-	-	-	192	-
Stage 1	-	-	-	-	681	-
Stage 2	-	-	-	-	399	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	57.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1104	-	-	-	323
HCM Lane V/C Ratio	0.129	-	-	-	0.861
HCM Control Delay (s)	8.7	0	-	-	57.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.4	-	-	-	7.8

Intersection	
Int Delay, s/veh	10.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	193	142	231	293	8
Future Vol, veh/h	29	193	142	231	293	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	210	154	251	318	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	415	0	-	0	573	300
Stage 1	-	-	-	-	290	-
Stage 2	-	-	-	-	283	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1139	-	-	-	479	737
Stage 1	-	-	-	-	757	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1128	-	-	-	455	723
Mov Cap-2 Maneuver	-	-	-	-	455	-
Stage 1	-	-	-	-	750	-
Stage 2	-	-	-	-	732	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	29.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1128	-	-	-	460
HCM Lane V/C Ratio	0.028	-	-	-	0.711
HCM Control Delay (s)	8.3	0	-	-	29.9
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.1	-	-	-	5.5

Intersection	
Int Delay, s/veh	22.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	248	0	0	471	314	3
Future Vol, veh/h	248	0	0	471	314	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	0	0	512	341	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	792	280
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	522	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	357	756
Stage 1	-	0	0	-	773	-
Stage 2	-	0	0	-	593	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	354	749
Mov Cap-2 Maneuver	-	-	-	-	354	-
Stage 1	-	-	-	-	773	-
Stage 2	-	-	-	-	587	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	73.4
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	354	749	-	-
HCM Lane V/C Ratio	0.964	0.004	-	-
HCM Control Delay (s)	74	9.8	-	-
HCM Lane LOS	F	A	-	-
HCM 95th %tile Q(veh)	10.5	0	-	-

Intersection	
Intersection Delay, s/veh	33.3
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	205	307	0	271	191	0	239	369
Future Vol, veh/h	0	205	307	0	271	191	0	239	369
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	223	334	0	295	208	0	260	401
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	23.2	54.8	25.4
HCM LOS	C	F	D

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	59%	0%	0%
Vol Right, %	0%	0%	41%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	307	462	239	369
LT Vol	205	0	0	239	0
Through Vol	0	307	271	0	0
RT Vol	0	0	191	0	369
Lane Flow Rate	223	334	502	260	401
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.501	0.702	0.953	0.579	0.757
Departure Headway (Hd)	8.087	7.571	6.832	8.13	6.897
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	448	481	527	447	529
Service Time	5.787	5.271	4.921	5.83	4.597
HCM Lane V/C Ratio	0.498	0.694	0.953	0.582	0.758
HCM Control Delay	18.6	26.2	54.8	21.4	28
HCM Lane LOS	C	D	F	C	D
HCM 95th-tile Q	2.7	5.4	12.2	3.6	6.6

Intersection	
Int Delay, s/veh	2.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	234	39	30	205	88	25
Future Vol, veh/h	234	39	30	205	88	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	254	42	33	223	96	27

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	297	0	564	276
Stage 1	-	-	-	-	276	-
Stage 2	-	-	-	-	288	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1259	-	485	760
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1259	-	470	760
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	768	-
Stage 2	-	-	-	-	736	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	13.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	470	760	-	-	1259	-
HCM Lane V/C Ratio	0.204	0.036	-	-	0.026	-
HCM Control Delay (s)	14.6	9.9	-	-	7.9	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.8	0.1	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	14	0	0	5	0	108	10	8	59	2
Future Vol, veh/h	0	0	14	0	0	5	0	108	10	8	59	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	15	0	0	5	0	117	11	9	64	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	33	-	-	64	-	0	0	128	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1030	0	0	984	0	-	-	1448	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1030	-	-	984	-	-	-	1448	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.7	0	0.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1030	984	1448	-	-
HCM Lane V/C Ratio	-	-	0.015	0.006	0.006	-	-
HCM Control Delay (s)	-	-	8.5	8.7	7.5	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	14	0	118	71	2
Future Vol, veh/h	0	14	0	118	71	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	15	0	128	77	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	40	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1019	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1019	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1019	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	8.6	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	10	7	101	17	67	1
Future Vol, veh/h	0	10	7	101	17	67	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	11	8	110	18	73	1

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	37	74	0	80	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1024	1516	-	1268	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1024	1516	-	1268	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	0.5	1.6
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1516	-	1024	1268	-	-
HCM Lane V/C Ratio	0.005	-	0.011	0.015	-	-
HCM Control Delay (s)	7.4	-	8.6	7.9	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	5	19	108	76	1
Future Vol, veh/h	0	5	19	108	76	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	5	21	117	83	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	41	83	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1018	1505	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1018	1505	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.6	1.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1505	-	1018	-	-
HCM Lane V/C Ratio	0.014	-	0.005	-	-
HCM Control Delay (s)	7.4	-	8.6	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	6	0	0	19	3	108	23	3	94	1
Future Vol, veh/h	0	0	6	0	0	19	3	108	23	3	94	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	7	0	0	21	3	117	25	3	102	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	52	-	-	71	103	0	0	142	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1001	0	0	974	1479	-	-	1431	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1001	-	-	974	1479	-	-	1431	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	8.8	0.2	0.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1479	-	-	1001	974	1431	-	-
HCM Lane V/C Ratio	0.002	-	-	0.007	0.021	0.002	-	-
HCM Control Delay (s)	7.4	-	-	8.6	8.8	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	58	508	434	76	37	63
Future Vol, veh/h	58	508	434	76	37	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	63	552	472	83	40	68

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	554	0	-	0	1191	513
Stage 1	-	-	-	-	513	-
Stage 2	-	-	-	-	678	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1011	-	-	-	206	559
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	502	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1011	-	-	-	193	559
Mov Cap-2 Maneuver	-	-	-	-	193	-
Stage 1	-	-	-	-	599	-
Stage 2	-	-	-	-	471	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	18.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1011	-	-	-	193	559
HCM Lane V/C Ratio	0.062	-	-	-	0.208	0.123
HCM Control Delay (s)	8.8	-	-	-	28.5	12.3
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.8	0.4

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	4	7	33	76	1
Future Vol, veh/h	0	4	7	33	76	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	4	8	36	83	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	134	83	84	0	-	0
Stage 1	83	-	-	-	-	-
Stage 2	51	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	857	974	1506	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	969	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	853	974	1506	-	-	-
Mov Cap-2 Maneuver	853	-	-	-	-	-
Stage 1	938	-	-	-	-	-
Stage 2	964	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	1.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1506	-	974	-	-
HCM Lane V/C Ratio	0.005	-	0.004	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	23	261	184	206	248	110	182	275	219	143	228	27
Future Volume (veh/h)	23	261	184	206	248	110	182	275	219	143	228	27
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	25	284	200	224	270	120	198	299	238	155	248	29
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	52	645	543	287	765	646	229	873	379	184	707	82
Arrive On Green	0.03	0.35	0.35	0.09	0.42	0.42	0.13	0.25	0.25	0.10	0.22	0.22
Sat Flow, veh/h	1757	1845	1555	3343	1810	1527	1757	3505	1520	1757	3158	365
Grp Volume(v), veh/h	25	284	200	224	270	120	198	299	238	155	136	141
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1527	1757	1752	1520	1757	1752	1770
Q Serve(g_s), s	1.5	12.5	6.6	7.0	10.7	5.2	11.7	7.4	10.8	9.2	6.9	7.1
Cycle Q Clear(g_c), s	1.5	12.5	6.6	7.0	10.7	5.2	11.7	7.4	10.8	9.2	6.9	7.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	52	645	543	287	765	646	229	873	379	184	392	396
V/C Ratio(X)	0.48	0.44	0.37	0.78	0.35	0.19	0.86	0.34	0.63	0.84	0.35	0.35
Avail Cap(c_a), veh/h	113	645	543	309	765	646	345	1281	555	246	541	547
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.6	26.5	10.9	47.4	20.7	19.1	45.1	32.6	19.0	46.5	34.6	34.6
Incr Delay (d2), s/veh	2.6	2.2	1.9	10.0	1.0	0.5	9.4	0.6	4.4	13.9	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	6.8	4.1	3.6	5.5	2.3	6.3	3.6	5.6	5.1	3.5	3.6
LnGrp Delay(d),s/veh	53.1	28.7	12.8	57.4	21.7	19.6	54.5	33.2	23.5	60.4	36.0	36.1
LnGrp LOS	D	C	B	E	C	B	D	C	C	E	D	D
Approach Vol, veh/h		509			614			735			432	
Approach Delay, s/veh		23.6			34.4			35.8			44.7	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	43.0	18.0	29.0	7.3	51.6	15.3	31.7
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	9.8	* 37	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	9.0	14.5	13.7	9.1	3.5	12.7	11.2	12.8
Green Ext Time (p_c), s	0.1	5.8	0.1	9.1	0.0	5.1	0.1	9.5

Intersection Summary	
HCM 2010 Ctrl Delay	34.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	119	291	245	144	127	127	1174	859	206	726	153
Future Volume (veh/h)	74	119	291	245	144	127	127	1174	859	206	726	153
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	80	129	316	266	157	138	138	1276	934	224	789	166
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	311	172	422	182	329	289	227	876	566	166	1082	228
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.86	0.86	0.10	0.38	0.38
Sat Flow, veh/h	1065	472	1157	929	903	794	1757	2033	1314	1723	2821	594
Grp Volume(v), veh/h	80	0	445	266	0	295	138	1077	1133	224	481	474
Grp Sat Flow(s),veh/h/ln	1065	0	1629	929	0	1697	1757	1752	1595	1723	1719	1696
Q Serve(g_s), s	6.9	0.0	26.3	13.8	0.0	14.7	7.6	47.4	47.4	10.6	26.3	26.3
Cycle Q Clear(g_c), s	21.6	0.0	26.3	40.1	0.0	14.7	7.6	47.4	47.4	10.6	26.3	26.3
Prop In Lane	1.00		0.71	1.00		0.47	1.00		0.82	1.00		0.35
Lane Grp Cap(c), veh/h	311	0	594	182	0	619	227	755	687	166	659	650
V/C Ratio(X)	0.26	0.00	0.75	1.46	0.00	0.48	0.61	1.43	1.65	1.35	0.73	0.73
Avail Cap(c_a), veh/h	311	0	594	182	0	619	227	755	687	166	659	650
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.87	0.87	0.87
Uniform Delay (d), s/veh	35.2	0.0	30.6	50.6	0.0	26.9	38.3	7.6	7.6	49.7	29.0	29.0
Incr Delay (d2), s/veh	0.4	0.0	5.3	234.3	0.0	0.6	0.3	192.1	292.6	187.5	6.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	12.6	17.4	0.0	7.0	3.7	60.4	74.2	13.7	13.5	13.4
LnGrp Delay(d),s/veh	35.6	0.0	35.8	284.9	0.0	27.5	38.6	199.7	300.2	237.2	35.1	35.2
LnGrp LOS	D		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		525			561			2348			1179	
Approach Delay, s/veh		35.8			149.5			238.7			73.5	
Approach LOS		D			F			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	52.8		45.0	19.6	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	12.6	49.4		28.3	9.6	28.3		42.1
Green Ext Time (p_c), s	0.0	0.0		5.0	2.9	7.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		162.6
HCM 2010 LOS		F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	845	1	608	0	0	0	0	1315	147	219	1043	0
Future Volume (veh/h)	845	1	608	0	0	0	0	1315	147	219	1043	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	790	180	661				0	1429	160	238	1134	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	700	137	504				0	1129	125	518	2449	0
Arrive On Green	0.40	0.40	0.40				0.00	0.71	0.71	0.59	1.00	0.00
Sat Flow, veh/h	1757	345	1265				0	3268	353	1757	3597	0
Grp Volume(v), veh/h	790	0	841				0	783	806	238	1134	0
Grp Sat Flow(s),veh/h/ln	1757	0	1610				0	1752	1776	1757	1752	0
Q Serve(g_s), s	43.8	0.0	43.8				0.0	39.1	39.1	8.4	0.0	0.0
Cycle Q Clear(g_c), s	43.8	0.0	43.8				0.0	39.1	39.1	8.4	0.0	0.0
Prop In Lane	1.00		0.79				0.00		0.20	1.00		0.00
Lane Grp Cap(c), veh/h	700	0	641				0	623	631	518	2449	0
V/C Ratio(X)	1.13	0.00	1.31				0.00	1.26	1.28	0.46	0.46	0.00
Avail Cap(c_a), veh/h	700	0	641				0	623	631	518	2449	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.14	0.14	0.33	0.33	0.00
Uniform Delay (d), s/veh	33.1	0.0	33.1				0.0	15.9	15.9	17.6	0.0	0.0
Incr Delay (d2), s/veh	75.5	0.0	151.3				0.0	117.7	126.1	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.9	0.0	46.4				0.0	38.4	40.4	4.0	0.1	0.0
LnGrp Delay(d),s/veh	108.6	0.0	184.4				0.0	133.6	142.0	17.7	0.2	0.0
LnGrp LOS	F		F					F	F	B	A	
Approach Vol, veh/h		1631						1589			1372	
Approach Delay, s/veh		147.7						137.8			3.2	
Approach LOS		F						F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	37.9	44.4		48.4		82.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	10.4	41.1		45.8		2.0		
Green Ext Time (p_c), s	1.7	0.0		0.0		19.4		

Intersection Summary	
HCM 2010 Ctrl Delay	101.1
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	168	109	144	57	82	268	77	998	43	335	1168	148
Future Volume (veh/h)	168	109	144	57	82	268	77	998	43	335	1168	148
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	183	118	157	62	89	291	84	1085	47	364	1270	161
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	212	250	332	305	132	431	152	986	43	404	1351	170
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.46	0.86	0.86
Sat Flow, veh/h	986	715	952	1084	378	1236	1757	3420	148	1757	3128	394
Grp Volume(v), veh/h	183	0	275	62	0	380	84	556	576	364	709	722
Grp Sat Flow(s),veh/h/ln	986	0	1667	1084	0	1614	1757	1752	1815	1757	1752	1770
Q Serve(g_s), s	16.4	0.0	14.1	5.2	0.0	22.0	5.0	31.7	31.7	21.0	31.7	33.3
Cycle Q Clear(g_c), s	38.4	0.0	14.1	19.3	0.0	22.0	5.0	31.7	31.7	21.0	31.7	33.3
Prop In Lane	1.00		0.57	1.00		0.77	1.00		0.08	1.00		0.22
Lane Grp Cap(c), veh/h	212	0	582	305	0	563	152	505	523	404	757	764
V/C Ratio(X)	0.86	0.00	0.47	0.20	0.00	0.67	0.55	1.10	1.10	0.90	0.94	0.95
Avail Cap(c_a), veh/h	212	0	582	305	0	563	168	505	523	420	757	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73
Uniform Delay (d), s/veh	48.5	0.0	27.9	35.4	0.0	30.5	48.2	39.2	39.2	28.5	6.4	6.5
Incr Delay (d2), s/veh	29.1	0.0	0.7	0.4	0.0	3.4	1.2	70.4	69.9	16.4	16.4	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	6.6	1.6	0.0	10.3	2.5	25.2	26.0	11.9	17.2	18.1
LnGrp Delay(d),s/veh	77.5	0.0	28.6	35.8	0.0	33.8	49.4	109.6	109.1	44.9	22.8	24.0
LnGrp LOS	E		C	D		C	D	F	F	D	C	C
Approach Vol, veh/h		458			442			1216			1795	
Approach Delay, s/veh		48.2			34.1			105.2			27.8	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.0	37.0		44.0	13.2	52.8		44.0
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	23.0	33.7		40.4	7.0	35.3		24.0
Green Ext Time (p_c), s	0.3	0.0		0.0	0.3	10.3		5.1

Intersection Summary	
HCM 2010 Ctrl Delay	54.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	132	183	37	165	43	196	410	71	32	321	206
Future Volume (veh/h)	240	132	183	37	165	43	196	410	71	32	321	206
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	261	143	199	40	179	47	213	446	77	35	349	224
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	349	736	324	92	523	229	245	1763	784	65	1315	580
Arrive On Green	0.10	0.21	0.21	0.05	0.15	0.15	0.14	0.50	0.50	0.04	0.38	0.38
Sat Flow, veh/h	3343	3438	1517	1723	3438	1508	1757	3505	1559	1757	3505	1547
Grp Volume(v), veh/h	261	143	199	40	179	47	213	446	77	35	349	224
Grp Sat Flow(s),veh/h/ln	1672	1719	1517	1723	1719	1508	1757	1752	1559	1757	1752	1547
Q Serve(g_s), s	7.7	3.5	8.3	2.3	4.8	2.4	12.1	7.4	2.6	2.0	7.1	10.8
Cycle Q Clear(g_c), s	7.7	3.5	8.3	2.3	4.8	2.4	12.1	7.4	2.6	2.0	7.1	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	349	736	324	92	523	229	245	1763	784	65	1315	580
V/C Ratio(X)	0.75	0.19	0.61	0.44	0.34	0.21	0.87	0.25	0.10	0.54	0.27	0.39
Avail Cap(c_a), veh/h	403	1280	564	140	1145	502	256	1763	784	115	1315	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.4	32.9	16.9	46.9	38.7	27.2	43.0	14.5	13.3	48.3	22.1	23.3
Incr Delay (d2), s/veh	5.2	0.3	4.8	1.2	1.0	1.1	24.1	0.3	0.2	2.6	0.5	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	1.7	4.8	1.1	2.3	1.2	7.5	3.7	1.2	1.0	3.5	4.9
LnGrp Delay(d),s/veh	49.6	33.2	21.7	48.1	39.7	28.3	67.1	14.8	13.5	50.9	22.6	25.2
LnGrp LOS	D	C	C	D	D	C	E	B	B	D	C	C
Approach Vol, veh/h		603			266			736			608	
Approach Delay, s/veh		36.5			39.0			29.8			25.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	57.3	9.6	27.1	20.2	45.1	15.9	20.8
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.3	6.0	* 6.8	5.3	* 5.3
Max Green Setting (Gmax), s	* 6.7	47.3	* 8.3	38.0	14.9	* 38	12.3	* 34
Max Q Clear Time (g_c+I1), s	4.0	9.4	4.3	10.3	14.1	12.8	9.7	6.8
Green Ext Time (p_c), s	0.0	8.0	0.0	3.8	0.1	7.5	0.9	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	31.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	127	249	224	352	3	487	11	223	3	13	9
Future Volume (veh/h)	7	127	249	224	352	3	487	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	8	138	271	243	383	3	529	12	242	3	14	10
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	11	113	223	253	643	5	358	54	1088	99	437	292
Arrive On Green	0.01	0.21	0.21	0.14	0.35	0.35	0.20	0.73	0.73	0.48	0.48	0.48
Sat Flow, veh/h	1757	548	1076	1757	1828	14	1757	74	1495	123	914	610
Grp Volume(v), veh/h	8	0	409	243	0	386	529	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1624	1757	0	1842	1757	0	1569	1647	0	0
Q Serve(g_s), s	0.5	0.0	20.7	13.7	0.0	17.2	20.4	0.0	5.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.7	13.7	0.0	17.2	20.4	0.0	5.3	0.8	0.0	0.0
Prop In Lane	1.00		0.66	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	11	0	336	253	0	648	358	0	1142	827	0	0
V/C Ratio(X)	0.76	0.00	1.22	0.96	0.00	0.60	1.48	0.00	0.22	0.03	0.00	0.00
Avail Cap(c_a), veh/h	95	0	336	253	0	648	358	0	1142	827	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.49	0.00	0.49	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	39.7	42.5	0.0	26.6	39.8	0.0	4.4	13.8	0.0	0.0
Incr Delay (d2), s/veh	33.4	0.0	121.8	45.3	0.0	1.6	221.7	0.0	0.2	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	20.6	9.9	0.0	9.0	31.9	0.0	2.3	0.4	0.0	0.0
LnGrp Delay(d),s/veh	83.1	0.0	161.4	87.8	0.0	28.2	261.5	0.0	4.6	13.9	0.0	0.0
LnGrp LOS	F		F	F		C	F		A	B		
Approach Vol, veh/h		417			629			783			27	
Approach Delay, s/veh		159.9			51.2			178.2			13.9	
Approach LOS		F			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		78.8	19.7	26.0	25.0	53.8	5.2	40.5
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		7.3	15.7	22.7	22.4	2.8	2.5	19.2
Green Ext Time (p_c), s		2.4	0.0	0.0	0.0	2.0	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	128.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	110	400	56	113	66	308	486	105	40	357	77
Future Volume (veh/h)	169	110	400	56	113	66	308	486	105	40	357	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	120	435	61	123	72	335	528	114	43	388	84
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	120	436	78	292	171	164	494	107	129	465	101
Arrive On Green	0.12	0.35	0.35	0.04	0.27	0.27	0.09	0.34	0.34	0.02	0.10	0.10
Sat Flow, veh/h	1757	346	1255	1757	1084	635	1757	1467	317	1757	1465	317
Grp Volume(v), veh/h	184	0	555	61	0	195	335	0	642	43	0	472
Grp Sat Flow(s),veh/h/ln	1757	0	1602	1757	0	1719	1757	0	1783	1757	0	1783
Q Serve(g_s), s	10.3	0.0	34.6	3.4	0.0	9.4	9.4	0.0	33.7	2.4	0.0	26.0
Cycle Q Clear(g_c), s	10.3	0.0	34.6	3.4	0.0	9.4	9.4	0.0	33.7	2.4	0.0	26.0
Prop In Lane	1.00		0.78	1.00		0.37	1.00		0.18	1.00		0.18
Lane Grp Cap(c), veh/h	215	0	556	78	0	462	164	0	601	129	0	565
V/C Ratio(X)	0.86	0.00	1.00	0.78	0.00	0.42	2.04	0.00	1.07	0.33	0.00	0.84
Avail Cap(c_a), veh/h	394	0	556	95	0	462	164	0	601	129	0	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.37	0.00	0.37
Uniform Delay (d), s/veh	43.0	0.0	32.6	47.3	0.0	30.1	45.3	0.0	33.2	46.4	0.0	42.2
Incr Delay (d2), s/veh	3.8	0.0	37.8	23.0	0.0	0.2	487.2	0.0	56.3	0.2	0.0	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	21.1	2.2	0.0	4.5	26.8	0.0	25.9	1.2	0.0	13.7
LnGrp Delay(d),s/veh	46.8	0.0	70.5	70.3	0.0	30.4	532.5	0.0	89.5	46.6	0.0	47.7
LnGrp LOS	D		E	E		C	F		F	D		D
Approach Vol, veh/h		739			256			977			515	
Approach Delay, s/veh		64.6			39.9			241.4			47.6	
Approach LOS		E			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	39.0	9.0	40.0	14.0	37.0	16.8	32.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.4	35.7	5.4	36.6	11.4	28.0	12.3	11.4
Green Ext Time (p_c), s	0.1	0.0	0.0	0.0	0.0	1.3	0.0	3.9

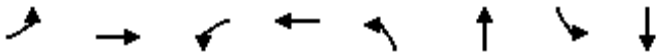
Intersection Summary	
HCM 2010 Ctrl Delay	128.0
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	284	200	224	270	120	198	299	238	155	277
v/c Ratio	0.23	0.41	0.28	0.70	0.32	0.15	0.75	0.42	0.48	0.71	0.45
Control Delay	53.6	27.5	5.1	58.1	22.0	4.0	59.7	36.0	7.6	62.0	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.6	27.5	5.1	58.1	22.0	4.0	59.7	36.0	7.6	62.0	37.7
Queue Length 50th (ft)	15	127	0	70	91	0	118	88	0	92	80
Queue Length 95th (ft)	48	264	54	#153	244	33	226	127	57	#212	125
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	121	695	702	332	846	775	371	1381	737	264	1151
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.41	0.28	0.67	0.32	0.15	0.53	0.22	0.32	0.59	0.24

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	445	266	295	138	2210	224	955
v/c Ratio	0.26	0.66	1.43	0.46	0.63	1.52	1.36	0.74
Control Delay	27.6	26.1	251.6	25.0	32.9	255.8	233.9	32.6
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.3	0.0	51.3
Total Delay	27.6	26.3	251.6	25.0	32.9	256.1	233.9	83.8
Queue Length 50th (ft)	39	188	~255	132	89	~1103	~208	293
Queue Length 95th (ft)	80	305	#418	212	m67	m#727	#363	372
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	302	672	186	647	219	1450	165	1291
Starvation Cap Reductn	0	0	0	0	0	118	0	0
Spillback Cap Reductn	0	22	0	0	0	0	0	606
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.68	1.43	0.46	0.63	1.66	1.36	1.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	826	754	1589	238	1134
v/c Ratio	1.26	1.21	1.29	1.11	0.63
Control Delay	158.6	138.4	155.4	127.3	27.8
Queue Delay	0.9	4.0	3.5	0.0	49.9
Total Delay	159.5	142.5	159.0	127.3	77.8
Queue Length 50th (ft)	~770	~663	~780	~196	434
Queue Length 95th (ft)	#1018	#911	m#844	m#285	m472
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	623	1229	215	1793
Starvation Cap Reductn	0	0	133	0	824
Spillback Cap Reductn	77	237	594	0	645
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.42	1.95	2.50	1.11	1.17

Intersection Summary

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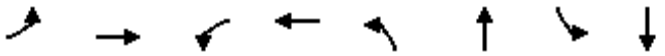

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	183	275	62	380	84	1132	364	1431
v/c Ratio	1.02	0.48	0.25	0.63	0.56	0.97	0.92	0.84
Control Delay	111.6	24.7	29.9	22.4	62.7	58.7	61.1	18.8
Queue Delay	55.4	0.0	0.0	15.7	0.0	41.2	54.7	4.9
Total Delay	167.0	24.7	29.9	38.1	62.7	99.9	115.8	23.7
Queue Length 50th (ft)	123	110	31	123	57	~488	277	568
Queue Length 95th (ft)	#265	187	67	223	109	#624	m#323	m416
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	197	625	270	653	167	1163	418	1695
Starvation Cap Reductn	0	0	0	0	0	0	171	207
Spillback Cap Reductn	88	0	0	257	0	234	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.68	0.44	0.23	0.96	0.50	1.22	1.47	0.96

Intersection Summary

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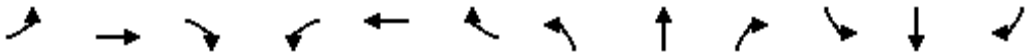
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	261	143	199	40	179	47	213	446	77	35	349	224
v/c Ratio	0.68	0.19	0.41	0.28	0.40	0.13	0.80	0.24	0.09	0.31	0.25	0.31
Control Delay	51.6	33.8	8.0	49.0	41.8	0.8	63.8	14.3	0.2	52.3	21.3	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.6	33.8	8.0	49.0	41.8	0.8	63.8	14.3	0.2	52.3	21.3	4.2
Queue Length 50th (ft)	81	41	0	24	55	0	131	84	0	21	77	0
Queue Length 95th (ft)	127	70	59	60	88	0	#264	126	1	55	117	48
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	419	1335	706	145	1195	636	266	1859	881	119	1372	728
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.11	0.28	0.28	0.15	0.07	0.80	0.24	0.09	0.29	0.25	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
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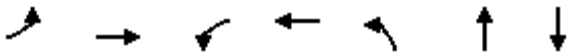

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	8	409	243	386	529	254	27
v/c Ratio	0.11	1.01	0.96	0.56	1.48	0.29	0.06
Control Delay	49.1	80.3	92.5	29.2	260.4	6.3	21.5
Queue Delay	0.0	11.2	40.3	0.0	0.0	0.0	0.1
Total Delay	49.1	91.4	132.7	29.2	260.4	6.3	21.6
Queue Length 50th (ft)	5	~217	156	184	~487	25	8
Queue Length 95th (ft)	20	#416	#308	324	m#658	m44	30
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	404	252	695	357	885	418
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	14	31	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	1.05	1.10	0.56	1.48	0.29	0.09

Intersection Summary

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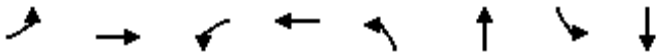
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	555	61	195	335	642	43	472
v/c Ratio	0.75	0.89	0.69	0.50	2.28	0.82	0.45	0.70
Control Delay	59.9	37.5	83.5	33.7	620.1	38.7	66.5	47.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
Total Delay	59.9	37.5	83.5	33.7	620.1	38.7	66.5	49.3
Queue Length 50th (ft)	114	213	39	87	~349	~446	25	318
Queue Length 95th (ft)	176	#405	#102	166	#521	#665	m27	m324
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	676	94	419	147	786	112	671
Starvation Cap Reductn	0	0	0	0	0	0	0	88
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.82	0.65	0.47	2.28	0.82	0.38	0.81

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	794.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	760	424	291	304	213	38
Future Vol, veh/h	760	424	291	304	213	38
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	826	461	316	330	232	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1297	0	2040	1077
Stage 1	-	-	-	-	1067	-
Stage 2	-	-	-	-	973	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	531	-	~ 62	265
Stage 1	-	-	-	-	329	-
Stage 2	-	-	-	-	365	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	526	-	~ 16	260
Mov Cap-2 Maneuver	-	-	-	-	~ 16	-
Stage 1	-	-	-	-	326	-
Stage 2	-	-	-	-	~ 95	-

Approach	EB	WB	NB
HCM Control Delay, s	0	10.6	$ 6403.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	19	-	-	526	-
HCM Lane V/C Ratio	14.359	-	-	0.601	-
HCM Control Delay (s)	$ 6403.3	-	-	21.6	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	34.7	-	-	3.9	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	4

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	36	482	445	76	122	50
Future Vol, veh/h	36	482	445	76	122	50
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	39	524	484	83	133	54

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	576	0	-	0	885	303
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	987	-	-	-	283	690
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	978	-	-	-	262	677
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	638	-

Approach	NB	SB	NE
HCM Control Delay, s	0.8	0	25.8
HCM LOS			D

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	262	677	978	-	-	-
HCM Lane V/C Ratio	0.506	0.08	0.04	-	-	-
HCM Control Delay (s)	32	10.8	8.8	0.2	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	2.6	0.3	0.1	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	502	26	48	447	43	16
Future Vol, veh/h	502	26	48	447	43	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	546	28	52	486	47	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	584	0	927	307
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	357	-
Critical Hdwy	-	-	4.16	-	7.56	6.96
Critical Hdwy Stg 1	-	-	-	-	6.56	-
Critical Hdwy Stg 2	-	-	-	-	6.56	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	980	-	222	686
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	631	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	971	-	206	673
Mov Cap-2 Maneuver	-	-	-	-	206	-
Stage 1	-	-	-	-	471	-
Stage 2	-	-	-	-	579	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1.1	23.9
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	971	-	254
HCM Lane V/C Ratio	-	-	0.054	-	0.252
HCM Control Delay (s)	-	-	8.9	0.3	23.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.2	-	1

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	27	512	597	17	16	8
Future Vol, veh/h	27	512	597	17	16	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	557	649	18	17	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	677	0	-	0	1293	678
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	625	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	910	-	-	-	179	450
Stage 1	-	-	-	-	508	-
Stage 2	-	-	-	-	532	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	901	-	-	-	167	441
Mov Cap-2 Maneuver	-	-	-	-	167	-
Stage 1	-	-	-	-	503	-
Stage 2	-	-	-	-	502	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	24.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	901	-	-	-	211
HCM Lane V/C Ratio	0.033	-	-	-	0.124
HCM Control Delay (s)	9.1	0	-	-	24.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.4

Intersection	
Int Delay, s/veh	1.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	180	26	17	195	26	16
Future Vol, veh/h	180	26	17	195	26	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	196	28	18	212	28	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	234	0	479	230
Stage 1	-	-	-	-	220	-
Stage 2	-	-	-	-	259	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1316	-	544	807
Stage 1	-	-	-	-	814	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1303	-	525	792
Mov Cap-2 Maneuver	-	-	-	-	525	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	762	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	602	-	-	1303	-
HCM Lane V/C Ratio	0.076	-	-	0.014	-
HCM Control Delay (s)	11.5	-	-	7.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	336	430	134	60	116
Future Vol, veh/h	75	336	430	134	60	116
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	365	467	146	65	126

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	623	0	-	0	1088	560
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	538	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	953	-	-	-	238	526
Stage 1	-	-	-	-	576	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	944	-	-	-	208	516
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	571	-
Stage 2	-	-	-	-	515	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	28
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	944	-	-	-	343
HCM Lane V/C Ratio	0.086	-	-	-	0.558
HCM Control Delay (s)	9.2	0	-	-	28
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	3.2

Intersection	
Int Delay, s/veh	93.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	167	196	314	512	18
Future Vol, veh/h	29	167	196	314	512	18
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	182	213	341	557	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	564	0	-	0	649	404
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	255	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1003	-	-	-	~ 433	644
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	785	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	993	-	-	-	~ 409	632
Mov Cap-2 Maneuver	-	-	-	-	~ 409	-
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	750	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	216.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	993	-	-	-	414
HCM Lane V/C Ratio	0.032	-	-	-	1.392
HCM Control Delay (s)	8.7	0	-	-	216.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	28

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	342	230	10
Future Vol, veh/h	353	0	0	342	230	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	372	250	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	766	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	382	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	369	653
Stage 1	-	0	0	-	686	-
Stage 2	-	0	0	-	688	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	365	647
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	681	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	32.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	365	647	-	-
HCM Lane V/C Ratio	0.685	0.017	-	-
HCM Control Delay (s)	33.8	10.7	-	-
HCM Lane LOS	D	B	-	-
HCM 95th %tile Q(veh)	4.9	0.1	-	-

Intersection	
Intersection Delay, s/veh	38.7
Intersection LOS	E

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	335	274	0	250	355	0	265	249
Future Vol, veh/h	0	335	274	0	250	355	0	265	249
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	364	298	0	272	386	0	288	271
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	27.7	64.8	20.9
HCM LOS	D	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	41%	0%	0%
Vol Right, %	0%	0%	59%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	335	274	605	265	249
LT Vol	335	0	0	265	0
Through Vol	0	274	250	0	0
RT Vol	0	0	355	0	249
Lane Flow Rate	364	298	658	288	271
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.787	0.603	1	0.65	0.518
Departure Headway (Hd)	7.783	7.283	6.727	8.119	6.886
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	470	497	546	446	522
Service Time	5.483	4.983	4.735	5.839	4.639
HCM Lane V/C Ratio	0.774	0.6	1.205	0.646	0.519
HCM Control Delay	33.6	20.4	64.8	24.7	16.9
HCM Lane LOS	D	C	F	C	C
HCM 95th-tile Q	7	3.9	14.2	4.5	2.9

Intersection	
Int Delay, s/veh	3.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	212	53	26	215	93	39
Future Vol, veh/h	212	53	26	215	93	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	230	58	28	234	101	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	288	0	549	259
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	290	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1268	-	495	777
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	757	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1268	-	483	777
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	782	-
Stage 2	-	-	-	-	738	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	483	777	-	-	1268	-
HCM Lane V/C Ratio	0.209	0.055	-	-	0.022	-
HCM Control Delay (s)	14.4	9.9	-	-	7.9	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	21	0	111	38	30	42	7
Future Vol, veh/h	0	0	9	0	0	21	0	111	38	30	42	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	23	0	121	41	33	46	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	27	-	-	81	-	0	0	162	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1039	0	0	959	0	-	-	1407	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1039	-	-	959	-	-	-	1407	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	8.8	0	2.9
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1039	959	1407	-	-
HCM Lane V/C Ratio	-	-	0.009	0.024	0.023	-	-
HCM Control Delay (s)	-	-	8.5	8.8	7.6	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	0	149	44	7
Future Vol, veh/h	0	9	0	149	44	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	0	162	48	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	28	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	1037	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1037	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	1037	-	-
HCM Lane V/C Ratio	-	0.009	-	-
HCM Control Delay (s)	-	8.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	6	23	138	11	37	5
Future Vol, veh/h	0	6	23	138	11	37	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	7	25	150	12	40	5

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	23	46	0	110	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	1045	1553	-	1214	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	1045	1553	-	1214	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	1.1	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1553	-	1045	1214	-	-
HCM Lane V/C Ratio	0.016	-	0.006	0.01	-	-
HCM Control Delay (s)	7.4	-	8.5	8	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	9	81	161	41	2
Future Vol, veh/h	0	9	81	161	41	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	10	88	175	45	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	22	45	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	1047	1554	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	1047	1554	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.5	2.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1554	-	1047	-	-
HCM Lane V/C Ratio	0.057	-	0.009	-	-
HCM Control Delay (s)	7.5	-	8.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	84	5	158	90	10	112	2
Future Vol, veh/h	0	0	8	0	0	84	5	158	90	10	112	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	91	5	172	98	11	122	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	62	-	-	135	124	0	0	270	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	987	0	0	886	1453	-	-	1283	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	987	-	-	886	1453	-	-	1283	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	9.5	0.1	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1453	-	-	987	886	1283	-	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.103	0.008	-	-
HCM Control Delay (s)	7.5	-	-	8.7	9.5	7.8	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	173	410	516	77	22	98
Future Vol, veh/h	173	410	516	77	22	98
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	188	446	561	84	24	107

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	645	0	-	0	1425	603
Stage 1	-	-	-	-	603	-
Stage 2	-	-	-	-	822	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	935	-	-	-	149	497
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	430	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	935	-	-	-	119	497
Mov Cap-2 Maneuver	-	-	-	-	119	-
Stage 1	-	-	-	-	544	-
Stage 2	-	-	-	-	344	-

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	19.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	935	-	-	-	119	497
HCM Lane V/C Ratio	0.201	-	-	-	0.201	0.214
HCM Control Delay (s)	9.8	-	-	-	42.7	14.2
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.7	-	-	-	0.7	0.8

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	3	18	28	42	28	4
Future Vol, veh/h	3	18	28	42	28	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	3	20	30	46	30	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	140	33	35	0	-	0
Stage 1	33	-	-	-	-	-
Stage 2	107	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	851	1038	1570	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	915	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	834	1038	1570	-	-	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	987	-	-	-	-	-
Stage 2	897	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	2.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1570	-	1003	-	-
HCM Lane V/C Ratio	0.019	-	0.023	-	-
HCM Control Delay (s)	7.3	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	27	0	114	160	126	61	7
Future Vol, veh/h	0	0	9	0	0	27	0	114	160	126	61	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	29	0	124	174	137	66	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	37	-	-	149	-	0	0	298	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1024	0	0	868	0	-	-	1253	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1024	-	-	868	-	-	-	1253	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.6	9.3	0	5.3
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1024	868	1253	-	-
HCM Lane V/C Ratio	-	-	0.01	0.034	0.109	-	-
HCM Control Delay (s)	-	-	8.6	9.3	8.2	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	115	5	280	378	42	140	2
Future Vol, veh/h	0	0	8	0	0	115	5	280	378	42	140	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	125	5	304	411	46	152	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	77	-	-	358	154	0	0	715	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	965	0	0	636	1417	-	-	875	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	965	-	-	636	1417	-	-	875	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	12	0.1	2.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1417	-	-	965	636	875	-	-
HCM Lane V/C Ratio	0.004	-	-	0.009	0.197	0.052	-	-
HCM Control Delay (s)	7.5	-	-	8.8	12	9.3	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0.2	-	-

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	9	0	0	130	0	150	44	35	43	7
Future Vol, veh/h	0	0	9	0	0	130	0	150	44	35	43	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	10	0	0	141	0	163	48	38	47	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	27	-	-	105	-	0	0	211	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1039	0	0	926	0	-	-	1350	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1039	-	-	926	-	-	-	1350	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.6	0	3.2
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1039	926	1350	-	-
HCM Lane V/C Ratio	-	-	0.009	0.153	0.028	-	-
HCM Control Delay (s)	-	-	8.5	9.6	7.7	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	8	0	0	552	5	164	105	12	529	2
Future Vol, veh/h	0	0	8	0	0	552	5	164	105	12	529	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	9	0	0	600	5	178	114	13	575	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	289	-	-	146	577	0	0	292	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	705	0	0	871	986	-	-	1259	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	705	-	-	871	986	-	-	1259	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	17.8	0.2	0.2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	986	-	-	705	871	1259	-	-
HCM Lane V/C Ratio	0.006	-	-	0.012	0.689	0.01	-	-
HCM Control Delay (s)	8.7	-	-	10.2	17.8	7.9	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	5.7	0	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	13	0	0	41	0	113	43	33	49	10
Future Vol, veh/h	0	0	13	0	0	41	0	113	43	33	49	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	14	0	0	45	0	123	47	36	53	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	32	-	-	85	-	0	0	170	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	1031	0	0	954	0	-	-	1397	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	1031	-	-	954	-	-	-	1397	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9	0	2.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	1031	954	1397	-	-
HCM Lane V/C Ratio	-	-	0.014	0.047	0.026	-	-
HCM Control Delay (s)	-	-	8.5	9	7.6	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	12	0	0	159	8	165	100	11	186	3
Future Vol, veh/h	0	0	12	0	0	159	8	165	100	11	186	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	13	0	0	173	9	179	109	12	202	3

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	103	-	-	144	205	0	0	288	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	929	0	0	874	1356	-	-	1264	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	929	-	-	874	1356	-	-	1264	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	10.1	0.2	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1356	-	-	929	874	1264	-	-
HCM Lane V/C Ratio	0.006	-	-	0.014	0.198	0.009	-	-
HCM Control Delay (s)	7.7	-	-	8.9	10.1	7.9	-	-
HCM Lane LOS	A	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0.7	0	-	-

CUMULATIVE YEAR 2040 WITH INTERCHANGE WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	284	231	140	271	249	132	367	203	159	371	57
Future Volume (veh/h)	85	284	231	140	271	249	132	367	203	159	371	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	92	309	251	152	295	271	143	399	221	173	403	62
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	116	646	545	215	631	532	173	1035	449	147	852	130
Arrive On Green	0.07	0.35	0.35	0.06	0.35	0.35	0.10	0.30	0.30	0.08	0.28	0.28
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1522	1757	3041	464
Grp Volume(v), veh/h	92	309	251	152	295	271	143	399	221	173	231	234
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1522	1757	1752	1753
Q Serve(g_s), s	5.1	13.0	12.4	4.4	12.6	14.0	7.9	9.0	11.9	8.3	10.8	11.0
Cycle Q Clear(g_c), s	5.1	13.0	12.4	4.4	12.6	14.0	7.9	9.0	11.9	8.3	10.8	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	116	646	545	215	631	532	173	1035	449	147	491	491
V/C Ratio(X)	0.79	0.48	0.46	0.71	0.47	0.51	0.82	0.39	0.49	1.18	0.47	0.48
Avail Cap(c_a), veh/h	124	646	545	310	660	556	249	1341	583	147	568	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	25.2	25.0	45.5	25.2	25.6	43.9	27.8	28.9	45.5	29.6	29.7
Incr Delay (d2), s/veh	24.7	2.5	2.8	1.6	2.0	2.7	9.4	0.6	2.2	130.1	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	5.8	2.1	6.7	6.3	4.3	4.4	5.2	9.3	5.5	5.6
LnGrp Delay(d),s/veh	70.4	27.7	27.8	47.1	27.1	28.3	53.3	28.4	31.0	175.6	31.5	31.6
LnGrp LOS	E	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		652			718			763			638	
Approach Delay, s/veh		33.7			31.8			33.9			70.6	
Approach LOS		C			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	41.6	14.0	33.1	10.8	41.4	12.5	34.6
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.4	15.0	9.9	13.0	7.1	16.0	10.3	13.9
Green Ext Time (p_c), s	0.1	12.2	0.1	10.9	0.0	12.4	0.0	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	195	184	104	76	231	962	695	291	957	264
Future Volume (veh/h)	49	64	195	184	104	76	231	962	695	291	957	264
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	53	70	212	200	113	83	251	1046	755	316	1040	287
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	292	117	354	213	287	211	278	920	607	234	1156	317
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.46	0.46	0.14	0.43	0.43
Sat Flow, veh/h	1163	401	1214	1077	985	723	1757	2015	1330	1723	2660	729
Grp Volume(v), veh/h	53	0	282	200	0	196	251	897	904	316	670	657
Grp Sat Flow(s),veh/h/ln	1163	0	1615	1077	0	1708	1757	1752	1593	1723	1719	1671
Q Serve(g_s), s	4.6	0.0	18.0	17.0	0.0	11.0	16.8	54.8	54.8	16.3	43.3	44.0
Cycle Q Clear(g_c), s	15.6	0.0	18.0	35.0	0.0	11.0	16.8	54.8	54.8	16.3	43.3	44.0
Prop In Lane	1.00		0.75	1.00		0.42	1.00		0.83	1.00		0.44
Lane Grp Cap(c), veh/h	292	0	471	213	0	498	278	800	727	234	747	726
V/C Ratio(X)	0.18	0.00	0.60	0.94	0.00	0.39	0.90	1.12	1.24	1.35	0.90	0.91
Avail Cap(c_a), veh/h	292	0	471	213	0	498	335	800	727	234	747	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.2	0.0	36.5	53.5	0.0	34.0	49.6	32.6	32.6	51.8	31.4	31.6
Incr Delay (d2), s/veh	0.3	0.0	2.1	45.1	0.0	0.5	3.2	56.3	110.8	179.5	13.7	14.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	8.3	9.3	0.0	5.2	8.4	39.0	46.4	19.4	23.3	23.3
LnGrp Delay(d),s/veh	40.5	0.0	38.6	98.6	0.0	34.5	52.8	88.9	143.4	231.3	45.1	46.6
LnGrp LOS	D		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		335			396			2052			1643	
Approach Delay, s/veh		38.9			66.9			108.5			81.5	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	60.1		39.9	22.7	57.4		39.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	18.3	56.8		20.0	18.8	46.0		37.0
Green Ext Time (p_c), s	0.0	0.0		3.4	0.1	2.2		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		89.5
HCM 2010 LOS		F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	138	237	1120	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	138	237	1120	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	463	120	377				0	1495	150	258	1217	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	517	115	361				0	1541	153	990	3823	0
Arrive On Green	0.29	0.29	0.29				0.00	0.96	0.96	0.56	1.00	0.00
Sat Flow, veh/h	1757	390	1224				0	3309	320	1757	3597	0
Grp Volume(v), veh/h	463	0	497				0	809	836	258	1217	0
Grp Sat Flow(s),veh/h/ln	1757	0	1614				0	1752	1784	1757	1752	0
Q Serve(g_s), s	27.8	0.0	32.4				0.0	27.5	34.5	8.3	0.0	0.0
Cycle Q Clear(g_c), s	27.8	0.0	32.4				0.0	27.5	34.5	8.3	0.0	0.0
Prop In Lane	1.00		0.76				0.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	517	0	475				0	840	855	990	3823	0
V/C Ratio(X)	0.89	0.00	1.05				0.00	0.96	0.98	0.26	0.32	0.00
Avail Cap(c_a), veh/h	517	0	475				0	840	855	990	3823	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.48	0.48	0.26	0.26	0.00
Uniform Delay (d), s/veh	37.2	0.0	38.8				0.0	1.8	1.9	12.3	0.0	0.0
Incr Delay (d2), s/veh	17.9	0.0	53.7				0.0	14.4	16.8	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	0.0	21.5				0.0	11.0	13.8	4.0	0.0	0.0
LnGrp Delay(d),s/veh	55.1	0.0	92.5				0.0	16.2	18.7	12.3	0.1	0.0
LnGrp LOS	E		F					B	B	B	A	
Approach Vol, veh/h		960						1645			1475	
Approach Delay, s/veh		74.4						17.5			2.2	
Approach LOS		E						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	68.0	58.0		37.0		126.0		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	10.3	36.5		34.4		2.0		
Green Ext Time (p_c), s	0.2	14.5		0.0		23.0		

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	49	39	38	55	369	49	1007	16	278	1074	121
Future Volume (veh/h)	91	49	39	38	55	369	49	1007	16	278	1074	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	99	53	42	41	60	401	53	1095	17	302	1167	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	165	349	277	486	76	507	77	1076	17	347	1500	169
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.40	0.95	0.95
Sat Flow, veh/h	916	951	754	1274	207	1381	1757	3532	55	1757	3172	358
Grp Volume(v), veh/h	99	0	95	41	0	461	53	543	569	302	644	655
Grp Sat Flow(s),veh/h/ln	916	0	1704	1274	0	1588	1757	1752	1834	1757	1752	1777
Q Serve(g_s), s	11.9	0.0	4.1	2.5	0.0	28.5	3.3	33.5	33.5	17.4	8.2	8.3
Cycle Q Clear(g_c), s	40.4	0.0	4.1	6.6	0.0	28.5	3.3	33.5	33.5	17.4	8.2	8.3
Prop In Lane	1.00		0.44	1.00		0.87	1.00		0.03	1.00		0.20
Lane Grp Cap(c), veh/h	165	0	626	486	0	583	77	534	559	347	829	841
V/C Ratio(X)	0.60	0.00	0.15	0.08	0.00	0.79	0.69	1.02	1.02	0.87	0.78	0.78
Avail Cap(c_a), veh/h	165	0	626	486	0	583	142	534	559	359	829	841
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	49.0	0.0	23.3	25.5	0.0	31.0	51.9	38.3	38.3	31.9	1.8	1.8
Incr Delay (d2), s/veh	6.5	0.0	0.1	0.1	0.0	7.5	4.1	43.6	42.7	15.5	5.7	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	1.9	0.9	0.0	13.6	1.7	22.6	23.5	9.9	4.2	4.2
LnGrp Delay(d),s/veh	55.6	0.0	23.5	25.6	0.0	38.5	55.9	81.8	81.0	47.4	7.5	7.5
LnGrp LOS	E		C	C		D	E	F	F	D	A	A
Approach Vol, veh/h		194			502			1165			1601	
Approach Delay, s/veh		39.8			37.4			80.2			15.1	
Approach LOS		D			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	27.0	38.8		46.0	8.5	57.3		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	19.4	35.5		42.4	5.3	10.3		30.5
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	23.2		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	41.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	217	60	86	181	95	72	195	99	114	552	422
Future Volume (veh/h)	182	217	60	86	181	95	72	195	99	114	552	422
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	198	236	65	93	197	103	78	212	108	124	600	459
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	312	697	307	136	606	266	100	1362	605	156	1543	682
Arrive On Green	0.09	0.20	0.20	0.08	0.18	0.18	0.06	0.39	0.39	0.09	0.44	0.44
Sat Flow, veh/h	3343	3438	1515	1723	3438	1512	1757	3505	1556	1757	3505	1550
Grp Volume(v), veh/h	198	236	65	93	197	103	78	212	108	124	600	459
Grp Sat Flow(s),veh/h/ln	1672	1719	1515	1723	1719	1512	1757	1752	1556	1757	1752	1550
Q Serve(g_s), s	5.3	5.4	3.3	4.9	4.6	5.6	4.0	3.6	2.9	6.4	10.7	13.0
Cycle Q Clear(g_c), s	5.3	5.4	3.3	4.9	4.6	5.6	4.0	3.6	2.9	6.4	10.7	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	697	307	136	606	266	100	1362	605	156	1543	682
V/C Ratio(X)	0.64	0.34	0.21	0.69	0.33	0.39	0.78	0.16	0.18	0.80	0.39	0.67
Avail Cap(c_a), veh/h	434	1414	623	183	1332	586	148	1362	605	221	1543	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	31.5	30.7	41.4	33.3	33.6	43.0	18.4	8.9	41.3	17.5	7.4
Incr Delay (d2), s/veh	0.8	0.7	0.9	2.7	0.8	2.4	7.7	0.2	0.6	8.0	0.7	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.7	1.5	2.4	2.3	2.5	2.2	1.8	1.8	3.4	5.3	7.4
LnGrp Delay(d),s/veh	41.2	32.3	31.6	44.2	34.1	36.0	50.7	18.6	9.5	49.3	18.2	12.6
LnGrp LOS	D	C	C	D	C	D	D	B	A	D	B	B
Approach Vol, veh/h		499			393			398			1183	
Approach Delay, s/veh		35.7			37.0			22.4			19.3	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	41.9	11.5	24.0	9.4	47.5	13.9	21.6
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	11.6	* 36	* 9.8	38.0	* 7.8	38.9	12.0	* 36
Max Q Clear Time (g_c+I1), s	8.4	5.6	6.9	7.4	6.0	15.0	7.3	7.6
Green Ext Time (p_c), s	0.3	4.3	0.0	3.7	0.0	13.8	1.4	3.4

Intersection Summary			
HCM 2010 Ctrl Delay		25.9	
HCM 2010 LOS		C	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	264	298	247	6	405	8	128	0	6	15
Future Volume (veh/h)	6	88	264	298	247	6	405	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	287	324	268	7	440	9	139	0	7	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	73	217	271	592	15	394	49	754	0	119	272
Arrive On Green	0.01	0.18	0.18	0.15	0.33	0.33	0.22	0.51	0.51	0.00	0.24	0.24
Sat Flow, veh/h	1757	400	1195	1757	1789	47	1757	95	1472	0	492	1126
Grp Volume(v), veh/h	7	0	383	324	0	275	440	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	0	1594	1757	0	1836	1757	0	1568	0	0	1618
Q Serve(g_s), s	0.4	0.0	18.2	15.4	0.0	11.8	22.4	0.0	5.1	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.4	0.0	18.2	15.4	0.0	11.8	22.4	0.0	5.1	0.0	0.0	1.1
Prop In Lane	1.00		0.75	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	0	290	271	0	607	394	0	803	0	0	392
V/C Ratio(X)	0.75	0.00	1.32	1.20	0.00	0.45	1.12	0.00	0.18	0.00	0.00	0.06
Avail Cap(c_a), veh/h	86	0	290	271	0	607	394	0	803	0	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	40.9	42.3	0.0	26.3	38.8	0.0	13.1	0.0	0.0	29.1
Incr Delay (d2), s/veh	35.5	0.0	166.2	119.0	0.0	0.6	78.4	0.0	0.4	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	21.4	16.4	0.0	6.1	19.4	0.0	2.3	0.0	0.0	0.5
LnGrp Delay(d),s/veh	85.2	0.0	207.1	161.3	0.0	27.0	117.2	0.0	13.6	0.0	0.0	29.4
LnGrp LOS	F		F	F		C	F		B			C
Approach Vol, veh/h		390			599			588			23	
Approach Delay, s/veh		204.9			99.6			91.1			29.4	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		56.5	20.0	23.5	27.0	29.5	5.1	38.4
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		7.1	17.4	20.2	24.4	3.1	2.4	13.8
Green Ext Time (p_c), s		1.4	0.0	0.0	0.0	1.1	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	121.2
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	37	153	354	40	18	410	140
Future Volume (veh/h)	150	28	217	74	80	37	153	354	40	18	410	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	40	166	385	43	20	446	152
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	37	292	95	183	84	316	597	67	299	468	160
Arrive On Green	0.11	0.21	0.21	0.05	0.15	0.15	0.18	0.37	0.37	0.06	0.12	0.12
Sat Flow, veh/h	1757	176	1385	1757	1183	544	1757	1628	182	1757	1311	447
Grp Volume(v), veh/h	163	0	266	80	0	127	166	0	428	20	0	598
Grp Sat Flow(s),veh/h/ln	1757	0	1561	1757	0	1727	1757	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	0.0	16.2	4.5	0.0	6.7	8.6	0.0	19.6	1.1	0.0	33.8
Cycle Q Clear(g_c), s	9.1	0.0	16.2	4.5	0.0	6.7	8.6	0.0	19.6	1.1	0.0	33.8
Prop In Lane	1.00		0.89	1.00		0.31	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	0	329	95	0	268	316	0	664	299	0	628
V/C Ratio(X)	0.84	0.00	0.81	0.84	0.00	0.47	0.53	0.00	0.64	0.07	0.00	0.95
Avail Cap(c_a), veh/h	323	0	479	95	0	325	316	0	664	299	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	43.6	0.0	37.5	46.9	0.0	38.5	37.1	0.0	26.2	39.7	0.0	43.3
Incr Delay (d2), s/veh	4.1	0.0	11.9	44.5	0.0	0.5	0.8	0.0	4.8	0.0	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	8.0	3.4	0.0	3.2	4.2	0.0	10.6	0.5	0.0	17.2
LnGrp Delay(d),s/veh	47.8	0.0	49.4	91.4	0.0	39.0	37.9	0.0	31.0	39.7	0.0	47.6
LnGrp LOS	D		D	F		D	D		C	D		D
Approach Vol, veh/h		429			207			594			618	
Approach Delay, s/veh		48.8			59.3			32.9			47.3	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	42.0	10.0	26.4	22.6	41.0	15.6	20.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	21.6	6.5	18.2	10.6	35.8	11.1	8.7
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	0.0	0.0	2.3

Intersection Summary		
HCM 2010 Ctrl Delay		44.4
HCM 2010 LOS		D

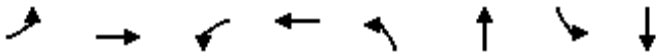
Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	92	309	251	152	295	271	143	399	221	173	465
v/c Ratio	0.72	0.46	0.35	0.54	0.44	0.37	0.68	0.44	0.40	1.14	0.59
Control Delay	77.7	28.2	4.9	51.7	27.4	4.8	59.1	30.9	5.8	158.7	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.7	28.2	4.9	51.7	27.4	4.8	59.1	30.9	5.8	158.7	35.6
Queue Length 50th (ft)	56	144	0	46	134	0	85	107	0	~126	131
Queue Length 95th (ft)	#159	267	56	88	250	57	#173	150	51	#296	185
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	128	671	718	320	685	738	258	1393	732	152	1161
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.46	0.35	0.47	0.43	0.37	0.55	0.29	0.30	1.14	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	282	200	196	251	1801	316	1327
v/c Ratio	0.19	0.52	0.99	0.39	0.85	1.14	1.26	0.91
Control Delay	34.3	22.6	103.2	31.2	73.9	99.8	188.5	42.8
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.9	0.0	0.0
Total Delay	34.3	22.6	103.2	31.2	74.0	100.7	188.5	42.8
Queue Length 50th (ft)	31	96	152	101	187	~813	~321	511
Queue Length 95th (ft)	66	183	#304	170	#303	#954	#502	#686
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	282	559	210	520	334	1579	250	1451
Starvation Cap Reductn	0	0	0	0	1	333	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.50	0.95	0.38	0.75	1.45	1.26	0.91

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

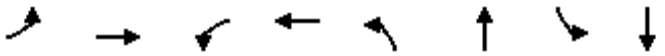
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	483	443	1645	258	1217
v/c Ratio	1.00	0.90	0.99	1.44	0.56
Control Delay	79.6	54.6	51.1	263.9	13.7
Queue Delay	0.0	57.6	40.4	0.0	8.4
Total Delay	79.6	112.2	91.5	263.9	22.1
Queue Length 50th (ft)	357	269	650	~248	247
Queue Length 95th (ft)	#586	#473	m#786	#410	306
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	490	1655	179	2157
Starvation Cap Reductn	0	0	809	0	904
Spillback Cap Reductn	0	300	0	0	441
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	2.33	1.94	1.44	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	95	41	461	53	1112	302	1299
v/c Ratio	1.48	0.21	0.13	0.72	0.44	0.75	0.84	0.65
Control Delay	313.9	17.5	29.0	15.7	60.3	33.2	53.0	14.8
Queue Delay	36.8	0.0	0.0	2.7	0.0	52.3	55.2	0.6
Total Delay	350.6	17.5	29.0	18.4	60.3	85.4	108.2	15.4
Queue Length 50th (ft)	~95	29	23	70	37	347	212	195
Queue Length 95th (ft)	#183	61	44	162	78	#584	m#328	m544
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	99	652	455	783	142	1480	358	1986
Starvation Cap Reductn	0	0	0	0	0	0	115	317
Spillback Cap Reductn	24	0	0	209	0	881	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.15	0.09	0.80	0.37	1.86	1.24	0.78

Intersection Summary

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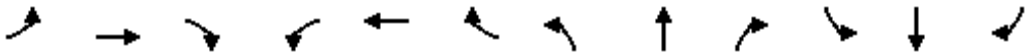
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

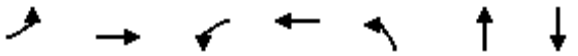
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	198	236	65	93	197	103	78	212	108	124	600	459
v/c Ratio	0.53	0.36	0.15	0.54	0.39	0.27	0.55	0.15	0.15	0.60	0.38	0.49
Control Delay	43.9	34.8	0.8	52.0	37.2	1.8	56.0	18.5	0.9	51.7	18.5	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	34.8	0.8	52.0	37.2	1.8	56.0	18.5	0.9	51.7	18.5	3.9
Queue Length 50th (ft)	55	65	0	51	54	0	43	40	0	68	120	0
Queue Length 95th (ft)	94	101	0	107	88	1	#102	71	6	#134	184	59
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	448	1463	740	188	1378	712	153	1409	722	227	1590	937
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.16	0.09	0.49	0.14	0.14	0.51	0.15	0.15	0.55	0.38	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	7	383	324	275	440	148	23
v/c Ratio	0.10	0.97	1.20	0.41	1.12	0.17	0.06
Control Delay	49.0	66.4	159.9	27.1	121.0	3.0	16.9
Queue Delay	0.0	47.1	0.0	0.0	0.0	0.0	0.1
Total Delay	49.0	113.4	159.9	27.1	121.0	3.0	17.0
Queue Length 50th (ft)	4	167	~252	125	~330	8	3
Queue Length 95th (ft)	19	#356	#423	228	#529	23	23
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	395	269	666	392	856	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	197	0	0	0	0	137
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	1.93	1.20	0.41	1.12	0.17	0.09

Intersection Summary

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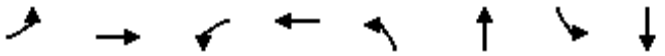
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	266	80	127	166	428	20	598
v/c Ratio	0.73	0.58	0.85	0.61	1.13	0.41	0.22	0.68
Control Delay	60.7	11.6	107.6	48.0	156.4	16.4	46.6	46.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.3
Total Delay	60.7	11.6	107.6	48.0	156.4	16.4	46.6	86.5
Queue Length 50th (ft)	102	16	52	66	~123	120	9	393
Queue Length 95th (ft)	161	78	#138	120	#254	307	m8	m370
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	636	94	341	147	1043	129	874
Starvation Cap Reductn	0	0	0	0	0	0	0	314
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.42	0.85	0.37	1.13	0.41	0.16	1.07

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	56.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	201	703	306	263	71	120
Future Vol, veh/h	201	703	306	263	71	120
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	218	764	333	286	77	130

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	993	0	1572	621
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	961	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	693	-	121	486
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	370	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	686	-	~ 50	477
Mov Cap-2 Maneuver	-	-	-	-	~ 50	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	155	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.1	$ 466.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	114	-	-	686	-
HCM Lane V/C Ratio	1.821	-	-	0.485	-
HCM Control Delay (s)	$ 466.3	-	-	15.1	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	16.4	-	-	2.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	27	243	259	120	78	27
Future Vol, veh/h	27	243	259	120	78	27
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	264	282	130	85	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	558	226
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	201	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1127	-	-	-	457	774
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1116	-	-	-	435	759
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	778	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	435	759	1116	-	-	-
HCM Lane V/C Ratio	0.195	0.039	0.026	-	-	-
HCM Control Delay (s)	15.3	9.9	8.3	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.9

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	248	100	16	285	99	35
Future Vol, veh/h	248	100	16	285	99	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	109	17	310	108	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	534	209
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	200	-
Critical Hdwy	-	-	4.16	-	7.56	6.96
Critical Hdwy Stg 1	-	-	-	-	6.56	-
Critical Hdwy Stg 2	-	-	-	-	6.56	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1160	-	427	794
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1149	-	413	779
Mov Cap-2 Maneuver	-	-	-	-	413	-
Stage 1	-	-	-	-	651	-
Stage 2	-	-	-	-	759	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.5	16
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1149	-	471
HCM Lane V/C Ratio	-	-	0.015	-	0.309
HCM Control Delay (s)	-	-	8.2	0.1	16
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0	-	1.3

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	240	112	45	221	14	7
Future Vol, veh/h	240	112	45	221	14	7
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	261	122	49	240	15	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	393	0	680	342
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	348	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1149	-	415	698
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	713	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1138	-	387	685
Mov Cap-2 Maneuver	-	-	-	-	387	-
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	671	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	453	-	-	1138	-
HCM Lane V/C Ratio	0.05	-	-	0.043	-
HCM Control Delay (s)	13.4	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	10.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	190	176	28
Future Vol, veh/h	96	369	165	190	176	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	207	191	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	396	0	-	0	913	303
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1157	-	-	-	302	734
Stage 1	-	-	-	-	755	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1146	-	-	-	262	720
Mov Cap-2 Maneuver	-	-	-	-	262	-
Stage 1	-	-	-	-	748	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s	1.7	0	49.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1146	-	-	-	287
HCM Lane V/C Ratio	0.091	-	-	-	0.773
HCM Control Delay (s)	8.5	0	-	-	49.9
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	5.9

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	97	142	132	293	8
Future Vol, veh/h	29	97	142	132	293	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	105	154	143	318	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	414	246
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1247	-	-	-	593	790
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1235	-	-	-	565	775
Mov Cap-2 Maneuver	-	-	-	-	565	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1235	-	-	-	569
HCM Lane V/C Ratio	0.026	-	-	-	0.575
HCM Control Delay (s)	8	0	-	-	19.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3.6

Intersection	
Int Delay, s/veh	9.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	216	0	0	236	309	3
Future Vol, veh/h	216	0	0	236	309	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	235	0	0	257	336	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	502	245
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	267	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	527	791
Stage 1	-	0	0	-	802	-
Stage 2	-	0	0	-	775	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	522	783
Mov Cap-2 Maneuver	-	-	-	-	522	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	522	783	-	-
HCM Lane V/C Ratio	0.643	0.004	-	-
HCM Control Delay (s)	23.5	9.6	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	4.5	0	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	133	190	0	41	14	0	15	239
Future Vol, veh/h	0	133	190	0	41	14	0	15	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	145	207	0	45	15	0	16	260
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.4	8.9	10.2
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	75%	0%	0%
Vol Right, %	0%	0%	25%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	190	55	15	239
LT Vol	133	0	0	15	0
Through Vol	0	190	41	0	0
RT Vol	0	0	14	0	239
Lane Flow Rate	145	207	60	16	260
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.233	0.304	0.088	0.028	0.354
Departure Headway (Hd)	5.798	5.295	5.315	6.109	4.901
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	616	675	668	585	733
Service Time	3.562	3.058	3.394	3.854	2.645
HCM Lane V/C Ratio	0.235	0.307	0.09	0.027	0.355
HCM Control Delay	10.3	10.4	8.9	9	10.3
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	0.9	1.3	0.3	0.1	1.6

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	352	129	32	235	128	42
Future Vol, veh/h	352	129	32	235	128	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	383	140	35	255	139	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	523	0	778	453
Stage 1	-	-	-	-	453	-
Stage 2	-	-	-	-	325	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1038	-	363	605
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	730	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1038	-	349	605
Mov Cap-2 Maneuver	-	-	-	-	349	-
Stage 1	-	-	-	-	638	-
Stage 2	-	-	-	-	702	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	19.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	349	605	-	-	1038	-
HCM Lane V/C Ratio	0.399	0.075	-	-	0.034	-
HCM Control Delay (s)	22	11.4	-	-	8.6	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.9	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	17	0	0	0	0	170	0	0	157	4
Future Vol, veh/h	0	0	17	0	0	0	0	170	0	0	157	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	18	0	0	0	0	185	0	0	171	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	88	-	-	92	-	0	0	185	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	950	0	0	944	0	-	-	1380	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	950	-	-	944	-	-	-	1380	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	950	-	1380	-	-
HCM Lane V/C Ratio	-	-	0.019	-	-	-	-
HCM Control Delay (s)	-	-	8.9	0	0	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	-	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	17	0	170	170	4
Future Vol, veh/h	0	17	0	170	170	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	0	185	185	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	95	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	940	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	940	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	940	-	-
HCM Lane V/C Ratio	-	0.02	-	-
HCM Control Delay (s)	-	8.9	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	12	9	150	20	164	3
Future Vol, veh/h	0	12	9	150	20	164	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	13	10	163	22	178	3

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	91	182	0	119	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	945	1383	-	1198	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	945	1383	-	1198	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.4	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1383	-	945	1198	-	-
HCM Lane V/C Ratio	0.007	-	0.014	0.018	-	-
HCM Control Delay (s)	7.6	-	8.9	8.1	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	101	78	159	174	2
Future Vol, veh/h	0	101	78	159	174	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	110	85	173	189	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	95	189	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	940	1375	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	940	1375	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.3	2.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1375	-	940	-	-
HCM Lane V/C Ratio	0.062	-	0.117	-	-
HCM Control Delay (s)	7.8	-	9.3	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	59	0	0	0	98	237	0	0	273	2
Future Vol, veh/h	0	0	59	0	0	0	98	237	0	0	273	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	64	0	0	0	107	258	0	0	297	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	149	-	-	129	299	0	0	258	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	868	0	0	894	1252	-	-	1296	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	868	-	-	894	1252	-	-	1296	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	0	2.4	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1252	-	-	868	-	1296	-	-
HCM Lane V/C Ratio	0.085	-	-	0.074	-	-	-	-
HCM Control Delay (s)	8.1	-	-	9.5	0	0	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	-	0	-	-

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	205	0	0	193	0	142	214	251	81	55
Future Vol, veh/h	0	0	205	0	0	193	0	142	214	251	81	55
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	223	0	0	210	0	154	233	273	88	60

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	74	-	-	193	-	0	0	387	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	823	0	0	692	0	-	-	761	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	823	-	-	692	-	-	-	761	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	12.4	0	8
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	823	692	761	-	-
HCM Lane V/C Ratio	-	-	0.271	0.303	0.359	-	-
HCM Control Delay (s)	-	-	11	12.4	12.4	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	1.1	1.3	1.6	-	-

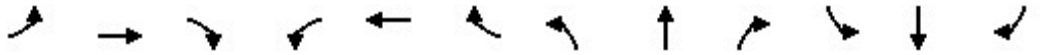
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	0	21	114	0
Future Vol, veh/h	0	0	0	21	114	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	23	124	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	147	124	124	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	23	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	843	924	1457	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	997	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	843	924	1457	-	-	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	997	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

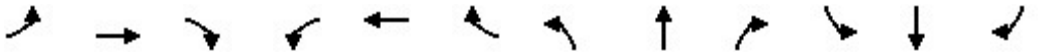
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1457	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	66	0	37	0	319	234	0	130	156
Future Volume (veh/h)	0	0	0	66	0	37	0	319	234	0	130	156
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				72	0	40	0	347	254	0	141	170
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				108	0	169	0	4241	1321	0	4241	1321
Arrive On Green				0.06	0.00	0.06	0.00	0.84	0.84	0.00	0.84	0.84
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				72	0	40	0	347	254	0	141	170
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				3.7	0.0	1.3	0.0	1.1	2.8	0.0	0.4	1.8
Cycle Q Clear(g_c), s				3.7	0.0	1.3	0.0	1.1	2.8	0.0	0.4	1.8
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				108	0	169	0	4241	1321	0	4241	1321
V/C Ratio(X)				0.67	0.00	0.24	0.00	0.08	0.19	0.00	0.03	0.13
Avail Cap(c_a), veh/h				613	0	962	0	4241	1321	0	4241	1321
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.8	0.0	41.7	0.0	1.2	1.4	0.0	1.2	1.3
Incr Delay (d2), s/veh				7.0	0.0	0.7	0.0	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	0.5	0.0	0.5	1.3	0.0	0.2	0.8
LnGrp Delay(d),s/veh				49.8	0.0	42.4	0.0	1.3	1.7	0.0	1.2	1.5
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					112			601			311	
Approach Delay, s/veh					47.2			1.5			1.4	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		10.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		4.8				3.8		5.7
Green Ext Time (p_c), s		4.9				4.9		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	212	0	62	0	0	0	0	341	203	0	91	105
Future Volume (veh/h)	212	0	62	0	0	0	0	341	203	0	91	105
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	230	0	67				0	371	221	0	99	114
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	299	0	469				0	3463	1078	0	3463	1078
Arrive On Green	0.17	0.00	0.17				0.00	0.69	0.69	0.00	0.69	0.69
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	230	0	67				0	371	221	0	99	114
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	7.9	0.0	1.3				0.0	1.6	3.2	0.0	0.4	1.5
Cycle Q Clear(g_c), s	7.9	0.0	1.3				0.0	1.6	3.2	0.0	0.4	1.5
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	299	0	469				0	3463	1078	0	3463	1078
V/C Ratio(X)	0.77	0.00	0.14				0.00	0.11	0.20	0.00	0.03	0.11
Avail Cap(c_a), veh/h	1875	0	2944				0	3463	1078	0	3463	1078
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.1	0.0	22.3				0.0	3.3	3.6	0.0	3.1	3.3
Incr Delay (d2), s/veh	4.2	0.0	0.1				0.0	0.1	0.4	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	0.5				0.0	0.7	1.5	0.0	0.2	2.7
LnGrp Delay(d),s/veh	29.2	0.0	22.5				0.0	3.4	4.0	0.0	3.2	3.5
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		297						592			213	
Approach Delay, s/veh		27.7						3.6			3.4	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		48.0		15.3		48.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		43.5		67.5		43.5		
Max Q Clear Time (g_c+I1), s		5.2		9.9		3.5		
Green Ext Time (p_c), s		4.3		0.9		4.3		

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	247	180	169	214	91	167	253	201	131	223	26
Future Volume (veh/h)	22	247	180	169	214	91	167	253	201	131	223	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	268	196	184	233	99	182	275	218	142	242	28
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	51	683	576	247	783	661	214	852	369	171	693	79
Arrive On Green	0.03	0.37	0.37	0.07	0.43	0.43	0.12	0.24	0.24	0.10	0.22	0.22
Sat Flow, veh/h	1757	1845	1555	3343	1810	1527	1757	3505	1519	1757	3162	362
Grp Volume(v), veh/h	24	268	196	184	233	99	182	275	218	142	133	137
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1527	1757	1752	1519	1757	1752	1771
Q Serve(g_s), s	1.4	11.1	6.1	5.6	8.7	4.1	10.5	6.7	9.8	8.2	6.6	6.8
Cycle Q Clear(g_c), s	1.4	11.1	6.1	5.6	8.7	4.1	10.5	6.7	9.8	8.2	6.6	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	51	683	576	247	783	661	214	852	369	171	384	388
V/C Ratio(X)	0.47	0.39	0.34	0.74	0.30	0.15	0.85	0.32	0.59	0.83	0.35	0.35
Avail Cap(c_a), veh/h	115	683	576	271	783	661	352	1308	567	251	553	559
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	24.0	10.0	47.0	19.1	17.8	44.6	32.2	19.4	45.9	34.2	34.3
Incr Delay (d2), s/veh	2.5	1.7	1.6	8.1	0.8	0.4	5.0	0.6	3.9	9.1	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.0	3.7	2.9	4.5	1.8	5.4	3.3	5.1	4.4	3.4	3.5
LnGrp Delay(d),s/veh	52.1	25.7	11.6	55.2	19.9	18.2	49.6	32.8	23.3	55.1	35.6	35.7
LnGrp LOS	D	C	B	E	B	B	D	C	C	E	D	D
Approach Vol, veh/h		488			516			675			412	
Approach Delay, s/veh		21.3			32.2			34.3			42.3	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.5	44.4	16.8	28.0	7.2	51.7	14.3	30.5
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	7.6	13.1	12.5	8.8	3.4	10.7	10.2	11.8
Green Ext Time (p_c), s	0.1	5.8	0.1	8.5	0.0	4.4	0.1	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	320	179	119	108	123	1144	553	140	746	144
Future Volume (veh/h)	79	120	320	179	119	108	123	1144	553	140	746	144
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	86	130	348	195	129	117	134	1243	601	152	811	157
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	351	161	431	155	324	294	232	1014	458	166	1100	213
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.87	0.87	0.10	0.38	0.38
Sat Flow, veh/h	1113	442	1183	901	889	806	1757	2339	1057	1723	2867	555
Grp Volume(v), veh/h	86	0	478	195	0	246	134	909	935	152	486	482
Grp Sat Flow(s),veh/h/ln	1113	0	1624	901	0	1695	1757	1752	1644	1723	1719	1703
Q Serve(g_s), s	6.8	0.0	29.1	11.0	0.0	11.9	7.3	47.7	47.7	9.6	26.7	26.7
Cycle Q Clear(g_c), s	18.7	0.0	29.1	40.1	0.0	11.9	7.3	47.7	47.7	9.6	26.7	26.7
Prop In Lane	1.00		0.73	1.00		0.48	1.00		0.64	1.00		0.33
Lane Grp Cap(c), veh/h	351	0	592	155	0	618	232	760	713	166	659	653
V/C Ratio(X)	0.24	0.00	0.81	1.26	0.00	0.40	0.58	1.20	1.31	0.92	0.74	0.74
Avail Cap(c_a), veh/h	351	0	592	155	0	618	232	760	713	166	659	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.89	0.89	0.89
Uniform Delay (d), s/veh	32.9	0.0	31.5	51.8	0.0	26.0	37.8	7.3	7.3	49.3	29.1	29.1
Incr Delay (d2), s/veh	0.4	0.0	8.1	157.0	0.0	0.4	0.2	89.8	141.0	41.9	6.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	14.3	11.5	0.0	5.6	3.5	39.2	46.9	6.5	13.9	13.8
LnGrp Delay(d),s/veh	33.3	0.0	39.6	208.9	0.0	26.4	38.1	97.1	148.3	91.2	35.6	35.7
LnGrp LOS	C		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		564			441			1978			1120	
Approach Delay, s/veh		38.6			107.1			117.3			43.2	
Approach LOS		D			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	53.1		45.0	19.9	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	11.6	49.7		31.1	9.3	28.7		42.1
Green Ext Time (p_c), s	0.0	0.0		3.9	3.2	7.2		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	85.2
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	1	582	0	0	0	0	1113	245	271	974	0
Future Volume (veh/h)	695	1	582	0	0	0	0	1113	245	271	974	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	694	86	633				0	1210	266	295	1059	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	700	76	556				0	1015	221	630	2671	0
Arrive On Green	0.40	0.40	0.40				0.00	0.71	0.71	0.72	1.00	0.00
Sat Flow, veh/h	1757	190	1396				0	2948	621	1757	3597	0
Grp Volume(v), veh/h	694	0	719				0	737	739	295	1059	0
Grp Sat Flow(s),veh/h/ln	1757	0	1586				0	1752	1725	1757	1752	0
Q Serve(g_s), s	43.2	0.0	43.8				0.0	39.1	39.1	7.9	0.0	0.0
Cycle Q Clear(g_c), s	43.2	0.0	43.8				0.0	39.1	39.1	7.9	0.0	0.0
Prop In Lane	1.00		0.88				0.00		0.36	1.00		0.00
Lane Grp Cap(c), veh/h	700	0	631				0	623	613	630	2671	0
V/C Ratio(X)	0.99	0.00	1.14				0.00	1.18	1.20	0.47	0.40	0.00
Avail Cap(c_a), veh/h	700	0	631				0	623	613	630	2671	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.46	0.46	0.45	0.45	0.00
Uniform Delay (d), s/veh	32.9	0.0	33.1				0.0	15.9	15.9	11.1	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	80.5				0.0	90.6	99.6	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	0.0	33.2				0.0	33.7	34.7	3.6	0.1	0.0
LnGrp Delay(d),s/veh	64.9	0.0	113.6				0.0	106.5	115.5	11.2	0.2	0.0
LnGrp LOS	E		F					F	F	B	A	
Approach Vol, veh/h		1413						1476			1354	
Approach Delay, s/veh		89.7						111.0			2.6	
Approach LOS		F						F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	44.9	44.4		48.4		89.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	9.9	41.1		45.8		2.0		
Green Ext Time (p_c), s	2.2	0.0		0.0		17.4		

Intersection Summary	
HCM 2010 Ctrl Delay	69.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	107	141	48	69	222	75	923	42	322	1102	142
Future Volume (veh/h)	163	107	141	48	69	222	75	923	42	322	1102	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	177	116	153	52	75	241	82	1003	46	350	1198	154
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	260	248	327	304	132	425	158	983	45	411	1348	173
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.47	0.86	0.86
Sat Flow, veh/h	1044	719	948	1090	383	1231	1757	3410	156	1757	3121	400
Grp Volume(v), veh/h	177	0	269	52	0	316	82	515	534	350	671	681
Grp Sat Flow(s),veh/h/ln	1044	0	1668	1090	0	1615	1757	1752	1814	1757	1752	1769
Q Serve(g_s), s	18.3	0.0	13.9	4.3	0.0	17.5	4.9	31.7	31.7	19.4	24.5	25.2
Cycle Q Clear(g_c), s	35.8	0.0	13.9	18.2	0.0	17.5	4.9	31.7	31.7	19.4	24.5	25.2
Prop In Lane	1.00		0.57	1.00		0.76	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	260	0	576	304	0	557	158	505	523	411	757	764
V/C Ratio(X)	0.68	0.00	0.47	0.17	0.00	0.57	0.52	1.02	1.02	0.85	0.89	0.89
Avail Cap(c_a), veh/h	264	0	582	304	0	557	168	505	523	420	757	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78
Uniform Delay (d), s/veh	43.9	0.0	28.1	35.2	0.0	29.3	47.8	39.2	39.2	27.6	5.9	6.0
Incr Delay (d2), s/veh	7.3	0.0	0.7	0.3	0.0	1.5	1.0	45.4	44.7	11.6	11.7	12.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	6.5	1.3	0.0	8.0	2.4	21.7	22.3	10.7	12.9	13.5
LnGrp Delay(d),s/veh	51.1	0.0	28.8	35.5	0.0	30.8	48.7	84.5	83.9	39.2	17.7	18.1
LnGrp LOS	D		C	D		C	D	F	F	D	B	B
Approach Vol, veh/h		446			368			1131			1702	
Approach Delay, s/veh		37.7			31.5			81.6			22.3	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.4	37.0		43.6	13.6	52.8		43.6
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	21.4	33.7		37.8	6.9	27.2		20.2
Green Ext Time (p_c), s	0.3	0.0		0.2	0.3	15.4		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	179	156	87	203	88	118	246	127	104	321	206
Future Volume (veh/h)	208	179	156	87	203	88	118	246	127	104	321	206
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	226	195	170	95	221	96	128	267	138	113	349	224
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	367	746	329	132	592	260	157	1382	614	143	1420	627
Arrive On Green	0.11	0.22	0.22	0.08	0.17	0.17	0.09	0.39	0.39	0.08	0.41	0.41
Sat Flow, veh/h	3343	3438	1517	1723	3438	1511	1757	3505	1556	1757	3505	1549
Grp Volume(v), veh/h	226	195	170	95	221	96	128	267	138	113	349	224
Grp Sat Flow(s),veh/h/ln	1672	1719	1517	1723	1719	1511	1757	1752	1556	1757	1752	1549
Q Serve(g_s), s	6.2	4.5	9.5	5.2	5.5	5.4	6.9	4.8	4.0	6.1	6.4	5.9
Cycle Q Clear(g_c), s	6.2	4.5	9.5	5.2	5.5	5.4	6.9	4.8	4.0	6.1	6.4	5.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	367	746	329	132	592	260	157	1382	614	143	1420	627
V/C Ratio(X)	0.62	0.26	0.52	0.72	0.37	0.37	0.81	0.19	0.22	0.79	0.25	0.36
Avail Cap(c_a), veh/h	367	1352	597	148	1274	560	178	1382	614	198	1420	627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.1	31.4	33.4	43.6	35.4	35.3	43.2	19.2	9.5	43.5	19.0	7.3
Incr Delay (d2), s/veh	2.3	0.5	3.3	11.1	1.0	2.3	19.7	0.3	0.8	8.9	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.2	4.3	2.9	2.7	2.4	4.2	2.4	2.3	3.3	3.1	3.8
LnGrp Delay(d),s/veh	43.4	31.9	36.6	54.7	36.4	37.6	62.9	19.5	10.4	52.5	19.4	8.9
LnGrp LOS	D	C	D	D	D	D	E	B	B	D	B	A
Approach Vol, veh/h		591			412			533			686	
Approach Delay, s/veh		37.6			40.9			27.5			21.4	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	44.1	11.6	26.3	12.8	45.9	15.9	21.9
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	10.9	* 38	* 8.3	38.0	* 9.8	38.4	10.5	* 36
Max Q Clear Time (g_c+I1), s	8.1	6.8	7.2	11.5	8.9	8.4	8.2	7.5
Green Ext Time (p_c), s	0.2	5.6	0.0	4.1	0.0	7.8	0.9	3.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.8
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	225	195	194	3	445	11	223	3	13	9
Future Volume (veh/h)	8	127	225	195	194	3	445	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	245	212	211	3	484	12	242	3	14	10
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	122	216	243	627	9	358	40	805	68	274	178
Arrive On Green	0.01	0.21	0.21	0.14	0.35	0.35	0.20	0.54	0.54	0.29	0.29	0.29
Sat Flow, veh/h	1757	587	1043	1757	1814	26	1757	74	1491	98	946	614
Grp Volume(v), veh/h	9	0	383	212	0	214	484	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1630	1757	0	1840	1757	0	1565	1657	0	0
Q Serve(g_s), s	0.5	0.0	20.7	11.8	0.0	8.6	20.4	0.0	8.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.7	11.8	0.0	8.6	20.4	0.0	8.9	1.1	0.0	0.0
Prop In Lane	1.00		0.64	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	0	337	243	0	636	358	0	844	520	0	0
V/C Ratio(X)	0.77	0.00	1.13	0.87	0.00	0.34	1.35	0.00	0.30	0.05	0.00	0.00
Avail Cap(c_a), veh/h	95	0	337	253	0	636	358	0	844	520	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.56	0.00	0.56	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	39.7	42.2	0.0	24.2	39.8	0.0	12.7	25.6	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	90.7	24.9	0.0	0.4	167.9	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	17.8	7.4	0.0	4.4	26.6	0.0	3.9	0.6	0.0	0.0
LnGrp Delay(d),s/veh	81.5	0.0	130.4	67.1	0.0	24.6	207.7	0.0	13.2	25.8	0.0	0.0
LnGrp LOS	F		F	E		C	F		B	C		
Approach Vol, veh/h		392			426			738			27	
Approach Delay, s/veh		129.3			45.7			140.7			25.8	
Approach LOS		F			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		59.4	19.1	26.0	25.0	34.4	5.3	39.9
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.9	13.8	22.7	22.4	3.1	2.5	10.6
Green Ext Time (p_c), s		2.3	0.0	0.0	0.0	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	110.4
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	52	308	492	105	32	322	79
Future Volume (veh/h)	135	110	320	56	113	52	308	492	105	32	322	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	57	335	535	114	35	350	86
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	131	379	78	308	143	218	496	106	183	452	111
Arrive On Green	0.10	0.32	0.32	0.04	0.26	0.26	0.12	0.34	0.34	0.03	0.10	0.10
Sat Flow, veh/h	1757	413	1198	1757	1186	549	1757	1470	313	1757	1426	350
Grp Volume(v), veh/h	147	0	468	61	0	180	335	0	649	35	0	436
Grp Sat Flow(s),veh/h/ln	1757	0	1611	1757	0	1735	1757	0	1784	1757	0	1776
Q Serve(g_s), s	8.2	0.0	28.0	3.4	0.0	8.6	12.4	0.0	33.7	1.9	0.0	23.9
Cycle Q Clear(g_c), s	8.2	0.0	28.0	3.4	0.0	8.6	12.4	0.0	33.7	1.9	0.0	23.9
Prop In Lane	1.00		0.74	1.00		0.32	1.00		0.18	1.00		0.20
Lane Grp Cap(c), veh/h	177	0	510	78	0	451	218	0	601	183	0	563
V/C Ratio(X)	0.83	0.00	0.92	0.78	0.00	0.40	1.54	0.00	1.08	0.19	0.00	0.77
Avail Cap(c_a), veh/h	394	0	559	95	0	451	218	0	601	183	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.00	0.50
Uniform Delay (d), s/veh	44.1	0.0	32.9	47.3	0.0	30.5	43.8	0.0	33.2	44.2	0.0	41.3
Incr Delay (d2), s/veh	3.8	0.0	21.3	23.0	0.0	0.2	263.4	0.0	60.0	0.1	0.0	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	15.5	2.2	0.0	4.1	21.9	0.0	26.6	0.9	0.0	12.6
LnGrp Delay(d),s/veh	47.9	0.0	54.2	70.3	0.0	30.7	307.2	0.0	93.2	44.3	0.0	46.5
LnGrp LOS	D		D	E		C	F		F	D		D
Approach Vol, veh/h		615			241			984			471	
Approach Delay, s/veh		52.7			40.8			166.0			46.4	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	39.0	9.0	37.0	17.0	37.0	14.7	31.3
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.9	35.7	5.4	30.0	14.4	25.9	10.2	10.6
Green Ext Time (p_c), s	0.1	0.0	0.0	1.7	0.0	1.7	0.0	3.5

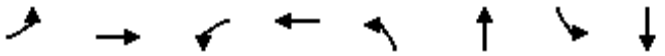
Intersection Summary	
HCM 2010 Ctrl Delay	98.4
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	268	196	184	233	99	182	275	218	142	270
v/c Ratio	0.21	0.37	0.27	0.66	0.27	0.13	0.72	0.40	0.46	0.67	0.45
Control Delay	52.9	25.3	4.9	58.1	20.9	2.3	57.8	35.6	7.7	59.3	37.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.9	25.3	4.9	58.1	20.9	2.3	57.8	35.6	7.7	59.3	37.4
Queue Length 50th (ft)	14	112	0	56	73	0	106	79	0	83	76
Queue Length 95th (ft)	47	244	53	#130	211	18	209	118	55	#186	122
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	122	729	725	288	857	784	375	1397	731	267	1163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.37	0.27	0.64	0.27	0.13	0.49	0.20	0.30	0.53	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	478	195	246	134	1844	152	968
v/c Ratio	0.25	0.71	1.21	0.38	0.61	1.31	0.92	0.75
Control Delay	27.0	27.4	172.3	22.6	32.8	158.6	102.3	32.9
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.5	0.0	50.3
Total Delay	27.0	27.7	172.3	22.6	32.8	159.1	102.3	83.3
Queue Length 50th (ft)	42	206	~168	101	86	~857	108	300
Queue Length 95th (ft)	83	333	#313	170	m75	m#684	#233	379
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	343	678	161	648	219	1410	165	1293
Starvation Cap Reductn	0	0	0	0	0	161	0	0
Spillback Cap Reductn	0	20	0	0	0	0	0	504
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.73	1.21	0.38	0.61	1.48	0.92	1.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

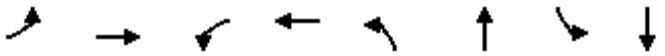
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	679	710	1476	295	1059
v/c Ratio	1.03	1.13	1.21	1.37	0.59
Control Delay	77.6	106.5	123.1	225.2	25.4
Queue Delay	12.0	3.6	3.1	0.0	50.1
Total Delay	89.6	110.1	126.2	225.2	75.4
Queue Length 50th (ft)	~543	~583	~689	~283	396
Queue Length 95th (ft)	#780	#828	#833	m#408	m456
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	629	1218	215	1793
Starvation Cap Reductn	0	0	126	0	831
Spillback Cap Reductn	21	221	540	0	641
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.07	1.74	2.18	1.37	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

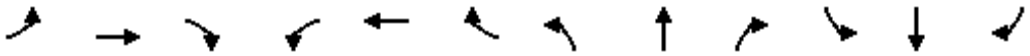
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	269	52	316	82	1049	350	1352
v/c Ratio	1.03	0.54	0.27	0.59	0.57	0.79	0.90	0.73
Control Delay	115.5	28.0	32.8	20.2	63.5	37.4	62.0	13.7
Queue Delay	63.9	0.0	0.0	2.9	0.0	49.1	56.1	0.8
Total Delay	179.4	28.0	32.8	23.1	63.5	86.5	118.1	14.5
Queue Length 50th (ft)	124	119	29	92	56	355	265	195
Queue Length 95th (ft)	#237	182	59	166	107	#557	m313	m416
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	221	625	248	652	167	1336	418	1858
Starvation Cap Reductn	0	0	0	0	0	0	169	231
Spillback Cap Reductn	89	0	0	230	0	389	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.43	0.21	0.75	0.49	1.11	1.41	0.83

Intersection Summary

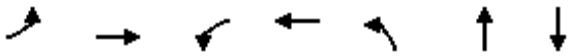
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	226	195	170	95	221	96	128	267	138	113	349	224
v/c Ratio	0.64	0.34	0.43	0.62	0.42	0.25	0.71	0.18	0.19	0.56	0.24	0.29
Control Delay	49.1	35.2	8.7	60.5	38.1	1.6	63.6	18.3	2.0	51.2	18.7	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	35.2	8.7	60.5	38.1	1.6	63.6	18.3	2.0	51.2	18.7	3.8
Queue Length 50th (ft)	65	53	0	55	63	0	74	51	0	64	68	0
Queue Length 95th (ft)	109	85	51	#130	98	0	#168	85	21	#126	108	45
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	379	1417	722	154	1335	696	186	1448	737	207	1460	760
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.14	0.24	0.62	0.17	0.14	0.69	0.18	0.19	0.55	0.24	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	9	383	212	214	484	254	27
v/c Ratio	0.12	0.96	0.89	0.31	1.30	0.28	0.06
Control Delay	49.4	68.4	79.0	24.7	190.0	6.3	21.5
Queue Delay	0.0	5.9	8.3	0.0	0.0	0.0	0.1
Total Delay	49.4	74.4	87.3	24.7	190.0	6.3	21.6
Queue Length 50th (ft)	6	197	133	91	~423	14	8
Queue Length 95th (ft)	22	#383	#259	173	m#620	m55	30
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	399	252	680	371	895	418
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	12	22	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.99	0.92	0.31	1.30	0.28	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
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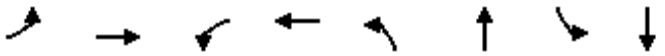
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	147	468	61	180	335	649	35	436
v/c Ratio	0.71	0.83	0.69	0.48	2.28	0.77	0.37	0.61
Control Delay	60.5	34.6	83.5	33.6	620.1	34.6	66.5	44.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Total Delay	60.5	34.6	83.5	33.6	620.1	34.6	66.5	46.3
Queue Length 50th (ft)	92	187	39	85	~349	381	20	289
Queue Length 95th (ft)	149	294	#102	150	#521	#674	m23	m328
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	655	94	416	147	838	112	720
Starvation Cap Reductn	0	0	0	0	0	0	0	144
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.71	0.65	0.43	2.28	0.77	0.31	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	94.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	312	367	197	199	208	92
Future Vol, veh/h	312	367	197	199	208	92
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	339	399	214	216	226	100

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	748	0	1204	559
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	655	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	856	-	~ 202	527
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	515	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	~ 141	517
Mov Cap-2 Maneuver	-	-	-	-	~ 141	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	364	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	$ 425.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	181	-	-	848	-
HCM Lane V/C Ratio	1.802	-	-	0.253	-
HCM Control Delay (s)	$ 425.8	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	23.4	-	-	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.1

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	21	313	267	46	116	43
Future Vol, veh/h	21	313	267	46	116	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	23	340	290	50	126	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	350	0	-	0	551	190
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	226	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1198	-	-	-	462	816
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	787	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1187	-	-	-	442	801
Mov Cap-2 Maneuver	-	-	-	-	442	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	761	-

Approach	NB	SB	NE
HCM Control Delay, s	0.6	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	442	801	1187	-	-	-
HCM Lane V/C Ratio	0.285	0.058	0.019	-	-	-
HCM Control Delay (s)	16.4	9.8	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	5.7

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	326	120	29	291	188	13
Future Vol, veh/h	326	120	29	291	188	13
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	354	130	32	316	204	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	661	262
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	231	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1058	-	393	734
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1048	-	371	720
Mov Cap-2 Maneuver	-	-	-	-	371	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	746	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.9	26.2
HCM LOS			D

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1048	-	383
HCM Lane V/C Ratio	-	-	0.03	-	0.57
HCM Control Delay (s)	-	-	8.5	0.1	26.2
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0.1	-	3.4

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	148	0	0	0	0	81
Future Vol, veh/h	148	0	0	0	0	81
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	161	0	0	0	0	88

Major/Minor	Major1		Minor2	
Conflicting Flow All	10	-	-	20
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	-
Pot Cap-1 Maneuver	-	0	0	-
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				
Mov Cap-1 Maneuver	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	EBL	SBLn1
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	309	32	16	345	17	10
Future Vol, veh/h	309	32	16	345	17	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	336	35	17	375	18	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	381	0	783	373
Stage 1	-	-	-	-	363	-
Stage 2	-	-	-	-	420	-
Critical Hdwy	-	-	4.15	-	7.13	6.23
Critical Hdwy Stg 1	-	-	-	-	6.13	-
Critical Hdwy Stg 2	-	-	-	-	6.13	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1161	-	310	671
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	609	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	300	658
Mov Cap-2 Maneuver	-	-	-	-	300	-
Stage 1	-	-	-	-	654	-
Stage 2	-	-	-	-	592	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	376	-	-	1150	-
HCM Lane V/C Ratio	0.078	-	-	0.015	-
HCM Control Delay (s)	15.4	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	201	84	43
Future Vol, veh/h	75	429	315	201	84	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	218	91	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	571	0	-	0	1101	472
Stage 1	-	-	-	-	462	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	997	-	-	-	233	590
Stage 1	-	-	-	-	632	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	988	-	-	-	203	579
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	461	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	33.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	988	-	-	-	260
HCM Lane V/C Ratio	0.083	-	-	-	0.531
HCM Control Delay (s)	9	0	-	-	33.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	2.9

Intersection	
Int Delay, s/veh	61.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	84	196	252	512	18
Future Vol, veh/h	29	84	196	252	512	18
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	91	213	274	557	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	497	0	-	0	524	370
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1062	-	-	-	~ 512	673
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1052	-	-	-	~ 486	660
Mov Cap-2 Maneuver	-	-	-	-	~ 486	-
Stage 1	-	-	-	-	697	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	125.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1052	-	-	-	490
HCM Lane V/C Ratio	0.03	-	-	-	1.176
HCM Control Delay (s)	8.5	0	-	-	125.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	21

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	171	221	10
Future Vol, veh/h	353	0	0	171	221	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	186	240	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	580	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	475	653
Stage 1	-	0	0	-	686	-
Stage 2	-	0	0	-	835	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	470	647
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	470	647	-	-
HCM Lane V/C Ratio	0.511	0.017	-	-
HCM Control Delay (s)	20.4	10.7	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	2.9	0.1	-	-

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	217	131	0	45	36	0	17	161
Future Vol, veh/h	0	217	131	0	45	36	0	17	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	236	142	0	49	39	0	18	175
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.8	8.8	9.4
HCM LOS	B	A	A

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	56%	0%	0%
Vol Right, %	0%	0%	44%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	131	81	17	161
LT Vol	217	0	0	17	0
Through Vol	0	131	45	0	0
RT Vol	0	0	36	0	161
Lane Flow Rate	236	142	88	18	175
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.369	0.203	0.123	0.032	0.244
Departure Headway (Hd)	5.625	5.123	5.02	6.225	5.016
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	637	698	710	574	714
Service Time	3.375	2.872	3.081	3.97	2.761
HCM Lane V/C Ratio	0.37	0.203	0.124	0.031	0.245
HCM Control Delay	11.7	9.2	8.8	9.2	9.4
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.7	0.8	0.4	0.1	1

Intersection	
Int Delay, s/veh	32.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	341	180	155	362	187	96
Future Vol, veh/h	341	180	155	362	187	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	371	196	168	393	203	104

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	566	0	1198	468
Stage 1	-	-	-	-	468	-
Stage 2	-	-	-	-	730	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1001	-	204	593
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	475	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1001	-	~ 160	593
Mov Cap-2 Maneuver	-	-	-	-	~ 160	-
Stage 1	-	-	-	-	628	-
Stage 2	-	-	-	-	373	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.8	147.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	160	593	-	-	1001	-
HCM Lane V/C Ratio	1.27	0.176	-	-	0.168	-
HCM Control Delay (s)	217	12.4	-	-	9.3	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	11.8	0.6	-	-	0.6	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	0	0	283	0	0	326	9
Future Vol, veh/h	0	0	11	0	0	0	0	283	0	0	326	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	0	0	308	0	0	354	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	182	-	-	154	-	0	0	308	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	826	0	0	861	0	-	-	1242	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	826	-	-	861	-	-	-	1242	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	0	0	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	826	-	1242	-	-
HCM Lane V/C Ratio	-	-	0.014	-	-	-	-
HCM Control Delay (s)	-	-	9.4	0	0	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	11	0	283	328	9
Future Vol, veh/h	0	11	0	283	328	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	12	0	308	357	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	183	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	825	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	825	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	825	-	-
HCM Lane V/C Ratio	-	0.014	-	-
HCM Control Delay (s)	-	9.4	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	8	25	270	13	319	7
Future Vol, veh/h	0	8	25	270	13	319	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	9	27	293	14	347	8

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	177	354	0	214	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	832	1194	-	1044	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	832	1194	-	1044	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.7	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1194	-	832	1044	-	-
HCM Lane V/C Ratio	0.023	-	0.01	0.014	-	-
HCM Control Delay (s)	8.1	-	9.4	8.5	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	113	153	295	323	4
Future Vol, veh/h	0	113	153	295	323	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	123	166	321	351	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	176	351	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	834	1197	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	834	1197	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	2.9	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1197	-	834	-	-
HCM Lane V/C Ratio	0.139	-	0.147	-	-
HCM Control Delay (s)	8.5	-	10.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.5	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	67	0	0	0	153	448	0	0	432	4
Future Vol, veh/h	0	0	67	0	0	0	153	448	0	0	432	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	73	0	0	0	166	487	0	0	470	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	237	-	-	243	474	0	0	487	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	761	0	0	755	1077	-	-	1065	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	761	-	-	755	1077	-	-	1065	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	0	2.3	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1077	-	-	761	-	1065	-	-
HCM Lane V/C Ratio	0.154	-	-	0.096	-	-	-	-
HCM Control Delay (s)	9	-	-	10.2	0	0	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	0.3	-	0	-	-

Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	148	0	0	358	0	243	268	236	263	81
Future Vol, veh/h	0	0	148	0	0	358	0	243	268	236	263	81
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	161	0	0	389	0	264	291	257	286	88

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	187	-	-	278	-	0	0	555	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	698	0	0	611	0	-	-	635	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	698	-	-	611	-	-	-	635	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.7	20.6	0	5.9
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	698	611	635	-	-
HCM Lane V/C Ratio	-	-	0.23	0.637	0.404	-	-
HCM Control Delay (s)	-	-	11.7	20.6	14.5	-	-
HCM Lane LOS	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0.9	4.5	2	-	-

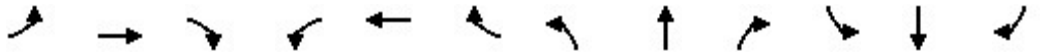
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	0	0	27	37	0
Future Vol, veh/h	0	0	0	27	37	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	29	40	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	69	40	40	0	-	0
Stage 1	40	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	933	1028	1563	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	933	1028	1563	-	-	-
Mov Cap-2 Maneuver	933	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1563	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	69	0	442	182	0	291	120
Future Volume (veh/h)	0	0	0	168	0	69	0	442	182	0	291	120
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	75	0	480	198	0	316	130
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				225	0	354	0	3938	1226	0	3938	1226
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	75	0	480	198	0	316	130
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	2.4	0.0	2.3	3.2	0.0	1.5	2.0
Cycle Q Clear(g_c), s				10.2	0.0	2.4	0.0	2.3	3.2	0.0	1.5	2.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				225	0	354	0	3938	1226	0	3938	1226
V/C Ratio(X)				0.81	0.00	0.21	0.00	0.12	0.16	0.00	0.08	0.11
Avail Cap(c_a), veh/h				569	0	893	0	3938	1226	0	3938	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.6	0.0	39.2	0.0	2.6	2.7	0.0	2.5	2.6
Incr Delay (d2), s/veh				6.9	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	0.9	0.0	1.1	1.5	0.0	0.7	0.9
LnGrp Delay(d),s/veh				49.5	0.0	39.5	0.0	2.7	3.0	0.0	2.6	2.8
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					258			678			446	
Approach Delay, s/veh					46.6			2.8			2.6	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				4.0		12.2
Green Ext Time (p_c), s		7.2				7.2		0.7

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	284	0	206	0	0	0	0	340	131	0	340	119
Future Volume (veh/h)	284	0	206	0	0	0	0	340	131	0	340	119
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	309	0	224				0	370	142	0	370	129
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	395	0	621				0	3193	994	0	3193	994
Arrive On Green	0.22	0.00	0.22				0.00	0.63	0.63	0.00	0.63	0.63
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	309	0	224				0	370	142	0	370	129
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	10.6	0.0	4.4				0.0	1.9	2.3	0.0	1.9	2.1
Cycle Q Clear(g_c), s	10.6	0.0	4.4				0.0	1.9	2.3	0.0	1.9	2.1
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	395	0	621				0	3193	994	0	3193	994
V/C Ratio(X)	0.78	0.00	0.36				0.00	0.12	0.14	0.00	0.12	0.13
Avail Cap(c_a), veh/h	1939	0	3046				0	3193	994	0	3193	994
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	20.9				0.0	4.6	4.7	0.0	4.6	4.7
Incr Delay (d2), s/veh	3.4	0.0	0.4				0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	1.7				0.0	0.9	1.1	0.0	0.9	3.2
LnGrp Delay(d),s/veh	26.7	0.0	21.2				0.0	4.7	5.0	0.0	4.7	4.9
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		533						512			499	
Approach Delay, s/veh		24.4						4.8			4.8	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		18.9		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.3		12.6		4.1		
Green Ext Time (p_c), s		6.2		1.8		6.2		

Intersection Summary	
HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	286	231	142	272	250	132	367	203	162	371	57
Future Volume (veh/h)	85	286	231	142	272	250	132	367	203	162	371	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	92	311	251	154	296	272	143	399	221	176	403	62
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	116	646	544	217	632	532	173	1034	449	147	851	130
Arrive On Green	0.07	0.35	0.35	0.06	0.35	0.35	0.10	0.30	0.30	0.08	0.28	0.28
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1522	1757	3041	464
Grp Volume(v), veh/h	92	311	251	154	296	272	143	399	221	176	231	234
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1522	1757	1752	1753
Q Serve(g_s), s	5.1	13.1	12.4	4.5	12.7	14.0	7.9	9.0	11.9	8.3	10.9	11.0
Cycle Q Clear(g_c), s	5.1	13.1	12.4	4.5	12.7	14.0	7.9	9.0	11.9	8.3	10.9	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	116	646	544	217	632	532	173	1034	449	147	491	491
V/C Ratio(X)	0.79	0.48	0.46	0.71	0.47	0.51	0.82	0.39	0.49	1.20	0.47	0.48
Avail Cap(c_a), veh/h	124	646	544	310	659	555	249	1340	582	147	568	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	25.2	25.0	45.5	25.2	25.6	43.9	27.9	28.9	45.5	29.7	29.7
Incr Delay (d2), s/veh	24.7	2.6	2.8	1.6	2.0	2.7	9.4	0.6	2.2	137.8	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	5.8	2.1	6.7	6.3	4.3	4.4	5.2	9.6	5.5	5.6
LnGrp Delay(d),s/veh	70.5	27.8	27.8	47.1	27.1	28.4	53.4	28.5	31.1	183.4	31.5	31.6
LnGrp LOS	E	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		654			722			763			641	
Approach Delay, s/veh		33.8			31.9			33.9			73.2	
Approach LOS		C			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	41.6	14.0	33.1	10.8	41.5	12.5	34.6
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.5	15.1	9.9	13.0	7.1	16.0	10.3	13.9
Green Ext Time (p_c), s	0.1	12.2	0.1	10.9	0.0	12.4	0.0	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	42.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	292	116	355	210	288	210	278	920	607	234	1155	317
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.46	0.46	0.14	0.43	0.43
Sat Flow, veh/h	1162	397	1218	1074	989	720	1757	2015	1330	1723	2659	731
Grp Volume(v), veh/h	53	0	285	202	0	197	251	897	904	316	671	658
Grp Sat Flow(s),veh/h/ln	1162	0	1615	1074	0	1709	1757	1752	1593	1723	1719	1671
Q Serve(g_s), s	4.6	0.0	18.2	16.8	0.0	11.1	16.8	54.8	54.8	16.3	43.4	44.2
Cycle Q Clear(g_c), s	15.7	0.0	18.2	35.0	0.0	11.1	16.8	54.8	54.8	16.3	43.4	44.2
Prop In Lane	1.00		0.75	1.00		0.42	1.00		0.83	1.00		0.44
Lane Grp Cap(c), veh/h	292	0	471	210	0	498	278	800	727	234	747	726
V/C Ratio(X)	0.18	0.00	0.61	0.96	0.00	0.40	0.90	1.12	1.24	1.35	0.90	0.91
Avail Cap(c_a), veh/h	292	0	471	210	0	498	335	800	727	234	747	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.3	0.0	36.6	53.8	0.0	34.0	49.6	32.6	32.6	51.8	31.5	31.7
Incr Delay (d2), s/veh	0.3	0.0	2.2	50.9	0.0	0.5	2.9	56.1	110.7	179.5	13.8	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	8.4	9.6	0.0	5.3	8.4	38.9	46.4	19.4	23.4	23.3
LnGrp Delay(d),s/veh	40.6	0.0	38.8	104.7	0.0	34.5	52.5	88.7	143.3	231.3	45.3	46.8
LnGrp LOS	D		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		39.0			70.0			108.4			81.6	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	60.1		39.9	22.7	57.4		39.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	18.3	56.8		20.2	18.8	46.2		37.0
Green Ext Time (p_c), s	0.0	0.0		3.5	0.1	2.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		89.7
HCM 2010 LOS		F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	463	120	377				0	1495	157	261	1221	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	517	115	361				0	1534	160	995	3834	0
Arrive On Green	0.29	0.29	0.29				0.00	0.96	0.96	0.57	1.00	0.00
Sat Flow, veh/h	1757	390	1224				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	463	0	497				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1757	0	1614				0	1752	1782	1757	1752	0
Q Serve(g_s), s	27.8	0.0	32.4				0.0	29.2	37.8	8.3	0.0	0.0
Cycle Q Clear(g_c), s	27.8	0.0	32.4				0.0	29.2	37.8	8.3	0.0	0.0
Prop In Lane	1.00		0.76				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	517	0	475				0	840	854	995	3834	0
V/C Ratio(X)	0.89	0.00	1.05				0.00	0.97	0.98	0.26	0.32	0.00
Avail Cap(c_a), veh/h	517	0	475				0	840	854	995	3834	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.47	0.47	0.25	0.25	0.00
Uniform Delay (d), s/veh	37.2	0.0	38.8				0.0	1.8	2.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	17.9	0.0	53.7				0.0	14.9	17.7	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	0.0	21.5				0.0	11.6	14.9	4.0	0.0	0.0
LnGrp Delay(d),s/veh	55.1	0.0	92.5				0.0	16.7	19.7	12.1	0.1	0.0
LnGrp LOS	E		F					B	B	B	A	
Approach Vol, veh/h		960						1652			1482	
Approach Delay, s/veh		74.4						18.2			2.2	
Approach LOS		E						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	68.4	58.0		37.0		126.4		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	10.3	39.8		34.4		2.0		
Green Ext Time (p_c), s	0.1	11.7		0.0		23.2		

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	49	39	38	55	370	49	1012	16	279	1076	121
Future Volume (veh/h)	91	49	39	38	55	370	49	1012	16	279	1076	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	99	53	42	41	60	402	53	1100	17	303	1170	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	164	349	277	486	76	507	77	1076	17	350	1506	169
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.40	0.95	0.95
Sat Flow, veh/h	915	951	754	1274	206	1381	1757	3532	55	1757	3173	357
Grp Volume(v), veh/h	99	0	95	41	0	462	53	546	571	303	645	657
Grp Sat Flow(s),veh/h/ln	915	0	1704	1274	0	1588	1757	1752	1834	1757	1752	1777
Q Serve(g_s), s	11.8	0.0	4.1	2.5	0.0	28.6	3.3	33.5	33.5	17.4	7.8	7.9
Cycle Q Clear(g_c), s	40.4	0.0	4.1	6.6	0.0	28.6	3.3	33.5	33.5	17.4	7.8	7.9
Prop In Lane	1.00		0.44	1.00		0.87	1.00		0.03	1.00		0.20
Lane Grp Cap(c), veh/h	164	0	626	486	0	583	77	534	559	350	832	843
V/C Ratio(X)	0.60	0.00	0.15	0.08	0.00	0.79	0.69	1.02	1.02	0.87	0.78	0.78
Avail Cap(c_a), veh/h	164	0	626	486	0	583	142	534	559	359	832	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	49.1	0.0	23.3	25.5	0.0	31.1	51.9	38.3	38.3	31.7	1.7	1.7
Incr Delay (d2), s/veh	6.7	0.0	0.1	0.1	0.0	7.6	4.1	44.8	44.0	15.1	5.7	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	1.9	0.9	0.0	13.7	1.7	22.8	23.7	9.7	3.8	3.9
LnGrp Delay(d),s/veh	55.8	0.0	23.5	25.6	0.0	38.6	55.9	83.1	82.2	46.8	7.3	7.4
LnGrp LOS	E		C	C		D	E	F	F	D	A	A
Approach Vol, veh/h		194			503			1170			1605	
Approach Delay, s/veh		40.0			37.6			81.4			14.8	
Approach LOS		D			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	27.2	38.8		46.0	8.5	57.5		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	19.4	35.5		42.4	5.3	9.9		30.6
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	23.4		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	222	60	87	185	96	72	195	100	116	552	422
Future Volume (veh/h)	182	222	60	87	185	96	72	195	100	116	552	422
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	198	241	65	95	201	104	78	212	109	126	600	459
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	312	699	308	136	609	268	100	1354	601	158	1539	681
Arrive On Green	0.09	0.20	0.20	0.08	0.18	0.18	0.06	0.39	0.39	0.09	0.44	0.44
Sat Flow, veh/h	3343	3438	1515	1723	3438	1512	1757	3505	1556	1757	3505	1550
Grp Volume(v), veh/h	198	241	65	95	201	104	78	212	109	126	600	459
Grp Sat Flow(s),veh/h/ln	1672	1719	1515	1723	1719	1512	1757	1752	1556	1757	1752	1550
Q Serve(g_s), s	5.3	5.6	3.3	5.0	4.7	5.6	4.1	3.7	3.0	6.5	10.7	13.1
Cycle Q Clear(g_c), s	5.3	5.6	3.3	5.0	4.7	5.6	4.1	3.7	3.0	6.5	10.7	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	699	308	136	609	268	100	1354	601	158	1539	681
V/C Ratio(X)	0.63	0.34	0.21	0.70	0.33	0.39	0.78	0.16	0.18	0.80	0.39	0.67
Avail Cap(c_a), veh/h	434	1414	623	183	1332	586	148	1354	601	224	1539	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	31.5	30.6	41.5	33.2	33.6	43.0	18.5	8.9	41.2	17.5	7.4
Incr Delay (d2), s/veh	0.8	0.8	0.9	3.5	0.8	2.4	7.7	0.2	0.7	7.9	0.7	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.7	1.5	2.5	2.3	2.5	2.2	1.8	1.8	3.5	5.3	7.4
LnGrp Delay(d),s/veh	41.2	32.3	31.5	45.0	34.1	36.0	50.8	18.8	9.6	49.1	18.3	12.7
LnGrp LOS	D	C	C	D	C	D	D	B	A	D	B	B
Approach Vol, veh/h		504			400			399			1185	
Approach Delay, s/veh		35.7			37.2			22.5			19.4	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	41.7	11.5	24.1	9.4	47.4	13.9	21.7
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	11.8	* 36	* 9.8	38.0	* 7.8	38.9	12.0	* 36
Max Q Clear Time (g_c+I1), s	8.5	5.7	7.0	7.6	6.1	15.1	7.3	7.6
Green Ext Time (p_c), s	0.3	4.3	0.0	3.8	0.0	13.7	1.4	3.5

Intersection Summary		
HCM 2010 Ctrl Delay		26.1
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Future Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	290	324	272	7	446	9	139	0	7	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	72	218	271	592	15	394	49	754	0	119	272
Arrive On Green	0.01	0.18	0.18	0.15	0.33	0.33	0.22	0.51	0.51	0.00	0.24	0.24
Sat Flow, veh/h	1757	396	1197	1757	1790	46	1757	95	1472	0	492	1126
Grp Volume(v), veh/h	7	0	386	324	0	279	446	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	0	1594	1757	0	1836	1757	0	1568	0	0	1618
Q Serve(g_s), s	0.4	0.0	18.2	15.4	0.0	12.0	22.4	0.0	5.1	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.4	0.0	18.2	15.4	0.0	12.0	22.4	0.0	5.1	0.0	0.0	1.1
Prop In Lane	1.00		0.75	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	0	290	271	0	607	394	0	803	0	0	392
V/C Ratio(X)	0.75	0.00	1.33	1.20	0.00	0.46	1.13	0.00	0.18	0.00	0.00	0.06
Avail Cap(c_a), veh/h	86	0	290	271	0	607	394	0	803	0	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	40.9	42.3	0.0	26.4	38.8	0.0	13.1	0.0	0.0	29.1
Incr Delay (d2), s/veh	35.5	0.0	170.7	119.0	0.0	0.7	83.8	0.0	0.4	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	21.7	16.4	0.0	6.2	20.0	0.0	2.3	0.0	0.0	0.5
LnGrp Delay(d),s/veh	85.2	0.0	211.6	161.3	0.0	27.1	122.6	0.0	13.6	0.0	0.0	29.4
LnGrp LOS	F		F	F		C	F		B			C
Approach Vol, veh/h		393			603			594			23	
Approach Delay, s/veh		209.3			99.2			95.5			29.4	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		56.5	20.0	23.5	27.0	29.5	5.1	38.4
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		7.1	17.4	20.2	24.4	3.1	2.4	14.0
Green Ext Time (p_c), s		1.4	0.0	0.0	0.0	1.1	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	123.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Future Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	45	166	386	43	22	447	152
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	37	292	95	176	91	316	598	67	298	468	159
Arrive On Green	0.11	0.21	0.21	0.05	0.16	0.16	0.18	0.37	0.37	0.06	0.12	0.12
Sat Flow, veh/h	1757	176	1385	1757	1133	586	1757	1628	181	1757	1312	446
Grp Volume(v), veh/h	163	0	266	80	0	132	166	0	429	22	0	599
Grp Sat Flow(s),veh/h/ln	1757	0	1561	1757	0	1718	1757	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	0.0	16.2	4.5	0.0	7.0	8.6	0.0	19.7	1.2	0.0	33.9
Cycle Q Clear(g_c), s	9.1	0.0	16.2	4.5	0.0	7.0	8.6	0.0	19.7	1.2	0.0	33.9
Prop In Lane	1.00		0.89	1.00		0.34	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	0	330	95	0	266	316	0	664	298	0	628
V/C Ratio(X)	0.84	0.00	0.81	0.84	0.00	0.50	0.53	0.00	0.65	0.07	0.00	0.95
Avail Cap(c_a), veh/h	323	0	479	95	0	323	316	0	664	298	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	43.6	0.0	37.5	46.9	0.0	38.7	37.1	0.0	26.3	39.7	0.0	43.3
Incr Delay (d2), s/veh	4.1	0.0	11.8	44.5	0.0	0.5	0.8	0.0	4.8	0.0	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	8.0	3.4	0.0	3.4	4.2	0.0	10.7	0.6	0.0	17.3
LnGrp Delay(d),s/veh	47.8	0.0	49.3	91.4	0.0	39.2	37.9	0.0	31.1	39.7	0.0	47.7
LnGrp LOS	D		D	F		D	D		C	D		D
Approach Vol, veh/h		429			212			595			621	
Approach Delay, s/veh		48.7			58.9			33.0			47.4	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	42.0	10.0	26.4	22.6	41.0	15.6	20.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.7	6.5	18.2	10.6	35.9	11.1	9.0
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

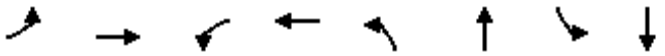
Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	92	311	251	154	296	272	143	399	221	176	465
v/c Ratio	0.72	0.46	0.35	0.55	0.45	0.38	0.68	0.44	0.40	1.16	0.60
Control Delay	77.9	28.3	4.9	51.9	27.4	4.8	59.0	30.9	5.8	164.9	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	28.3	4.9	51.9	27.4	4.8	59.0	30.9	5.8	164.9	35.6
Queue Length 50th (ft)	56	145	0	47	134	0	85	107	0	~130	132
Queue Length 95th (ft)	#159	269	56	89	251	57	#173	150	51	#302	185
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	128	671	718	320	685	739	258	1393	732	152	1161
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.46	0.35	0.48	0.43	0.37	0.55	0.29	0.30	1.16	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	285	202	197	251	1801	316	1329
v/c Ratio	0.19	0.52	0.99	0.39	0.85	1.14	1.28	0.92
Control Delay	34.3	22.5	104.7	31.2	73.9	99.8	196.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.9	0.0	0.0
Total Delay	34.3	22.5	104.7	31.2	74.0	100.7	196.5	43.7
Queue Length 50th (ft)	31	97	154	102	187	~813	~321	512
Queue Length 95th (ft)	66	184	#310	170	#303	#954	#502	#687
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	282	561	209	521	334	1579	246	1442
Starvation Cap Reductn	0	0	0	0	1	333	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.51	0.97	0.38	0.75	1.45	1.28	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	483	443	1652	261	1221
v/c Ratio	1.00	0.90	1.00	1.46	0.57
Control Delay	79.6	54.6	52.1	270.5	13.8
Queue Delay	0.0	57.6	39.5	0.0	8.6
Total Delay	79.6	112.2	91.5	270.5	22.4
Queue Length 50th (ft)	357	269	653	~252	248
Queue Length 95th (ft)	#586	#473	m#790	#415	307
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	490	1655	179	2157
Starvation Cap Reductn	0	0	809	0	902
Spillback Cap Reductn	0	300	0	0	443
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	2.33	1.95	1.46	0.97

Intersection Summary

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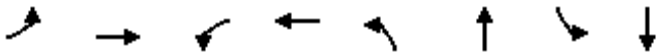
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	95	41	462	53	1117	303	1302
v/c Ratio	1.50	0.21	0.13	0.73	0.44	0.76	0.85	0.66
Control Delay	317.7	17.5	29.0	15.8	60.3	33.3	53.2	14.9
Queue Delay	34.3	0.0	0.0	2.8	0.0	52.2	55.1	0.6
Total Delay	351.9	17.5	29.0	18.5	60.3	85.6	108.3	15.5
Queue Length 50th (ft)	~95	29	23	70	37	350	213	195
Queue Length 95th (ft)	#184	61	44	162	78	#589	m#329	m546
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	98	652	455	783	142	1479	358	1985
Starvation Cap Reductn	0	0	0	0	0	0	115	317
Spillback Cap Reductn	24	0	0	210	0	880	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.15	0.09	0.81	0.37	1.86	1.25	0.78

Intersection Summary

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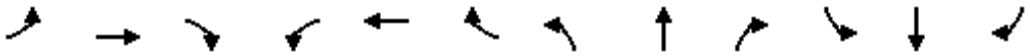
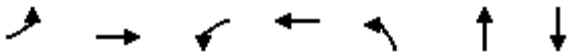


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	198	241	65	95	201	104	78	212	109	126	600	459
v/c Ratio	0.53	0.37	0.15	0.55	0.39	0.27	0.55	0.15	0.15	0.61	0.38	0.49
Control Delay	43.9	34.9	0.8	52.4	37.2	1.8	56.2	18.7	1.0	51.5	18.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	34.9	0.8	52.4	37.2	1.8	56.2	18.7	1.0	51.5	18.6	3.9
Queue Length 50th (ft)	55	67	0	52	55	0	44	40	0	69	121	0
Queue Length 95th (ft)	94	103	0	#109	91	1	#103	71	7	#136	184	59
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	447	1461	739	188	1376	712	152	1399	718	231	1587	936
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.16	0.09	0.51	0.15	0.15	0.51	0.15	0.15	0.55	0.38	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	7	386	324	279	446	148	23
v/c Ratio	0.10	0.97	1.20	0.42	1.14	0.17	0.06
Control Delay	49.0	67.5	159.9	27.2	126.0	3.1	16.9
Queue Delay	0.0	46.1	0.0	0.0	0.0	0.0	0.1
Total Delay	49.0	113.6	159.9	27.2	126.0	3.1	17.0
Queue Length 50th (ft)	4	169	~252	127	~340	8	3
Queue Length 95th (ft)	19	#360	#423	231	#539	24	23
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	396	269	666	392	856	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	197	0	0	0	0	140
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	1.94	1.20	0.42	1.14	0.17	0.09

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
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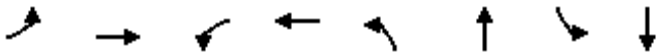

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	266	80	132	166	429	22	599
v/c Ratio	0.73	0.58	0.85	0.63	1.13	0.41	0.24	0.69
Control Delay	60.7	11.5	107.6	47.4	156.4	16.6	46.4	46.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.3
Total Delay	60.7	11.5	107.6	47.4	156.4	16.6	46.4	86.5
Queue Length 50th (ft)	102	16	52	67	~123	122	11	394
Queue Length 95th (ft)	161	78	#138	122	#254	310	m9	m371
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	636	94	342	147	1040	129	872
Starvation Cap Reductn	0	0	0	0	0	0	0	311
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.42	0.85	0.39	1.13	0.41	0.17	1.07

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	56.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	201	703	306	266	71	120
Future Vol, veh/h	201	703	306	266	71	120
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	218	764	333	289	77	130

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	993	0	1575	621
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	964	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	693	-	120	486
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	686	-	~ 50	477
Mov Cap-2 Maneuver	-	-	-	-	~ 50	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	154	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.1	$ 466.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	114	-	-	686	-
HCM Lane V/C Ratio	1.821	-	-	0.485	-
HCM Control Delay (s)	$ 466.3	-	-	15.1	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	16.4	-	-	2.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	27	243	259	120	78	28
Future Vol, veh/h	27	243	259	120	78	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	264	282	130	85	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	558	226
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	201	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1127	-	-	-	457	774
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1116	-	-	-	435	759
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	778	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	435	759	1116	-	-	-
HCM Lane V/C Ratio	0.195	0.04	0.026	-	-	-
HCM Control Delay (s)	15.3	9.9	8.3	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	248	100	17	285	99	35
Future Vol, veh/h	248	100	17	285	99	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	109	18	310	108	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	536	209
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1160	-	472	794
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1149	-	454	779
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	786	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.6	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1149	-	510
HCM Lane V/C Ratio	-	-	0.016	-	0.286
HCM Control Delay (s)	-	-	8.2	0.1	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	1.2

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	241	112	46	223	14	7
Future Vol, veh/h	241	112	46	223	14	7
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	262	122	50	242	15	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	394	0	685	343
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1148	-	412	697
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	384	684
Mov Cap-2 Maneuver	-	-	-	-	384	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	667	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	1137	-
HCM Lane V/C Ratio	0.051	-	-	0.044	-
HCM Control Delay (s)	13.4	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	11.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	198	179	28
Future Vol, veh/h	96	369	165	198	179	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	215	195	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	405	0	-	0	917	307
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1148	-	-	-	301	731
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1137	-	-	-	260	717
Mov Cap-2 Maneuver	-	-	-	-	260	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	52.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1137	-	-	-	285
HCM Lane V/C Ratio	0.092	-	-	-	0.789
HCM Control Delay (s)	8.5	0	-	-	52.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	6.2

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	97	142	132	293	8
Future Vol, veh/h	29	97	142	132	293	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	105	154	143	318	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	414	246
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1247	-	-	-	593	790
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1235	-	-	-	565	775
Mov Cap-2 Maneuver	-	-	-	-	565	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1235	-	-	-	569
HCM Lane V/C Ratio	0.026	-	-	-	0.575
HCM Control Delay (s)	8	0	-	-	19.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3.6

Intersection	
Int Delay, s/veh	9.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	216	0	0	236	312	3
Future Vol, veh/h	216	0	0	236	312	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	235	0	0	257	339	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	502	245
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	267	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	527	791
Stage 1	-	0	0	-	802	-
Stage 2	-	0	0	-	775	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	522	783
Mov Cap-2 Maneuver	-	-	-	-	522	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	522	783	-	-
HCM Lane V/C Ratio	0.65	0.004	-	-
HCM Control Delay (s)	23.8	9.6	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	4.6	0	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	133	190	0	44	14	0	15	239
Future Vol, veh/h	0	133	190	0	44	14	0	15	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	145	207	0	48	15	0	16	260
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.4	9	10.2
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	76%	0%	0%
Vol Right, %	0%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	190	58	15	239
LT Vol	133	0	0	15	0
Through Vol	0	190	44	0	0
RT Vol	0	0	14	0	239
Lane Flow Rate	145	207	63	16	260
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.233	0.304	0.093	0.028	0.354
Departure Headway (Hd)	5.802	5.299	5.323	6.117	4.909
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	616	675	668	585	730
Service Time	3.566	3.062	3.402	3.862	2.653
HCM Lane V/C Ratio	0.235	0.307	0.094	0.027	0.356
HCM Control Delay	10.3	10.4	9	9	10.3
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	0.9	1.3	0.3	0.1	1.6

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	352	137	34	235	134	43
Future Vol, veh/h	352	137	34	235	134	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	383	149	37	255	146	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	532	0	786	457
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	329	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1030	-	360	602
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1030	-	345	602
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	696	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	20.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	345	602	-	-	1030	-
HCM Lane V/C Ratio	0.422	0.078	-	-	0.036	-
HCM Control Delay (s)	22.8	11.5	-	-	8.6	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	17	0	0	5	0	172	10	8	159	4
Future Vol, veh/h	0	0	17	0	0	5	0	172	10	8	159	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	18	0	0	5	0	187	11	9	173	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	89	-	-	99	-	0	0	198	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	948	0	0	934	0	-	-	1365	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	948	-	-	934	-	-	-	1365	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	8.9	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	948	934	1365	-	-
HCM Lane V/C Ratio	-	-	0.019	0.006	0.006	-	-
HCM Control Delay (s)	-	-	8.9	8.9	7.7	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	17	0	182	172	4
Future Vol, veh/h	0	17	0	182	172	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	0	198	187	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	96	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	938	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	938	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	938	-	-
HCM Lane V/C Ratio	-	0.02	-	-
HCM Control Delay (s)	-	8.9	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	12	9	162	20	166	3
Future Vol, veh/h	0	12	9	162	20	166	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	13	10	176	22	180	3

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	92	184	0	128	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	944	1381	-	1183	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	944	1381	-	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.4	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1381	-	944	1183	-	-
HCM Lane V/C Ratio	0.007	-	0.014	0.018	-	-
HCM Control Delay (s)	7.6	-	8.9	8.1	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	102	96	171	176	2
Future Vol, veh/h	0	102	96	171	176	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	111	104	186	191	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	96	191	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	938	1373	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	938	1373	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1373	-	938	-	-
HCM Lane V/C Ratio	0.076	-	0.118	-	-
HCM Control Delay (s)	7.8	-	9.4	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.2	-	0.4	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	59	0	0	20	98	247	23	2	291	2
Future Vol, veh/h	0	0	59	0	0	20	98	247	23	2	291	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	64	0	0	22	107	268	25	2	316	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	159	-	-	147	318	0	0	293	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	855	0	0	870	1232	-	-	1258	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	855	-	-	870	1232	-	-	1258	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	9.2	2.2	0.1
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1232	-	-	855	870	1258	-	-
HCM Lane V/C Ratio	0.086	-	-	0.075	0.025	0.002	-	-
HCM Control Delay (s)	8.2	-	-	9.6	9.2	7.9	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.2	0.1	0	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	205	0	0	193	0	175	214	251	96	58
Future Vol, veh/h	0	0	205	0	0	193	0	175	214	251	96	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	223	0	0	210	0	190	233	273	104	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	84	-	-	211	-	0	0	423	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	811	0	0	674	0	-	-	732	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	811	-	-	674	-	-	-	732	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	12.7	0	7.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	811	674	732	-	-
HCM Lane V/C Ratio	-	-	0.275	0.311	0.373	-	-
HCM Control Delay (s)	-	-	11.1	12.7	12.8	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	1.1	1.3	1.7	-	-

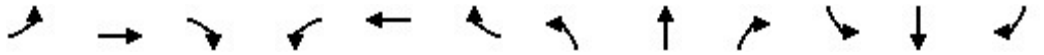
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	3	8	21	114	1
Future Vol, veh/h	0	3	8	21	114	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	3	9	23	124	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	124	125	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	824	924	1455	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	980	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	819	924	1455	-	-	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.1	0
HCM LOS	A		

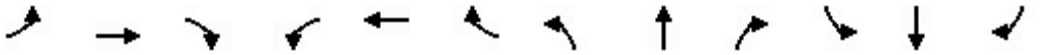
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1455	-	924	-	-
HCM Lane V/C Ratio	0.006	-	0.004	-	-
HCM Control Delay (s)	7.5	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	66	0	39	0	350	234	0	139	165
Future Volume (veh/h)	0	0	0	66	0	39	0	350	234	0	139	165
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				72	0	42	0	380	254	0	151	179
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				108	0	170	0	4240	1320	0	4240	1320
Arrive On Green				0.06	0.00	0.06	0.00	0.84	0.84	0.00	0.84	0.84
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				72	0	42	0	380	254	0	151	179
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				3.7	0.0	1.4	0.0	1.2	2.8	0.0	0.5	1.9
Cycle Q Clear(g_c), s				3.7	0.0	1.4	0.0	1.2	2.8	0.0	0.5	1.9
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				108	0	170	0	4240	1320	0	4240	1320
V/C Ratio(X)				0.67	0.00	0.25	0.00	0.09	0.19	0.00	0.04	0.14
Avail Cap(c_a), veh/h				612	0	962	0	4240	1320	0	4240	1320
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.8	0.0	41.7	0.0	1.3	1.4	0.0	1.2	1.3
Incr Delay (d2), s/veh				6.9	0.0	0.8	0.0	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	0.5	0.0	0.5	1.3	0.0	0.2	0.9
LnGrp Delay(d),s/veh				49.7	0.0	42.5	0.0	1.3	1.7	0.0	1.2	1.5
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					114			634			330	
Approach Delay, s/veh					47.0			1.5			1.4	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		10.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		4.8				3.9		5.7
Green Ext Time (p_c), s		5.3				5.3		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	0	62	0	0	0	0	351	203	0	97	108
Future Volume (veh/h)	233	0	62	0	0	0	0	351	203	0	97	108
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	253	0	67				0	382	221	0	105	117
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	322	0	506				0	3408	1061	0	3408	1061
Arrive On Green	0.18	0.00	0.18				0.00	0.68	0.68	0.00	0.68	0.68
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	253	0	67				0	382	221	0	105	117
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	8.8	0.0	1.3				0.0	1.7	3.4	0.0	0.4	1.7
Cycle Q Clear(g_c), s	8.8	0.0	1.3				0.0	1.7	3.4	0.0	0.4	1.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	322	0	506				0	3408	1061	0	3408	1061
V/C Ratio(X)	0.79	0.00	0.13				0.00	0.11	0.21	0.00	0.03	0.11
Avail Cap(c_a), veh/h	1845	0	2898				0	3408	1061	0	3408	1061
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.0				0.0	3.6	3.9	0.0	3.4	3.6
Incr Delay (d2), s/veh	4.2	0.0	0.1				0.0	0.1	0.4	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.5				0.0	0.8	1.6	0.0	0.2	2.8
LnGrp Delay(d),s/veh	29.3	0.0	22.1				0.0	3.7	4.4	0.0	3.4	3.8
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		320						603			222	
Approach Delay, s/veh		27.8						3.9			3.7	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		48.0		16.3		48.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		43.5		67.5		43.5		
Max Q Clear Time (g_c+I1), s		5.4		10.8		3.7		
Green Ext Time (p_c), s		4.4		1.0		4.5		

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	257	180	176	220	97	167	253	201	141	223	26
Future Volume (veh/h)	22	257	180	176	220	97	167	253	201	141	223	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	279	196	191	239	105	182	275	218	153	242	28
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	51	676	570	252	778	657	213	847	367	183	709	81
Arrive On Green	0.03	0.37	0.37	0.08	0.43	0.43	0.12	0.24	0.24	0.10	0.22	0.22
Sat Flow, veh/h	1757	1845	1555	3343	1810	1527	1757	3505	1519	1757	3162	362
Grp Volume(v), veh/h	24	279	196	191	239	105	182	275	218	153	133	137
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1527	1757	1752	1519	1757	1752	1771
Q Serve(g_s), s	1.4	11.8	6.3	5.9	9.1	4.4	10.6	6.8	10.0	9.0	6.7	6.8
Cycle Q Clear(g_c), s	1.4	11.8	6.3	5.9	9.1	4.4	10.6	6.8	10.0	9.0	6.7	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	51	676	570	252	778	657	213	847	367	183	393	397
V/C Ratio(X)	0.47	0.41	0.34	0.76	0.31	0.16	0.85	0.32	0.59	0.84	0.34	0.35
Avail Cap(c_a), veh/h	114	676	570	268	778	657	349	1294	561	248	547	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	24.8	10.3	47.5	19.6	18.3	45.1	32.7	19.7	46.1	34.1	34.2
Incr Delay (d2), s/veh	2.6	1.9	1.6	9.6	0.8	0.4	5.5	0.6	4.0	12.8	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.4	3.8	3.0	4.7	1.9	5.5	3.4	5.1	5.0	3.4	3.5
LnGrp Delay(d),s/veh	52.7	26.7	12.0	57.1	20.4	18.7	50.6	33.3	23.7	58.9	35.5	35.6
LnGrp LOS	D	C	B	E	C	B	D	C	C	E	D	D
Approach Vol, veh/h		499			535			675			423	
Approach Delay, s/veh		22.1			33.2			34.9			44.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	44.4	16.9	28.8	7.2	51.9	15.1	30.6
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	7.9	13.8	12.6	8.8	3.4	11.1	11.0	12.0
Green Ext Time (p_c), s	0.1	5.9	0.1	8.5	0.0	4.5	0.1	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	347	157	434	146	330	288	232	1014	458	166	1097	215
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.87	0.87	0.10	0.38	0.38
Sat Flow, veh/h	1108	431	1191	892	906	791	1757	2339	1057	1723	2859	561
Grp Volume(v), veh/h	86	0	489	205	0	251	134	909	935	152	490	485
Grp Sat Flow(s),veh/h/ln	1108	0	1623	892	0	1697	1757	1752	1644	1723	1719	1702
Q Serve(g_s), s	6.9	0.0	30.1	10.0	0.0	12.1	7.3	47.7	47.7	9.6	27.0	27.0
Cycle Q Clear(g_c), s	19.0	0.0	30.1	40.1	0.0	12.1	7.3	47.7	47.7	9.6	27.0	27.0
Prop In Lane	1.00		0.73	1.00		0.47	1.00		0.64	1.00		0.33
Lane Grp Cap(c), veh/h	347	0	592	146	0	619	232	760	713	166	659	653
V/C Ratio(X)	0.25	0.00	0.83	1.40	0.00	0.41	0.58	1.20	1.31	0.92	0.74	0.74
Avail Cap(c_a), veh/h	347	0	592	146	0	619	232	760	713	166	659	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.89	0.89	0.89
Uniform Delay (d), s/veh	33.2	0.0	31.8	52.3	0.0	26.1	37.8	7.3	7.3	49.3	29.2	29.2
Incr Delay (d2), s/veh	0.4	0.0	9.4	216.8	0.0	0.4	0.2	89.8	141.0	41.8	6.6	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	15.0	13.2	0.0	5.7	3.5	39.2	46.9	6.5	14.0	13.9
LnGrp Delay(d),s/veh	33.5	0.0	41.2	269.1	0.0	26.5	38.1	97.1	148.3	91.0	35.8	35.9
LnGrp LOS	C		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		40.1			135.5			117.3			43.3	
Approach LOS		D			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	53.1		45.0	19.9	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	11.6	49.7		32.1	9.3	29.0		42.1
Green Ext Time (p_c), s	0.0	0.0		3.7	3.2	7.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	88.4
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	1	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	1	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	694	86	633				0	1210	290	305	1074	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	700	76	556				0	997	236	645	2701	0
Arrive On Green	0.40	0.40	0.40				0.00	0.71	0.71	0.73	1.00	0.00
Sat Flow, veh/h	1757	190	1396				0	2897	664	1757	3597	0
Grp Volume(v), veh/h	694	0	719				0	750	750	305	1074	0
Grp Sat Flow(s),veh/h/ln	1757	0	1586				0	1752	1716	1757	1752	0
Q Serve(g_s), s	43.2	0.0	43.8				0.0	39.1	39.1	7.8	0.0	0.0
Cycle Q Clear(g_c), s	43.2	0.0	43.8				0.0	39.1	39.1	7.8	0.0	0.0
Prop In Lane	1.00		0.88				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	700	0	631				0	623	610	645	2701	0
V/C Ratio(X)	0.99	0.00	1.14				0.00	1.20	1.23	0.47	0.40	0.00
Avail Cap(c_a), veh/h	700	0	631				0	623	610	645	2701	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.45	0.45	0.40	0.40	0.00
Uniform Delay (d), s/veh	32.9	0.0	33.1				0.0	15.9	15.9	10.3	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	80.5				0.0	98.9	109.8	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	0.0	33.2				0.0	35.1	36.2	3.6	0.1	0.0
LnGrp Delay(d),s/veh	64.9	0.0	113.6				0.0	114.8	125.7	10.4	0.2	0.0
LnGrp LOS	E		F					F	F	B	A	
Approach Vol, veh/h		1413						1500			1379	
Approach Delay, s/veh		89.7						120.2			2.4	
Approach LOS		F						F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	45.9	44.4		48.4		90.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	9.8	41.1		45.8		2.0		
Green Ext Time (p_c), s	2.3	0.0		0.0		17.8		

Intersection Summary	
HCM 2010 Ctrl Delay	72.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	107	141	48	69	223	75	928	42	325	1112	143
Future Volume (veh/h)	165	107	141	48	69	223	75	928	42	325	1112	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	179	116	153	52	75	242	82	1009	46	353	1209	155
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	261	249	329	307	133	428	156	983	45	408	1348	172
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.46	0.86	0.86
Sat Flow, veh/h	1044	719	948	1090	382	1233	1757	3411	155	1757	3122	399
Grp Volume(v), veh/h	179	0	269	52	0	317	82	518	537	353	677	687
Grp Sat Flow(s),veh/h/ln	1044	0	1668	1090	0	1615	1757	1752	1814	1757	1752	1769
Q Serve(g_s), s	18.5	0.0	13.8	4.3	0.0	17.6	4.9	31.7	31.7	19.8	25.4	26.2
Cycle Q Clear(g_c), s	36.1	0.0	13.8	18.1	0.0	17.6	4.9	31.7	31.7	19.8	25.4	26.2
Prop In Lane	1.00		0.57	1.00		0.76	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	261	0	579	307	0	560	156	505	523	408	757	764
V/C Ratio(X)	0.69	0.00	0.46	0.17	0.00	0.57	0.53	1.03	1.03	0.87	0.89	0.90
Avail Cap(c_a), veh/h	263	0	582	307	0	560	168	505	523	420	757	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	43.8	0.0	28.0	35.0	0.0	29.2	47.9	39.2	39.2	27.9	6.0	6.0
Incr Delay (d2), s/veh	7.5	0.0	0.7	0.3	0.0	1.5	1.0	47.0	46.3	12.8	12.3	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	6.5	1.3	0.0	8.1	2.4	21.9	22.6	10.9	13.5	14.2
LnGrp Delay(d),s/veh	51.4	0.0	28.7	35.3	0.0	30.7	49.0	86.1	85.5	40.7	18.3	18.8
LnGrp LOS	D		C	D		C	D	F	F	D	B	B
Approach Vol, veh/h		448			369			1137			1717	
Approach Delay, s/veh		37.7			31.3			83.1			23.1	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.2	37.0		43.8	13.4	52.8		43.8
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	21.8	33.7		38.1	6.9	28.2		20.1
Green Ext Time (p_c), s	0.3	0.0		0.1	0.3	14.9		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	199	156	87	222	93	118	246	129	112	321	206
Future Volume (veh/h)	208	199	156	87	222	93	118	246	129	112	321	206
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	226	216	170	95	241	101	128	267	140	122	349	224
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	355	755	333	132	615	270	157	1339	594	159	1408	622
Arrive On Green	0.11	0.22	0.22	0.08	0.18	0.18	0.09	0.38	0.38	0.09	0.40	0.40
Sat Flow, veh/h	3343	3438	1517	1723	3438	1512	1757	3505	1556	1757	3505	1548
Grp Volume(v), veh/h	226	216	170	95	241	101	128	267	140	122	349	224
Grp Sat Flow(s),veh/h/ln	1672	1719	1517	1723	1719	1512	1757	1752	1556	1757	1752	1548
Q Serve(g_s), s	6.2	5.0	9.5	5.2	6.0	5.7	6.9	4.9	4.2	6.5	6.4	6.0
Cycle Q Clear(g_c), s	6.2	5.0	9.5	5.2	6.0	5.7	6.9	4.9	4.2	6.5	6.4	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	755	333	132	615	270	157	1339	594	159	1408	622
V/C Ratio(X)	0.64	0.29	0.51	0.72	0.39	0.37	0.81	0.20	0.24	0.77	0.25	0.36
Avail Cap(c_a), veh/h	364	1356	598	148	1278	562	179	1339	594	222	1408	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	31.3	33.0	43.5	34.9	34.8	43.1	19.9	10.0	42.8	19.2	7.6
Incr Delay (d2), s/veh	2.6	0.5	3.1	10.9	1.1	2.2	19.5	0.3	0.9	6.0	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.5	4.3	2.9	2.9	2.5	4.2	2.4	2.4	3.5	3.1	3.8
LnGrp Delay(d),s/veh	43.9	31.8	36.2	54.4	36.0	37.0	62.6	20.3	11.0	48.8	19.6	9.2
LnGrp LOS	D	C	D	D	D	D	E	C	B	D	B	A
Approach Vol, veh/h		612			437			535			695	
Approach Delay, s/veh		37.5			40.2			28.0			21.4	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	42.8	11.6	26.5	12.8	45.5	15.5	22.5
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	12.2	* 37	* 8.3	38.0	* 9.8	38.4	10.5	* 36
Max Q Clear Time (g_c+I1), s	8.5	6.9	7.2	11.5	8.9	8.4	8.2	8.0
Green Ext Time (p_c), s	0.6	5.5	0.0	4.4	0.0	7.8	0.9	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Future Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	257	212	222	3	503	12	242	3	14	10
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	118	219	243	627	8	358	40	805	68	274	178
Arrive On Green	0.01	0.21	0.21	0.14	0.35	0.35	0.20	0.54	0.54	0.29	0.29	0.29
Sat Flow, veh/h	1757	568	1059	1757	1815	25	1757	74	1491	98	945	614
Grp Volume(v), veh/h	9	0	395	212	0	225	503	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1627	1757	0	1840	1757	0	1565	1657	0	0
Q Serve(g_s), s	0.5	0.0	20.7	11.8	0.0	9.1	20.4	0.0	8.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.7	11.8	0.0	9.1	20.4	0.0	8.9	1.1	0.0	0.0
Prop In Lane	1.00		0.65	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	0	337	243	0	636	358	0	845	520	0	0
V/C Ratio(X)	0.77	0.00	1.17	0.87	0.00	0.35	1.40	0.00	0.30	0.05	0.00	0.00
Avail Cap(c_a), veh/h	95	0	337	253	0	636	358	0	845	520	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.55	0.00	0.55	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	39.7	42.2	0.0	24.4	39.8	0.0	12.6	25.6	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	104.7	24.8	0.0	0.4	190.7	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	19.1	7.4	0.0	4.7	28.8	0.0	3.9	0.6	0.0	0.0
LnGrp Delay(d),s/veh	81.5	0.0	144.4	67.1	0.0	24.8	230.5	0.0	13.1	25.8	0.0	0.0
LnGrp LOS	F		F	E		C	F		B	C		
Approach Vol, veh/h		404			437			757			27	
Approach Delay, s/veh		143.0			45.3			157.6			25.8	
Approach LOS		F			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		59.4	19.1	26.0	25.0	34.4	5.3	39.9
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.9	13.8	22.7	22.4	3.1	2.5	11.1
Green Ext Time (p_c), s		2.3	0.0	0.0	0.0	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	121.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Future Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	72	335	539	114	45	352	86
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	131	379	78	282	165	218	496	105	183	453	111
Arrive On Green	0.10	0.32	0.32	0.04	0.26	0.26	0.12	0.34	0.34	0.03	0.10	0.10
Sat Flow, veh/h	1757	413	1198	1757	1084	634	1757	1473	311	1757	1428	349
Grp Volume(v), veh/h	147	0	468	61	0	195	335	0	653	45	0	438
Grp Sat Flow(s),veh/h/ln	1757	0	1611	1757	0	1718	1757	0	1784	1757	0	1777
Q Serve(g_s), s	8.2	0.0	28.0	3.4	0.0	9.5	12.4	0.0	33.7	2.5	0.0	24.0
Cycle Q Clear(g_c), s	8.2	0.0	28.0	3.4	0.0	9.5	12.4	0.0	33.7	2.5	0.0	24.0
Prop In Lane	1.00		0.74	1.00		0.37	1.00		0.17	1.00		0.20
Lane Grp Cap(c), veh/h	177	0	510	78	0	447	218	0	601	183	0	563
V/C Ratio(X)	0.83	0.00	0.92	0.78	0.00	0.44	1.54	0.00	1.09	0.25	0.00	0.78
Avail Cap(c_a), veh/h	394	0	559	95	0	447	218	0	601	183	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.00	0.50
Uniform Delay (d), s/veh	44.1	0.0	32.9	47.3	0.0	30.9	43.8	0.0	33.2	44.5	0.0	41.3
Incr Delay (d2), s/veh	3.8	0.0	21.3	23.0	0.0	0.3	262.5	0.0	62.2	0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	15.5	2.2	0.0	4.5	21.9	0.0	26.9	1.2	0.0	12.7
LnGrp Delay(d),s/veh	47.9	0.0	54.3	70.3	0.0	31.1	306.3	0.0	95.4	44.6	0.0	46.7
LnGrp LOS	D		D	E		C	F		F	D		D
Approach Vol, veh/h		615			256			988			483	
Approach Delay, s/veh		52.8			40.5			166.9			46.5	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	39.0	9.0	36.9	17.0	37.0	14.7	31.3
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.5	35.7	5.4	30.0	14.4	26.0	10.2	11.5
Green Ext Time (p_c), s	0.1	0.0	0.0	1.6	0.0	1.6	0.0	3.3

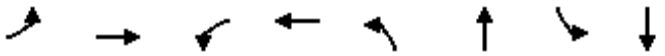
Intersection Summary	
HCM 2010 Ctrl Delay	98.3
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	279	196	191	239	105	182	275	218	153	270
v/c Ratio	0.21	0.38	0.27	0.68	0.28	0.13	0.72	0.40	0.46	0.71	0.44
Control Delay	53.0	25.7	4.9	59.1	21.1	2.7	58.0	35.9	7.7	61.2	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	25.7	4.9	59.1	21.1	2.7	58.0	35.9	7.7	61.2	37.2
Queue Length 50th (ft)	14	119	0	59	77	0	108	80	0	90	76
Queue Length 95th (ft)	47	255	53	#137	216	23	209	118	55	#209	122
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	122	726	722	287	856	783	374	1392	729	266	1159
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.38	0.27	0.67	0.28	0.13	0.49	0.20	0.30	0.58	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	489	205	251	134	1844	152	975
v/c Ratio	0.25	0.72	1.34	0.39	0.61	1.31	0.92	0.76
Control Delay	27.1	27.9	221.6	23.1	32.9	158.6	102.3	33.2
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.5	0.0	50.4
Total Delay	27.1	28.2	221.6	23.1	32.9	159.1	102.3	83.6
Queue Length 50th (ft)	42	212	~189	105	86	~857	108	302
Queue Length 95th (ft)	83	342	#338	175	m74	m#671	#233	383
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	339	680	153	647	219	1410	165	1291
Starvation Cap Reductn	0	0	0	0	0	169	0	0
Spillback Cap Reductn	0	22	0	0	0	0	0	520
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.74	1.34	0.39	0.61	1.49	0.92	1.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	679	710	1500	305	1074
v/c Ratio	1.03	1.13	1.23	1.42	0.60
Control Delay	77.6	107.3	131.5	242.8	25.7
Queue Delay	12.0	3.6	3.1	0.0	50.1
Total Delay	89.6	110.9	134.6	242.8	75.8
Queue Length 50th (ft)	~543	~585	~707	~297	403
Queue Length 95th (ft)	#780	#830	#850	m#417	m456
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	628	1218	215	1793
Starvation Cap Reductn	0	0	125	0	832
Spillback Cap Reductn	21	222	541	0	641
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.07	1.75	2.22	1.42	1.12

Intersection Summary

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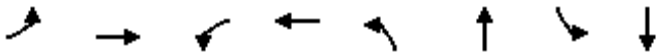
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

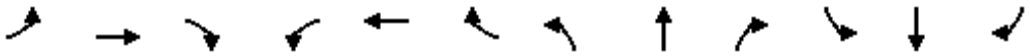
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	179	269	52	317	82	1055	353	1364
v/c Ratio	1.02	0.53	0.27	0.58	0.56	0.80	0.91	0.74
Control Delay	111.9	27.7	32.4	19.9	63.1	38.3	62.0	14.1
Queue Delay	64.2	0.0	0.0	3.4	0.0	49.0	55.8	1.0
Total Delay	176.0	27.7	32.4	23.3	63.1	87.3	117.9	15.0
Queue Length 50th (ft)	125	118	29	91	56	361	268	196
Queue Length 95th (ft)	#240	182	59	167	107	#562	m317	m419
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	223	625	250	651	167	1319	418	1844
Starvation Cap Reductn	0	0	0	0	0	0	169	230
Spillback Cap Reductn	93	0	0	239	0	382	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.43	0.21	0.77	0.49	1.13	1.42	0.85

Intersection Summary

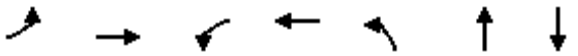
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	226	216	170	95	241	101	128	267	140	122	349	224
v/c Ratio	0.64	0.36	0.42	0.62	0.45	0.26	0.72	0.19	0.20	0.54	0.24	0.30
Control Delay	49.5	35.4	8.5	61.2	38.3	1.6	64.3	19.5	2.3	48.7	18.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	35.4	8.5	61.2	38.3	1.6	64.3	19.5	2.3	48.7	18.9	3.9
Queue Length 50th (ft)	66	60	0	55	69	0	74	53	0	68	68	0
Queue Length 95th (ft)	110	93	51	#132	106	0	#170	88	23	132	110	45
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	377	1409	719	153	1327	693	185	1390	715	230	1451	758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.15	0.24	0.62	0.18	0.15	0.69	0.19	0.20	0.53	0.24	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	9	395	212	225	503	254	27
v/c Ratio	0.12	0.98	0.89	0.33	1.36	0.28	0.06
Control Delay	49.4	73.3	79.0	24.9	210.1	6.1	21.5
Queue Delay	0.0	8.1	8.8	0.0	0.0	0.0	0.1
Total Delay	49.4	81.4	87.8	24.9	210.1	6.1	21.6
Queue Length 50th (ft)	6	204	133	96	~450	15	8
Queue Length 95th (ft)	22	#398	#259	183	m#643	m53	30
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	402	252	680	371	895	418
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	13	23	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	1.02	0.93	0.33	1.36	0.28	0.09

Intersection Summary

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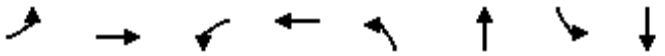
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	147	468	61	195	335	653	45	438
v/c Ratio	0.71	0.83	0.69	0.51	2.28	0.78	0.47	0.61
Control Delay	60.5	34.4	83.5	33.9	620.1	35.0	68.3	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Total Delay	60.5	34.4	83.5	33.9	620.1	35.0	68.3	46.3
Queue Length 50th (ft)	92	187	39	91	~349	386	26	291
Queue Length 95th (ft)	149	294	#102	160	#521	#682	m29	m325
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	655	94	415	147	836	112	720
Starvation Cap Reductn	0	0	0	0	0	0	0	144
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.71	0.65	0.47	2.28	0.78	0.40	0.76

Intersection Summary

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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	96.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	312	367	197	213	208	92
Future Vol, veh/h	312	367	197	213	208	92
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	339	399	214	232	226	100

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	748	0	1219	559
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	670	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	856	-	~ 198	527
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	~ 138	517
Mov Cap-2 Maneuver	-	-	-	-	~ 138	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	357	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	$ 439.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	178	-	-	848	-
HCM Lane V/C Ratio	1.832	-	-	0.253	-
HCM Control Delay (s)	$ 439.8	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	23.7	-	-	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	24	313	267	46	116	47
Future Vol, veh/h	24	313	267	46	116	47
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	340	290	50	126	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	350	0	-	0	557	190
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1198	-	-	-	458	816
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1187	-	-	-	437	801
Mov Cap-2 Maneuver	-	-	-	-	437	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	754	-

Approach	NB	SB	NE
HCM Control Delay, s	0.7	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	437	801	1187	-	-	-
HCM Lane V/C Ratio	0.289	0.064	0.022	-	-	-
HCM Control Delay (s)	16.5	9.8	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	6

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	326	120	33	291	188	16
Future Vol, veh/h	326	120	33	291	188	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	354	130	36	316	204	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	670	262
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1058	-	388	734
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1048	-	365	720
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	734	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1	26.9
HCM LOS			D

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1048	-	380
HCM Lane V/C Ratio	-	-	0.034	-	0.584
HCM Control Delay (s)	-	-	8.6	0.1	26.9
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0.1	-	3.6

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	148	0	0	0	0	95
Future Vol, veh/h	148	0	0	0	0	95
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	161	0	0	0	0	103

Major/Minor	Major1		Minor2	
Conflicting Flow All	10	-	-	20
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	-	-
Pot Cap-1 Maneuver	-	0	0	-
Stage 1	-	0	0	-
Stage 2	-	0	0	-
Platoon blocked, %				
Mov Cap-1 Maneuver	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	SB
HCM Control Delay, s		
HCM LOS		-

Minor Lane/Major Mvmt	EBL	SBLn1
Capacity (veh/h)	-	-
HCM Lane V/C Ratio	-	-
HCM Control Delay (s)	-	-
HCM Lane LOS	-	-
HCM 95th %tile Q(veh)	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	313	32	20	351	17	13
Future Vol, veh/h	313	32	20	351	17	13
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	340	35	22	382	18	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	385	0	803	378
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	435	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1157	-	351	667
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	336	654
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	426	-	-	1146	-
HCM Lane V/C Ratio	0.077	-	-	0.019	-
HCM Control Delay (s)	14.2	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	229	95	43
Future Vol, veh/h	75	429	315	229	95	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	249	103	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	601	0	-	0	1116	487
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	971	-	-	-	229	579
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	962	-	-	-	199	568
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	459	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	38.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	962	-	-	-	250
HCM Lane V/C Ratio	0.085	-	-	-	0.6
HCM Control Delay (s)	9.1	0	-	-	38.9
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	3.5

Intersection	
Int Delay, s/veh	61.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	84	196	252	512	18
Future Vol, veh/h	29	84	196	252	512	18
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	91	213	274	557	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	497	0	-	0	524	370
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1062	-	-	-	~ 512	673
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1052	-	-	-	~ 486	660
Mov Cap-2 Maneuver	-	-	-	-	~ 486	-
Stage 1	-	-	-	-	697	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	125.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1052	-	-	-	490
HCM Lane V/C Ratio	0.03	-	-	-	1.176
HCM Control Delay (s)	8.5	0	-	-	125.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	21

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	171	231	10
Future Vol, veh/h	353	0	0	171	231	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	186	251	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	580	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	475	653
Stage 1	-	0	0	-	686	-
Stage 2	-	0	0	-	835	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	470	647
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	470	647	-	-
HCM Lane V/C Ratio	0.534	0.017	-	-
HCM Control Delay (s)	21.1	10.7	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	3.1	0.1	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	217	131	0	59	36	0	17	161
Future Vol, veh/h	0	217	131	0	59	36	0	17	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	236	142	0	64	39	0	18	175
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.8	9	9.5
HCM LOS	B	A	A

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	62%	0%	0%
Vol Right, %	0%	0%	38%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	131	95	17	161
LT Vol	217	0	0	17	0
Through Vol	0	131	59	0	0
RT Vol	0	0	36	0	161
Lane Flow Rate	236	142	103	18	175
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.37	0.203	0.145	0.032	0.246
Departure Headway (Hd)	5.643	5.14	5.064	6.261	5.052
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	637	695	704	571	709
Service Time	3.395	2.893	3.126	4.007	2.797
HCM Lane V/C Ratio	0.37	0.204	0.146	0.032	0.247
HCM Control Delay	11.7	9.2	9	9.2	9.5
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.7	0.8	0.5	0.1	1

Intersection	
Int Delay, s/veh	50.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	341	210	161	362	211	100
Future Vol, veh/h	341	210	161	362	211	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	371	228	175	393	229	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	599	0	1228	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	973	-	~ 196	580
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	973	-	~ 151	580
Mov Cap-2 Maneuver	-	-	-	-	~ 151	-
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	360	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	220.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	580	-	-	973	-
HCM Lane V/C Ratio	1.519	0.187	-	-	0.18	-
HCM Control Delay (s)	$ 318.6	12.6	-	-	9.5	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	15.4	0.7	-	-	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	21	0	290	38	30	332	9
Future Vol, veh/h	0	0	11	0	0	21	0	290	38	30	332	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	23	0	315	41	33	361	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	185	-	-	178	-	0	0	357	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	823	0	0	831	0	-	-	1191	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	823	-	-	831	-	-	-	1191	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.5	0	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	823	831	1191	-	-
HCM Lane V/C Ratio	-	-	0.015	0.027	0.027	-	-
HCM Control Delay (s)	-	-	9.4	9.5	8.1	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	11	0	328	334	9
Future Vol, veh/h	0	11	0	328	334	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	12	0	357	363	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	186	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	821	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	821	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	821	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	9.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	8	25	315	13	325	7
Future Vol, veh/h	0	8	25	315	13	325	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	9	27	342	14	353	8

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	180	361	0	250	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	829	1187	-	991	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	829	1187	-	991	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.6	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1187	-	829	991	-	-
HCM Lane V/C Ratio	0.023	-	0.01	0.014	-	-
HCM Control Delay (s)	8.1	-	9.4	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	117	237	340	329	4
Future Vol, veh/h	0	117	237	340	329	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	127	258	370	358	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	179	358	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	830	1190	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	830	1190	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	3.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1190	-	830	-	-
HCM Lane V/C Ratio	0.216	-	0.153	-	-
HCM Control Delay (s)	8.9	-	10.1	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.8	-	0.5	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	67	0	0	91	153	486	90	10	513	4
Future Vol, veh/h	0	0	67	0	0	91	153	486	90	10	513	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	73	0	0	99	166	528	98	11	558	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	281	-	-	313	562	0	0	626	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	713	0	0	680	999	-	-	945	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	713	-	-	680	999	-	-	945	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.6	11.2	2	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	999	-	-	713	680	945	-	-
HCM Lane V/C Ratio	0.166	-	-	0.102	0.145	0.012	-	-
HCM Control Delay (s)	9.3	-	-	10.6	11.2	8.9	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.3	0.5	0	-	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	148	0	0	358	0	371	268	236	330	95
Future Vol, veh/h	0	0	148	0	0	358	0	371	268	236	330	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	161	0	0	389	0	403	291	257	359	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	231	-	-	347	-	0	0	695	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	655	0	0	552	0	-	-	544	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	655	-	-	552	-	-	-	544	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	25.6	0	6.2
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	655	552	544	-	-
HCM Lane V/C Ratio	-	-	0.246	0.705	0.472	-	-
HCM Control Delay (s)	-	-	12.3	25.6	17.4	-	-
HCM Lane LOS	-	-	B	D	C	-	-
HCM 95th %tile Q(veh)	-	-	1	5.6	2.5	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	3	11	28	27	37	4
Future Vol, veh/h	3	11	28	27	37	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	3	12	30	29	40	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	132	42	45	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	860	1026	1557	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	843	1026	1557	-	-	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	3.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	980	-	-
HCM Lane V/C Ratio	0.02	-	0.016	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	79	0	560	182	0	329	149
Future Volume (veh/h)	0	0	0	168	0	79	0	560	182	0	329	149
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	86	0	609	198	0	358	162
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				226	0	355	0	3936	1226	0	3936	1226
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	86	0	609	198	0	358	162
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	2.8	0.0	3.0	3.2	0.0	1.7	2.5
Cycle Q Clear(g_c), s				10.2	0.0	2.8	0.0	3.0	3.2	0.0	1.7	2.5
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				226	0	355	0	3936	1226	0	3936	1226
V/C Ratio(X)				0.81	0.00	0.24	0.00	0.15	0.16	0.00	0.09	0.13
Avail Cap(c_a), veh/h				569	0	893	0	3936	1226	0	3936	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.6	0.0	39.3	0.0	2.7	2.7	0.0	2.6	2.7
Incr Delay (d2), s/veh				6.8	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	1.1	0.0	1.4	1.5	0.0	0.8	1.2
LnGrp Delay(d),s/veh				49.3	0.0	39.7	0.0	2.8	3.0	0.0	2.6	2.9
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					269			807			520	
Approach Delay, s/veh					46.2			2.9			2.7	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				4.5		12.2
Green Ext Time (p_c), s		9.2				9.2		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	362	0	206	0	0	0	0	380	131	0	365	132
Future Volume (veh/h)	362	0	206	0	0	0	0	380	131	0	365	132
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	393	0	224				0	413	142	0	397	143
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	476	0	747				0	3005	936	0	3005	936
Arrive On Green	0.27	0.00	0.27				0.00	0.60	0.60	0.00	0.60	0.60
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	393	0	224				0	413	142	0	397	143
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	14.3	0.0	4.4				0.0	2.4	2.7	0.0	2.3	2.7
Cycle Q Clear(g_c), s	14.3	0.0	4.4				0.0	2.4	2.7	0.0	2.3	2.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	476	0	747				0	3005	936	0	3005	936
V/C Ratio(X)	0.83	0.00	0.30				0.00	0.14	0.15	0.00	0.13	0.15
Avail Cap(c_a), veh/h	1825	0	2867				0	3005	936	0	3005	936
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	19.6				0.0	6.0	6.1	0.0	6.0	6.1
Incr Delay (d2), s/veh	3.7	0.0	0.2				0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	1.7				0.0	1.1	1.3	0.0	1.1	3.8
LnGrp Delay(d),s/veh	27.0	0.0	19.9				0.0	6.1	6.4	0.0	6.1	6.4
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		617						555			540	
Approach Delay, s/veh		24.4						6.2			6.2	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		22.9		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.7		16.3		4.7		
Green Ext Time (p_c), s		6.8		2.1		6.8		

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	27	0	293	160	126	351	9
Future Vol, veh/h	0	0	11	0	0	27	0	293	160	126	351	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	29	0	318	174	137	382	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	196	-	-	246	-	0	0	492	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	809	0	0	751	0	-	-	1061	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	809	-	-	751	-	-	-	1061	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10	0	2.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	809	751	1061	-	-
HCM Lane V/C Ratio	-	-	0.015	0.039	0.129	-	-
HCM Control Delay (s)	-	-	9.5	10	8.9	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.4	-	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	67	0	0	115	153	608	378	42	534	4
Future Vol, veh/h	0	0	67	0	0	115	153	608	378	42	534	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	73	0	0	125	166	661	411	46	580	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	292	-	-	536	585	0	0	1072	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	701	0	0	486	979	-	-	640	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	701	-	-	486	979	-	-	640	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	15	1.3	0.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	979	-	-	701	486	640	-	-
HCM Lane V/C Ratio	0.17	-	-	0.104	0.257	0.071	-	-
HCM Control Delay (s)	9.4	-	-	10.7	15	11.1	-	-
HCM Lane LOS	A	-	-	B	C	B	-	-
HCM 95th %tile Q(veh)	0.6	-	-	0.3	1	0.2	-	-

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	130	0	329	44	35	333	9
Future Vol, veh/h	0	0	11	0	0	130	0	329	44	35	333	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	141	0	358	48	38	362	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	186	-	-	203	-	0	0	405	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	821	0	0	801	0	-	-	1143	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	821	-	-	801	-	-	-	1143	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.5	0	0.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	821	801	1143	-	-
HCM Lane V/C Ratio	-	-	0.015	0.176	0.033	-	-
HCM Control Delay (s)	-	-	9.5	10.5	8.3	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.6	0.1	-	-

Intersection	
Int Delay, s/veh	10.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	67	0	0	552	153	492	105	12	923	4
Future Vol, veh/h	0	0	67	0	0	552	153	492	105	12	923	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	73	0	0	600	166	535	114	13	1003	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	504	-	-	324	1008	0	0	649	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	510	0	0	669	677	-	-	926	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	510	-	-	669	677	-	-	926	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.2	39.2	2.5	0.1
HCM LOS	B	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	677	-	-	510	669	926	-	-
HCM Lane V/C Ratio	0.246	-	-	0.143	0.897	0.014	-	-
HCM Control Delay (s)	12	-	-	13.2	39.2	8.9	-	-
HCM Lane LOS	B	-	-	B	E	A	-	-
HCM 95th %tile Q(veh)	1	-	-	0.5	11.3	0	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	16	0	0	41	0	283	43	33	388	13
Future Vol, veh/h	0	0	16	0	0	41	0	283	43	33	388	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	17	0	0	45	0	308	47	36	422	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	218	-	-	177	-	0	0	354	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	783	0	0	832	0	-	-	1194	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	783	-	-	832	-	-	-	1194	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9.6	0	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	783	832	1194	-	-
HCM Lane V/C Ratio	-	-	0.022	0.054	0.03	-	-
HCM Control Delay (s)	-	-	9.7	9.6	8.1	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-	-

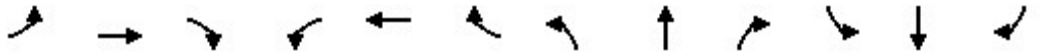
Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	101	0	0	171	199	500	100	11	593	6
Future Vol, veh/h	0	0	101	0	0	171	199	500	100	11	593	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	200	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	110	0	0	186	216	543	109	12	645	7

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	326	-	-	326	651	0	0	652	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	667	0	0	667	925	-	-	924	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	667	-	-	667	925	-	-	924	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	12.5	2.5	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	925	-	-	667	667	924	-	-
HCM Lane V/C Ratio	0.234	-	-	0.165	0.279	0.013	-	-
HCM Control Delay (s)	10.1	-	-	11.5	12.5	8.9	-	-
HCM Lane LOS	B	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.9	-	-	0.6	1.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	111	0	560	182	0	339	157
Future Volume (veh/h)	0	0	0	168	0	111	0	560	182	0	339	157
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	121	0	609	198	0	368	171
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				228	0	358	0	3931	1224	0	3931	1224
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	121	0	609	198	0	368	171
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	4.0	0.0	3.0	3.2	0.0	1.7	2.7
Cycle Q Clear(g_c), s				10.2	0.0	4.0	0.0	3.0	3.2	0.0	1.7	2.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				228	0	358	0	3931	1224	0	3931	1224
V/C Ratio(X)				0.80	0.00	0.34	0.00	0.15	0.16	0.00	0.09	0.14
Avail Cap(c_a), veh/h				568	0	892	0	3931	1224	0	3931	1224
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.8	0.0	2.8	2.8	0.0	2.6	2.7
Incr Delay (d2), s/veh				6.4	0.0	0.6	0.0	0.1	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	1.6	0.0	1.4	1.5	0.0	0.8	1.2
LnGrp Delay(d),s/veh				48.9	0.0	40.4	0.0	2.8	3.1	0.0	2.7	3.0
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					304			807			539	
Approach Delay, s/veh					45.5			2.9			2.8	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				4.7		12.2
Green Ext Time (p_c), s		9.4				9.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	612	0	206	0	0	0	0	508	131	0	372	135
Future Volume (veh/h)	612	0	206	0	0	0	0	508	131	0	372	135
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	665	0	224				0	552	142	0	404	147
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	733	0	1151				0	2401	748	0	2401	748
Arrive On Green	0.42	0.00	0.42				0.00	0.48	0.48	0.00	0.48	0.48
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	665	0	224				0	552	142	0	404	147
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	30.1	0.0	4.4				0.0	5.5	4.4	0.0	3.9	4.6
Cycle Q Clear(g_c), s	30.1	0.0	4.4				0.0	5.5	4.4	0.0	3.9	4.6
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	733	0	1151				0	2401	748	0	2401	748
V/C Ratio(X)	0.91	0.00	0.19				0.00	0.23	0.19	0.00	0.17	0.20
Avail Cap(c_a), veh/h	1458	0	2290				0	2401	748	0	2401	748
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	15.7				0.0	13.1	12.8	0.0	12.6	12.8
Incr Delay (d2), s/veh	4.7	0.0	0.1				0.0	0.2	0.6	0.0	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	0.0	1.7				0.0	2.6	2.0	0.0	1.8	5.4
LnGrp Delay(d),s/veh	27.9	0.0	15.8				0.0	13.3	13.3	0.0	12.8	13.4
LnGrp LOS	C		B					B	B		B	B
Approach Vol, veh/h		889						694			551	
Approach Delay, s/veh		24.8						13.3			13.0	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		39.9		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		7.5		32.1		6.6		
Green Ext Time (p_c), s		8.1		3.3		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	81	0	580	182	0	521	296
Future Volume (veh/h)	0	0	0	168	0	81	0	580	182	0	521	296
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	88	0	630	198	0	566	322
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				226	0	355	0	3936	1226	0	3936	1226
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	88	0	630	198	0	566	322
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	2.9	0.0	3.1	3.2	0.0	2.8	5.7
Cycle Q Clear(g_c), s				10.2	0.0	2.9	0.0	3.1	3.2	0.0	2.8	5.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				226	0	355	0	3936	1226	0	3936	1226
V/C Ratio(X)				0.81	0.00	0.25	0.00	0.16	0.16	0.00	0.14	0.26
Avail Cap(c_a), veh/h				569	0	893	0	3936	1226	0	3936	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.4	0.0	2.7	2.7	0.0	2.7	3.0
Incr Delay (d2), s/veh				6.7	0.0	0.4	0.0	0.1	0.3	0.0	0.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	1.1	0.0	1.5	1.5	0.0	1.3	2.6
LnGrp Delay(d),s/veh				49.3	0.0	39.7	0.0	2.8	3.0	0.0	2.8	3.5
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					271			828			888	
Approach Delay, s/veh					46.2			2.9			3.1	
Approach LOS					D			A			A	

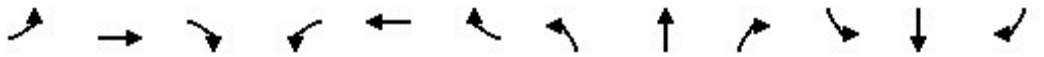
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				7.7		12.2
Green Ext Time (p_c), s		13.5				13.5		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	375	0	206	0	0	0	0	387	131	0	493	196
Future Volume (veh/h)	375	0	206	0	0	0	0	387	131	0	493	196
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	408	0	224				0	421	142	0	536	213
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	490	0	769				0	2972	925	0	2972	925
Arrive On Green	0.28	0.00	0.28				0.00	0.59	0.59	0.00	0.59	0.59
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	408	0	224				0	421	142	0	536	213
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	15.0	0.0	4.4				0.0	2.6	2.8	0.0	3.4	4.4
Cycle Q Clear(g_c), s	15.0	0.0	4.4				0.0	2.6	2.8	0.0	3.4	4.4
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	490	0	769				0	2972	925	0	2972	925
V/C Ratio(X)	0.83	0.00	0.29				0.00	0.14	0.15	0.00	0.18	0.23
Avail Cap(c_a), veh/h	1805	0	2835				0	2972	925	0	2972	925
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	19.4				0.0	6.3	6.3	0.0	6.5	6.7
Incr Delay (d2), s/veh	3.8	0.0	0.2				0.0	0.1	0.4	0.0	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	1.7				0.0	1.2	1.3	0.0	1.6	5.8
LnGrp Delay(d),s/veh	27.0	0.0	19.6				0.0	6.4	6.7	0.0	6.6	7.3
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		632						563			749	
Approach Delay, s/veh		24.4						6.5			6.8	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		23.6		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.8		17.0		6.4		
Green Ext Time (p_c), s		8.6		2.2		8.5		

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	183	0	101	0	706	208	0	449	211
Future Volume (veh/h)	0	0	0	183	0	101	0	706	208	0	449	211
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				199	0	110	0	767	226	0	488	229
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				243	0	382	0	3892	1212	0	3892	1212
Arrive On Green				0.14	0.00	0.14	0.00	0.77	0.77	0.00	0.77	0.77
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				199	0	110	0	767	226	0	488	229
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				11.2	0.0	3.6	0.0	4.1	3.9	0.0	2.5	3.9
Cycle Q Clear(g_c), s				11.2	0.0	3.6	0.0	4.1	3.9	0.0	2.5	3.9
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				243	0	382	0	3892	1212	0	3892	1212
V/C Ratio(X)				0.82	0.00	0.29	0.00	0.20	0.19	0.00	0.13	0.19
Avail Cap(c_a), veh/h				562	0	883	0	3892	1212	0	3892	1212
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.3	0.0	3.1	3.1	0.0	2.9	3.1
Incr Delay (d2), s/veh				6.7	0.0	0.4	0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.9	0.0	1.4	0.0	2.0	1.8	0.0	1.2	1.8
LnGrp Delay(d),s/veh				49.2	0.0	39.7	0.0	3.2	3.4	0.0	3.0	3.4
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					309			993			717	
Approach Delay, s/veh					45.8			3.2			3.1	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		18.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		6.1				5.9		13.2
Green Ext Time (p_c), s		13.9				13.9		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	456	0	218	0	0	0	0	458	149	0	454	179
Future Volume (veh/h)	456	0	218	0	0	0	0	458	149	0	454	179
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	496	0	237				0	498	162	0	493	195
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	574	0	902				0	2773	863	0	2773	863
Arrive On Green	0.33	0.00	0.33				0.00	0.55	0.55	0.00	0.55	0.55
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	496	0	237				0	498	162	0	493	195
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	19.5	0.0	4.7				0.0	3.6	3.8	0.0	3.6	4.7
Cycle Q Clear(g_c), s	19.5	0.0	4.7				0.0	3.6	3.8	0.0	3.6	4.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	574	0	902				0	2773	863	0	2773	863
V/C Ratio(X)	0.86	0.00	0.26				0.00	0.18	0.19	0.00	0.18	0.23
Avail Cap(c_a), veh/h	1684	0	2645				0	2773	863	0	2773	863
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	18.2				0.0	8.2	8.3	0.0	8.2	8.5
Incr Delay (d2), s/veh	4.0	0.0	0.2				0.0	0.1	0.5	0.0	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	1.8				0.0	1.7	1.7	0.0	1.7	5.9
LnGrp Delay(d),s/veh	27.2	0.0	18.4				0.0	8.4	8.8	0.0	8.4	9.1
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		733						660			688	
Approach Delay, s/veh		24.4						8.5			8.6	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		28.5		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		5.8		21.5		6.7		
Green Ext Time (p_c), s		8.9		2.6		8.8		

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

CUMULATIVE YEAR 2040 WITH INTERCHANGE ALTERNATIVES 1 AND 2 WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	473	398	303	473	398	278	1810	805	372	1249	343
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.16	0.52	0.52	0.11	0.47	0.47
Sat Flow, veh/h	1160	1845	1550	1071	1845	1550	1757	3505	1559	3343	2659	731
Grp Volume(v), veh/h	53	70	215	202	114	83	251	1046	755	316	670	659
Grp Sat Flow(s),veh/h/ln	1160	1845	1550	1071	1845	1550	1757	1752	1559	1672	1719	1671
Q Serve(g_s), s	4.6	3.5	14.4	21.6	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Cycle Q Clear(g_c), s	10.4	3.5	14.4	25.1	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	301	473	398	303	473	398	278	1810	805	372	807	785
V/C Ratio(X)	0.18	0.15	0.54	0.67	0.24	0.21	0.90	0.58	0.94	0.85	0.83	0.84
Avail Cap(c_a), veh/h	342	538	452	341	538	452	335	1810	805	454	807	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	0.32	0.32	0.32	0.83	0.83	0.83
Uniform Delay (d), s/veh	39.5	34.5	38.5	44.2	35.3	35.0	49.6	20.0	27.2	52.4	27.7	27.9
Incr Delay (d2), s/veh	0.3	0.1	1.1	4.1	0.3	0.3	8.7	0.4	8.3	8.9	8.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	6.3	6.7	3.0	2.2	8.8	12.0	25.1	5.6	21.0	21.0
LnGrp Delay(d),s/veh	39.8	34.6	39.7	48.2	35.6	35.3	58.3	20.4	35.5	61.2	35.9	36.7
LnGrp LOS	D	C	D	D	D	D	E	C	D	E	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		38.6			41.9			30.6			41.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		35.7	22.7	61.6		35.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	13.1	56.5		16.4	18.8	43.4		27.1
Green Ext Time (p_c), s	0.2	0.0		2.9	0.1	4.8		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		36.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	549	0	377				0	1495	157	261	1221	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1597	166	879	3709	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.50	1.00	0.00
Sat Flow, veh/h	3408	0	1568				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	549	0	377				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1782	1757	1752	0
Q Serve(g_s), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	889	879	3709	0
V/C Ratio(X)	0.73	0.00	1.09				0.00	0.93	0.94	0.30	0.33	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	889	879	3709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.5	0.0	35.0				0.0	21.1	21.4	13.2	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	73.8				0.0	2.5	3.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.7				0.0	19.3	20.3	3.8	0.1	0.0
LnGrp Delay(d),s/veh	36.1	0.0	108.8				0.0	23.5	24.4	13.2	0.1	0.0
LnGrp LOS	D		F					C	C	B	A	
Approach Vol, veh/h		926						1652			1482	
Approach Delay, s/veh		65.7						24.0			2.4	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	50.6	50.2		24.4		100.8		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.8	42.2		21.9		2.0		
Green Ext Time (p_c), s	0.5	2.6		0.0		22.4		

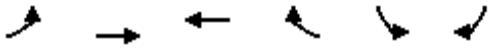
Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	703	306	266	71	120
Future Volume (veh/h)	201	703	306	266	71	120
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	218	764	333	289	77	130
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	218	764	333	289	77	130
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	4.8	54.8	23.0	5.7	5.2	10.3
Cycle Q Clear(g_c), s	4.8	54.8	23.0	5.7	5.2	10.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.29	0.90	0.75	0.22	0.32	0.61
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	8.8	39.3	3.7	45.6	47.7
Incr Delay (d2), s/veh	0.6	10.4	7.0	0.1	3.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.6	10.9	2.6	2.5	4.8
LnGrp Delay(d),s/veh	8.9	19.2	46.3	3.8	49.2	60.4
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	982			622	207	
Approach Delay, s/veh	16.9			26.5	56.2	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		12.3	25.0	56.8				7.7
Green Ext Time (p_c), s		0.3	1.7	0.0				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	97	142	132	507	8
Future Volume (veh/h)	29	97	142	132	507	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	105	154	143	551	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	184	576	810	680	794	13
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	307	1312	1845	1550	1722	28
Grp Volume(v), veh/h	137	0	154	143	561	0
Grp Sat Flow(s),veh/h/ln	1618	0	1845	1550	1753	0
Q Serve(g_s), s	0.0	0.0	4.6	5.1	22.8	0.0
Cycle Q Clear(g_c), s	4.1	0.0	4.6	5.1	22.8	0.0
Prop In Lane	0.23			1.00	0.98	0.02
Lane Grp Cap(c), veh/h	760	0	810	680	808	0
V/C Ratio(X)	0.18	0.00	0.19	0.21	0.69	0.00
Avail Cap(c_a), veh/h	760	0	810	680	808	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.72	0.72	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.5	15.6	19.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	2.3	12.0	0.0
LnGrp Delay(d),s/veh	15.4	0.0	15.8	16.1	24.1	0.0
LnGrp LOS	B		B	B	C	
Approach Vol, veh/h		137	297		561	
Approach Delay, s/veh		15.4	16.0		24.1	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				6.1		24.8		7.1
Green Ext Time (p_c), s				2.2		1.7		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	160	298	250	6	517	8	128	0	6	15
Future Volume (veh/h)	6	88	160	298	250	6	517	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	174	324	272	7	562	9	139	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	148	403	357	510	13	620	53	822	0	163	373
Arrive On Green	0.01	0.08	0.08	0.20	0.28	0.28	0.18	0.56	0.56	0.00	0.33	0.33
Sat Flow, veh/h	1757	1845	1470	1757	1790	46	3408	95	1474	0	494	1130
Grp Volume(v), veh/h	7	96	174	324	0	279	562	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1470	1757	0	1836	1704	0	1569	0	0	1625
Q Serve(g_s), s	0.4	5.0	5.1	18.0	0.0	12.8	16.2	0.0	4.6	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.4	5.0	5.1	18.0	0.0	12.8	16.2	0.0	4.6	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	148	403	357	0	523	620	0	875	0	0	536
V/C Ratio(X)	0.75	0.65	0.43	0.91	0.00	0.53	0.91	0.00	0.17	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	317	538	376	0	619	627	0	875	0	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.73	0.00	0.73	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	44.6	12.0	38.9	0.0	30.1	40.1	0.0	10.8	0.0	0.0	22.8
Incr Delay (d2), s/veh	35.5	5.6	0.9	23.8	0.0	1.0	12.9	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	2.2	11.1	0.0	6.7	8.7	0.0	2.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	85.2	50.2	12.9	62.7	0.0	31.2	53.0	0.0	11.1	0.0	0.0	22.9
LnGrp LOS	F	D	B	E		C	D		B			C
Approach Vol, veh/h		277			603			710			23	
Approach Delay, s/veh		27.7			48.1			44.2			22.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		61.1	25.6	13.3	22.8	38.3	5.1	33.8
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		46.2	21.4	* 17	18.4	23.2	4.9	33.7
Max Q Clear Time (g_c+I1), s		6.6	20.0	7.1	18.2	3.0	2.4	14.8
Green Ext Time (p_c), s		1.3	0.3	0.9	0.0	1.1	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	28	324	74	80	41	153	355	40	20	304	140
Future Volume (veh/h)	257	28	324	74	80	41	153	355	40	20	304	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	279	30	352	80	87	45	166	386	43	22	330	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	309	443	605	95	134	69	514	598	67	247	425	196
Arrive On Green	0.18	0.24	0.24	0.05	0.12	0.12	0.15	0.37	0.37	0.05	0.12	0.12
Sat Flow, veh/h	1757	1845	1535	1757	1128	583	3408	1628	181	1757	1190	548
Grp Volume(v), veh/h	279	30	352	80	0	132	166	0	429	22	0	482
Grp Sat Flow(s),veh/h/ln	1757	1845	1535	1757	0	1711	1704	0	1810	1757	0	1739
Q Serve(g_s), s	15.6	1.3	3.0	4.5	0.0	7.4	4.3	0.0	19.7	1.2	0.0	26.9
Cycle Q Clear(g_c), s	15.6	1.3	3.0	4.5	0.0	7.4	4.3	0.0	19.7	1.2	0.0	26.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.10	1.00		0.32
Lane Grp Cap(c), veh/h	309	443	605	95	0	203	514	0	664	247	0	621
V/C Ratio(X)	0.90	0.07	0.58	0.84	0.00	0.65	0.32	0.00	0.65	0.09	0.00	0.78
Avail Cap(c_a), veh/h	323	566	708	95	0	322	514	0	664	247	0	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.78	0.78	0.78	1.00	0.00	1.00	1.00	0.00	1.00	0.74	0.00	0.74
Uniform Delay (d), s/veh	40.4	29.3	11.5	46.9	0.0	42.1	37.9	0.0	26.3	41.5	0.0	40.2
Incr Delay (d2), s/veh	21.3	0.1	1.7	44.5	0.0	1.3	0.1	0.0	4.8	0.0	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.7	5.3	3.4	0.0	3.6	2.1	0.0	10.7	0.6	0.0	14.2
LnGrp Delay(d),s/veh	61.7	29.5	13.2	91.4	0.0	43.4	38.0	0.0	31.1	41.6	0.0	47.2
LnGrp LOS	E	C	B	F		D	D		C	D		D
Approach Vol, veh/h		661			212			595			504	
Approach Delay, s/veh		34.4			61.5			33.0			46.9	
Approach LOS		C			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	42.0	10.0	29.3	19.7	41.0	22.2	17.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.7	6.5	5.0	6.3	28.9	17.6	9.4
Green Ext Time (p_c), s	0.1	2.7	0.0	4.0	0.0	2.1	0.0	2.5

Intersection Summary		
HCM 2010 Ctrl Delay		40.1
HCM 2010 LOS		D

Notes

Intersection	
Int Delay, s/veh	2.9

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	388	7	17	285	99	35
Future Vol, veh/h	388	7	17	285	99	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	422	8	18	310	108	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	439	0	638	235
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1110	-	407	764
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	391	750
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	785	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.6	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1099	-	447
HCM Lane V/C Ratio	-	-	0.017	-	0.326
HCM Control Delay (s)	-	-	8.3	0.1	16.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.1	-	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	492	137	34	235	134	43
Future Volume (veh/h)	492	137	34	235	134	43
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	535	149	37	255	146	47
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	775	216	179	904	278	248
Arrive On Green	0.56	0.56	0.56	0.56	0.16	0.16
Sat Flow, veh/h	1389	387	90	1621	1757	1568
Grp Volume(v), veh/h	0	684	292	0	146	47
Grp Sat Flow(s),veh/h/ln	0	1776	1712	0	1757	1568
Q Serve(g_s), s	0.0	8.8	0.0	0.0	2.4	0.8
Cycle Q Clear(g_c), s	0.0	8.8	2.6	0.0	2.4	0.8
Prop In Lane		0.22	0.13		1.00	1.00
Lane Grp Cap(c), veh/h	0	990	1082	0	278	248
V/C Ratio(X)	0.00	0.69	0.27	0.00	0.53	0.19
Avail Cap(c_a), veh/h	0	3285	3091	0	1249	1115
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	3.7	0.0	12.2	11.6
Incr Delay (d2), s/veh	0.0	0.9	0.1	0.0	1.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	1.3	0.0	1.3	0.4
LnGrp Delay(d),s/veh	0.0	5.9	3.8	0.0	13.8	11.9
LnGrp LOS		A	A		B	B
Approach Vol, veh/h	684			292	193	
Approach Delay, s/veh	5.9			3.8	13.3	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		9.5		22.1				22.1
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		22.5		58.5				58.5
Max Q Clear Time (g_c+I1), s		4.4		10.8				4.6
Green Ext Time (p_c), s		0.5		6.9				6.9

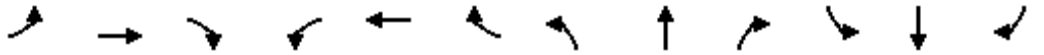
Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	322	540	454	273	540	454	236	1858	826	206	1270	249
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.13	0.53	0.53	0.06	0.44	0.44
Sat Flow, veh/h	1106	1845	1552	891	1845	1552	1757	3505	1559	3343	2860	562
Grp Volume(v), veh/h	86	130	359	205	134	117	134	1243	601	152	490	485
Grp Sat Flow(s),veh/h/ln	1106	1845	1552	891	1845	1552	1757	1752	1559	1672	1719	1703
Q Serve(g_s), s	7.7	6.4	25.6	27.3	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Cycle Q Clear(g_c), s	14.4	6.4	25.6	33.7	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	322	540	454	273	540	454	236	1858	826	206	764	756
V/C Ratio(X)	0.27	0.24	0.79	0.75	0.25	0.26	0.57	0.67	0.73	0.74	0.64	0.64
Avail Cap(c_a), veh/h	322	540	454	273	540	454	259	1858	826	315	764	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.56	0.56	0.56	0.86	0.86	0.86
Uniform Delay (d), s/veh	37.9	32.3	39.1	45.2	32.4	32.5	48.7	20.5	21.6	55.3	25.9	25.9
Incr Delay (d2), s/veh	0.4	0.2	9.2	9.4	0.2	0.2	0.6	1.1	3.2	1.7	3.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	12.1	7.4	3.4	3.0	4.2	15.1	15.9	2.5	13.3	13.2
LnGrp Delay(d),s/veh	38.3	32.5	48.3	54.6	32.6	32.7	49.3	21.6	24.7	57.0	29.5	29.5
LnGrp LOS	D	C	D	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		43.2			42.5			24.5			33.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	68.9		40.0	21.4	58.6		40.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	7.4	37.4		27.6	10.6	28.6		35.7
Green Ext Time (p_c), s	0.1	19.0		2.9	2.1	10.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	755	0	633				0	1210	290	305	1074	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	755	0	633				0	1210	290	305	1074	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Cycle Q Clear(g_c), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.65	0.00	1.18				0.00	0.83	0.45	1.44	0.54	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.76	0.76	0.00
Uniform Delay (d), s/veh	30.7	0.0	36.3				0.0	7.2	5.9	48.3	14.7	0.0
Incr Delay (d2), s/veh	1.3	0.0	100.7				0.0	1.6	0.6	215.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	31.1				0.0	9.4	2.4	19.1	10.2	0.0
LnGrp Delay(d),s/veh	32.0	0.0	137.0				0.0	8.8	6.5	263.8	15.5	0.0
LnGrp LOS	C		F					A	A	F	B	
Approach Vol, veh/h		1388						1500			1379	
Approach Delay, s/veh		79.9						8.3			70.4	
Approach LOS		E						A			E	

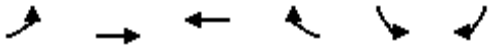
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	22.7		39.5		22.9		
Green Ext Time (p_c), s	0.0	21.8		0.0		36.7		

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	312	367	197	213	208	92
Future Volume (veh/h)	312	367	197	213	208	92
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	339	399	214	232	226	100
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	929	1015	242	1251	260	232
Arrive On Green	0.56	0.56	0.15	0.75	0.16	0.16
Sat Flow, veh/h	1660	1399	1581	1660	1581	1411
Grp Volume(v), veh/h	339	399	214	232	226	100
Grp Sat Flow(s),veh/h/ln	1660	1399	1581	1660	1581	1411
Q Serve(g_s), s	12.4	12.1	14.6	4.4	15.3	7.0
Cycle Q Clear(g_c), s	12.4	12.1	14.6	4.4	15.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	929	1015	242	1251	260	232
V/C Ratio(X)	0.36	0.39	0.88	0.19	0.87	0.43
Avail Cap(c_a), veh/h	929	1015	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	5.9	45.6	3.9	44.8	41.3
Incr Delay (d2), s/veh	0.9	1.0	19.4	0.1	30.3	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	7.7	7.7	2.0	8.9	3.1
LnGrp Delay(d),s/veh	14.3	6.8	65.0	4.0	75.1	47.1
LnGrp LOS	B	A	E	A	E	D
Approach Vol, veh/h	738			446	326	
Approach Delay, s/veh	10.3			33.3	66.5	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	21.3	66.1				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.3	16.6	14.4				6.4
Green Ext Time (p_c), s		0.1	0.3	5.2				5.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	84	196	252	780	18
Future Volume (veh/h)	29	84	196	252	780	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	91	213	274	848	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	159	426	687	576	902	21
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	293	1144	1845	1547	1709	40
Grp Volume(v), veh/h	123	0	213	274	869	0
Grp Sat Flow(s),veh/h/ln	1437	0	1845	1547	1752	0
Q Serve(g_s), s	0.2	0.0	7.4	12.2	41.8	0.0
Cycle Q Clear(g_c), s	7.5	0.0	7.4	12.2	41.8	0.0
Prop In Lane	0.26			1.00	0.98	0.02
Lane Grp Cap(c), veh/h	585	0	687	576	924	0
V/C Ratio(X)	0.21	0.00	0.31	0.48	0.94	0.00
Avail Cap(c_a), veh/h	585	0	687	576	924	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	20.0	21.6	19.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.3	18.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	5.2	24.7	0.0
LnGrp Delay(d),s/veh	19.2	0.0	20.2	21.8	38.1	0.0
LnGrp LOS	B		C	C	D	
Approach Vol, veh/h		123	487		869	
Approach Delay, s/veh		19.2	21.1		38.1	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.5		43.8		14.2
Green Ext Time (p_c), s				2.9		1.3		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	102	195	204	3	597	11	223	3	13	9
Future Volume (veh/h)	8	127	102	195	204	3	597	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	111	212	222	3	649	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	188	472	244	437	6	695	44	896	78	327	215
Arrive On Green	0.01	0.10	0.10	0.14	0.24	0.24	0.20	0.60	0.60	0.35	0.35	0.35
Sat Flow, veh/h	1757	1845	1491	1757	1815	25	3408	74	1493	107	933	612
Grp Volume(v), veh/h	9	138	111	212	0	225	649	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1491	1757	0	1840	1704	0	1567	1653	0	0
Q Serve(g_s), s	0.5	7.3	3.2	11.8	0.0	10.6	18.7	0.0	7.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.3	3.2	11.8	0.0	10.6	18.7	0.0	7.7	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	188	472	244	0	443	695	0	941	619	0	0
V/C Ratio(X)	0.77	0.73	0.24	0.87	0.00	0.51	0.93	0.00	0.27	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	628	253	0	546	695	0	941	619	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.48	0.00	0.48	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	43.6	10.8	42.2	0.0	32.8	39.1	0.0	9.5	21.4	0.0	0.0
Incr Delay (d2), s/veh	31.9	6.6	0.3	24.5	0.0	1.1	11.1	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.1	1.4	7.4	0.0	5.5	9.9	0.0	3.4	0.5	0.0	0.0
LnGrp Delay(d),s/veh	81.5	50.2	11.1	66.7	0.0	33.9	50.2	0.0	9.9	21.6	0.0	0.0
LnGrp LOS	F	D	B	E		C	D		A	C		
Approach Vol, veh/h		258			437			903			27	
Approach Delay, s/veh		34.4			49.8			38.9			21.6	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.4	19.2	15.5	25.0	40.4	5.3	29.4
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		9.7	13.8	9.3	20.7	3.0	2.5	12.6
Green Ext Time (p_c), s		2.3	0.1	0.9	0.0	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	110	454	56	113	66	308	496	105	41	190	79
Future Volume (veh/h)	269	110	454	56	113	66	308	496	105	41	190	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	292	120	493	61	123	72	335	539	114	45	207	86
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	322	547	683	78	170	99	491	496	105	218	391	162
Arrive On Green	0.18	0.30	0.30	0.04	0.16	0.16	0.14	0.34	0.34	0.04	0.10	0.10
Sat Flow, veh/h	1757	1845	1542	1757	1078	631	3408	1473	311	1757	1233	512
Grp Volume(v), veh/h	292	120	493	61	0	195	335	0	653	45	0	293
Grp Sat Flow(s),veh/h/ln	1757	1845	1542	1757	0	1709	1704	0	1784	1757	0	1745
Q Serve(g_s), s	16.3	4.9	6.9	3.4	0.0	10.8	9.3	0.0	33.7	2.5	0.0	15.9
Cycle Q Clear(g_c), s	16.3	4.9	6.9	3.4	0.0	10.8	9.3	0.0	33.7	2.5	0.0	15.9
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	322	547	683	78	0	269	491	0	601	218	0	553
V/C Ratio(X)	0.91	0.22	0.72	0.78	0.00	0.72	0.68	0.00	1.09	0.21	0.00	0.53
Avail Cap(c_a), veh/h	394	640	761	95	0	321	491	0	601	218	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.42	0.42	0.42	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	40.0	26.5	11.3	47.3	0.0	40.0	40.6	0.0	33.2	43.2	0.0	37.7
Incr Delay (d2), s/veh	9.7	0.2	1.9	23.0	0.0	4.7	3.2	0.0	62.2	0.1	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	2.5	3.2	2.2	0.0	5.5	4.6	0.0	26.9	1.2	0.0	8.2
LnGrp Delay(d),s/veh	49.7	26.7	13.2	70.3	0.0	44.7	43.8	0.0	95.4	43.3	0.0	40.7
LnGrp LOS	D	C	B	E		D	D		F	D		D
Approach Vol, veh/h		905			256			988			338	
Approach Delay, s/veh		26.8			50.8			77.9			41.1	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	39.0	9.0	35.0	19.0	37.0	22.9	21.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.5	35.7	5.4	8.9	11.3	17.9	18.3	12.8
Green Ext Time (p_c), s	0.1	0.0	0.0	7.0	0.0	1.9	0.1	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	7.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	480	17	33	291	188	16
Future Vol, veh/h	480	17	33	291	188	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	522	18	36	316	204	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	550	0	781	290
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1009	-	330	704
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	999	-	309	691
Mov Cap-2 Maneuver	-	-	-	-	309	-
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	733	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1.1	37.4
HCM LOS			E

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	999	-	323
HCM Lane V/C Ratio	-	-	0.036	-	0.686
HCM Control Delay (s)	-	-	8.7	0.2	37.4
HCM Lane LOS	-	-	A	A	E
HCM 95th %tile Q(veh)	-	-	0.1	-	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	495	210	161	362	211	100
Future Volume (veh/h)	495	210	161	362	211	100
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	538	228	175	393	229	109
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	860	364	246	517	290	259
Arrive On Green	0.70	0.70	0.70	0.70	0.17	0.17
Sat Flow, veh/h	1231	522	250	740	1757	1568
Grp Volume(v), veh/h	0	766	568	0	229	109
Grp Sat Flow(s),veh/h/ln	0	1753	990	0	1757	1568
Q Serve(g_s), s	0.0	15.5	18.2	0.0	8.3	4.1
Cycle Q Clear(g_c), s	0.0	15.5	33.7	0.0	8.3	4.1
Prop In Lane		0.30	0.31		1.00	1.00
Lane Grp Cap(c), veh/h	0	1225	763	0	290	259
V/C Ratio(X)	0.00	0.63	0.74	0.00	0.79	0.42
Avail Cap(c_a), veh/h	0	1656	1063	0	491	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.3	9.4	0.0	26.5	24.8
Incr Delay (d2), s/veh	0.0	0.5	1.8	0.0	4.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.4	8.6	0.0	4.4	1.9
LnGrp Delay(d),s/veh	0.0	5.9	11.3	0.0	31.3	25.9
LnGrp LOS		A	B		C	C
Approach Vol, veh/h	766			568	338	
Approach Delay, s/veh	5.9			11.3	29.5	
Approach LOS	A			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		15.4		50.7				50.7
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		18.5		62.5				62.5
Max Q Clear Time (g_c+I1), s		10.3		17.5				35.7
Green Ext Time (p_c), s		0.7		12.4				10.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Future Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1845	0	0	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	0	0	73	0	0	600	166	535	114	13	1003	4
Adj No. of Lanes	0	0	1	0	0	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	3	0	0	3	3	3	3	3	3	3
Cap, veh/h	0	0	0	0	0	0	680	2435	517	872	3029	12
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.85
Sat Flow, veh/h		0			0		552	2878	611	772	3580	14
Grp Volume(v), veh/h		0.0			0.0		166	325	324	13	491	516
Grp Sat Flow(s),veh/h/ln							552	1752	1737	772	1752	1842
Q Serve(g_s), s							2.7	1.0	1.0	0.1	1.8	1.8
Cycle Q Clear(g_c), s							4.4	1.0	1.0	1.1	1.8	1.8
Prop In Lane							1.00		0.35	1.00		0.01
Lane Grp Cap(c), veh/h							680	1483	1469	872	1483	1558
V/C Ratio(X)							0.24	0.22	0.22	0.01	0.33	0.33
Avail Cap(c_a), veh/h							1224	3209	3180	1632	3209	3373
HCM Platoon Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)							1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh							1.0	0.4	0.4	0.5	0.5	0.5
Incr Delay (d2), s/veh							0.2	0.1	0.1	0.0	0.1	0.1
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							0.4	0.5	0.5	0.0	0.7	0.8
LnGrp Delay(d),s/veh							1.1	0.5	0.5	0.5	0.6	0.6
LnGrp LOS							A	A	A	A	A	A
Approach Vol, veh/h								815			1020	
Approach Delay, s/veh								0.6			0.6	
Approach LOS								A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		29.2				29.2		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		53.5				53.5		
Max Q Clear Time (g_c+I1), s		6.4				3.8		
Green Ext Time (p_c), s		18.3				18.6		

Intersection Summary	
HCM 2010 Ctrl Delay	0.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	286	231	142	272	250	132	367	203	162	371	57
Future Volume (veh/h)	85	286	231	142	272	250	132	367	203	162	371	57
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	92	311	251	154	296	272	143	399	221	176	403	62
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	116	646	544	217	632	532	173	1034	449	147	851	130
Arrive On Green	0.07	0.35	0.35	0.06	0.35	0.35	0.10	0.30	0.30	0.08	0.28	0.28
Sat Flow, veh/h	1757	1845	1555	3343	1810	1525	1757	3505	1522	1757	3041	464
Grp Volume(v), veh/h	92	311	251	154	296	272	143	399	221	176	231	234
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1525	1757	1752	1522	1757	1752	1753
Q Serve(g_s), s	5.1	13.1	12.4	4.5	12.7	14.0	7.9	9.0	11.9	8.3	10.9	11.0
Cycle Q Clear(g_c), s	5.1	13.1	12.4	4.5	12.7	14.0	7.9	9.0	11.9	8.3	10.9	11.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	116	646	544	217	632	532	173	1034	449	147	491	491
V/C Ratio(X)	0.79	0.48	0.46	0.71	0.47	0.51	0.82	0.39	0.49	1.20	0.47	0.48
Avail Cap(c_a), veh/h	124	646	544	310	659	555	249	1340	582	147	568	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.7	25.2	25.0	45.5	25.2	25.6	43.9	27.9	28.9	45.5	29.7	29.7
Incr Delay (d2), s/veh	24.7	2.6	2.8	1.6	2.0	2.7	9.4	0.6	2.2	137.8	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	7.1	5.8	2.1	6.7	6.3	4.3	4.4	5.2	9.6	5.5	5.6
LnGrp Delay(d),s/veh	70.5	27.8	27.8	47.1	27.1	28.4	53.4	28.5	31.1	183.4	31.5	31.6
LnGrp LOS	E	C	C	D	C	C	D	C	C	F	C	C
Approach Vol, veh/h		654			722			763			641	
Approach Delay, s/veh		33.8			31.9			33.9			73.2	
Approach LOS		C			C			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	41.6	14.0	33.1	10.8	41.5	12.5	34.6
Change Period (Y+Rc), s	* 4.2	* 6.8	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	* 9.2	* 35	* 14	32.2	* 7	36.2	* 8.3	38.0
Max Q Clear Time (g_c+I1), s	6.5	15.1	9.9	13.0	7.1	16.0	10.3	13.9
Green Ext Time (p_c), s	0.1	12.2	0.1	10.9	0.0	12.4	0.0	12.6

Intersection Summary	
HCM 2010 Ctrl Delay	42.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	292	116	355	210	288	210	278	920	607	234	1155	317
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.16	0.46	0.46	0.14	0.43	0.43
Sat Flow, veh/h	1162	397	1218	1074	989	720	1757	2015	1330	1723	2659	731
Grp Volume(v), veh/h	53	0	285	202	0	197	251	897	904	316	671	658
Grp Sat Flow(s),veh/h/ln	1162	0	1615	1074	0	1709	1757	1752	1593	1723	1719	1671
Q Serve(g_s), s	4.6	0.0	18.2	16.8	0.0	11.1	16.8	54.8	54.8	16.3	43.4	44.2
Cycle Q Clear(g_c), s	15.7	0.0	18.2	35.0	0.0	11.1	16.8	54.8	54.8	16.3	43.4	44.2
Prop In Lane	1.00		0.75	1.00		0.42	1.00		0.83	1.00		0.44
Lane Grp Cap(c), veh/h	292	0	471	210	0	498	278	800	727	234	747	726
V/C Ratio(X)	0.18	0.00	0.61	0.96	0.00	0.40	0.90	1.12	1.24	1.35	0.90	0.91
Avail Cap(c_a), veh/h	292	0	471	210	0	498	335	800	727	234	747	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.10	0.10	0.10	0.85	0.85	0.85
Uniform Delay (d), s/veh	40.3	0.0	36.6	53.8	0.0	34.0	49.6	32.6	32.6	51.8	31.5	31.7
Incr Delay (d2), s/veh	0.3	0.0	2.2	50.9	0.0	0.5	2.9	56.1	110.7	179.5	13.8	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	8.4	9.6	0.0	5.3	8.4	38.9	46.4	19.4	23.4	23.3
LnGrp Delay(d),s/veh	40.6	0.0	38.8	104.7	0.0	34.5	52.5	88.7	143.3	231.3	45.3	46.8
LnGrp LOS	D		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		39.0			70.0			108.4			81.6	
Approach LOS		D			E			F			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.0	60.1		39.9	22.7	57.4		39.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	18.3	56.8		20.2	18.8	46.2		37.0
Green Ext Time (p_c), s	0.0	0.0		3.5	0.1	2.0		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		89.7
HCM 2010 LOS		F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	463	120	377				0	1495	157	261	1221	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	517	115	361				0	1534	160	995	3834	0
Arrive On Green	0.29	0.29	0.29				0.00	0.96	0.96	0.57	1.00	0.00
Sat Flow, veh/h	1757	390	1224				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	463	0	497				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1757	0	1614				0	1752	1782	1757	1752	0
Q Serve(g_s), s	27.8	0.0	32.4				0.0	29.2	37.8	8.3	0.0	0.0
Cycle Q Clear(g_c), s	27.8	0.0	32.4				0.0	29.2	37.8	8.3	0.0	0.0
Prop In Lane	1.00		0.76				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	517	0	475				0	840	854	995	3834	0
V/C Ratio(X)	0.89	0.00	1.05				0.00	0.97	0.98	0.26	0.32	0.00
Avail Cap(c_a), veh/h	517	0	475				0	840	854	995	3834	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.47	0.47	0.25	0.25	0.00
Uniform Delay (d), s/veh	37.2	0.0	38.8				0.0	1.8	2.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	17.9	0.0	53.7				0.0	14.9	17.7	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.1	0.0	21.5				0.0	11.6	14.9	4.0	0.0	0.0
LnGrp Delay(d),s/veh	55.1	0.0	92.5				0.0	16.7	19.7	12.1	0.1	0.0
LnGrp LOS	E		F					B	B	B	A	
Approach Vol, veh/h		960						1652			1482	
Approach Delay, s/veh		74.4						18.2			2.2	
Approach LOS		E						B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	68.4	58.0		37.0		126.4		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	11.3	* 53		32.4		67.7		
Max Q Clear Time (g_c+I1), s	10.3	39.8		34.4		2.0		
Green Ext Time (p_c), s	0.1	11.7		0.0		23.2		

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	91	49	39	38	55	370	49	1012	16	279	1076	121
Future Volume (veh/h)	91	49	39	38	55	370	49	1012	16	279	1076	121
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	99	53	42	41	60	402	53	1100	17	303	1170	132
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	164	349	277	486	76	507	77	1076	17	350	1506	169
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.04	0.30	0.30	0.40	0.95	0.95
Sat Flow, veh/h	915	951	754	1274	206	1381	1757	3532	55	1757	3173	357
Grp Volume(v), veh/h	99	0	95	41	0	462	53	546	571	303	645	657
Grp Sat Flow(s),veh/h/ln	915	0	1704	1274	0	1588	1757	1752	1834	1757	1752	1777
Q Serve(g_s), s	11.8	0.0	4.1	2.5	0.0	28.6	3.3	33.5	33.5	17.4	7.8	7.9
Cycle Q Clear(g_c), s	40.4	0.0	4.1	6.6	0.0	28.6	3.3	33.5	33.5	17.4	7.8	7.9
Prop In Lane	1.00		0.44	1.00		0.87	1.00		0.03	1.00		0.20
Lane Grp Cap(c), veh/h	164	0	626	486	0	583	77	534	559	350	832	843
V/C Ratio(X)	0.60	0.00	0.15	0.08	0.00	0.79	0.69	1.02	1.02	0.87	0.78	0.78
Avail Cap(c_a), veh/h	164	0	626	486	0	583	142	534	559	359	832	843
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	49.1	0.0	23.3	25.5	0.0	31.1	51.9	38.3	38.3	31.7	1.7	1.7
Incr Delay (d2), s/veh	6.7	0.0	0.1	0.1	0.0	7.6	4.1	44.8	44.0	15.1	5.7	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	1.9	0.9	0.0	13.7	1.7	22.8	23.7	9.7	3.8	3.9
LnGrp Delay(d),s/veh	55.8	0.0	23.5	25.6	0.0	38.6	55.9	83.1	82.2	46.8	7.3	7.4
LnGrp LOS	E		C	C		D	E	F	F	D	A	A
Approach Vol, veh/h		194			503			1170			1605	
Approach Delay, s/veh		40.0			37.6			81.4			14.8	
Approach LOS		D			D			F			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	27.2	38.8		46.0	8.5	57.5		46.0
Change Period (Y+Rc), s	5.3	* 5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	22.5	* 34		* 40	8.9	47.1		39.4
Max Q Clear Time (g_c+I1), s	19.4	35.5		42.4	5.3	9.9		30.6
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	23.4		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	42.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	182	222	60	87	185	96	72	195	100	116	552	422
Future Volume (veh/h)	182	222	60	87	185	96	72	195	100	116	552	422
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	198	241	65	95	201	104	78	212	109	126	600	459
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	312	699	308	136	609	268	100	1354	601	158	1539	681
Arrive On Green	0.09	0.20	0.20	0.08	0.18	0.18	0.06	0.39	0.39	0.09	0.44	0.44
Sat Flow, veh/h	3343	3438	1515	1723	3438	1512	1757	3505	1556	1757	3505	1550
Grp Volume(v), veh/h	198	241	65	95	201	104	78	212	109	126	600	459
Grp Sat Flow(s),veh/h/ln	1672	1719	1515	1723	1719	1512	1757	1752	1556	1757	1752	1550
Q Serve(g_s), s	5.3	5.6	3.3	5.0	4.7	5.6	4.1	3.7	3.0	6.5	10.7	13.1
Cycle Q Clear(g_c), s	5.3	5.6	3.3	5.0	4.7	5.6	4.1	3.7	3.0	6.5	10.7	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	312	699	308	136	609	268	100	1354	601	158	1539	681
V/C Ratio(X)	0.63	0.34	0.21	0.70	0.33	0.39	0.78	0.16	0.18	0.80	0.39	0.67
Avail Cap(c_a), veh/h	434	1414	623	183	1332	586	148	1354	601	224	1539	681
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.4	31.5	30.6	41.5	33.2	33.6	43.0	18.5	8.9	41.2	17.5	7.4
Incr Delay (d2), s/veh	0.8	0.8	0.9	3.5	0.8	2.4	7.7	0.2	0.7	7.9	0.7	5.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.7	1.5	2.5	2.3	2.5	2.2	1.8	1.8	3.5	5.3	7.4
LnGrp Delay(d),s/veh	41.2	32.3	31.5	45.0	34.1	36.0	50.8	18.8	9.6	49.1	18.3	12.7
LnGrp LOS	D	C	C	D	C	D	D	B	A	D	B	B
Approach Vol, veh/h		504			400			399			1185	
Approach Delay, s/veh		35.7			37.2			22.5			19.4	
Approach LOS		D			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.1	41.7	11.5	24.1	9.4	47.4	13.9	21.7
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	11.8	* 36	* 9.8	38.0	* 7.8	38.9	12.0	* 36
Max Q Clear Time (g_c+I1), s	8.5	5.7	7.0	7.6	6.1	15.1	7.3	7.6
Green Ext Time (p_c), s	0.3	4.3	0.0	3.8	0.0	13.7	1.4	3.5

Intersection Summary		
HCM 2010 Ctrl Delay		26.1
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Future Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	290	324	272	7	446	9	139	0	7	16
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	72	218	271	592	15	394	49	754	0	119	272
Arrive On Green	0.01	0.18	0.18	0.15	0.33	0.33	0.22	0.51	0.51	0.00	0.24	0.24
Sat Flow, veh/h	1757	396	1197	1757	1790	46	1757	95	1472	0	492	1126
Grp Volume(v), veh/h	7	0	386	324	0	279	446	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	0	1594	1757	0	1836	1757	0	1568	0	0	1618
Q Serve(g_s), s	0.4	0.0	18.2	15.4	0.0	12.0	22.4	0.0	5.1	0.0	0.0	1.1
Cycle Q Clear(g_c), s	0.4	0.0	18.2	15.4	0.0	12.0	22.4	0.0	5.1	0.0	0.0	1.1
Prop In Lane	1.00		0.75	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	0	290	271	0	607	394	0	803	0	0	392
V/C Ratio(X)	0.75	0.00	1.33	1.20	0.00	0.46	1.13	0.00	0.18	0.00	0.00	0.06
Avail Cap(c_a), veh/h	86	0	290	271	0	607	394	0	803	0	0	392
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	0.0	40.9	42.3	0.0	26.4	38.8	0.0	13.1	0.0	0.0	29.1
Incr Delay (d2), s/veh	35.5	0.0	170.7	119.0	0.0	0.7	83.8	0.0	0.4	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	21.7	16.4	0.0	6.2	20.0	0.0	2.3	0.0	0.0	0.5
LnGrp Delay(d),s/veh	85.2	0.0	211.6	161.3	0.0	27.1	122.6	0.0	13.6	0.0	0.0	29.4
LnGrp LOS	F		F	F		C	F		B			C
Approach Vol, veh/h		393			603			594			23	
Approach Delay, s/veh		209.3			99.2			95.5			29.4	
Approach LOS		F			F			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		56.5	20.0	23.5	27.0	29.5	5.1	38.4
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		51.2	15.4	18.2	22.4	24.2	4.9	28.7
Max Q Clear Time (g_c+I1), s		7.1	17.4	20.2	24.4	3.1	2.4	14.0
Green Ext Time (p_c), s		1.4	0.0	0.0	0.0	1.1	0.0	3.9

Intersection Summary	
HCM 2010 Ctrl Delay	123.7
HCM 2010 LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Future Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	45	166	386	43	22	447	152
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	37	292	95	176	91	316	598	67	298	468	159
Arrive On Green	0.11	0.21	0.21	0.05	0.16	0.16	0.18	0.37	0.37	0.06	0.12	0.12
Sat Flow, veh/h	1757	176	1385	1757	1133	586	1757	1628	181	1757	1312	446
Grp Volume(v), veh/h	163	0	266	80	0	132	166	0	429	22	0	599
Grp Sat Flow(s),veh/h/ln	1757	0	1561	1757	0	1718	1757	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	0.0	16.2	4.5	0.0	7.0	8.6	0.0	19.7	1.2	0.0	33.9
Cycle Q Clear(g_c), s	9.1	0.0	16.2	4.5	0.0	7.0	8.6	0.0	19.7	1.2	0.0	33.9
Prop In Lane	1.00		0.89	1.00		0.34	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	0	330	95	0	266	316	0	664	298	0	628
V/C Ratio(X)	0.84	0.00	0.81	0.84	0.00	0.50	0.53	0.00	0.65	0.07	0.00	0.95
Avail Cap(c_a), veh/h	323	0	479	95	0	323	316	0	664	298	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.00	0.09
Uniform Delay (d), s/veh	43.6	0.0	37.5	46.9	0.0	38.7	37.1	0.0	26.3	39.7	0.0	43.3
Incr Delay (d2), s/veh	4.1	0.0	11.8	44.5	0.0	0.5	0.8	0.0	4.8	0.0	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	8.0	3.4	0.0	3.4	4.2	0.0	10.7	0.6	0.0	17.3
LnGrp Delay(d),s/veh	47.8	0.0	49.3	91.4	0.0	39.2	37.9	0.0	31.1	39.7	0.0	47.7
LnGrp LOS	D		D	F		D	D		C	D		D
Approach Vol, veh/h		429			212			595			621	
Approach Delay, s/veh		48.7			58.9			33.0			47.4	
Approach LOS		D			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.6	42.0	10.0	26.4	22.6	41.0	15.6	20.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.7	6.5	18.2	10.6	35.9	11.1	9.0
Green Ext Time (p_c), s	0.0	2.7	0.0	2.6	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

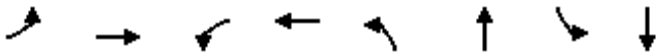
Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	92	311	251	154	296	272	143	399	221	176	465
v/c Ratio	0.72	0.46	0.35	0.55	0.45	0.38	0.68	0.44	0.40	1.16	0.60
Control Delay	77.9	28.3	4.9	51.9	27.4	4.8	59.0	30.9	5.8	164.9	35.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	28.3	4.9	51.9	27.4	4.8	59.0	30.9	5.8	164.9	35.6
Queue Length 50th (ft)	56	145	0	47	134	0	85	107	0	~130	132
Queue Length 95th (ft)	#159	269	56	89	251	57	#173	150	51	#302	185
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	128	671	718	320	685	739	258	1393	732	152	1161
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.46	0.35	0.48	0.43	0.37	0.55	0.29	0.30	1.16	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	53	285	202	197	251	1801	316	1329
v/c Ratio	0.19	0.52	0.99	0.39	0.85	1.14	1.28	0.92
Control Delay	34.3	22.5	104.7	31.2	73.9	99.8	196.5	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.9	0.0	0.0
Total Delay	34.3	22.5	104.7	31.2	74.0	100.7	196.5	43.7
Queue Length 50th (ft)	31	97	154	102	187	~813	~321	512
Queue Length 95th (ft)	66	184	#310	170	#303	#954	#502	#687
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	282	561	209	521	334	1579	246	1442
Starvation Cap Reductn	0	0	0	0	1	333	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.51	0.97	0.38	0.75	1.45	1.28	0.92

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

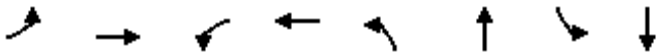
Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	483	443	1652	261	1221
v/c Ratio	1.00	0.90	1.00	1.46	0.57
Control Delay	79.6	54.6	52.1	270.5	13.8
Queue Delay	0.0	57.6	39.5	0.0	8.6
Total Delay	79.6	112.2	91.5	270.5	22.4
Queue Length 50th (ft)	357	269	653	~252	248
Queue Length 95th (ft)	#586	#473	m#790	#415	307
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	485	490	1655	179	2157
Starvation Cap Reductn	0	0	809	0	902
Spillback Cap Reductn	0	300	0	0	443
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.00	2.33	1.95	1.46	0.97

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



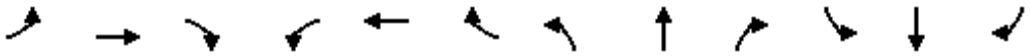
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	99	95	41	462	53	1117	303	1302
v/c Ratio	1.50	0.21	0.13	0.73	0.44	0.76	0.85	0.66
Control Delay	317.7	17.5	29.0	15.8	60.3	33.3	53.2	14.9
Queue Delay	34.3	0.0	0.0	2.8	0.0	52.2	55.1	0.6
Total Delay	351.9	17.5	29.0	18.5	60.3	85.6	108.3	15.5
Queue Length 50th (ft)	~95	29	23	70	37	350	213	195
Queue Length 95th (ft)	#184	61	44	162	78	#589	m#329	m546
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	98	652	455	783	142	1479	358	1985
Starvation Cap Reductn	0	0	0	0	0	0	115	317
Spillback Cap Reductn	24	0	0	210	0	880	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.15	0.09	0.81	0.37	1.86	1.25	0.78

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

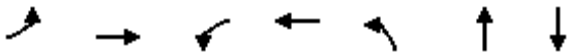
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	198	241	65	95	201	104	78	212	109	126	600	459
v/c Ratio	0.53	0.37	0.15	0.55	0.39	0.27	0.55	0.15	0.15	0.61	0.38	0.49
Control Delay	43.9	34.9	0.8	52.4	37.2	1.8	56.2	18.7	1.0	51.5	18.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	34.9	0.8	52.4	37.2	1.8	56.2	18.7	1.0	51.5	18.6	3.9
Queue Length 50th (ft)	55	67	0	52	55	0	44	40	0	69	121	0
Queue Length 95th (ft)	94	103	0	#109	91	1	#103	71	7	#136	184	59
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	447	1461	739	188	1376	712	152	1399	718	231	1587	936
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.16	0.09	0.51	0.15	0.15	0.51	0.15	0.15	0.55	0.38	0.49

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	7	386	324	279	446	148	23
v/c Ratio	0.10	0.97	1.20	0.42	1.14	0.17	0.06
Control Delay	49.0	67.5	159.9	27.2	126.0	3.1	16.9
Queue Delay	0.0	46.1	0.0	0.0	0.0	0.0	0.1
Total Delay	49.0	113.6	159.9	27.2	126.0	3.1	17.0
Queue Length 50th (ft)	4	169	~252	127	~340	8	3
Queue Length 95th (ft)	19	#360	#423	231	#539	24	23
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	85	396	269	666	392	856	404
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	197	0	0	0	0	140
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	1.94	1.20	0.42	1.14	0.17	0.09

Intersection Summary

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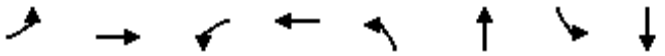
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	163	266	80	132	166	429	22	599
v/c Ratio	0.73	0.58	0.85	0.63	1.13	0.41	0.24	0.69
Control Delay	60.7	11.5	107.6	47.4	156.4	16.6	46.4	46.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.3
Total Delay	60.7	11.5	107.6	47.4	156.4	16.6	46.4	86.5
Queue Length 50th (ft)	102	16	52	67	~123	122	11	394
Queue Length 95th (ft)	161	78	#138	122	#254	310	m9	m371
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	322	636	94	342	147	1040	129	872
Starvation Cap Reductn	0	0	0	0	0	0	0	311
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.42	0.85	0.39	1.13	0.41	0.17	1.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	56.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	201	703	306	266	71	120
Future Vol, veh/h	201	703	306	266	71	120
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	218	764	333	289	77	130

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	993	0	1575	621
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	964	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	693	-	120	486
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	369	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	686	-	~ 50	477
Mov Cap-2 Maneuver	-	-	-	-	~ 50	-
Stage 1	-	-	-	-	535	-
Stage 2	-	-	-	-	154	-

Approach	EB	WB	NB
HCM Control Delay, s	0	8.1	$ 466.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	114	-	-	686	-
HCM Lane V/C Ratio	1.821	-	-	0.485	-
HCM Control Delay (s)	$ 466.3	-	-	15.1	0
HCM Lane LOS	F	-	-	C	A
HCM 95th %tile Q(veh)	16.4	-	-	2.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.3

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	27	243	259	120	78	28
Future Vol, veh/h	27	243	259	120	78	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	264	282	130	85	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	422	0	-	0	558	226
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	201	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1127	-	-	-	457	774
Stage 1	-	-	-	-	676	-
Stage 2	-	-	-	-	810	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1116	-	-	-	435	759
Mov Cap-2 Maneuver	-	-	-	-	435	-
Stage 1	-	-	-	-	670	-
Stage 2	-	-	-	-	778	-

Approach	NB	SB	NE
HCM Control Delay, s	0.9	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	435	759	1116	-	-	-
HCM Lane V/C Ratio	0.195	0.04	0.026	-	-	-
HCM Control Delay (s)	15.3	9.9	8.3	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	0.7	0.1	0.1	-	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	248	100	17	285	99	35
Future Vol, veh/h	248	100	17	285	99	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	109	18	310	108	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	388	0	536	209
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1160	-	472	794
Stage 1	-	-	-	-	694	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1149	-	454	779
Mov Cap-2 Maneuver	-	-	-	-	454	-
Stage 1	-	-	-	-	687	-
Stage 2	-	-	-	-	786	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.6	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1149	-	510
HCM Lane V/C Ratio	-	-	0.016	-	0.286
HCM Control Delay (s)	-	-	8.2	0.1	14.9
HCM Lane LOS	-	-	A	A	B
HCM 95th %tile Q(veh)	-	-	0	-	1.2

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	241	112	46	223	14	7
Future Vol, veh/h	241	112	46	223	14	7
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	262	122	50	242	15	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	394	0	685	343
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	352	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1148	-	412	697
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	384	684
Mov Cap-2 Maneuver	-	-	-	-	384	-
Stage 1	-	-	-	-	717	-
Stage 2	-	-	-	-	667	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	13.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	450	-	-	1137	-
HCM Lane V/C Ratio	0.051	-	-	0.044	-
HCM Control Delay (s)	13.4	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	11.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	198	179	28
Future Vol, veh/h	96	369	165	198	179	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	215	195	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	405	0	-	0	917	307
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1148	-	-	-	301	731
Stage 1	-	-	-	-	752	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1137	-	-	-	260	717
Mov Cap-2 Maneuver	-	-	-	-	260	-
Stage 1	-	-	-	-	745	-
Stage 2	-	-	-	-	467	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	52.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1137	-	-	-	285
HCM Lane V/C Ratio	0.092	-	-	-	0.789
HCM Control Delay (s)	8.5	0	-	-	52.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	6.2

Intersection	
Int Delay, s/veh	8.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	97	142	132	293	8
Future Vol, veh/h	29	97	142	132	293	8
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	105	154	143	318	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	308	0	-	0	414	246
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	178	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1247	-	-	-	593	790
Stage 1	-	-	-	-	801	-
Stage 2	-	-	-	-	850	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1235	-	-	-	565	775
Mov Cap-2 Maneuver	-	-	-	-	565	-
Stage 1	-	-	-	-	793	-
Stage 2	-	-	-	-	818	-

Approach	EB	WB	SB
HCM Control Delay, s	1.8	0	19.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1235	-	-	-	569
HCM Lane V/C Ratio	0.026	-	-	-	0.575
HCM Control Delay (s)	8	0	-	-	19.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	3.6

Intersection	
Int Delay, s/veh	9.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	216	0	0	236	312	3
Future Vol, veh/h	216	0	0	236	312	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	235	0	0	257	339	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	502	245
Stage 1	-	-	-	-	235	-
Stage 2	-	-	-	-	267	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	527	791
Stage 1	-	0	0	-	802	-
Stage 2	-	0	0	-	775	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	522	783
Mov Cap-2 Maneuver	-	-	-	-	522	-
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	522	783	-	-
HCM Lane V/C Ratio	0.65	0.004	-	-
HCM Control Delay (s)	23.8	9.6	-	-
HCM Lane LOS	C	A	-	-
HCM 95th %tile Q(veh)	4.6	0	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	133	190	0	44	14	0	15	239
Future Vol, veh/h	0	133	190	0	44	14	0	15	239
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	145	207	0	48	15	0	16	260
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.4	9	10.2
HCM LOS	B	A	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	76%	0%	0%
Vol Right, %	0%	0%	24%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	133	190	58	15	239
LT Vol	133	0	0	15	0
Through Vol	0	190	44	0	0
RT Vol	0	0	14	0	239
Lane Flow Rate	145	207	63	16	260
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.233	0.304	0.093	0.028	0.354
Departure Headway (Hd)	5.802	5.299	5.323	6.117	4.909
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	616	675	668	585	730
Service Time	3.566	3.062	3.402	3.862	2.653
HCM Lane V/C Ratio	0.235	0.307	0.094	0.027	0.356
HCM Control Delay	10.3	10.4	9	9	10.3
HCM Lane LOS	B	B	A	A	B
HCM 95th-tile Q	0.9	1.3	0.3	0.1	1.6

Intersection	
Int Delay, s/veh	4.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	352	137	34	235	134	43
Future Vol, veh/h	352	137	34	235	134	43
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	383	149	37	255	146	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	532	0	786	457
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	329	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1030	-	360	602
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	727	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1030	-	345	602
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	696	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	20.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	345	602	-	-	1030	-
HCM Lane V/C Ratio	0.422	0.078	-	-	0.036	-
HCM Control Delay (s)	22.8	11.5	-	-	8.6	0
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	2	0.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	17	0	0	5	0	172	10	8	159	4
Future Vol, veh/h	0	0	17	0	0	5	0	172	10	8	159	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	18	0	0	5	0	187	11	9	173	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	89	-	-	99	-	0	0	198	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	948	0	0	934	0	-	-	1365	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	948	-	-	934	-	-	-	1365	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	8.9	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	948	934	1365	-	-
HCM Lane V/C Ratio	-	-	0.019	0.006	0.006	-	-
HCM Control Delay (s)	-	-	8.9	8.9	7.7	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	17	0	182	172	4
Future Vol, veh/h	0	17	0	182	172	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	0	198	187	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	96	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	938	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	938	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	938	-	-
HCM Lane V/C Ratio	-	0.02	-	-
HCM Control Delay (s)	-	8.9	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	12	9	162	20	166	3
Future Vol, veh/h	0	12	9	162	20	166	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	13	10	176	22	180	3

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	92	184	0	128	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	944	1381	-	1183	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	944	1381	-	1183	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	0.4	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1381	-	944	1183	-	-
HCM Lane V/C Ratio	0.007	-	0.014	0.018	-	-
HCM Control Delay (s)	7.6	-	8.9	8.1	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	0.1	-	-

Intersection	
Int Delay, s/veh	4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	161	121	171	176	4
Future Vol, veh/h	0	161	121	171	176	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	175	132	186	191	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	96	191	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	938	1373	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	938	1373	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	3.3	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1373	-	938	-	-
HCM Lane V/C Ratio	0.096	-	0.187	-	-
HCM Control Delay (s)	7.9	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.7	-	-

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	205	0	0	193	0	175	214	251	96	58
Future Vol, veh/h	0	0	205	0	0	193	0	175	214	251	96	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	223	0	0	210	0	190	233	273	104	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	84	-	-	211	-	0	0	423	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	811	0	0	674	0	-	-	732	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	811	-	-	674	-	-	-	732	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	12.7	0	7.9
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	811	674	732	-	-
HCM Lane V/C Ratio	-	-	0.275	0.311	0.373	-	-
HCM Control Delay (s)	-	-	11.1	12.7	12.8	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	1.1	1.3	1.7	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	3	8	21	114	1
Future Vol, veh/h	0	3	8	21	114	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	3	9	23	124	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	164	124	125	0	-	0
Stage 1	124	-	-	-	-	-
Stage 2	40	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	824	924	1455	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	980	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	819	924	1455	-	-	-
Mov Cap-2 Maneuver	819	-	-	-	-	-
Stage 1	899	-	-	-	-	-
Stage 2	974	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.9	2.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1455	-	924	-	-
HCM Lane V/C Ratio	0.006	-	0.004	-	-
HCM Control Delay (s)	7.5	0	8.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	18	2	55	290	23	2	332
Future Volume (veh/h)	18	2	55	290	23	2	332
Number	3	18		2	12	1	6
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845		1845	1900	1845	1845
Adj Flow Rate, veh/h	20	2		315	25	2	361
Adj No. of Lanes	1	1		2	0	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	50	45		1200	95	8	1993
Arrive On Green	0.03	0.03		0.36	0.36	0.00	0.57
Sat Flow, veh/h	1757	1568		3384	260	1757	3597
Grp Volume(v), veh/h	20	2		167	173	2	361
Grp Sat Flow(s),veh/h/ln	1757	1568		1752	1799	1757	1752
Q Serve(g_s), s	0.2	0.0		1.5	1.5	0.0	1.1
Cycle Q Clear(g_c), s	0.2	0.0		1.5	1.5	0.0	1.1
Prop In Lane	1.00	1.00			0.14	1.00	
Lane Grp Cap(c), veh/h	50	45		639	656	8	1993
V/C Ratio(X)	0.40	0.04		0.26	0.26	0.25	0.18
Avail Cap(c_a), veh/h	2005	1789		5294	5434	1061	8235
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.7	10.6		5.0	5.0	11.1	2.3
Incr Delay (d2), s/veh	5.0	0.4		0.2	0.2	16.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0		0.7	0.8	0.0	0.5
LnGrp Delay(d),s/veh	15.7	11.0		5.2	5.2	27.2	2.4
LnGrp LOS	B	B		A	A	C	A
Approach Vol, veh/h	22			340			363
Approach Delay, s/veh	15.3			5.2			2.5
Approach LOS	B			A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	4.6	12.6				17.2		5.1
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	13.5	67.5				52.5		25.5
Max Q Clear Time (g_c+I1), s	2.0	3.5				3.1		2.2
Green Ext Time (p_c), s	0.0	4.6				4.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	4.2
HCM 2010 LOS	A

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	257	180	176	220	97	167	253	201	141	223	26
Future Volume (veh/h)	22	257	180	176	220	97	167	253	201	141	223	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1810	1810	1810	1845	1845	1810	1845	1845	1900
Adj Flow Rate, veh/h	24	279	196	191	239	105	182	275	218	153	242	28
Adj No. of Lanes	1	1	1	2	1	1	1	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	5	5	5	3	3	5	3	3	3
Cap, veh/h	51	676	570	252	778	657	213	847	367	183	709	81
Arrive On Green	0.03	0.37	0.37	0.08	0.43	0.43	0.12	0.24	0.24	0.10	0.22	0.22
Sat Flow, veh/h	1757	1845	1555	3343	1810	1527	1757	3505	1519	1757	3162	362
Grp Volume(v), veh/h	24	279	196	191	239	105	182	275	218	153	133	137
Grp Sat Flow(s),veh/h/ln	1757	1845	1555	1672	1810	1527	1757	1752	1519	1757	1752	1771
Q Serve(g_s), s	1.4	11.8	6.3	5.9	9.1	4.4	10.6	6.8	10.0	9.0	6.7	6.8
Cycle Q Clear(g_c), s	1.4	11.8	6.3	5.9	9.1	4.4	10.6	6.8	10.0	9.0	6.7	6.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	51	676	570	252	778	657	213	847	367	183	393	397
V/C Ratio(X)	0.47	0.41	0.34	0.76	0.31	0.16	0.85	0.32	0.59	0.84	0.34	0.35
Avail Cap(c_a), veh/h	114	676	570	268	778	657	349	1294	561	248	547	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.1	24.8	10.3	47.5	19.6	18.3	45.1	32.7	19.7	46.1	34.1	34.2
Incr Delay (d2), s/veh	2.6	1.9	1.6	9.6	0.8	0.4	5.5	0.6	4.0	12.8	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	6.4	3.8	3.0	4.7	1.9	5.5	3.4	5.1	5.0	3.4	3.5
LnGrp Delay(d),s/veh	52.7	26.7	12.0	57.1	20.4	18.7	50.6	33.3	23.7	58.9	35.5	35.6
LnGrp LOS	D	C	B	E	C	B	D	C	C	E	D	D
Approach Vol, veh/h		499			535			675			423	
Approach Delay, s/veh		22.1			33.2			34.9			44.0	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.7	44.4	16.9	28.8	7.2	51.9	15.1	30.6
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	* 4.2	5.3
Max Green Setting (Gmax), s	8.4	* 38	* 21	32.7	* 6.8	39.2	* 15	38.7
Max Q Clear Time (g_c+I1), s	7.9	13.8	12.6	8.8	3.4	11.1	11.0	12.0
Green Ext Time (p_c), s	0.1	5.9	0.1	8.5	0.0	4.5	0.1	9.0

Intersection Summary	
HCM 2010 Ctrl Delay	33.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	347	157	434	146	330	288	232	1014	458	166	1097	215
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.26	0.87	0.87	0.10	0.38	0.38
Sat Flow, veh/h	1108	431	1191	892	906	791	1757	2339	1057	1723	2859	561
Grp Volume(v), veh/h	86	0	489	205	0	251	134	909	935	152	490	485
Grp Sat Flow(s),veh/h/ln	1108	0	1623	892	0	1697	1757	1752	1644	1723	1719	1702
Q Serve(g_s), s	6.9	0.0	30.1	10.0	0.0	12.1	7.3	47.7	47.7	9.6	27.0	27.0
Cycle Q Clear(g_c), s	19.0	0.0	30.1	40.1	0.0	12.1	7.3	47.7	47.7	9.6	27.0	27.0
Prop In Lane	1.00		0.73	1.00		0.47	1.00		0.64	1.00		0.33
Lane Grp Cap(c), veh/h	347	0	592	146	0	619	232	760	713	166	659	653
V/C Ratio(X)	0.25	0.00	0.83	1.40	0.00	0.41	0.58	1.20	1.31	0.92	0.74	0.74
Avail Cap(c_a), veh/h	347	0	592	146	0	619	232	760	713	166	659	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.89	0.89	0.89
Uniform Delay (d), s/veh	33.2	0.0	31.8	52.3	0.0	26.1	37.8	7.3	7.3	49.3	29.2	29.2
Incr Delay (d2), s/veh	0.4	0.0	9.4	216.8	0.0	0.4	0.2	89.8	141.0	41.8	6.6	6.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	15.0	13.2	0.0	5.7	3.5	39.2	46.9	6.5	14.0	13.9
LnGrp Delay(d),s/veh	33.5	0.0	41.2	269.1	0.0	26.5	38.1	97.1	148.3	91.0	35.8	35.9
LnGrp LOS	C		D	F		C	D	F	F	F	D	D
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		40.1			135.5			117.3			43.3	
Approach LOS		D			F			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	53.1		45.0	19.9	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	11.6	49.7		32.1	9.3	29.0		42.1
Green Ext Time (p_c), s	0.0	0.0		3.7	3.2	7.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	88.4
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	1	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	1	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	694	86	633				0	1210	290	305	1074	0
Adj No. of Lanes	1	1	0				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	700	76	556				0	997	236	645	2701	0
Arrive On Green	0.40	0.40	0.40				0.00	0.71	0.71	0.73	1.00	0.00
Sat Flow, veh/h	1757	190	1396				0	2897	664	1757	3597	0
Grp Volume(v), veh/h	694	0	719				0	750	750	305	1074	0
Grp Sat Flow(s),veh/h/ln	1757	0	1586				0	1752	1716	1757	1752	0
Q Serve(g_s), s	43.2	0.0	43.8				0.0	39.1	39.1	7.8	0.0	0.0
Cycle Q Clear(g_c), s	43.2	0.0	43.8				0.0	39.1	39.1	7.8	0.0	0.0
Prop In Lane	1.00		0.88				0.00		0.39	1.00		0.00
Lane Grp Cap(c), veh/h	700	0	631				0	623	610	645	2701	0
V/C Ratio(X)	0.99	0.00	1.14				0.00	1.20	1.23	0.47	0.40	0.00
Avail Cap(c_a), veh/h	700	0	631				0	623	610	645	2701	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.45	0.45	0.40	0.40	0.00
Uniform Delay (d), s/veh	32.9	0.0	33.1				0.0	15.9	15.9	10.3	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	80.5				0.0	98.9	109.8	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	27.0	0.0	33.2				0.0	35.1	36.2	3.6	0.1	0.0
LnGrp Delay(d),s/veh	64.9	0.0	113.6				0.0	114.8	125.7	10.4	0.2	0.0
LnGrp LOS	E		F					F	F	B	A	
Approach Vol, veh/h		1413						1500			1379	
Approach Delay, s/veh		89.7						120.2			2.4	
Approach LOS		F						F			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	45.9	44.4		48.4		90.3		
Change Period (Y+Rc), s	5.3	* 5.3		4.6		5.3		
Max Green Setting (Gmax), s	13.5	* 39		43.8		56.3		
Max Q Clear Time (g_c+I1), s	9.8	41.1		45.8		2.0		
Green Ext Time (p_c), s	2.3	0.0		0.0		17.8		

Intersection Summary	
HCM 2010 Ctrl Delay	72.3
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	107	141	48	69	223	75	928	42	325	1112	143
Future Volume (veh/h)	165	107	141	48	69	223	75	928	42	325	1112	143
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	179	116	153	52	75	242	82	1009	46	353	1209	155
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	261	249	329	307	133	428	156	983	45	408	1348	172
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.09	0.29	0.29	0.46	0.86	0.86
Sat Flow, veh/h	1044	719	948	1090	382	1233	1757	3411	155	1757	3122	399
Grp Volume(v), veh/h	179	0	269	52	0	317	82	518	537	353	677	687
Grp Sat Flow(s),veh/h/ln	1044	0	1668	1090	0	1615	1757	1752	1814	1757	1752	1769
Q Serve(g_s), s	18.5	0.0	13.8	4.3	0.0	17.6	4.9	31.7	31.7	19.8	25.4	26.2
Cycle Q Clear(g_c), s	36.1	0.0	13.8	18.1	0.0	17.6	4.9	31.7	31.7	19.8	25.4	26.2
Prop In Lane	1.00		0.57	1.00		0.76	1.00		0.09	1.00		0.23
Lane Grp Cap(c), veh/h	261	0	579	307	0	560	156	505	523	408	757	764
V/C Ratio(X)	0.69	0.00	0.46	0.17	0.00	0.57	0.53	1.03	1.03	0.87	0.89	0.90
Avail Cap(c_a), veh/h	263	0	582	307	0	560	168	505	523	420	757	764
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.77	0.77	0.77
Uniform Delay (d), s/veh	43.8	0.0	28.0	35.0	0.0	29.2	47.9	39.2	39.2	27.9	6.0	6.0
Incr Delay (d2), s/veh	7.5	0.0	0.7	0.3	0.0	1.5	1.0	47.0	46.3	12.8	12.3	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	6.5	1.3	0.0	8.1	2.4	21.9	22.6	10.9	13.5	14.2
LnGrp Delay(d),s/veh	51.4	0.0	28.7	35.3	0.0	30.7	49.0	86.1	85.5	40.7	18.3	18.8
LnGrp LOS	D		C	D		C	D	F	F	D	B	B
Approach Vol, veh/h		448			369			1137			1717	
Approach Delay, s/veh		37.7			31.3			83.1			23.1	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	29.2	37.0		43.8	13.4	52.8		43.8
Change Period (Y+Rc), s	3.7	5.3		* 5.6	3.7	5.3		5.6
Max Green Setting (Gmax), s	26.3	31.7		* 38	10.5	47.5		37.4
Max Q Clear Time (g_c+I1), s	21.8	33.7		38.1	6.9	28.2		20.1
Green Ext Time (p_c), s	0.3	0.0		0.1	0.3	14.9		5.2

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	199	156	87	222	93	118	246	129	112	321	206
Future Volume (veh/h)	208	199	156	87	222	93	118	246	129	112	321	206
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1810	1810	1810	1810	1810	1810	1845	1845	1845	1845	1845	1845
Adj Flow Rate, veh/h	226	216	170	95	241	101	128	267	140	122	349	224
Adj No. of Lanes	2	2	1	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	5	5	5	5	5	5	3	3	3	3	3	3
Cap, veh/h	355	755	333	132	615	270	157	1339	594	159	1408	622
Arrive On Green	0.11	0.22	0.22	0.08	0.18	0.18	0.09	0.38	0.38	0.09	0.40	0.40
Sat Flow, veh/h	3343	3438	1517	1723	3438	1512	1757	3505	1556	1757	3505	1548
Grp Volume(v), veh/h	226	216	170	95	241	101	128	267	140	122	349	224
Grp Sat Flow(s),veh/h/ln	1672	1719	1517	1723	1719	1512	1757	1752	1556	1757	1752	1548
Q Serve(g_s), s	6.2	5.0	9.5	5.2	6.0	5.7	6.9	4.9	4.2	6.5	6.4	6.0
Cycle Q Clear(g_c), s	6.2	5.0	9.5	5.2	6.0	5.7	6.9	4.9	4.2	6.5	6.4	6.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	355	755	333	132	615	270	157	1339	594	159	1408	622
V/C Ratio(X)	0.64	0.29	0.51	0.72	0.39	0.37	0.81	0.20	0.24	0.77	0.25	0.36
Avail Cap(c_a), veh/h	364	1356	598	148	1278	562	179	1339	594	222	1408	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.3	31.3	33.0	43.5	34.9	34.8	43.1	19.9	10.0	42.8	19.2	7.6
Incr Delay (d2), s/veh	2.6	0.5	3.1	10.9	1.1	2.2	19.5	0.3	0.9	6.0	0.4	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	2.5	4.3	2.9	2.9	2.5	4.2	2.4	2.4	3.5	3.1	3.8
LnGrp Delay(d),s/veh	43.9	31.8	36.2	54.4	36.0	37.0	62.6	20.3	11.0	48.8	19.6	9.2
LnGrp LOS	D	C	D	D	D	D	E	C	B	D	B	A
Approach Vol, veh/h		612			437			535			695	
Approach Delay, s/veh		37.5			40.2			28.0			21.4	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.5	42.8	11.6	26.5	12.8	45.5	15.5	22.5
Change Period (Y+Rc), s	6.8	* 6	* 4.2	5.3	* 4.2	6.8	5.3	* 5.3
Max Green Setting (Gmax), s	12.2	* 37	* 8.3	38.0	* 9.8	38.4	10.5	* 36
Max Q Clear Time (g_c+I1), s	8.5	6.9	7.2	11.5	8.9	8.4	8.2	8.0
Green Ext Time (p_c), s	0.6	5.5	0.0	4.4	0.0	7.8	0.9	4.0

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Future Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	257	212	222	3	503	12	242	3	14	10
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	118	219	243	627	8	358	40	805	68	274	178
Arrive On Green	0.01	0.21	0.21	0.14	0.35	0.35	0.20	0.54	0.54	0.29	0.29	0.29
Sat Flow, veh/h	1757	568	1059	1757	1815	25	1757	74	1491	98	945	614
Grp Volume(v), veh/h	9	0	395	212	0	225	503	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	0	1627	1757	0	1840	1757	0	1565	1657	0	0
Q Serve(g_s), s	0.5	0.0	20.7	11.8	0.0	9.1	20.4	0.0	8.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	20.7	11.8	0.0	9.1	20.4	0.0	8.9	1.1	0.0	0.0
Prop In Lane	1.00		0.65	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	0	337	243	0	636	358	0	845	520	0	0
V/C Ratio(X)	0.77	0.00	1.17	0.87	0.00	0.35	1.40	0.00	0.30	0.05	0.00	0.00
Avail Cap(c_a), veh/h	95	0	337	253	0	636	358	0	845	520	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.55	0.00	0.55	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	0.0	39.7	42.2	0.0	24.4	39.8	0.0	12.6	25.6	0.0	0.0
Incr Delay (d2), s/veh	31.9	0.0	104.7	24.8	0.0	0.4	190.7	0.0	0.5	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	19.1	7.4	0.0	4.7	28.8	0.0	3.9	0.6	0.0	0.0
LnGrp Delay(d),s/veh	81.5	0.0	144.4	67.1	0.0	24.8	230.5	0.0	13.1	25.8	0.0	0.0
LnGrp LOS	F		F	E		C	F		B	C		
Approach Vol, veh/h		404			437			757			27	
Approach Delay, s/veh		143.0			45.3			157.6			25.8	
Approach LOS		F			D			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		59.4	19.1	26.0	25.0	34.4	5.3	39.9
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.9	13.8	22.7	22.4	3.1	2.5	11.1
Green Ext Time (p_c), s		2.3	0.0	0.0	0.0	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	121.6
HCM 2010 LOS	F

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Future Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	72	335	539	114	45	352	86
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	131	379	78	282	165	218	496	105	183	453	111
Arrive On Green	0.10	0.32	0.32	0.04	0.26	0.26	0.12	0.34	0.34	0.03	0.10	0.10
Sat Flow, veh/h	1757	413	1198	1757	1084	634	1757	1473	311	1757	1428	349
Grp Volume(v), veh/h	147	0	468	61	0	195	335	0	653	45	0	438
Grp Sat Flow(s),veh/h/ln	1757	0	1611	1757	0	1718	1757	0	1784	1757	0	1777
Q Serve(g_s), s	8.2	0.0	28.0	3.4	0.0	9.5	12.4	0.0	33.7	2.5	0.0	24.0
Cycle Q Clear(g_c), s	8.2	0.0	28.0	3.4	0.0	9.5	12.4	0.0	33.7	2.5	0.0	24.0
Prop In Lane	1.00		0.74	1.00		0.37	1.00		0.17	1.00		0.20
Lane Grp Cap(c), veh/h	177	0	510	78	0	447	218	0	601	183	0	563
V/C Ratio(X)	0.83	0.00	0.92	0.78	0.00	0.44	1.54	0.00	1.09	0.25	0.00	0.78
Avail Cap(c_a), veh/h	394	0	559	95	0	447	218	0	601	183	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.00	0.50
Uniform Delay (d), s/veh	44.1	0.0	32.9	47.3	0.0	30.9	43.8	0.0	33.2	44.5	0.0	41.3
Incr Delay (d2), s/veh	3.8	0.0	21.3	23.0	0.0	0.3	262.5	0.0	62.2	0.1	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	15.5	2.2	0.0	4.5	21.9	0.0	26.9	1.2	0.0	12.7
LnGrp Delay(d),s/veh	47.9	0.0	54.3	70.3	0.0	31.1	306.3	0.0	95.4	44.6	0.0	46.7
LnGrp LOS	D		D	E		C	F		F	D		D
Approach Vol, veh/h		615			256			988			483	
Approach Delay, s/veh		52.8			40.5			166.9			46.5	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	39.0	9.0	36.9	17.0	37.0	14.7	31.3
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.5	35.7	5.4	30.0	14.4	26.0	10.2	11.5
Green Ext Time (p_c), s	0.1	0.0	0.0	1.6	0.0	1.6	0.0	3.3

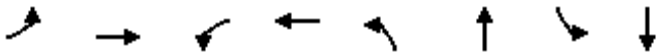
Intersection Summary	
HCM 2010 Ctrl Delay	98.3
HCM 2010 LOS	F

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	24	279	196	191	239	105	182	275	218	153	270
v/c Ratio	0.21	0.38	0.27	0.68	0.28	0.13	0.72	0.40	0.46	0.71	0.44
Control Delay	53.0	25.7	4.9	59.1	21.1	2.7	58.0	35.9	7.7	61.2	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.0	25.7	4.9	59.1	21.1	2.7	58.0	35.9	7.7	61.2	37.2
Queue Length 50th (ft)	14	119	0	59	77	0	108	80	0	90	76
Queue Length 95th (ft)	47	255	53	#137	216	23	209	118	55	#209	122
Internal Link Dist (ft)		384			2558			5070			447
Turn Bay Length (ft)	200		200	375		325	325		300	225	
Base Capacity (vph)	122	726	722	287	856	783	374	1392	729	266	1159
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.38	0.27	0.67	0.28	0.13	0.49	0.20	0.30	0.58	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	489	205	251	134	1844	152	975
v/c Ratio	0.25	0.72	1.34	0.39	0.61	1.31	0.92	0.76
Control Delay	27.1	27.9	221.6	23.1	32.9	158.6	102.3	33.2
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.5	0.0	50.4
Total Delay	27.1	28.2	221.6	23.1	32.9	159.1	102.3	83.6
Queue Length 50th (ft)	42	212	~189	105	86	~857	108	302
Queue Length 95th (ft)	83	342	#338	175	m74	m#671	#233	383
Internal Link Dist (ft)		659		390		292		5070
Turn Bay Length (ft)	150		150		100		175	
Base Capacity (vph)	339	680	153	647	219	1410	165	1291
Starvation Cap Reductn	0	0	0	0	0	169	0	0
Spillback Cap Reductn	0	22	0	0	0	0	0	520
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.74	1.34	0.39	0.61	1.49	0.92	1.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	NBT	SBL	SBT
Lane Group Flow (vph)	679	710	1500	305	1074
v/c Ratio	1.03	1.13	1.23	1.42	0.60
Control Delay	77.6	107.3	131.5	242.8	25.7
Queue Delay	12.0	3.6	3.1	0.0	50.1
Total Delay	89.6	110.9	134.6	242.8	75.8
Queue Length 50th (ft)	~543	~585	~707	~297	403
Queue Length 95th (ft)	#780	#830	#850	m#417	m456
Internal Link Dist (ft)		481	126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	657	628	1218	215	1793
Starvation Cap Reductn	0	0	125	0	832
Spillback Cap Reductn	21	222	541	0	641
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.07	1.75	2.22	1.42	1.12

Intersection Summary

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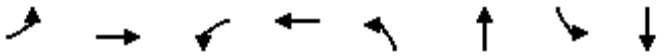
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

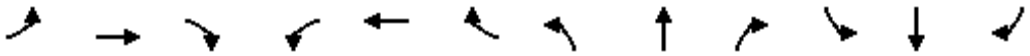
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	179	269	52	317	82	1055	353	1364
v/c Ratio	1.02	0.53	0.27	0.58	0.56	0.80	0.91	0.74
Control Delay	111.9	27.7	32.4	19.9	63.1	38.3	62.0	14.1
Queue Delay	64.2	0.0	0.0	3.4	0.0	49.0	55.8	1.0
Total Delay	176.0	27.7	32.4	23.3	63.1	87.3	117.9	15.0
Queue Length 50th (ft)	125	118	29	91	56	361	268	196
Queue Length 95th (ft)	#240	182	59	167	107	#562	m317	m419
Internal Link Dist (ft)		587		678		417		126
Turn Bay Length (ft)	125		125		125		100	
Base Capacity (vph)	223	625	250	651	167	1319	418	1844
Starvation Cap Reductn	0	0	0	0	0	0	169	230
Spillback Cap Reductn	93	0	0	239	0	382	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.43	0.21	0.77	0.49	1.13	1.42	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	226	216	170	95	241	101	128	267	140	122	349	224
v/c Ratio	0.64	0.36	0.42	0.62	0.45	0.26	0.72	0.19	0.20	0.54	0.24	0.30
Control Delay	49.5	35.4	8.5	61.2	38.3	1.6	64.3	19.5	2.3	48.7	18.9	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.5	35.4	8.5	61.2	38.3	1.6	64.3	19.5	2.3	48.7	18.9	3.9
Queue Length 50th (ft)	66	60	0	55	69	0	74	53	0	68	68	0
Queue Length 95th (ft)	110	93	51	#132	106	0	#170	88	23	132	110	45
Internal Link Dist (ft)		2558			950			2467			570	
Turn Bay Length (ft)	375		200	375		375	150		125	200		200
Base Capacity (vph)	377	1409	719	153	1327	693	185	1390	715	230	1451	758
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.15	0.24	0.62	0.18	0.15	0.69	0.19	0.20	0.53	0.24	0.30

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
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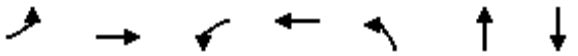

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	9	395	212	225	503	254	27
v/c Ratio	0.12	0.98	0.89	0.33	1.36	0.28	0.06
Control Delay	49.4	73.3	79.0	24.9	210.1	6.1	21.5
Queue Delay	0.0	8.1	8.8	0.0	0.0	0.0	0.1
Total Delay	49.4	81.4	87.8	24.9	210.1	6.1	21.6
Queue Length 50th (ft)	6	204	133	96	~450	15	8
Queue Length 95th (ft)	22	#398	#259	183	m#643	m53	30
Internal Link Dist (ft)		296		144		340	84
Turn Bay Length (ft)	50		125		125		
Base Capacity (vph)	94	402	252	680	371	895	418
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	13	23	0	0	0	101
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	1.02	0.93	0.33	1.36	0.28	0.09

Intersection Summary

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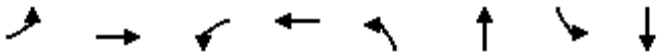
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	147	468	61	195	335	653	45	438
v/c Ratio	0.71	0.83	0.69	0.51	2.28	0.78	0.47	0.61
Control Delay	60.5	34.4	83.5	33.9	620.1	35.0	68.3	44.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Total Delay	60.5	34.4	83.5	33.9	620.1	35.0	68.3	46.3
Queue Length 50th (ft)	92	187	39	91	~349	386	26	291
Queue Length 95th (ft)	149	294	#102	160	#521	#682	m29	m325
Internal Link Dist (ft)		599		784		243		340
Turn Bay Length (ft)	350		325		175		150	
Base Capacity (vph)	392	655	94	415	147	836	112	720
Starvation Cap Reductn	0	0	0	0	0	0	0	144
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.71	0.65	0.47	2.28	0.78	0.40	0.76

Intersection Summary

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m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Int Delay, s/veh	96.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	312	367	197	213	208	92
Future Vol, veh/h	312	367	197	213	208	92
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	339	399	214	232	226	100

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	748	0	1219	559
Stage 1	-	-	-	-	549	-
Stage 2	-	-	-	-	670	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	856	-	~ 198	527
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	848	-	~ 138	517
Mov Cap-2 Maneuver	-	-	-	-	~ 138	-
Stage 1	-	-	-	-	572	-
Stage 2	-	-	-	-	357	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	$ 439.8
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	178	-	-	848	-
HCM Lane V/C Ratio	1.832	-	-	0.253	-
HCM Control Delay (s)	$ 439.8	-	-	10.7	0
HCM Lane LOS	F	-	-	B	A
HCM 95th %tile Q(veh)	23.7	-	-	1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.2

Movement	NBL	NBT	SBT	SBR	NEL	NER
Traffic Vol, veh/h	24	313	267	46	116	47
Future Vol, veh/h	24	313	267	46	116	47
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	100
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	340	290	50	126	51

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	350	0	-	0	557	190
Stage 1	-	-	-	-	325	-
Stage 2	-	-	-	-	232	-
Critical Hdwy	4.16	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.23	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	1198	-	-	-	458	816
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	782	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1187	-	-	-	437	801
Mov Cap-2 Maneuver	-	-	-	-	437	-
Stage 1	-	-	-	-	695	-
Stage 2	-	-	-	-	754	-

Approach	NB	SB	NE
HCM Control Delay, s	0.7	0	14.6
HCM LOS			B

Minor Lane/Major Mvmt	NELn1	NELn2	NBL	NBT	SBT	SBR
Capacity (veh/h)	437	801	1187	-	-	-
HCM Lane V/C Ratio	0.289	0.064	0.022	-	-	-
HCM Control Delay (s)	16.5	9.8	8.1	0.1	-	-
HCM Lane LOS	C	A	A	A	-	-
HCM 95th %tile Q(veh)	1.2	0.2	0.1	-	-	-

Intersection	
Int Delay, s/veh	6

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	326	120	33	291	188	16
Future Vol, veh/h	326	120	33	291	188	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	354	130	36	316	204	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	495	0	670	262
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1058	-	388	734
Stage 1	-	-	-	-	621	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1048	-	365	720
Mov Cap-2 Maneuver	-	-	-	-	365	-
Stage 1	-	-	-	-	615	-
Stage 2	-	-	-	-	734	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1	26.9
HCM LOS			D

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1048	-	380
HCM Lane V/C Ratio	-	-	0.034	-	0.584
HCM Control Delay (s)	-	-	8.6	0.1	26.9
HCM Lane LOS	-	-	A	A	D
HCM 95th %tile Q(veh)	-	-	0.1	-	3.6

Intersection	
Int Delay, s/veh	0.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	313	32	20	351	17	13
Future Vol, veh/h	313	32	20	351	17	13
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	5	5	5	5	3	3
Mvmt Flow	340	35	22	382	18	14

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	385	0	803	378
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	435	-
Critical Hdwy	-	-	4.15	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.245	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1157	-	351	667
Stage 1	-	-	-	-	698	-
Stage 2	-	-	-	-	650	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1146	-	336	654
Mov Cap-2 Maneuver	-	-	-	-	336	-
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	628	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	426	-	-	1146	-
HCM Lane V/C Ratio	0.077	-	-	0.019	-
HCM Control Delay (s)	14.2	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0.1	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	229	95	43
Future Vol, veh/h	75	429	315	229	95	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	249	103	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	601	0	-	0	1116	487
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	971	-	-	-	229	579
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	962	-	-	-	199	568
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	459	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	38.9
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	962	-	-	-	250
HCM Lane V/C Ratio	0.085	-	-	-	0.6
HCM Control Delay (s)	9.1	0	-	-	38.9
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	3.5

Intersection	
Int Delay, s/veh	83.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	29	84	196	252	512	18
Future Vol, veh/h	29	84	196	252	512	18
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	32	91	213	274	557	20

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	497	0	-	0	524	370
Stage 1	-	-	-	-	360	-
Stage 2	-	-	-	-	164	-
Critical Hdwy	4.13	-	-	-	7.13	6.23
Critical Hdwy Stg 1	-	-	-	-	6.13	-
Critical Hdwy Stg 2	-	-	-	-	6.13	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1062	-	-	-	~ 462	673
Stage 1	-	-	-	-	656	-
Stage 2	-	-	-	-	836	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1052	-	-	-	~ 442	660
Mov Cap-2 Maneuver	-	-	-	-	~ 442	-
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	802	-

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	172.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1052	-	-	-	447
HCM Lane V/C Ratio	0.03	-	-	-	1.289
HCM Control Delay (s)	8.5	0	-	-	172.3
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	24.8

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	6.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	171	231	10
Future Vol, veh/h	353	0	0	171	231	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	186	251	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	580	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	-	0	0	-	475	653
Stage 1	-	0	0	-	686	-
Stage 2	-	0	0	-	835	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	470	647
Mov Cap-2 Maneuver	-	-	-	-	470	-
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	827	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	470	647	-	-
HCM Lane V/C Ratio	0.534	0.017	-	-
HCM Control Delay (s)	21.1	10.7	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	3.1	0.1	-	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	217	131	0	59	36	0	17	161
Future Vol, veh/h	0	217	131	0	59	36	0	17	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	236	142	0	64	39	0	18	175
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	10.8	9	9.5
HCM LOS	B	A	A

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	62%	0%	0%
Vol Right, %	0%	0%	38%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	131	95	17	161
LT Vol	217	0	0	17	0
Through Vol	0	131	59	0	0
RT Vol	0	0	36	0	161
Lane Flow Rate	236	142	103	18	175
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.37	0.203	0.145	0.032	0.246
Departure Headway (Hd)	5.643	5.14	5.064	6.261	5.052
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	637	695	704	571	709
Service Time	3.395	2.893	3.126	4.007	2.797
HCM Lane V/C Ratio	0.37	0.204	0.146	0.032	0.247
HCM Control Delay	11.7	9.2	9	9.2	9.5
HCM Lane LOS	B	A	A	A	A
HCM 95th-tile Q	1.7	0.8	0.5	0.1	1

Intersection	
Int Delay, s/veh	50.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	341	210	161	362	211	100
Future Vol, veh/h	341	210	161	362	211	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	371	228	175	393	229	109

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	599	0	1228	485
Stage 1	-	-	-	-	485	-
Stage 2	-	-	-	-	743	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	973	-	~ 196	580
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	973	-	~ 151	580
Mov Cap-2 Maneuver	-	-	-	-	~ 151	-
Stage 1	-	-	-	-	617	-
Stage 2	-	-	-	-	360	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	220.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	580	-	-	973	-
HCM Lane V/C Ratio	1.519	0.187	-	-	0.18	-
HCM Control Delay (s)	$ 318.6	12.6	-	-	9.5	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	15.4	0.7	-	-	0.7	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	21	0	290	38	30	332	9
Future Vol, veh/h	0	0	11	0	0	21	0	290	38	30	332	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	23	0	315	41	33	361	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	185	-	-	178	-	0	0	357	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	823	0	0	831	0	-	-	1191	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	823	-	-	831	-	-	-	1191	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	9.5	0	0.7
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	823	831	1191	-	-
HCM Lane V/C Ratio	-	-	0.015	0.027	0.027	-	-
HCM Control Delay (s)	-	-	9.4	9.5	8.1	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	11	0	328	334	9
Future Vol, veh/h	0	11	0	328	334	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	12	0	357	363	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	186	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	-	-	-	-
Pot Cap-1 Maneuver	0	821	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	821	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	821	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	9.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Traffic Vol, veh/h	0	8	25	315	13	325	7
Future Vol, veh/h	0	8	25	315	13	325	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	-	None
Storage Length	-	0	200	-	200	-	-
Veh in Median Storage, #	0	-	-	0	-	0	-
Grade, %	0	-	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	0	9	27	342	14	353	8

Major/Minor	Minor2		Major1		Major2		
Conflicting Flow All	-	180	361	0	250	-	0
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	6.46	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	2.53	-	-
Pot Cap-1 Maneuver	0	829	1187	-	991	-	-
Stage 1	0	-	-	-	-	-	-
Stage 2	0	-	-	-	-	-	-
Platoon blocked, %				-		-	-
Mov Cap-1 Maneuver	-	829	1187	-	991	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.4	0.6	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBU	SBT	SBR
Capacity (veh/h)	1187	-	829	991	-	-
HCM Lane V/C Ratio	0.023	-	0.01	0.014	-	-
HCM Control Delay (s)	8.1	-	9.4	8.7	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	0	184	309	340	329	8
Future Vol, veh/h	0	184	309	340	329	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	200	336	370	358	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	179	358	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.96	4.16	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.33	2.23	-	-	-
Pot Cap-1 Maneuver	0	830	1190	-	-	-
Stage 1	0	-	-	-	-	-
Stage 2	0	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	830	1190	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	4.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1190	-	830	-	-
HCM Lane V/C Ratio	0.282	-	0.241	-	-
HCM Control Delay (s)	9.2	-	10.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	1.2	-	0.9	-	-

Intersection	
Int Delay, s/veh	8.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	148	0	0	358	0	371	268	236	330	95
Future Vol, veh/h	0	0	148	0	0	358	0	371	268	236	330	95
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	161	0	0	389	0	403	291	257	359	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	231	-	-	347	-	0	0	695	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.16	-	-	7.16	-	-	-	5.36	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.93	-	-	3.93	-	-	-	3.13	-	-
Pot Cap-1 Maneuver	0	0	655	0	0	552	0	-	-	544	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	655	-	-	552	-	-	-	544	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	25.6	0	6.2
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	655	552	544	-	-
HCM Lane V/C Ratio	-	-	0.246	0.705	0.472	-	-
HCM Control Delay (s)	-	-	12.3	25.6	17.4	-	-
HCM Lane LOS	-	-	B	D	C	-	-
HCM 95th %tile Q(veh)	-	-	1	5.6	2.5	-	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Traffic Vol, veh/h	3	11	28	27	37	4
Future Vol, veh/h	3	11	28	27	37	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	3	12	30	29	40	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	132	42	45	0	-	0
Stage 1	42	-	-	-	-	-
Stage 2	90	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	860	1026	1557	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	843	1026	1557	-	-	-
Mov Cap-2 Maneuver	843	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	912	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	8.7	3.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1557	-	980	-	-
HCM Lane V/C Ratio	0.02	-	0.016	-	-
HCM Control Delay (s)	7.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0	-	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	81	10	81	558	90	10	499
Future Volume (veh/h)	81	10	81	558	90	10	499
Number	3	18		2	12	1	6
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845		1845	1900	1845	1845
Adj Flow Rate, veh/h	88	11		607	98	11	542
Adj No. of Lanes	1	1		2	0	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	158	141		1477	238	26	2238
Arrive On Green	0.09	0.09		0.49	0.49	0.01	0.64
Sat Flow, veh/h	1757	1568		3116	487	1757	3597
Grp Volume(v), veh/h	88	11		351	354	11	542
Grp Sat Flow(s),veh/h/ln	1757	1568		1752	1759	1757	1752
Q Serve(g_s), s	1.6	0.2		4.3	4.3	0.2	2.2
Cycle Q Clear(g_c), s	1.6	0.2		4.3	4.3	0.2	2.2
Prop In Lane	1.00	1.00			0.28	1.00	
Lane Grp Cap(c), veh/h	158	141		856	859	26	2238
V/C Ratio(X)	0.56	0.08		0.41	0.41	0.43	0.24
Avail Cap(c_a), veh/h	1562	1394		3512	3524	556	5439
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	13.8		5.4	5.4	16.2	2.6
Incr Delay (d2), s/veh	3.0	0.2		0.3	0.3	11.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.1		2.1	2.1	0.2	1.1
LnGrp Delay(d),s/veh	17.5	14.1		5.7	5.8	27.3	2.6
LnGrp LOS	B	B		A	A	C	A
Approach Vol, veh/h	99			705			553
Approach Delay, s/veh	17.1			5.7			3.1
Approach LOS	B			A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.0	20.7				25.7		7.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	66.5				51.5		29.5
Max Q Clear Time (g_c+I1), s	2.2	6.3				4.2		3.6
Green Ext Time (p_c), s	0.0	9.9				9.7		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.5
HCM 2010 LOS	A

Notes

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	27	0	293	160	126	351	9
Future Vol, veh/h	0	0	11	0	0	27	0	293	160	126	351	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	29	0	318	174	137	382	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	196	-	-	246	-	0	0	492	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	809	0	0	751	0	-	-	1061	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	809	-	-	751	-	-	-	1061	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10	0	2.3
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	809	751	1061	-	-
HCM Lane V/C Ratio	-	-	0.015	0.039	0.129	-	-
HCM Control Delay (s)	-	-	9.5	10	8.9	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.1	0.4	-	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	102	13	95	666	378	42	499
Future Volume (veh/h)	102	13	95	666	378	42	499
Number	3	18		2	12	1	6
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845		1845	1900	1845	1845
Adj Flow Rate, veh/h	111	14		724	411	46	542
Adj No. of Lanes	1	1		2	0	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	156	139		1270	719	83	2549
Arrive On Green	0.09	0.09		0.59	0.59	0.05	0.73
Sat Flow, veh/h	1757	1568		2251	1222	1757	3597
Grp Volume(v), veh/h	111	14		587	548	46	542
Grp Sat Flow(s),veh/h/ln	1757	1568		1752	1629	1757	1752
Q Serve(g_s), s	3.0	0.4		10.2	10.2	1.3	2.4
Cycle Q Clear(g_c), s	3.0	0.4		10.2	10.2	1.3	2.4
Prop In Lane	1.00	1.00			0.75	1.00	
Lane Grp Cap(c), veh/h	156	139		1031	958	83	2549
V/C Ratio(X)	0.71	0.10		0.57	0.57	0.55	0.21
Avail Cap(c_a), veh/h	1058	944		2378	2211	376	3684
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.7	20.5		6.3	6.3	22.8	2.2
Incr Delay (d2), s/veh	5.9	0.3		0.5	0.5	5.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.2		4.9	4.6	0.7	1.1
LnGrp Delay(d),s/veh	27.6	20.8		6.8	6.8	28.4	2.2
LnGrp LOS	C	C		A	A	C	A
Approach Vol, veh/h	125			1135			588
Approach Delay, s/veh	26.8			6.8			4.2
Approach LOS	C			A			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	6.8	33.3				40.1		8.9
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	66.5				51.5		29.5
Max Q Clear Time (g_c+I1), s	3.3	12.2				4.4		5.0
Green Ext Time (p_c), s	0.0	16.6				16.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.3
HCM 2010 LOS	A

Notes

Lane Group	WBL	WBR	NBU	NBT	SBL	SBT
Lane Group Flow (vph)	111	14	103	1135	46	542
v/c Ratio	0.34	0.05	0.33	0.55	0.19	0.30
Control Delay	26.8	13.5	27.0	10.1	28.3	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	13.5	27.0	10.1	28.3	11.6
Queue Length 50th (ft)	33	0	31	127	14	61
Queue Length 95th (ft)	92	15	88	233	50	118
Internal Link Dist (ft)	520			380		760
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	1042	938	900	3229	371	3082
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.01	0.11	0.35	0.12	0.18

Intersection Summary

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	11	0	0	130	0	329	44	35	333	9
Future Vol, veh/h	0	0	11	0	0	130	0	329	44	35	333	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	12	0	0	141	0	358	48	38	362	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	186	-	-	203	-	0	0	405	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	821	0	0	801	0	-	-	1143	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	821	-	-	801	-	-	-	1143	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.5	10.5	0	0.8
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	821	801	1143	-	-
HCM Lane V/C Ratio	-	-	0.015	0.176	0.033	-	-
HCM Control Delay (s)	-	-	9.5	10.5	8.3	-	-
HCM Lane LOS	-	-	A	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0	0.6	0.1	-	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	491	61	95	550	105	12	499
Future Volume (veh/h)	491	61	95	550	105	12	499
Number	3	18		2	12	1	6
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845		1845	1900	1845	1845
Adj Flow Rate, veh/h	534	66		598	114	13	542
Adj No. of Lanes	1	1		2	0	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	618	552		1120	213	29	1686
Arrive On Green	0.35	0.35		0.38	0.38	0.02	0.48
Sat Flow, veh/h	1757	1568		3032	559	1757	3597
Grp Volume(v), veh/h	534	66		356	356	13	542
Grp Sat Flow(s),veh/h/ln	1757	1568		1752	1746	1757	1752
Q Serve(g_s), s	15.2	1.5		8.5	8.5	0.4	5.1
Cycle Q Clear(g_c), s	15.2	1.5		8.5	8.5	0.4	5.1
Prop In Lane	1.00	1.00			0.32	1.00	
Lane Grp Cap(c), veh/h	618	552		668	666	29	1686
V/C Ratio(X)	0.86	0.12		0.53	0.53	0.45	0.32
Avail Cap(c_a), veh/h	962	859		2163	2156	342	3351
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	11.8		12.9	13.0	26.3	8.6
Incr Delay (d2), s/veh	5.2	0.1		0.7	0.7	10.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	0.7		4.2	4.2	0.3	2.4
LnGrp Delay(d),s/veh	21.4	11.9		13.6	13.6	36.9	8.7
LnGrp LOS	C	B		B	B	D	A
Approach Vol, veh/h	600			712			555
Approach Delay, s/veh	20.4			13.6			9.3
Approach LOS	C			B			A

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.4	25.0				30.4		23.4
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	66.5				51.5		29.5
Max Q Clear Time (g_c+I1), s	2.4	10.5				7.1		17.2
Green Ext Time (p_c), s	0.0	10.0				9.8		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.5
HCM 2010 LOS	B

Notes

Lane Group	WBL	WBR	NBU	NBT	SBL	SBT
Lane Group Flow (vph)	534	66	103	712	13	542
v/c Ratio	0.68	0.09	0.42	0.53	0.08	0.62
Control Delay	23.5	6.3	33.7	17.0	32.7	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.5	6.3	33.7	17.0	32.7	26.7
Queue Length 50th (ft)	181	3	41	101	5	108
Queue Length 95th (ft)	#394	27	89	192	22	166
Internal Link Dist (ft)	520			380		760
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	784	731	678	3234	279	2732
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.09	0.15	0.22	0.05	0.20

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Vol, veh/h	0	0	16	0	0	41	0	283	43	33	388	13
Future Vol, veh/h	0	0	16	0	0	41	0	283	43	33	388	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	17	0	0	45	0	308	47	36	422	14

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	218	-	-	177	-	0	0	354	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.96	-	-	6.96	-	-	-	4.16	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.33	-	-	3.33	-	-	-	2.23	-	-
Pot Cap-1 Maneuver	0	0	783	0	0	832	0	-	-	1194	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	783	-	-	832	-	-	-	1194	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	9.6	0	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	783	832	1194	-	-
HCM Lane V/C Ratio	-	-	0.022	0.054	0.03	-	-
HCM Control Delay (s)	-	-	9.7	9.6	8.1	-	-
HCM Lane LOS	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	-	-	0.1	0.2	0.1	-	-

Movement	WBL	WBR	NBU	NBT	NBR	SBL	SBT
Lane Configurations							
Traffic Volume (veh/h)	152	19	105	594	100	11	541
Future Volume (veh/h)	152	19	105	594	100	11	541
Number	3	18		2	12	1	6
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	1.00	
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845		1845	1900	1845	1845
Adj Flow Rate, veh/h	165	21		646	109	12	588
Adj No. of Lanes	1	1		2	0	1	2
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3		3	3	3	3
Cap, veh/h	236	210		1472	248	28	2194
Arrive On Green	0.13	0.13		0.49	0.49	0.02	0.63
Sat Flow, veh/h	1757	1568		3094	506	1757	3597
Grp Volume(v), veh/h	165	21		377	378	12	588
Grp Sat Flow(s),veh/h/ln	1757	1568		1752	1755	1757	1752
Q Serve(g_s), s	3.4	0.4		5.2	5.3	0.3	2.8
Cycle Q Clear(g_c), s	3.4	0.4		5.2	5.3	0.3	2.8
Prop In Lane	1.00	1.00			0.29	1.00	
Lane Grp Cap(c), veh/h	236	210		859	861	28	2194
V/C Ratio(X)	0.70	0.10		0.44	0.44	0.44	0.27
Avail Cap(c_a), veh/h	1381	1233		3106	3111	492	4811
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	14.3		6.2	6.2	18.3	3.2
Incr Delay (d2), s/veh	3.8	0.2		0.4	0.4	10.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.2		2.6	2.6	0.2	1.3
LnGrp Delay(d),s/veh	19.3	14.5		6.6	6.6	28.8	3.2
LnGrp LOS	B	B		A	A	C	A
Approach Vol, veh/h	186			755			600
Approach Delay, s/veh	18.7			6.6			3.7
Approach LOS	B			A			A

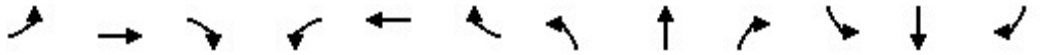
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.1	22.9				28.0		9.5
Change Period (Y+Rc), s	4.5	4.5				4.5		4.5
Max Green Setting (Gmax), s	10.5	66.5				51.5		29.5
Max Q Clear Time (g_c+I1), s	2.3	7.3				4.8		5.4
Green Ext Time (p_c), s	0.0	11.1				10.9		0.5

Intersection Summary	
HCM 2010 Ctrl Delay	6.9
HCM 2010 LOS	A

Notes

Lane Group	WBL	WBR	NBU	NBT	SBL	SBT
Lane Group Flow (vph)	165	21	114	755	12	588
v/c Ratio	0.44	0.06	0.35	0.39	0.06	0.45
Control Delay	22.3	9.5	22.8	7.9	24.2	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	9.5	22.8	7.9	24.2	15.2
Queue Length 50th (ft)	40	0	28	45	3	70
Queue Length 95th (ft)	104	15	80	147	18	137
Internal Link Dist (ft)	520			380		760
Turn Bay Length (ft)			200		200	
Base Capacity (vph)	1066	962	921	3428	379	3329
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.02	0.12	0.22	0.03	0.18

Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	66	0	232	0	350	234	0	250	165
Future Volume (veh/h)	0	0	0	66	0	232	0	350	234	0	250	165
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				72	0	252	0	380	254	0	272	179
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				210	0	330	0	3978	1238	0	3978	1238
Arrive On Green				0.12	0.00	0.12	0.00	0.79	0.79	0.00	0.79	0.79
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				72	0	252	0	380	254	0	272	179
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				3.7	0.0	8.8	0.0	1.7	4.0	0.0	1.2	2.7
Cycle Q Clear(g_c), s				3.7	0.0	8.8	0.0	1.7	4.0	0.0	1.2	2.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				210	0	330	0	3978	1238	0	3978	1238
V/C Ratio(X)				0.34	0.00	0.76	0.00	0.10	0.21	0.00	0.07	0.14
Avail Cap(c_a), veh/h				575	0	902	0	3978	1238	0	3978	1238
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.2	0.0	42.4	0.0	2.4	2.6	0.0	2.3	2.5
Incr Delay (d2), s/veh				1.0	0.0	3.7	0.0	0.0	0.4	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	3.5	0.0	0.8	1.8	0.0	0.6	1.2
LnGrp Delay(d),s/veh				41.1	0.0	46.1	0.0	2.4	3.0	0.0	2.4	2.7
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					324			634			451	
Approach Delay, s/veh					45.0			2.6			2.5	
Approach LOS					D			A			A	

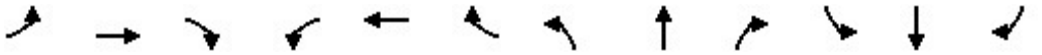
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		16.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		6.0				4.7		10.8
Green Ext Time (p_c), s		6.4				6.4		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	12.3
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	0	62	0	0	0	0	335	219	0	141	175
Future Volume (veh/h)	35	0	62	0	0	0	0	335	219	0	141	175
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	38	0	67				0	364	238	0	153	190
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	125	0	197				0	3875	1206	0	3875	1206
Arrive On Green	0.07	0.00	0.07				0.00	0.77	0.77	0.00	0.77	0.77
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	38	0	67				0	364	238	0	153	190
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	1.2	0.0	1.3				0.0	1.0	2.3	0.0	0.4	1.8
Cycle Q Clear(g_c), s	1.2	0.0	1.3				0.0	1.0	2.3	0.0	0.4	1.8
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	125	0	197				0	3875	1206	0	3875	1206
V/C Ratio(X)	0.30	0.00	0.34				0.00	0.09	0.20	0.00	0.04	0.16
Avail Cap(c_a), veh/h	2097	0	3295				0	3875	1206	0	3875	1206
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	25.0				0.0	1.6	1.8	0.0	1.6	1.7
Incr Delay (d2), s/veh	1.3	0.0	1.0				0.0	0.0	0.4	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.5				0.0	0.5	1.1	0.0	0.2	3.7
LnGrp Delay(d),s/veh	26.3	0.0	26.0				0.0	1.7	2.1	0.0	1.6	2.0
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		105						602			343	
Approach Delay, s/veh		26.1						1.9			1.8	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		48.0		8.5		48.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		43.5		67.5		43.5		
Max Q Clear Time (g_c+I1), s		4.3		3.3		3.8		
Green Ext Time (p_c), s		5.1		0.4		5.1		

Intersection Summary	
HCM 2010 Ctrl Delay	4.3
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	437	0	560	182	0	411	149
Future Volume (veh/h)	0	0	0	168	0	437	0	560	182	0	411	149
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	475	0	609	198	0	447	162
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				356	0	559	0	3603	1122	0	3603	1122
Arrive On Green				0.20	0.00	0.20	0.00	0.72	0.72	0.00	0.72	0.72
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	475	0	609	198	0	447	162
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	18.2	0.0	4.3	4.5	0.0	3.0	3.6
Cycle Q Clear(g_c), s				10.2	0.0	18.2	0.0	4.3	4.5	0.0	3.0	3.6
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				356	0	559	0	3603	1122	0	3603	1122
V/C Ratio(X)				0.51	0.00	0.85	0.00	0.17	0.18	0.00	0.12	0.14
Avail Cap(c_a), veh/h				520	0	818	0	3603	1122	0	3603	1122
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.0	0.0	42.1	0.0	5.0	5.1	0.0	4.9	5.0
Incr Delay (d2), s/veh				1.2	0.0	5.8	0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.0	0.0	7.4	0.0	2.0	2.0	0.0	1.4	1.6
LnGrp Delay(d),s/veh				40.1	0.0	47.9	0.0	5.2	5.4	0.0	4.9	5.2
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					658			807			609	
Approach Delay, s/veh					45.8			5.2			5.0	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		26.7
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		6.5				5.6		20.2
Green Ext Time (p_c), s		10.3				10.3		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	0	206	0	0	0	0	345	166	0	398	181
Future Volume (veh/h)	129	0	206	0	0	0	0	345	166	0	398	181
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	140	0	224				0	375	180	0	433	197
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	234	0	368				0	3571	1112	0	3571	1112
Arrive On Green	0.13	0.00	0.13				0.00	0.71	0.71	0.00	0.71	0.71
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	140	0	224				0	375	180	0	433	197
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	4.3	0.0	4.4				0.0	1.3	2.2	0.0	1.6	2.4
Cycle Q Clear(g_c), s	4.3	0.0	4.4				0.0	1.3	2.2	0.0	1.6	2.4
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	234	0	368				0	3571	1112	0	3571	1112
V/C Ratio(X)	0.60	0.00	0.61				0.00	0.11	0.16	0.00	0.12	0.18
Avail Cap(c_a), veh/h	2168	0	3406				0	3571	1112	0	3571	1112
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.3				0.0	2.6	2.7	0.0	2.6	2.8
Incr Delay (d2), s/veh	2.4	0.0	1.6				0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	1.7				0.0	0.6	1.0	0.0	0.7	4.1
LnGrp Delay(d),s/veh	25.7	0.0	25.0				0.0	2.7	3.0	0.0	2.7	3.1
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		364						555			630	
Approach Delay, s/veh		25.3						2.8			2.8	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		12.1		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.2		6.4		4.4		
Green Ext Time (p_c), s		7.3		1.3		7.3		

Intersection Summary	
HCM 2010 Ctrl Delay	8.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	469	0	670	182	0	421	157
Future Volume (veh/h)	0	0	0	168	0	469	0	670	182	0	421	157
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	510	0	728	198	0	458	171
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				376	0	591	0	3550	1105	0	3550	1105
Arrive On Green				0.21	0.00	0.21	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	510	0	728	198	0	458	171
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	19.8	0.0	5.6	4.7	0.0	3.3	4.0
Cycle Q Clear(g_c), s				10.2	0.0	19.8	0.0	5.6	4.7	0.0	3.3	4.0
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				376	0	591	0	3550	1105	0	3550	1105
V/C Ratio(X)				0.49	0.00	0.86	0.00	0.21	0.18	0.00	0.13	0.15
Avail Cap(c_a), veh/h				513	0	805	0	3550	1105	0	3550	1105
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.4	0.0	42.2	0.0	5.7	5.5	0.0	5.3	5.4
Incr Delay (d2), s/veh				1.0	0.0	7.3	0.0	0.1	0.4	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.0	0.0	8.2	0.0	2.6	2.1	0.0	1.6	1.8
LnGrp Delay(d),s/veh				39.3	0.0	49.4	0.0	5.8	5.9	0.0	5.4	5.7
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					693			926			629	
Approach Delay, s/veh					46.8			5.8			5.5	
Approach LOS					D			A			A	

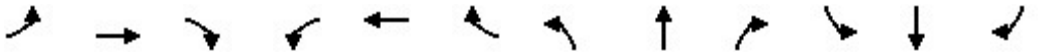
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		28.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		7.6				6.0		21.8
Green Ext Time (p_c), s		12.1				12.1		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	18.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	379	0	206	0	0	0	0	473	166	0	405	184
Future Volume (veh/h)	379	0	206	0	0	0	0	473	166	0	405	184
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	412	0	224				0	514	180	0	440	200
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	494	0	775				0	2963	922	0	2963	922
Arrive On Green	0.28	0.00	0.28				0.00	0.59	0.59	0.00	0.59	0.59
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	412	0	224				0	514	180	0	440	200
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	15.2	0.0	4.4				0.0	3.2	3.7	0.0	2.7	4.1
Cycle Q Clear(g_c), s	15.2	0.0	4.4				0.0	3.2	3.7	0.0	2.7	4.1
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	494	0	775				0	2963	922	0	2963	922
V/C Ratio(X)	0.83	0.00	0.29				0.00	0.17	0.20	0.00	0.15	0.22
Avail Cap(c_a), veh/h	1799	0	2826				0	2963	922	0	2963	922
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	19.4				0.0	6.5	6.6	0.0	6.4	6.7
Incr Delay (d2), s/veh	3.8	0.0	0.2				0.0	0.1	0.5	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	1.7				0.0	1.5	1.7	0.0	1.3	5.5
LnGrp Delay(d),s/veh	27.0	0.0	19.6				0.0	6.6	7.1	0.0	6.5	7.2
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		636						694			640	
Approach Delay, s/veh		24.4						6.7			6.7	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		23.8		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		5.7		17.2		6.1		
Green Ext Time (p_c), s		8.6		2.2		8.6		

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	439	0	312	182	0	603	296
Future Volume (veh/h)	0	0	0	168	0	439	0	312	182	0	603	296
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	477	0	339	198	0	655	322
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				357	0	561	0	3600	1121	0	3600	1121
Arrive On Green				0.20	0.00	0.20	0.00	0.71	0.71	0.00	0.71	0.71
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	477	0	339	198	0	655	322
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	18.3	0.0	2.3	4.5	0.0	4.7	8.1
Cycle Q Clear(g_c), s				10.2	0.0	18.3	0.0	2.3	4.5	0.0	4.7	8.1
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				357	0	561	0	3600	1121	0	3600	1121
V/C Ratio(X)				0.51	0.00	0.85	0.00	0.09	0.18	0.00	0.18	0.29
Avail Cap(c_a), veh/h				520	0	817	0	3600	1121	0	3600	1121
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.9	0.0	42.1	0.0	4.8	5.1	0.0	5.1	5.6
Incr Delay (d2), s/veh				1.1	0.0	5.9	0.0	0.1	0.3	0.0	0.1	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.0	0.0	7.4	0.0	1.1	2.0	0.0	2.2	3.7
LnGrp Delay(d),s/veh				40.1	0.0	48.0	0.0	4.8	5.5	0.0	5.2	6.3
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					660			537			977	
Approach Delay, s/veh					45.8			5.1			5.6	
Approach LOS					D			A			A	

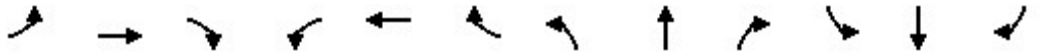
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		26.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		6.5				10.1		20.3
Green Ext Time (p_c), s		10.7				10.7		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	0	206	0	0	0	0	352	166	0	526	245
Future Volume (veh/h)	142	0	206	0	0	0	0	352	166	0	526	245
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	154	0	224				0	383	180	0	572	266
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	246	0	386				0	3544	1104	0	3544	1104
Arrive On Green	0.14	0.00	0.14				0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	154	0	224				0	383	180	0	572	266
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	4.8	0.0	4.4				0.0	1.4	2.2	0.0	2.2	3.5
Cycle Q Clear(g_c), s	4.8	0.0	4.4				0.0	1.4	2.2	0.0	2.2	3.5
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	246	0	386				0	3544	1104	0	3544	1104
V/C Ratio(X)	0.63	0.00	0.58				0.00	0.11	0.16	0.00	0.16	0.24
Avail Cap(c_a), veh/h	2152	0	3381				0	3544	1104	0	3544	1104
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.2				0.0	2.7	2.9	0.0	2.8	3.0
Incr Delay (d2), s/veh	2.6	0.0	1.4				0.0	0.1	0.3	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	1.7				0.0	0.7	1.0	0.0	1.0	5.6
LnGrp Delay(d),s/veh	26.0	0.0	24.6				0.0	2.8	3.2	0.0	2.9	3.6
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		378						563			838	
Approach Delay, s/veh		25.1						2.9			3.1	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		12.5		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.2		6.8		5.5		
Green Ext Time (p_c), s		9.1		1.3		9.0		

Intersection Summary	
HCM 2010 Ctrl Delay	7.7
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	183	0	566	0	358	207	0	556	211
Future Volume (veh/h)	0	0	0	183	0	566	0	358	207	0	556	211
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				199	0	615	0	389	225	0	604	229
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				434	0	682	0	3401	1059	0	3401	1059
Arrive On Green				0.25	0.00	0.25	0.00	0.68	0.68	0.00	0.68	0.68
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				199	0	615	0	389	225	0	604	229
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				11.2	0.0	25.1	0.0	3.2	6.3	0.0	5.1	6.5
Cycle Q Clear(g_c), s				11.2	0.0	25.1	0.0	3.2	6.3	0.0	5.1	6.5
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				434	0	682	0	3401	1059	0	3401	1059
V/C Ratio(X)				0.46	0.00	0.90	0.00	0.11	0.21	0.00	0.18	0.22
Avail Cap(c_a), veh/h				491	0	772	0	3401	1059	0	3401	1059
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.1	0.0	42.4	0.0	6.6	7.1	0.0	7.0	7.2
Incr Delay (d2), s/veh				0.8	0.0	12.8	0.0	0.1	0.5	0.0	0.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	10.8	0.0	1.5	2.9	0.0	2.4	2.9
LnGrp Delay(d),s/veh				37.9	0.0	55.2	0.0	6.7	7.6	0.0	7.1	7.6
LnGrp LOS				D		E		A	A		A	A
Approach Vol, veh/h					814			614			833	
Approach Delay, s/veh					50.9			7.0			7.2	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		33.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		8.3				8.5		27.1
Green Ext Time (p_c), s		10.2				10.2		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	22.9
HCM 2010 LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	153	0	218	0	0	0	0	412	195	0	498	242
Future Volume (veh/h)	153	0	218	0	0	0	0	412	195	0	498	242
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	166	0	237				0	448	212	0	541	263
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	259	0	407				0	3513	1094	0	3513	1094
Arrive On Green	0.15	0.00	0.15				0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	166	0	237				0	448	212	0	541	263
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	5.2	0.0	4.7				0.0	1.7	2.7	0.0	2.1	3.5
Cycle Q Clear(g_c), s	5.2	0.0	4.7				0.0	1.7	2.7	0.0	2.1	3.5
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	259	0	407				0	3513	1094	0	3513	1094
V/C Ratio(X)	0.64	0.00	0.58				0.00	0.13	0.19	0.00	0.15	0.24
Avail Cap(c_a), veh/h	2134	0	3351				0	3513	1094	0	3513	1094
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	23.1				0.0	2.9	3.1	0.0	3.0	3.2
Incr Delay (d2), s/veh	2.6	0.0	1.3				0.0	0.1	0.4	0.0	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	1.9				0.0	0.8	1.3	0.0	1.0	5.7
LnGrp Delay(d),s/veh	26.0	0.0	24.4				0.0	3.0	3.5	0.0	3.1	3.7
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		403						660			804	
Approach Delay, s/veh		25.0						3.1			3.3	
Approach LOS		C						A			A	

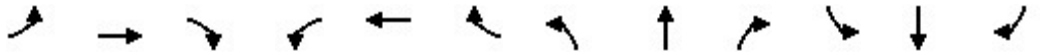
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		13.1		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.7		7.2		5.5		
Green Ext Time (p_c), s		9.6		1.4		9.5		

Intersection Summary	
HCM 2010 Ctrl Delay	7.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	66	0	39	0	350	234	0	139	165
Future Volume (veh/h)	0	0	0	66	0	39	0	350	234	0	139	165
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				72	0	42	0	380	254	0	151	179
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				108	0	170	0	4240	1320	0	4240	1320
Arrive On Green				0.06	0.00	0.06	0.00	0.84	0.84	0.00	0.84	0.84
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				72	0	42	0	380	254	0	151	179
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				3.7	0.0	1.4	0.0	1.2	2.8	0.0	0.5	1.9
Cycle Q Clear(g_c), s				3.7	0.0	1.4	0.0	1.2	2.8	0.0	0.5	1.9
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				108	0	170	0	4240	1320	0	4240	1320
V/C Ratio(X)				0.67	0.00	0.25	0.00	0.09	0.19	0.00	0.04	0.14
Avail Cap(c_a), veh/h				612	0	962	0	4240	1320	0	4240	1320
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.8	0.0	41.7	0.0	1.3	1.4	0.0	1.2	1.3
Incr Delay (d2), s/veh				6.9	0.0	0.8	0.0	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	0.5	0.0	0.5	1.3	0.0	0.2	0.9
LnGrp Delay(d),s/veh				49.7	0.0	42.5	0.0	1.3	1.7	0.0	1.2	1.5
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					114			634			330	
Approach Delay, s/veh					47.0			1.5			1.4	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		10.2
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		4.8				3.9		5.7
Green Ext Time (p_c), s		5.3				5.3		0.3

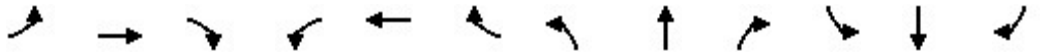
Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	233	0	62	0	0	0	0	351	203	0	97	108
Future Volume (veh/h)	233	0	62	0	0	0	0	351	203	0	97	108
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	253	0	67				0	382	221	0	105	117
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	322	0	506				0	3408	1061	0	3408	1061
Arrive On Green	0.18	0.00	0.18				0.00	0.68	0.68	0.00	0.68	0.68
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	253	0	67				0	382	221	0	105	117
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	8.8	0.0	1.3				0.0	1.7	3.4	0.0	0.4	1.7
Cycle Q Clear(g_c), s	8.8	0.0	1.3				0.0	1.7	3.4	0.0	0.4	1.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	322	0	506				0	3408	1061	0	3408	1061
V/C Ratio(X)	0.79	0.00	0.13				0.00	0.11	0.21	0.00	0.03	0.11
Avail Cap(c_a), veh/h	1845	0	2898				0	3408	1061	0	3408	1061
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	0.0	22.0				0.0	3.6	3.9	0.0	3.4	3.6
Incr Delay (d2), s/veh	4.2	0.0	0.1				0.0	0.1	0.4	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.5				0.0	0.8	1.6	0.0	0.2	2.8
LnGrp Delay(d),s/veh	29.3	0.0	22.1				0.0	3.7	4.4	0.0	3.4	3.8
LnGrp LOS	C		C					A	A		A	A
Approach Vol, veh/h		320						603			222	
Approach Delay, s/veh		27.8						3.9			3.7	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		48.0		16.3		48.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		43.5		67.5		43.5		
Max Q Clear Time (g_c+I1), s		5.4		10.8		3.7		
Green Ext Time (p_c), s		4.4		1.0		4.5		

Intersection Summary	
HCM 2010 Ctrl Delay	10.5
HCM 2010 LOS	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	79	0	560	182	0	329	149
Future Volume (veh/h)	0	0	0	168	0	79	0	560	182	0	329	149
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	86	0	609	198	0	358	162
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				226	0	355	0	3936	1226	0	3936	1226
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	86	0	609	198	0	358	162
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	2.8	0.0	3.0	3.2	0.0	1.7	2.5
Cycle Q Clear(g_c), s				10.2	0.0	2.8	0.0	3.0	3.2	0.0	1.7	2.5
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				226	0	355	0	3936	1226	0	3936	1226
V/C Ratio(X)				0.81	0.00	0.24	0.00	0.15	0.16	0.00	0.09	0.13
Avail Cap(c_a), veh/h				569	0	893	0	3936	1226	0	3936	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.6	0.0	39.3	0.0	2.7	2.7	0.0	2.6	2.7
Incr Delay (d2), s/veh				6.8	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	1.1	0.0	1.4	1.5	0.0	0.8	1.2
LnGrp Delay(d),s/veh				49.3	0.0	39.7	0.0	2.8	3.0	0.0	2.6	2.9
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					269			807			520	
Approach Delay, s/veh					46.2			2.9			2.7	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				4.5		12.2
Green Ext Time (p_c), s		9.2				9.2		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.1
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	362	0	206	0	0	0	0	380	131	0	365	132
Future Volume (veh/h)	362	0	206	0	0	0	0	380	131	0	365	132
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	393	0	224				0	413	142	0	397	143
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	476	0	747				0	3005	936	0	3005	936
Arrive On Green	0.27	0.00	0.27				0.00	0.60	0.60	0.00	0.60	0.60
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	393	0	224				0	413	142	0	397	143
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	14.3	0.0	4.4				0.0	2.4	2.7	0.0	2.3	2.7
Cycle Q Clear(g_c), s	14.3	0.0	4.4				0.0	2.4	2.7	0.0	2.3	2.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	476	0	747				0	3005	936	0	3005	936
V/C Ratio(X)	0.83	0.00	0.30				0.00	0.14	0.15	0.00	0.13	0.15
Avail Cap(c_a), veh/h	1825	0	2867				0	3005	936	0	3005	936
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	0.0	19.6				0.0	6.0	6.1	0.0	6.0	6.1
Incr Delay (d2), s/veh	3.7	0.0	0.2				0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	1.7				0.0	1.1	1.3	0.0	1.1	3.8
LnGrp Delay(d),s/veh	27.0	0.0	19.9				0.0	6.1	6.4	0.0	6.1	6.4
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		617						555			540	
Approach Delay, s/veh		24.4						6.2			6.2	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		22.9		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.7		16.3		4.7		
Green Ext Time (p_c), s		6.8		2.1		6.8		

Intersection Summary	
HCM 2010 Ctrl Delay	12.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	111	0	560	182	0	339	157
Future Volume (veh/h)	0	0	0	168	0	111	0	560	182	0	339	157
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	121	0	609	198	0	368	171
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				228	0	358	0	3931	1224	0	3931	1224
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	121	0	609	198	0	368	171
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	4.0	0.0	3.0	3.2	0.0	1.7	2.7
Cycle Q Clear(g_c), s				10.2	0.0	4.0	0.0	3.0	3.2	0.0	1.7	2.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				228	0	358	0	3931	1224	0	3931	1224
V/C Ratio(X)				0.80	0.00	0.34	0.00	0.15	0.16	0.00	0.09	0.14
Avail Cap(c_a), veh/h				568	0	892	0	3931	1224	0	3931	1224
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.8	0.0	2.8	2.8	0.0	2.6	2.7
Incr Delay (d2), s/veh				6.4	0.0	0.6	0.0	0.1	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.3	0.0	1.6	0.0	1.4	1.5	0.0	0.8	1.2
LnGrp Delay(d),s/veh				48.9	0.0	40.4	0.0	2.8	3.1	0.0	2.7	3.0
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					304			807			539	
Approach Delay, s/veh					45.5			2.9			2.8	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				4.7		12.2
Green Ext Time (p_c), s		9.4				9.4		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	10.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	612	0	206	0	0	0	0	508	131	0	372	135
Future Volume (veh/h)	612	0	206	0	0	0	0	508	131	0	372	135
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	665	0	224				0	552	142	0	404	147
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	733	0	1151				0	2401	748	0	2401	748
Arrive On Green	0.42	0.00	0.42				0.00	0.48	0.48	0.00	0.48	0.48
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	665	0	224				0	552	142	0	404	147
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	30.1	0.0	4.4				0.0	5.5	4.4	0.0	3.9	4.6
Cycle Q Clear(g_c), s	30.1	0.0	4.4				0.0	5.5	4.4	0.0	3.9	4.6
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	733	0	1151				0	2401	748	0	2401	748
V/C Ratio(X)	0.91	0.00	0.19				0.00	0.23	0.19	0.00	0.17	0.20
Avail Cap(c_a), veh/h	1458	0	2290				0	2401	748	0	2401	748
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	15.7				0.0	13.1	12.8	0.0	12.6	12.8
Incr Delay (d2), s/veh	4.7	0.0	0.1				0.0	0.2	0.6	0.0	0.2	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.5	0.0	1.7				0.0	2.6	2.0	0.0	1.8	5.4
LnGrp Delay(d),s/veh	27.9	0.0	15.8				0.0	13.3	13.3	0.0	12.8	13.4
LnGrp LOS	C		B					B	B		B	B
Approach Vol, veh/h		889						694			551	
Approach Delay, s/veh		24.8						13.3			13.0	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		39.9		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		7.5		32.1		6.6		
Green Ext Time (p_c), s		8.1		3.3		8.1		

Intersection Summary	
HCM 2010 Ctrl Delay	18.0
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	168	0	81	0	580	182	0	521	296
Future Volume (veh/h)	0	0	0	168	0	81	0	580	182	0	521	296
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				183	0	88	0	630	198	0	566	322
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				226	0	355	0	3936	1226	0	3936	1226
Arrive On Green				0.13	0.00	0.13	0.00	0.78	0.78	0.00	0.78	0.78
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				183	0	88	0	630	198	0	566	322
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				10.2	0.0	2.9	0.0	3.1	3.2	0.0	2.8	5.7
Cycle Q Clear(g_c), s				10.2	0.0	2.9	0.0	3.1	3.2	0.0	2.8	5.7
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				226	0	355	0	3936	1226	0	3936	1226
V/C Ratio(X)				0.81	0.00	0.25	0.00	0.16	0.16	0.00	0.14	0.26
Avail Cap(c_a), veh/h				569	0	893	0	3936	1226	0	3936	1226
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.4	0.0	2.7	2.7	0.0	2.7	3.0
Incr Delay (d2), s/veh				6.7	0.0	0.4	0.0	0.1	0.3	0.0	0.1	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.4	0.0	1.1	0.0	1.5	1.5	0.0	1.3	2.6
LnGrp Delay(d),s/veh				49.3	0.0	39.7	0.0	2.8	3.0	0.0	2.8	3.5
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					271			828			888	
Approach Delay, s/veh					46.2			2.9			3.1	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		17.4
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		5.2				7.7		12.2
Green Ext Time (p_c), s		13.5				13.5		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	375	0	206	0	0	0	0	387	131	0	493	196
Future Volume (veh/h)	375	0	206	0	0	0	0	387	131	0	493	196
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	408	0	224				0	421	142	0	536	213
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	490	0	769				0	2972	925	0	2972	925
Arrive On Green	0.28	0.00	0.28				0.00	0.59	0.59	0.00	0.59	0.59
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	408	0	224				0	421	142	0	536	213
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	15.0	0.0	4.4				0.0	2.6	2.8	0.0	3.4	4.4
Cycle Q Clear(g_c), s	15.0	0.0	4.4				0.0	2.6	2.8	0.0	3.4	4.4
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	490	0	769				0	2972	925	0	2972	925
V/C Ratio(X)	0.83	0.00	0.29				0.00	0.14	0.15	0.00	0.18	0.23
Avail Cap(c_a), veh/h	1805	0	2835				0	2972	925	0	2972	925
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	19.4				0.0	6.3	6.3	0.0	6.5	6.7
Incr Delay (d2), s/veh	3.8	0.0	0.2				0.0	0.1	0.4	0.0	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	1.7				0.0	1.2	1.3	0.0	1.6	5.8
LnGrp Delay(d),s/veh	27.0	0.0	19.6				0.0	6.4	6.7	0.0	6.6	7.3
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		632						563			749	
Approach Delay, s/veh		24.4						6.5			6.8	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		23.6		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		4.8		17.0		6.4		
Green Ext Time (p_c), s		8.6		2.2		8.5		

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	183	0	101	0	706	208	0	449	211
Future Volume (veh/h)	0	0	0	183	0	101	0	706	208	0	449	211
Number				3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln				1845	0	1845	0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h				199	0	110	0	767	226	0	488	229
Adj No. of Lanes				1	0	2	0	3	1	0	3	1
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	0	3	0	3	3	0	3	3
Cap, veh/h				243	0	382	0	3892	1212	0	3892	1212
Arrive On Green				0.14	0.00	0.14	0.00	0.77	0.77	0.00	0.77	0.77
Sat Flow, veh/h				1757	0	2760	0	5202	1568	0	5202	1568
Grp Volume(v), veh/h				199	0	110	0	767	226	0	488	229
Grp Sat Flow(s),veh/h/ln				1757	0	1380	0	1679	1568	0	1679	1568
Q Serve(g_s), s				11.2	0.0	3.6	0.0	4.1	3.9	0.0	2.5	3.9
Cycle Q Clear(g_c), s				11.2	0.0	3.6	0.0	4.1	3.9	0.0	2.5	3.9
Prop In Lane				1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h				243	0	382	0	3892	1212	0	3892	1212
V/C Ratio(X)				0.82	0.00	0.29	0.00	0.20	0.19	0.00	0.13	0.19
Avail Cap(c_a), veh/h				562	0	883	0	3892	1212	0	3892	1212
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				42.5	0.0	39.3	0.0	3.1	3.1	0.0	2.9	3.1
Incr Delay (d2), s/veh				6.7	0.0	0.4	0.0	0.1	0.3	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.9	0.0	1.4	0.0	2.0	1.8	0.0	1.2	1.8
LnGrp Delay(d),s/veh				49.2	0.0	39.7	0.0	3.2	3.4	0.0	3.0	3.4
LnGrp LOS				D		D		A	A		A	A
Approach Vol, veh/h					309			993			717	
Approach Delay, s/veh					45.8			3.2			3.1	
Approach LOS					D			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		83.0				83.0		18.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		78.5				78.5		32.5
Max Q Clear Time (g_c+I1), s		6.1				5.9		13.2
Green Ext Time (p_c), s		13.9				13.9		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	456	0	218	0	0	0	0	458	149	0	454	179
Future Volume (veh/h)	456	0	218	0	0	0	0	458	149	0	454	179
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	0	1845	1845
Adj Flow Rate, veh/h	496	0	237				0	498	162	0	493	195
Adj No. of Lanes	1	0	2				0	3	1	0	3	1
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	0	3	3
Cap, veh/h	574	0	902				0	2773	863	0	2773	863
Arrive On Green	0.33	0.00	0.33				0.00	0.55	0.55	0.00	0.55	0.55
Sat Flow, veh/h	1757	0	2760				0	5202	1568	0	5202	1568
Grp Volume(v), veh/h	496	0	237				0	498	162	0	493	195
Grp Sat Flow(s),veh/h/ln	1757	0	1380				0	1679	1568	0	1679	1568
Q Serve(g_s), s	19.5	0.0	4.7				0.0	3.6	3.8	0.0	3.6	4.7
Cycle Q Clear(g_c), s	19.5	0.0	4.7				0.0	3.6	3.8	0.0	3.6	4.7
Prop In Lane	1.00		1.00				0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	574	0	902				0	2773	863	0	2773	863
V/C Ratio(X)	0.86	0.00	0.26				0.00	0.18	0.19	0.00	0.18	0.23
Avail Cap(c_a), veh/h	1684	0	2645				0	2773	863	0	2773	863
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	0.0	18.2				0.0	8.2	8.3	0.0	8.2	8.5
Incr Delay (d2), s/veh	4.0	0.0	0.2				0.0	0.1	0.5	0.0	0.1	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.0	0.0	1.8				0.0	1.7	1.7	0.0	1.7	5.9
LnGrp Delay(d),s/veh	27.2	0.0	18.4				0.0	8.4	8.8	0.0	8.4	9.1
LnGrp LOS	C		B					A	A		A	A
Approach Vol, veh/h		733						660			688	
Approach Delay, s/veh		24.4						8.5			8.6	
Approach LOS		C						A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		45.0		28.5		45.0		
Change Period (Y+Rc), s		4.5		4.5		4.5		
Max Green Setting (Gmax), s		40.5		70.5		40.5		
Max Q Clear Time (g_c+I1), s		5.8		21.5		6.7		
Green Ext Time (p_c), s		8.9		2.6		8.8		

Intersection Summary	
HCM 2010 Ctrl Delay	14.1
HCM 2010 LOS	B

MITIGATION WORKSHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	54	107	167	99	55	208	617	757	221	594	172
Future Volume (veh/h)	28	54	107	167	99	55	208	617	757	221	594	172
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	37	72	143	188	111	62	242	717	880	260	699	202
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	329	165	327	287	332	186	268	1683	745	313	1106	320
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.25	0.80	0.80	0.09	0.42	0.42
Sat Flow, veh/h	1187	549	1090	1143	1109	619	1757	3505	1552	3343	2625	759
Grp Volume(v), veh/h	37	0	215	188	0	173	242	717	880	260	458	443
Grp Sat Flow(s),veh/h/ln	1187	0	1639	1143	0	1728	1757	1752	1552	1672	1719	1665
Q Serve(g_s), s	2.8	0.0	11.6	17.4	0.0	8.6	14.7	6.8	52.8	8.4	23.1	23.1
Cycle Q Clear(g_c), s	11.3	0.0	11.6	29.1	0.0	8.6	14.7	6.8	52.8	8.4	23.1	23.1
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	329	0	492	287	0	518	268	1683	745	313	724	702
V/C Ratio(X)	0.11	0.00	0.44	0.65	0.00	0.33	0.90	0.43	1.18	0.83	0.63	0.63
Avail Cap(c_a), veh/h	351	0	522	308	0	550	315	1683	745	313	724	702
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.51	0.51	0.51	0.86	0.86	0.86
Uniform Delay (d), s/veh	34.4	0.0	31.0	42.7	0.0	30.0	40.2	6.3	10.9	49.0	25.1	25.1
Incr Delay (d2), s/veh	0.1	0.0	0.6	4.5	0.0	0.4	14.1	0.4	89.0	14.0	3.6	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	5.3	5.8	0.0	4.1	8.1	3.2	39.4	4.5	11.7	11.3
LnGrp Delay(d),s/veh	34.5	0.0	31.6	47.2	0.0	30.3	54.3	6.7	99.9	63.0	28.7	28.8
LnGrp LOS	C		C	D		C	D	A	F	E	C	C
Approach Vol, veh/h		252			361			1839			1161	
Approach Delay, s/veh		32.1			39.1			57.6			36.4	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.0	58.1		37.9	20.5	51.6		37.9
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	10.3	50.8		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	10.4	54.8		13.6	16.7	25.1		31.1
Green Ext Time (p_c), s	0.0	0.0		3.0	0.1	15.4		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	47.1
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	401	635	323	293	26	20
Future Vol, veh/h	401	635	323	293	26	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	418	661	394	357	36	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	428	0	1583	438
Stage 1	-	-	-	-	428	-
Stage 2	-	-	-	-	1155	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1126	-	119	617
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	299	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1115	-	75	605
Mov Cap-2 Maneuver	-	-	-	-	75	-
Stage 1	-	-	-	-	649	-
Stage 2	-	-	-	-	192	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.2	56.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	75	605	-	-	1115	-
HCM Lane V/C Ratio	0.481	0.046	-	-	0.353	-
HCM Control Delay (s)	91.3	11.2	-	-	10	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2	0.1	-	-	1.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	46	117	229	183	99	78	111	734	723	129	455	97
Future Volume (veh/h)	46	117	229	183	99	78	111	734	723	129	455	97
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	61	156	305	206	111	88	113	749	738	139	489	104
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	394	204	398	174	348	276	200	1572	695	197	1068	226
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.19	0.75	0.75	0.06	0.38	0.38
Sat Flow, veh/h	1161	556	1087	916	951	754	1757	3505	1550	3343	2818	596
Grp Volume(v), veh/h	61	0	461	206	0	199	113	749	738	139	297	296
Grp Sat Flow(s),veh/h/ln	1161	0	1642	916	0	1704	1757	1752	1550	1672	1719	1695
Q Serve(g_s), s	4.4	0.0	27.2	13.1	0.0	9.2	6.4	9.2	49.3	4.5	14.3	14.4
Cycle Q Clear(g_c), s	13.6	0.0	27.2	40.3	0.0	9.2	6.4	9.2	49.3	4.5	14.3	14.4
Prop In Lane	1.00		0.66	1.00		0.44	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	394	0	602	174	0	624	200	1572	695	197	652	643
V/C Ratio(X)	0.15	0.00	0.77	1.18	0.00	0.32	0.57	0.48	1.06	0.71	0.46	0.46
Avail Cap(c_a), veh/h	394	0	602	174	0	624	225	1572	695	313	652	643
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.33	0.33	0.33	0.94	0.94	0.94
Uniform Delay (d), s/veh	29.9	0.0	30.7	50.9	0.0	25.0	42.1	8.8	13.8	50.8	25.6	25.7
Incr Delay (d2), s/veh	0.2	0.0	5.9	125.1	0.0	0.3	0.3	0.3	38.3	1.6	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	13.3	11.3	0.0	4.4	3.1	4.4	27.7	2.1	7.2	7.1
LnGrp Delay(d),s/veh	30.1	0.0	36.6	176.0	0.0	25.3	42.4	9.1	52.2	52.5	27.8	27.9
LnGrp LOS	C		D	F		C	D	A	F	D	C	C
Approach Vol, veh/h		522			405			1600			732	
Approach Delay, s/veh		35.8			101.9			31.3			32.5	
Approach LOS		D			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	54.6		45.2	17.8	47.0		45.2
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.3	45.5		40.3	14.1	* 42		40.3
Max Q Clear Time (g_c+I1), s	6.5	51.3		29.2	8.4	16.4		42.3
Green Ext Time (p_c), s	0.1	0.0		4.1	0.9	5.8		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	41.1
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	16.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	630	334	181	256	105	14
Future Vol, veh/h	630	334	181	256	105	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	663	352	195	275	142	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	673	0	1348	683
Stage 1	-	-	-	-	673	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	913	-	166	448
Stage 1	-	-	-	-	505	-
Stage 2	-	-	-	-	504	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	904	-	~ 128	440
Mov Cap-2 Maneuver	-	-	-	-	~ 128	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	392	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	159.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	128	440	-	-	904	-
HCM Lane V/C Ratio	1.109	0.043	-	-	0.215	-
HCM Control Delay (s)	178.5	13.5	-	-	10.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	8.2	0.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	53	109	162	100	56	212	629	744	225	605	174
Future Volume (veh/h)	29	53	109	162	100	56	212	629	744	225	605	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	39	71	145	182	112	63	247	731	865	265	712	205
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	324	160	327	283	329	185	273	1675	742	328	1106	318
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.26	0.80	0.80	0.10	0.42	0.42
Sat Flow, veh/h	1185	538	1099	1142	1106	622	1757	3505	1552	3343	2628	756
Grp Volume(v), veh/h	39	0	216	182	0	175	247	731	865	265	466	451
Grp Sat Flow(s),veh/h/ln	1185	0	1638	1142	0	1727	1757	1752	1552	1672	1719	1665
Q Serve(g_s), s	2.9	0.0	11.7	16.9	0.0	8.7	15.0	7.1	52.6	8.5	23.7	23.7
Cycle Q Clear(g_c), s	11.6	0.0	11.7	28.6	0.0	8.7	15.0	7.1	52.6	8.5	23.7	23.7
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	324	0	487	283	0	514	273	1675	742	328	724	701
V/C Ratio(X)	0.12	0.00	0.44	0.64	0.00	0.34	0.91	0.44	1.17	0.81	0.64	0.64
Avail Cap(c_a), veh/h	349	0	521	307	0	550	315	1675	742	508	724	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.50	0.50	0.85	0.85	0.85
Uniform Delay (d), s/veh	34.7	0.0	31.3	42.8	0.0	30.2	40.0	6.5	11.1	48.6	25.3	25.3
Incr Delay (d2), s/veh	0.2	0.0	0.6	4.0	0.0	0.4	14.5	0.4	82.7	2.3	3.7	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	5.4	5.6	0.0	4.2	8.3	3.5	38.3	4.0	11.9	11.7
LnGrp Delay(d),s/veh	34.9	0.0	31.9	46.9	0.0	30.6	54.5	6.9	93.8	50.9	29.0	29.2
LnGrp LOS	C		C	D		C	D	A	F	D	C	C
Approach Vol, veh/h		255			357			1843			1182	
Approach Delay, s/veh		32.4			38.9			54.1			34.0	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.5	57.9		37.6	20.8	51.6		37.6
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	10.5	54.6		13.7	17.0	25.7		30.6
Green Ext Time (p_c), s	0.3	0.0		3.0	0.1	14.9		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	378	648	323	290	27	20
Future Vol, veh/h	378	648	323	290	27	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	394	675	394	354	38	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	404	0	1555	414
Stage 1	-	-	-	-	404	-
Stage 2	-	-	-	-	1151	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1149	-	124	636
Stage 1	-	-	-	-	672	-
Stage 2	-	-	-	-	300	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1138	-	80	624
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	666	-
Stage 2	-	-	-	-	194	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.2	53.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	80	624	-	-	1138	-
HCM Lane V/C Ratio	0.469	0.045	-	-	0.346	-
HCM Control Delay (s)	84.7	11	-	-	9.8	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	1.9	0.1	-	-	1.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	109	234	151	97	80	113	749	627	132	460	96
Future Volume (veh/h)	47	109	234	151	97	80	113	749	627	132	460	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	63	145	312	170	109	90	115	764	640	142	495	103
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	391	189	407	174	340	281	195	1575	697	200	1086	225
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.22	0.90	0.90	0.06	0.38	0.38
Sat Flow, veh/h	1161	519	1117	919	932	769	1757	3505	1551	3343	2830	586
Grp Volume(v), veh/h	63	0	457	170	0	199	115	764	640	142	300	298
Grp Sat Flow(s),veh/h/ln	1161	0	1637	919	0	1701	1757	1752	1551	1672	1719	1697
Q Serve(g_s), s	4.5	0.0	27.1	13.0	0.0	9.3	6.4	4.3	26.4	4.6	14.3	14.5
Cycle Q Clear(g_c), s	13.8	0.0	27.1	40.1	0.0	9.3	6.4	4.3	26.4	4.6	14.3	14.5
Prop In Lane	1.00		0.68	1.00		0.45	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	391	0	597	174	0	620	195	1575	697	200	659	651
V/C Ratio(X)	0.16	0.00	0.77	0.98	0.00	0.32	0.59	0.49	0.92	0.71	0.45	0.46
Avail Cap(c_a), veh/h	391	0	597	174	0	620	220	1575	697	322	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.40	0.40	0.40	0.94	0.94	0.94
Uniform Delay (d), s/veh	30.1	0.0	30.8	50.8	0.0	25.2	40.6	3.3	4.4	50.8	25.3	25.4
Incr Delay (d2), s/veh	0.2	0.0	5.9	60.9	0.0	0.3	0.6	0.4	9.3	1.6	2.1	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	13.2	8.1	0.0	4.4	3.2	2.0	11.4	2.2	7.1	7.2
LnGrp Delay(d),s/veh	30.3	0.0	36.7	111.7	0.0	25.4	41.2	3.7	13.7	52.4	27.4	27.5
LnGrp LOS	C		D	F		C	D	A	B	D	C	C
Approach Vol, veh/h		520			369			1519			740	
Approach Delay, s/veh		36.0			65.2			10.8			32.3	
Approach LOS		D			E			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	54.7		45.0	17.5	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	6.6	28.4		29.1	8.4	16.5		42.1
Green Ext Time (p_c), s	0.1	12.5		4.0	0.4	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	26.4
HCM 2010 LOS	C

Notes

Intersection	
Int Delay, s/veh	8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	522	341	155	221	107	14
Future Vol, veh/h	522	341	155	221	107	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	549	359	167	238	145	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	559	0	1140	569
Stage 1	-	-	-	-	559	-
Stage 2	-	-	-	-	581	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1007	-	221	520
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	557	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	997	-	180	510
Mov Cap-2 Maneuver	-	-	-	-	180	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	459	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	69.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	180	510	-	-	997	-
HCM Lane V/C Ratio	0.803	0.037	-	-	0.167	-
HCM Control Delay (s)	76.6	12.3	-	-	9.3	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	5.5	0.1	-	-	0.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	53	109	164	100	56	212	629	749	225	606	174
Future Volume (veh/h)	29	53	109	164	100	56	212	629	749	225	606	174
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	39	71	145	184	112	63	247	731	871	265	713	205
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.86	0.86	0.86	0.85	0.85	0.85
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	325	161	328	285	330	186	273	1672	740	328	1104	317
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.26	0.80	0.80	0.10	0.42	0.42
Sat Flow, veh/h	1185	538	1099	1142	1106	622	1757	3505	1552	3343	2629	756
Grp Volume(v), veh/h	39	0	216	184	0	175	247	731	871	265	466	452
Grp Sat Flow(s),veh/h/ln	1185	0	1638	1142	0	1727	1757	1752	1552	1672	1719	1665
Q Serve(g_s), s	2.9	0.0	11.7	17.1	0.0	8.7	15.0	7.2	52.5	8.5	23.7	23.7
Cycle Q Clear(g_c), s	11.6	0.0	11.7	28.8	0.0	8.7	15.0	7.2	52.5	8.5	23.7	23.7
Prop In Lane	1.00		0.67	1.00		0.36	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	325	0	489	285	0	516	273	1672	740	328	722	699
V/C Ratio(X)	0.12	0.00	0.44	0.65	0.00	0.34	0.91	0.44	1.18	0.81	0.65	0.65
Avail Cap(c_a), veh/h	349	0	521	307	0	550	315	1672	740	508	722	699
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.50	0.50	0.50	0.85	0.85	0.85
Uniform Delay (d), s/veh	34.7	0.0	31.2	42.8	0.0	30.1	40.0	6.6	11.2	48.6	25.4	25.4
Incr Delay (d2), s/veh	0.2	0.0	0.6	4.2	0.0	0.4	14.5	0.4	87.1	2.3	3.8	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	5.4	5.7	0.0	4.2	8.3	3.5	39.1	4.0	12.0	11.7
LnGrp Delay(d),s/veh	34.8	0.0	31.8	47.0	0.0	30.5	54.5	7.0	98.2	50.9	29.2	29.3
LnGrp LOS	C		C	D		C	D	A	F	D	C	C
Approach Vol, veh/h		255			359			1849			1183	
Approach Delay, s/veh		32.3			39.0			56.3			34.1	
Approach LOS		C			D			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.5	57.8		37.7	20.8	51.5		37.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.7	44.4		35.0	19.7	41.4		35.0
Max Q Clear Time (g_c+I1), s	10.5	54.5		13.7	17.0	25.7		30.8
Green Ext Time (p_c), s	0.3	0.0		3.0	0.1	14.8		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	45.7
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	383	648	324	292	27	20
Future Vol, veh/h	383	648	324	292	27	20
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	82	82	72	72
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	399	675	395	356	38	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	409	0	1565	419
Stage 1	-	-	-	-	409	-
Stage 2	-	-	-	-	1156	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1144	-	122	632
Stage 1	-	-	-	-	668	-
Stage 2	-	-	-	-	298	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1133	-	78	620
Mov Cap-2 Maneuver	-	-	-	-	78	-
Stage 1	-	-	-	-	662	-
Stage 2	-	-	-	-	192	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.2	55.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	78	620	-	-	1133	-
HCM Lane V/C Ratio	0.481	0.045	-	-	0.349	-
HCM Control Delay (s)	88.1	11.1	-	-	9.9	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	2	0.1	-	-	1.6	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	117	234	169	100	80	113	749	710	132	466	98
Future Volume (veh/h)	47	117	234	169	100	80	113	749	710	132	466	98
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1845	1845	1900	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	63	156	312	190	112	90	115	764	724	142	501	105
Adj No. of Lanes	1	1	0	1	1	0	1	2	1	2	2	0
Peak Hour Factor	0.75	0.75	0.75	0.89	0.89	0.89	0.98	0.98	0.98	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	389	199	399	166	344	277	195	1575	697	200	1084	226
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.19	0.75	0.75	0.06	0.38	0.38
Sat Flow, veh/h	1158	547	1094	910	944	759	1757	3505	1551	3343	2826	589
Grp Volume(v), veh/h	63	0	468	190	0	202	115	764	724	142	304	302
Grp Sat Flow(s),veh/h/ln	1158	0	1641	910	0	1703	1757	1752	1551	1672	1719	1696
Q Serve(g_s), s	4.6	0.0	27.9	12.2	0.0	9.4	6.6	9.4	49.4	4.6	14.5	14.7
Cycle Q Clear(g_c), s	14.0	0.0	27.9	40.1	0.0	9.4	6.6	9.4	49.4	4.6	14.5	14.7
Prop In Lane	1.00		0.67	1.00		0.45	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	389	0	598	166	0	621	195	1575	697	200	659	651
V/C Ratio(X)	0.16	0.00	0.78	1.14	0.00	0.33	0.59	0.49	1.04	0.71	0.46	0.46
Avail Cap(c_a), veh/h	389	0	598	166	0	621	220	1575	697	322	659	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.40	0.40	0.40	0.94	0.94	0.94
Uniform Delay (d), s/veh	30.2	0.0	31.1	51.3	0.0	25.2	42.5	8.7	13.7	50.8	25.4	25.4
Incr Delay (d2), s/veh	0.2	0.0	6.7	112.9	0.0	0.3	0.6	0.4	32.5	1.6	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	13.7	10.3	0.0	4.5	3.2	4.5	26.6	2.2	7.3	7.3
LnGrp Delay(d),s/veh	30.4	0.0	37.7	164.2	0.0	25.5	43.2	9.2	46.2	52.4	27.5	27.7
LnGrp LOS	C		D	F		C	D	A	F	D	C	C
Approach Vol, veh/h		531			392			1603			748	
Approach Delay, s/veh		36.9			92.7			28.3			32.3	
Approach LOS		D			F			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.3	54.7		45.0	17.5	47.5		45.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	10.6	45.4		40.1	13.8	* 42		40.1
Max Q Clear Time (g_c+I1), s	6.6	51.4		29.9	8.6	16.7		42.1
Green Ext Time (p_c), s	0.1	0.0		3.9	0.3	5.9		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	38.3
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	14.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	613	341	172	242	107	14
Future Vol, veh/h	613	341	172	242	107	14
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	275	-	0	75
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	93	93	74	74
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	645	359	185	260	145	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	655	0	1295	665
Stage 1	-	-	-	-	655	-
Stage 2	-	-	-	-	640	-
Critical Hdwy	-	-	4.13	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.227	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	927	-	178	458
Stage 1	-	-	-	-	515	-
Stage 2	-	-	-	-	523	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	918	-	~ 139	449
Mov Cap-2 Maneuver	-	-	-	-	~ 139	-
Stage 1	-	-	-	-	510	-
Stage 2	-	-	-	-	414	-

Approach	EB	WB	NB
HCM Control Delay, s	0	4.1	134.5
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	139	449	-	-	918	-
HCM Lane V/C Ratio	1.04	0.042	-	-	0.201	-
HCM Control Delay (s)	150.4	13.4	-	-	9.9	-
HCM Lane LOS	F	B	-	-	A	-
HCM 95th %tile Q(veh)	7.7	0.1	-	-	0.8	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	58	178	217	122	88	239	987	869	354	949	274
Future Volume (veh/h)	45	58	178	217	122	88	239	987	869	354	949	274
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	49	63	193	236	133	96	260	1073	945	385	1032	298
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	499	419	329	499	419	287	1694	753	436	1185	340
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.16	0.48	0.48	0.13	0.45	0.45
Sat Flow, veh/h	1128	1845	1551	1100	1845	1551	1757	3505	1558	3343	2631	754
Grp Volume(v), veh/h	49	63	193	236	133	96	260	1073	945	385	672	658
Grp Sat Flow(s),veh/h/ln	1128	1845	1551	1100	1845	1551	1757	1752	1558	1672	1719	1666
Q Serve(g_s), s	4.3	3.1	12.4	24.8	6.8	5.8	17.4	27.4	58.0	13.6	42.3	43.0
Cycle Q Clear(g_c), s	11.1	3.1	12.4	27.9	6.8	5.8	17.4	27.4	58.0	13.6	42.3	43.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	301	499	419	329	499	419	287	1694	753	436	774	751
V/C Ratio(X)	0.16	0.13	0.46	0.72	0.27	0.23	0.91	0.63	1.26	0.88	0.87	0.88
Avail Cap(c_a), veh/h	325	538	452	352	538	452	335	1694	753	454	774	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	0.23	0.23	0.23	0.83	0.83	0.83
Uniform Delay (d), s/veh	38.8	33.1	36.5	43.6	34.4	34.0	49.3	23.1	31.0	51.3	29.7	29.9
Incr Delay (d2), s/veh	0.3	0.1	0.8	6.1	0.3	0.3	7.0	0.4	117.4	14.5	10.7	11.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.6	5.4	8.1	3.5	2.5	9.0	13.4	49.4	7.1	22.3	22.2
LnGrp Delay(d),s/veh	39.0	33.2	37.3	49.7	34.7	34.3	56.3	23.5	148.4	65.8	40.4	41.6
LnGrp LOS	D	C	D	D	C	C	E	C	F	E	D	D
Approach Vol, veh/h		305			465			2278			1715	
Approach Delay, s/veh		36.7			42.2			79.1			46.6	
Approach LOS		D			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.4	63.3		37.4	23.3	59.4		37.4
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	15.6	60.0		14.4	19.4	45.0		29.9
Green Ext Time (p_c), s	0.1	0.0		3.1	0.1	3.1		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	61.1
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	589	0	363	0	0	0	0	1506	54	193	1151	0
Future Volume (veh/h)	589	0	363	0	0	0	0	1506	54	193	1151	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	640	0	395				0	1637	59	210	1251	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1721	62	625	3202	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.36	0.91	0.00
Sat Flow, veh/h	3408	0	1568				0	3542	124	1757	3597	0
Grp Volume(v), veh/h	640	0	395				0	829	867	210	1251	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1821	1757	1752	0
Q Serve(g_s), s	16.2	0.0	19.9				0.0	40.5	41.0	7.9	4.3	0.0
Cycle Q Clear(g_c), s	16.2	0.0	19.9				0.0	40.5	41.0	7.9	4.3	0.0
Prop In Lane	1.00		1.00				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	909	625	3202	0
V/C Ratio(X)	0.85	0.00	1.14				0.00	0.95	0.95	0.34	0.39	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	909	625	3202	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.54	0.54	0.00
Uniform Delay (d), s/veh	33.6	0.0	35.0				0.0	21.4	21.6	21.2	0.5	0.0
Incr Delay (d2), s/veh	9.1	0.0	91.7				0.0	3.2	3.5	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	17.4				0.0	20.1	21.4	3.8	2.0	0.0
LnGrp Delay(d),s/veh	42.7	0.0	126.8				0.0	24.7	25.1	21.3	0.7	0.0
LnGrp LOS	D		F					C	C	C	A	
Approach Vol, veh/h		1035						1696			1461	
Approach Delay, s/veh		74.8						24.9			3.7	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	37.5	50.2		24.4		87.7		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.9	43.0		21.9		6.3		
Green Ext Time (p_c), s	0.5	1.8		0.0		22.6		

Intersection Summary	
HCM 2010 Ctrl Delay	29.8
HCM 2010 LOS	C

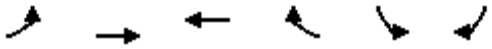
Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	470	811	408	351	73	45
Future Volume (veh/h)	470	811	408	351	73	45
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	511	882	443	382	79	49
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	511	882	443	382	79	49
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	18.0	54.8	33.6	8.1	5.4	3.7
Cycle Q Clear(g_c), s	18.0	54.8	33.6	8.1	5.4	3.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.67	1.04	1.00	0.30	0.33	0.23
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.42	0.42	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.9	8.8	43.1	3.9	45.6	44.9
Incr Delay (d2), s/veh	2.0	30.9	42.1	0.1	3.7	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	35.2	19.8	3.7	2.6	1.6
LnGrp Delay(d),s/veh	11.9	39.7	85.2	4.1	49.4	47.5
LnGrp LOS	B	F	F	A	D	D
Approach Vol, veh/h	1393			825	128	
Approach Delay, s/veh	29.5			47.6	48.6	
Approach LOS	C			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		7.4	35.6	56.8				10.1
Green Ext Time (p_c), s		0.2	0.0	0.0				3.7

Intersection Summary	
HCM 2010 Ctrl Delay	36.9
HCM 2010 LOS	D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	193	142	228	293	8
Future Volume (veh/h)	29	193	142	228	293	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	210	154	248	318	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	111	684	810	680	783	22
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	150	1558	1845	1550	1697	48
Grp Volume(v), veh/h	242	0	154	248	328	0
Grp Sat Flow(s),veh/h/ln	1708	0	1845	1550	1751	0
Q Serve(g_s), s	0.0	0.0	4.6	9.6	11.2	0.0
Cycle Q Clear(g_c), s	7.6	0.0	4.6	9.6	11.2	0.0
Prop In Lane	0.13			1.00	0.97	0.03
Lane Grp Cap(c), veh/h	795	0	810	680	807	0
V/C Ratio(X)	0.30	0.00	0.19	0.36	0.41	0.00
Avail Cap(c_a), veh/h	795	0	810	680	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.74	0.74	1.00	0.00
Uniform Delay (d), s/veh	16.3	0.0	15.5	16.9	16.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.1	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	2.4	4.3	5.7	0.0
LnGrp Delay(d),s/veh	16.5	0.0	15.8	18.0	17.6	0.0
LnGrp LOS	B		B	B	B	
Approach Vol, veh/h		242	402		328	
Approach Delay, s/veh		16.5	17.2		17.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				9.6		13.2		11.6
Green Ext Time (p_c), s				3.2		1.0		3.2

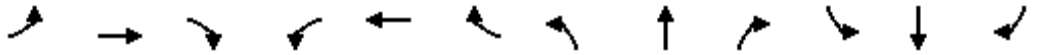
Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	90	266	342	432	6	397	8	164	0	6	15
Future Volume (veh/h)	5	90	266	342	432	6	397	8	164	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	98	289	372	470	7	432	9	178	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	95	216	403	400	527	8	493	38	749	0	154	353
Arrive On Green	0.05	0.12	0.12	0.23	0.29	0.29	0.14	0.50	0.50	0.00	0.31	0.31
Sat Flow, veh/h	1757	1845	1501	1757	1812	27	3408	75	1489	0	494	1130
Grp Volume(v), veh/h	5	98	289	372	0	477	432	0	187	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1501	1757	0	1839	1704	0	1564	0	0	1624
Q Serve(g_s), s	0.3	5.0	8.7	20.7	0.0	24.8	12.4	0.0	6.8	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.3	5.0	8.7	20.7	0.0	24.8	12.4	0.0	6.8	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.00		0.70
Lane Grp Cap(c), veh/h	95	216	403	400	0	535	493	0	787	0	0	507
V/C Ratio(X)	0.05	0.45	0.72	0.93	0.00	0.89	0.88	0.00	0.24	0.00	0.00	0.05
Avail Cap(c_a), veh/h	95	317	485	446	0	693	525	0	787	0	0	507
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82	0.00	0.00	1.00
Uniform Delay (d), s/veh	44.8	41.2	12.9	37.8	0.0	34.0	41.9	0.0	14.0	0.0	0.0	24.0
Incr Delay (d2), s/veh	0.1	1.8	4.4	23.5	0.0	12.0	11.8	0.0	0.6	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.6	4.1	12.6	0.0	14.4	6.6	0.0	3.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	44.9	42.9	17.3	61.3	0.0	45.9	53.7	0.0	14.6	0.0	0.0	24.2
LnGrp LOS	D	D	B	E		D	D		B			C
Approach Vol, veh/h		392			849			619			23	
Approach Delay, s/veh		24.0			52.7			41.9			24.2	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		55.6	27.4	17.0	19.1	36.5	10.0	34.4
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		42.2	25.4	17.2	15.4	22.2	4.9	37.7
Max Q Clear Time (g_c+I1), s		8.8	22.7	10.7	14.4	3.0	2.3	26.8
Green Ext Time (p_c), s		1.6	0.1	1.0	0.1	1.4	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.8
HCM 2010 LOS	D



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	28	271	74	80	37	153	347	40	18	459	137
Future Volume (veh/h)	187	28	271	74	80	37	153	347	40	18	459	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	203	30	295	80	87	40	166	377	43	20	499	149
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	234	353	605	95	132	61	680	596	68	333	486	145
Arrive On Green	0.13	0.19	0.19	0.05	0.11	0.11	0.20	0.37	0.37	0.13	0.24	0.24
Sat Flow, veh/h	1757	1845	1527	1757	1178	542	3408	1624	185	1757	1360	406
Grp Volume(v), veh/h	203	30	295	80	0	127	166	0	420	20	0	648
Grp Sat Flow(s),veh/h/ln	1757	1845	1527	1757	0	1719	1704	0	1809	1757	0	1766
Q Serve(g_s), s	11.3	1.3	2.4	4.5	0.0	7.1	4.1	0.0	19.1	1.0	0.0	35.7
Cycle Q Clear(g_c), s	11.3	1.3	2.4	4.5	0.0	7.1	4.1	0.0	19.1	1.0	0.0	35.7
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	234	353	605	95	0	193	680	0	664	333	0	631
V/C Ratio(X)	0.87	0.08	0.49	0.84	0.00	0.66	0.24	0.00	0.63	0.06	0.00	1.03
Avail Cap(c_a), veh/h	323	566	782	95	0	323	680	0	664	333	0	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.00	0.71
Uniform Delay (d), s/veh	42.5	33.2	11.0	46.9	0.0	42.5	33.7	0.0	26.1	35.8	0.0	38.0
Incr Delay (d2), s/veh	12.4	0.2	1.4	44.5	0.0	1.4	0.1	0.0	4.5	0.0	0.0	37.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.7	4.3	3.4	0.0	3.4	1.9	0.0	10.4	0.5	0.0	23.9
LnGrp Delay(d),s/veh	54.9	33.5	12.4	91.4	0.0	44.0	33.8	0.0	30.6	35.8	0.0	75.4
LnGrp LOS	D	C	B	F		D	C		C	D		F
Approach Vol, veh/h		528			207			586			668	
Approach Delay, s/veh		29.9			62.3			31.5			74.2	
Approach LOS		C			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.5	42.0	10.0	24.5	24.5	41.0	17.9	16.5
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.0	21.1	6.5	4.4	6.1	37.7	13.3	9.1
Green Ext Time (p_c), s	0.1	2.7	0.0	3.4	0.0	0.0	0.0	2.2

Intersection Summary	
HCM 2010 Ctrl Delay	48.6
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	49	63	193	236	133	96	260	1073	945	385	1330
v/c Ratio	0.20	0.15	0.39	0.81	0.32	0.23	0.84	0.59	0.91	0.81	0.82
Control Delay	37.1	35.8	7.0	58.2	34.6	4.6	71.2	23.1	26.0	64.1	33.1
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.1	8.3	25.0	0.0	0.0
Total Delay	37.1	35.9	7.0	58.2	34.6	4.6	71.2	31.4	50.9	64.1	33.1
Queue Length 50th (ft)	31	39	0	146	81	0	194	303	355	148	455
Queue Length 95th (ft)	61	72	54	194	118	20	#319	410	#748	#232	#689
Internal Link Dist (ft)		659			390			292			5070
Turn Bay Length (ft)	150		150	150		150	100			175	
Base Capacity (vph)	324	538	583	381	538	515	342	1819	1044	488	1613
Starvation Cap Reductn	0	0	0	0	0	0	1	708	139	0	0
Spillback Cap Reductn	0	127	0	0	0	0	0	0	49	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.33	0.62	0.25	0.19	0.76	0.97	1.04	0.79	0.82

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	640	395	1696	210	1251
v/c Ratio	0.85	0.97	0.97	0.93	0.53
Control Delay	46.2	66.6	39.4	84.1	8.6
Queue Delay	0.0	0.0	42.6	0.0	2.1
Total Delay	46.2	66.6	82.0	84.1	10.7
Queue Length 50th (ft)	180	177	471	120	168
Queue Length 95th (ft)	#269	#363	#656	#252	216
Internal Link Dist (ft)			126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	751	407	1740	227	2348
Starvation Cap Reductn	0	0	643	0	904
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	0.97	1.55	0.93	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	511	882	443	382	79	49
v/c Ratio	0.67	1.01	1.00	0.30	0.33	0.20
Control Delay	25.2	48.3	87.0	4.6	50.1	14.5
Queue Delay	1.3	9.6	0.0	0.0	0.0	0.0
Total Delay	26.6	57.8	87.0	4.6	50.1	14.5
Queue Length 50th (ft)	249	~451	~344	72	55	0
Queue Length 95th (ft)	m302	m#833	#562	105	105	36
Internal Link Dist (ft)	390			3534	66	
Turn Bay Length (ft)						75
Base Capacity (vph)	758	870	442	1286	236	242
Starvation Cap Reductn	101	25	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.04	1.00	0.30	0.33	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

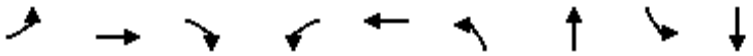
Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	242	154	248	327
v/c Ratio	0.32	0.19	0.34	0.40
Control Delay	17.9	16.3	8.7	17.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.9	16.3	8.7	17.9
Queue Length 50th (ft)	87	52	37	118
Queue Length 95th (ft)	142	92	88	186
Internal Link Dist (ft)	906	599		38
Turn Bay Length (ft)			5	
Base Capacity (vph)	768	809	734	808
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.19	0.34	0.40

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	98	289	372	477	432	187	23
v/c Ratio	0.07	0.48	0.48	0.83	0.70	0.85	0.22	0.04
Control Delay	48.0	48.9	4.4	52.3	32.5	58.0	3.8	17.4
Queue Delay	0.0	0.0	22.0	7.2	0.0	0.0	0.0	0.1
Total Delay	48.0	48.9	26.4	59.5	32.5	58.0	3.8	17.5
Queue Length 50th (ft)	3	60	0	224	235	146	17	3
Queue Length 95th (ft)	15	107	28	#354	369	#218	46	24
Internal Link Dist (ft)		296			144		340	84
Turn Bay Length (ft)	50			125		125		
Base Capacity (vph)	85	317	617	464	737	539	864	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	320	60	0	0	0	210
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.31	0.97	0.92	0.65	0.80	0.22	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	30	295	80	127	166	420	20	648
v/c Ratio	0.81	0.09	0.65	0.38	0.63	0.63	0.41	0.22	0.75
Control Delay	64.4	31.0	17.6	51.8	49.3	55.5	17.2	66.2	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	46.6
Total Delay	64.4	31.0	17.6	51.8	49.3	55.5	17.2	66.2	87.0
Queue Length 50th (ft)	126	16	56	52	66	53	126	13	403
Queue Length 95th (ft)	198	37	100	#138	120	87	301	m21	#627
Internal Link Dist (ft)		599			784		243		340
Turn Bay Length (ft)	350			325		175		150	
Base Capacity (vph)	322	566	465	209	341	285	1018	129	864
Starvation Cap Reductn	0	0	0	0	0	0	0	0	268
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.05	0.63	0.38	0.37	0.58	0.41	0.16	1.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	21
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	205	277	0	256	191	0	239	369
Future Vol, veh/h	0	205	277	0	256	191	0	239	369
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	223	301	0	278	208	0	260	401
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	20.5	17.9	23.7
HCM LOS	C	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	277	256	191	239	369
LT Vol	205	0	0	0	239	0
Through Vol	0	277	256	0	0	0
RT Vol	0	0	0	191	0	369
Lane Flow Rate	223	301	278	208	260	401
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.496	0.628	0.589	0.398	0.564	0.735
Departure Headway (Hd)	8.02	7.505	7.619	6.898	7.947	6.722
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	452	485	476	523	457	541
Service Time	5.734	5.219	5.333	4.612	5.647	4.422
HCM Lane V/C Ratio	0.493	0.621	0.584	0.398	0.569	0.741
HCM Control Delay	18.4	22.1	20.7	14.1	20.4	25.8
HCM Lane LOS	C	C	C	B	C	D
HCM 95th-tile Q	2.7	4.3	3.7	1.9	3.4	6.2

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	131	383	286	100	104	148
Future Vol, veh/h	131	383	286	100	104	148
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	142	416	311	109	113	161

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	1032	331
Stage 1	-	-	-	-	321	-
Stage 2	-	-	-	-	711	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1233	-	-	-	257	708
Stage 1	-	-	-	-	733	-
Stage 2	-	-	-	-	485	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1221	-	-	-	223	695
Mov Cap-2 Maneuver	-	-	-	-	223	-
Stage 1	-	-	-	-	726	-
Stage 2	-	-	-	-	425	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	22
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1221	-	-	-	223	695
HCM Lane V/C Ratio	0.117	-	-	-	0.507	0.231
HCM Control Delay (s)	8.3	-	-	-	36.7	11.7
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	2.6	0.9

Intersection	
Int Delay, s/veh	8.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	248	0	0	471	309	3
Future Vol, veh/h	248	0	0	471	309	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	0	0	512	336	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	536	280
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	266	-
Critical Hdwy	-	-	-	-	6.645	6.245
Critical Hdwy Stg 1	-	-	-	-	5.445	-
Critical Hdwy Stg 2	-	-	-	-	5.845	-
Follow-up Hdwy	-	-	-	-	3.5285	3.3285
Pot Cap-1 Maneuver	-	0	0	-	488	755
Stage 1	-	0	0	-	772	-
Stage 2	-	0	0	-	753	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	483	748
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	27.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	483	748	-	-
HCM Lane V/C Ratio	0.695	0.004	-	-
HCM Control Delay (s)	27.8	9.8	-	-
HCM Lane LOS	D	A	-	-
HCM 95th %tile Q(veh)	5.3	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	109	291	210	140	127	127	1174	751	206	722	150
Future Volume (veh/h)	74	109	291	210	140	127	127	1174	751	206	722	150
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	80	118	316	228	152	138	138	1276	816	224	785	163
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	345	604	508	323	604	508	309	1680	747	259	1039	216
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.18	0.48	0.48	0.08	0.37	0.37
Sat Flow, veh/h	1068	1845	1554	937	1845	1554	1757	3505	1558	3343	2828	587
Grp Volume(v), veh/h	80	118	316	228	152	138	138	1276	816	224	477	471
Grp Sat Flow(s),veh/h/ln	1068	1845	1554	937	1845	1554	1757	1752	1558	1672	1719	1696
Q Serve(g_s), s	7.1	5.5	20.6	27.7	7.3	7.9	8.4	35.8	57.5	7.9	29.2	29.2
Cycle Q Clear(g_c), s	14.4	5.5	20.6	33.3	7.3	7.9	8.4	35.8	57.5	7.9	29.2	29.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	345	604	508	323	604	508	309	1680	747	259	632	623
V/C Ratio(X)	0.23	0.20	0.62	0.70	0.25	0.27	0.45	0.76	1.09	0.86	0.76	0.76
Avail Cap(c_a), veh/h	433	755	636	400	755	636	309	1680	747	259	632	623
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.88	0.88	0.88	0.39	0.39	0.39	0.86	0.86	0.86
Uniform Delay (d), s/veh	34.9	29.0	34.1	41.0	29.6	29.8	44.2	25.6	31.2	54.7	33.2	33.2
Incr Delay (d2), s/veh	0.3	0.2	1.2	3.7	0.2	0.3	0.1	1.3	50.6	21.2	7.1	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	2.8	9.0	7.5	3.7	3.4	4.1	17.5	35.2	4.4	15.0	14.8
LnGrp Delay(d),s/veh	35.2	29.2	35.3	44.7	29.8	30.1	44.3	26.9	81.8	75.9	40.3	40.4
LnGrp LOS	D	C	D	D	C	C	D	C	F	E	D	D
Approach Vol, veh/h		514			518			2230			1172	
Approach Delay, s/veh		33.9			36.4			48.0			47.2	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	62.8		44.2	26.4	49.4		44.2
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	9.3	47.7		49.1	12.9	* 44		49.1
Max Q Clear Time (g_c+I1), s	9.9	59.5		22.6	10.4	31.2		35.3
Green Ext Time (p_c), s	0.0	0.0		4.9	1.1	6.8		4.0

Intersection Summary	
HCM 2010 Ctrl Delay	44.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	799	0	608	0	0	0	0	1253	147	219	1004	0
Future Volume (veh/h)	799	0	608	0	0	0	0	1253	147	219	1004	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	868	0	661				0	1362	160	238	1091	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	868	0	661				0	1362	160	238	1091	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	24.8	0.0	37.5				0.0	32.4	2.4	13.3	21.4	0.0
Cycle Q Clear(g_c), s	24.8	0.0	37.5				0.0	32.4	2.4	13.3	21.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.75	0.00	1.24				0.00	0.94	0.25	1.12	0.55	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.79	0.79	0.00
Uniform Delay (d), s/veh	32.1	0.0	36.3				0.0	8.2	5.6	48.3	14.8	0.0
Incr Delay (d2), s/veh	2.7	0.0	121.8				0.0	4.2	0.2	91.3	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	0.0	34.3				0.0	15.2	1.0	11.8	10.5	0.0
LnGrp Delay(d),s/veh	34.8	0.0	158.1				0.0	12.4	5.9	139.7	15.6	0.0
LnGrp LOS	C		F					B	A	F	B	
Approach Vol, veh/h		1529						1522			1329	
Approach Delay, s/veh		88.1						11.7			37.8	
Approach LOS		F						B			D	

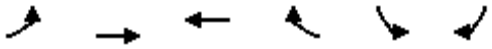
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	34.4		39.5		23.4		
Green Ext Time (p_c), s	0.0	11.0		0.0		36.7		

Intersection Summary	
HCM 2010 Ctrl Delay	46.3
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	642	424	262	265	213	38
Future Volume (veh/h)	642	424	262	265	213	38
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	698	461	285	288	232	41
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	756	918	307	1162	316	282
Arrive On Green	0.46	0.46	0.19	0.70	0.20	0.20
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	698	461	285	288	232	41
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	35.5	15.3	15.9	5.7	12.4	2.2
Cycle Q Clear(g_c), s	35.5	15.3	15.9	5.7	12.4	2.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	756	918	307	1162	316	282
V/C Ratio(X)	0.92	0.50	0.93	0.25	0.73	0.15
Avail Cap(c_a), veh/h	756	918	307	1162	316	282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	8.0	35.6	4.9	33.8	29.7
Incr Delay (d2), s/veh	14.0	1.4	32.9	0.1	14.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.0	9.6	9.8	2.6	6.6	0.9
LnGrp Delay(d),s/veh	37.0	9.3	68.5	5.0	47.8	30.7
LnGrp LOS	D	A	E	A	D	C
Approach Vol, veh/h	1159			573	273	
Approach Delay, s/veh	26.0			36.6	45.2	
Approach LOS	C			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	22.0	45.5				67.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	17.5	41.0				63.0
Max Q Clear Time (g_c+I1), s		14.4	17.9	37.5				7.7
Green Ext Time (p_c), s		0.3	0.0	2.3				10.4

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	167	196	301	512	18
Future Volume (veh/h)	29	167	196	301	512	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	182	213	327	557	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	106	557	687	576	890	32
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	160	1497	1845	1547	1685	61
Grp Volume(v), veh/h	214	0	213	327	578	0
Grp Sat Flow(s),veh/h/ln	1657	0	1845	1547	1749	0
Q Serve(g_s), s	0.0	0.0	7.4	15.1	21.0	0.0
Cycle Q Clear(g_c), s	7.4	0.0	7.4	15.1	21.0	0.0
Prop In Lane	0.15			1.00	0.96	0.03
Lane Grp Cap(c), veh/h	663	0	687	576	923	0
V/C Ratio(X)	0.32	0.00	0.31	0.57	0.63	0.00
Avail Cap(c_a), veh/h	663	0	687	576	923	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	20.1	0.0	20.0	22.5	15.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.1	0.4	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	3.7	6.5	10.8	0.0
LnGrp Delay(d),s/veh	20.3	0.0	20.2	22.9	18.2	0.0
LnGrp LOS	C		C	C	B	
Approach Vol, veh/h		214	540		578	
Approach Delay, s/veh		20.3	21.8		18.2	
Approach LOS		C	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.4		23.0		17.1
Green Ext Time (p_c), s				3.7		1.9		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.0
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	127	225	224	332	3	469	11	223	3	13	9
Future Volume (veh/h)	7	127	225	224	332	3	469	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	8	138	245	243	361	3	510	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	11	214	438	253	476	4	574	43	867	80	341	224
Arrive On Green	0.01	0.12	0.12	0.14	0.26	0.26	0.17	0.58	0.58	0.37	0.37	0.37
Sat Flow, veh/h	1757	1845	1500	1757	1826	15	3408	74	1492	110	931	612
Grp Volume(v), veh/h	8	138	245	243	0	364	510	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1500	1757	0	1842	1704	0	1566	1652	0	0
Q Serve(g_s), s	0.5	7.1	8.2	13.7	0.0	18.2	14.6	0.0	8.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.1	8.2	13.7	0.0	18.2	14.6	0.0	8.1	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	11	214	438	253	0	480	574	0	910	646	0	0
V/C Ratio(X)	0.76	0.65	0.56	0.96	0.00	0.76	0.89	0.00	0.28	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	575	253	0	547	695	0	910	646	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.65	0.00	0.65	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	42.2	12.8	42.5	0.0	34.0	40.7	0.0	10.5	20.4	0.0	0.0
Incr Delay (d2), s/veh	33.4	3.9	1.4	45.3	0.0	5.6	7.2	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.9	3.5	9.9	0.0	10.0	7.4	0.0	3.6	0.5	0.0	0.0
LnGrp Delay(d),s/veh	83.1	46.2	14.2	87.8	0.0	39.7	47.9	0.0	11.0	20.5	0.0	0.0
LnGrp LOS	F	D	B	F		D	D		B	C		
Approach Vol, veh/h		391			607			764			27	
Approach Delay, s/veh		26.9			58.9			35.6			20.5	
Approach LOS		C			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.4	19.7	16.9	21.4	42.0	5.2	31.4
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.1	15.7	10.2	16.6	3.0	2.5	20.2
Green Ext Time (p_c), s		2.3	0.0	1.4	0.2	2.0	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	41.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	110	400	56	113	52	308	482	105	31	355	77
Future Volume (veh/h)	169	110	400	56	113	52	308	482	105	31	355	77
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	120	435	61	123	57	335	524	114	34	386	84
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	419	683	78	176	81	728	493	107	340	464	101
Arrive On Green	0.12	0.23	0.23	0.04	0.15	0.15	0.21	0.34	0.34	0.06	0.10	0.10
Sat Flow, veh/h	1757	1845	1533	1757	1179	547	3408	1464	319	1757	1464	319
Grp Volume(v), veh/h	184	120	435	61	0	180	335	0	638	34	0	470
Grp Sat Flow(s),veh/h/ln	1757	1845	1533	1757	0	1726	1704	0	1783	1757	0	1782
Q Serve(g_s), s	10.3	5.4	3.6	3.4	0.0	9.9	8.6	0.0	33.7	1.8	0.0	25.9
Cycle Q Clear(g_c), s	10.3	5.4	3.6	3.4	0.0	9.9	8.6	0.0	33.7	1.8	0.0	25.9
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.18	1.00		0.18
Lane Grp Cap(c), veh/h	215	419	683	78	0	257	728	0	601	340	0	565
V/C Ratio(X)	0.86	0.29	0.64	0.78	0.00	0.70	0.46	0.00	1.06	0.10	0.00	0.83
Avail Cap(c_a), veh/h	394	640	867	95	0	324	728	0	601	340	0	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82
Uniform Delay (d), s/veh	43.0	32.0	10.0	47.3	0.0	40.4	34.3	0.0	33.2	38.6	0.0	42.2
Incr Delay (d2), s/veh	3.1	0.8	2.0	23.0	0.0	2.9	0.2	0.0	54.2	0.0	0.0	11.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.8	6.4	2.2	0.0	5.0	4.1	0.0	25.6	0.9	0.0	14.6
LnGrp Delay(d),s/veh	46.1	32.7	12.1	70.3	0.0	43.3	34.4	0.0	87.4	38.6	0.0	53.5
LnGrp LOS	D	C	B	E		D	C		F	D		D
Approach Vol, veh/h		739			241			973			504	
Approach Delay, s/veh		23.9			50.2			69.2			52.5	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	39.0	9.0	28.0	26.0	37.0	16.8	20.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.8	35.7	5.4	7.4	10.6	27.9	12.3	11.9
Green Ext Time (p_c), s	0.1	0.0	0.0	6.3	0.0	1.3	0.0	3.0

Intersection Summary	
HCM 2010 Ctrl Delay	50.3
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	80	118	316	228	152	138	138	1276	816	224	948
v/c Ratio	0.32	0.27	0.54	0.82	0.35	0.30	0.73	0.68	0.74	0.62	0.53
Control Delay	38.7	36.7	9.2	64.9	38.4	6.6	74.9	24.5	11.3	58.5	19.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4	3.2	0.0	0.0
Total Delay	38.7	36.7	9.2	64.9	38.4	6.6	74.9	53.9	14.5	58.5	19.9
Queue Length 50th (ft)	52	75	20	169	99	0	105	360	106	86	230
Queue Length 95th (ft)	87	112	87	234	140	45	#203	567	375	125	357
Internal Link Dist (ft)		659			390			292			5070
Turn Bay Length (ft)	150		150	150		150	100			175	
Base Capacity (vph)	432	754	797	482	754	708	188	1889	1098	362	1805
Starvation Cap Reductn	0	0	0	0	0	0	0	675	187	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.16	0.40	0.47	0.20	0.19	0.73	1.05	0.90	0.62	0.53

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	868	661	1362	160	238	1091
v/c Ratio	0.75	1.15	0.94	0.23	1.13	0.55
Control Delay	37.0	116.8	28.3	1.9	145.2	16.1
Queue Delay	0.0	4.2	45.7	1.9	0.0	6.6
Total Delay	37.0	121.0	73.9	3.8	145.2	22.7
Queue Length 50th (ft)	277	~511	544	3	~195	238
Queue Length 95th (ft)	352	#739	m#631	m6	#352	298
Internal Link Dist (ft)			126			292
Turn Bay Length (ft)	225				75	
Base Capacity (vph)	1159	575	1456	701	211	1997
Starvation Cap Reductn	0	0	453	405	0	850
Spillback Cap Reductn	0	216	0	0	0	834
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	1.84	1.36	0.54	1.13	0.95

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	698	461	285	288	232	41
v/c Ratio	0.92	0.49	0.93	0.25	0.74	0.14
Control Delay	43.2	5.9	74.8	5.5	49.4	13.5
Queue Delay	22.4	0.0	0.0	0.0	0.0	0.0
Total Delay	65.6	5.9	74.8	5.5	49.4	13.5
Queue Length 50th (ft)	360	60	161	51	125	3
Queue Length 95th (ft)	#595	111	#313	82	#231	30
Internal Link Dist (ft)	390			3534	66	
Turn Bay Length (ft)						75
Base Capacity (vph)	757	944	306	1162	315	297
Starvation Cap Reductn	84	7	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.04	0.49	0.93	0.25	0.74	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

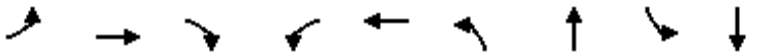
Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	214	213	327	577
v/c Ratio	0.33	0.31	0.52	0.63
Control Delay	22.1	21.6	17.1	18.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.1	21.6	17.1	18.7
Queue Length 50th (ft)	86	84	88	217
Queue Length 95th (ft)	143	140	169	327
Internal Link Dist (ft)	906	599		38
Turn Bay Length (ft)			5	
Base Capacity (vph)	640	686	631	923
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.31	0.52	0.63

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	8	138	245	243	364	510	254	27
v/c Ratio	0.11	0.57	0.37	0.77	0.58	0.85	0.27	0.05
Control Delay	49.1	49.2	3.1	56.0	31.5	58.4	4.4	21.0
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	49.2	3.3	56.0	31.5	58.4	4.4	21.1
Queue Length 50th (ft)	5	84	0	145	177	176	13	8
Queue Length 95th (ft)	20	138	24	#275	303	227	62	30
Internal Link Dist (ft)		296			144		340	84
Turn Bay Length (ft)	50			125		125		
Base Capacity (vph)	94	381	692	317	631	693	933	526
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	120	0	0	0	0	90
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.36	0.43	0.77	0.58	0.74	0.27	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	120	435	61	180	335	638	34	470
v/c Ratio	0.75	0.28	0.70	0.69	0.71	1.18	0.69	0.36	0.58
Control Delay	59.9	31.9	18.3	83.5	51.3	150.8	26.8	67.1	32.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8
Total Delay	59.9	31.9	18.3	83.5	51.3	150.8	26.8	67.1	35.4
Queue Length 50th (ft)	114	65	102	39	98	~131	315	22	269
Queue Length 95th (ft)	176	98	145	#102	160	#221	#633	m40	m#422
Internal Link Dist (ft)		599			784		243		340
Turn Bay Length (ft)	350			325		175		150	
Base Capacity (vph)	392	640	620	94	344	285	929	112	814
Starvation Cap Reductn	0	0	0	0	0	0	0	0	232
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.19	0.70	0.65	0.52	1.18	0.69	0.30	0.81

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	23.8
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	335	156	0	182	355	0	265	249
Future Vol, veh/h	0	335	156	0	182	355	0	265	249
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	364	170	0	198	386	0	288	271
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	29.1	21.8	20.9
HCM LOS	D	C	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	335	156	182	355	265	249
LT Vol	335	0	0	0	265	0
Through Vol	0	156	182	0	0	0
RT Vol	0	0	0	355	0	249
Lane Flow Rate	364	170	198	386	288	271
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.804	0.35	0.41	0.723	0.649	0.518
Departure Headway (Hd)	7.951	7.437	7.462	6.742	8.116	6.888
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	485	483	536	446	525
Service Time	5.688	5.174	5.198	4.477	5.849	4.62
HCM Lane V/C Ratio	0.8	0.351	0.41	0.72	0.646	0.516
HCM Control Delay	36.1	14.1	15.3	25.2	24.7	16.8
HCM Lane LOS	E	B	C	D	C	C
HCM 95th-tile Q	7.4	1.6	2	5.9	4.5	2.9

Intersection	
Int Delay, s/veh	2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	330	420	106	42	116
Future Vol, veh/h	75	330	420	106	42	116
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	359	457	115	46	126

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	467	0	-	0	999	477
Stage 1	-	-	-	-	467	-
Stage 2	-	-	-	-	532	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1089	-	-	-	269	586
Stage 1	-	-	-	-	629	-
Stage 2	-	-	-	-	587	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1079	-	-	-	244	575
Mov Cap-2 Maneuver	-	-	-	-	244	-
Stage 1	-	-	-	-	623	-
Stage 2	-	-	-	-	537	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1079	-	-	-	244	575
HCM Lane V/C Ratio	0.076	-	-	-	0.187	0.219
HCM Control Delay (s)	8.6	-	-	-	23.1	13
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.7	0.8

Intersection	
Int Delay, s/veh	4.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	342	210	10
Future Vol, veh/h	353	0	0	342	210	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	372	228	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	580	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	-	-	6.645	6.245
Critical Hdwy Stg 1	-	-	-	-	5.445	-
Critical Hdwy Stg 2	-	-	-	-	5.845	-
Follow-up Hdwy	-	-	-	-	3.5285	3.3285
Pot Cap-1 Maneuver	-	0	0	-	459	652
Stage 1	-	0	0	-	685	-
Stage 2	-	0	0	-	816	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	455	646
Mov Cap-2 Maneuver	-	-	-	-	455	-
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	455	646	-	-
HCM Lane V/C Ratio	0.502	0.017	-	-
HCM Control Delay (s)	20.6	10.7	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	2.8	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	60	178	225	123	88	239	987	897	354	950	275
Future Volume (veh/h)	45	60	178	225	123	88	239	987	897	354	950	275
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	49	65	193	245	134	96	260	1073	975	385	1033	299
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	307	509	428	334	509	428	287	1674	744	436	1170	336
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.16	0.48	0.48	0.13	0.45	0.45
Sat Flow, veh/h	1127	1845	1551	1098	1845	1551	1757	3505	1558	3343	2629	756
Grp Volume(v), veh/h	49	65	193	245	134	96	260	1073	975	385	673	659
Grp Sat Flow(s),veh/h/ln	1127	1845	1551	1098	1845	1551	1757	1752	1558	1672	1719	1666
Q Serve(g_s), s	4.3	3.2	12.3	25.9	6.8	5.7	17.4	27.7	57.3	13.6	42.8	43.6
Cycle Q Clear(g_c), s	11.1	3.2	12.3	29.0	6.8	5.7	17.4	27.7	57.3	13.6	42.8	43.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	307	509	428	334	509	428	287	1674	744	436	765	741
V/C Ratio(X)	0.16	0.13	0.45	0.73	0.26	0.22	0.91	0.64	1.31	0.88	0.88	0.89
Avail Cap(c_a), veh/h	325	538	452	351	538	452	335	1674	744	454	765	741
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.96	0.96	0.96	0.20	0.20	0.20	0.83	0.83	0.83
Uniform Delay (d), s/veh	38.2	32.6	35.9	43.5	33.9	33.5	49.3	23.6	31.3	51.3	30.4	30.6
Incr Delay (d2), s/veh	0.2	0.1	0.7	7.1	0.3	0.3	6.3	0.4	141.5	14.5	11.7	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.6	5.4	8.5	3.5	2.5	9.0	13.4	53.9	7.1	22.7	22.6
LnGrp Delay(d),s/veh	38.5	32.7	36.7	50.6	34.2	33.8	55.6	24.0	172.8	65.8	42.0	43.4
LnGrp LOS	D	C	D	D	C	C	E	C	F	E	D	D
Approach Vol, veh/h		307			475			2308			1717	
Approach Delay, s/veh		36.1			42.5			90.4			47.9	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	19.4	62.6		38.0	23.3	58.7		38.0
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	15.6	59.3		14.3	19.4	45.6		31.0
Green Ext Time (p_c), s	0.1	0.0		3.2	0.1	2.6		1.3

Intersection Summary	
HCM 2010 Ctrl Delay	67.0
HCM 2010 LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	601	0	363	0	0	0	0	1522	54	193	1160	0
Future Volume (veh/h)	601	0	363	0	0	0	0	1522	54	193	1160	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	653	0	395				0	1654	59	210	1261	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1722	61	625	3202	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.36	0.91	0.00
Sat Flow, veh/h	3408	0	1568				0	3544	123	1757	3597	0
Grp Volume(v), veh/h	653	0	395				0	837	876	210	1261	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1822	1757	1752	0
Q Serve(g_s), s	16.6	0.0	19.9				0.0	41.2	41.8	7.9	4.4	0.0
Cycle Q Clear(g_c), s	16.6	0.0	19.9				0.0	41.2	41.8	7.9	4.4	0.0
Prop In Lane	1.00		1.00				0.00		0.07	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	909	625	3202	0
V/C Ratio(X)	0.87	0.00	1.14				0.00	0.96	0.96	0.34	0.39	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	909	625	3202	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.53	0.53	0.00
Uniform Delay (d), s/veh	33.8	0.0	35.0				0.0	21.6	21.8	21.2	0.5	0.0
Incr Delay (d2), s/veh	10.4	0.0	91.7				0.0	3.8	4.2	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	0.0	17.4				0.0	20.7	21.7	3.8	2.0	0.0
LnGrp Delay(d),s/veh	44.2	0.0	126.8				0.0	25.4	25.9	21.3	0.7	0.0
LnGrp LOS	D		F					C	C	C	A	
Approach Vol, veh/h		1048						1713			1471	
Approach Delay, s/veh		75.3						25.7			3.7	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	37.5	50.2		24.4		87.7		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.9	43.8		21.9		6.4		
Green Ext Time (p_c), s	0.5	1.1		0.0		22.9		

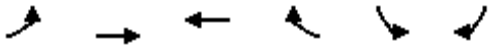
Intersection Summary	
HCM 2010 Ctrl Delay	30.3
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	500	811	414	360	73	45
Future Volume (veh/h)	500	811	414	360	73	45
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	543	882	450	391	79	49
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	543	882	450	391	79	49
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	20.5	54.8	33.7	8.3	5.4	3.7
Cycle Q Clear(g_c), s	20.5	54.8	33.7	8.3	5.4	3.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.72	1.04	1.01	0.30	0.33	0.23
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.37	0.37	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	8.8	43.2	4.0	45.6	44.9
Incr Delay (d2), s/veh	2.2	29.8	46.1	0.1	3.7	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	34.9	20.4	3.8	2.6	1.6
LnGrp Delay(d),s/veh	12.4	38.6	89.3	4.1	49.4	47.5
LnGrp LOS	B	F	F	A	D	D
Approach Vol, veh/h	1425			841	128	
Approach Delay, s/veh	28.6			49.7	48.6	
Approach LOS	C			D	D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		7.4	35.7	56.8				10.3
Green Ext Time (p_c), s		0.2	0.0	0.0				3.8

Intersection Summary	
HCM 2010 Ctrl Delay	37.1
HCM 2010 LOS	D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	193	142	231	293	8
Future Volume (veh/h)	29	193	142	231	293	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	210	154	251	318	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	111	684	810	680	783	22
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	150	1558	1845	1550	1697	48
Grp Volume(v), veh/h	242	0	154	251	328	0
Grp Sat Flow(s),veh/h/ln	1707	0	1845	1550	1751	0
Q Serve(g_s), s	0.0	0.0	4.6	9.8	11.2	0.0
Cycle Q Clear(g_c), s	7.6	0.0	4.6	9.8	11.2	0.0
Prop In Lane	0.13			1.00	0.97	0.03
Lane Grp Cap(c), veh/h	795	0	810	680	807	0
V/C Ratio(X)	0.30	0.00	0.19	0.37	0.41	0.00
Avail Cap(c_a), veh/h	795	0	810	680	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.73	0.73	1.00	0.00
Uniform Delay (d), s/veh	16.3	0.0	15.5	16.9	16.1	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.4	1.1	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	2.4	4.4	5.7	0.0
LnGrp Delay(d),s/veh	16.5	0.0	15.8	18.0	17.6	0.0
LnGrp LOS	B		B	B	B	
Approach Vol, veh/h		242	405		328	
Approach Delay, s/veh		16.5	17.2		17.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				9.6		13.2		11.8
Green Ext Time (p_c), s				3.2		1.0		3.2

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	90	272	342	437	6	402	8	164	0	6	15
Future Volume (veh/h)	5	90	272	342	437	6	402	8	164	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	5	98	296	372	475	7	437	9	178	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	220	408	400	532	8	498	38	746	0	153	349
Arrive On Green	0.05	0.12	0.12	0.23	0.29	0.29	0.15	0.50	0.50	0.00	0.31	0.31
Sat Flow, veh/h	1757	1845	1502	1757	1813	27	3408	75	1489	0	494	1129
Grp Volume(v), veh/h	5	98	296	372	0	482	437	0	187	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1502	1757	0	1839	1704	0	1564	0	0	1624
Q Serve(g_s), s	0.3	4.9	8.9	20.7	0.0	25.1	12.6	0.0	6.8	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.3	4.9	8.9	20.7	0.0	25.1	12.6	0.0	6.8	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.00		0.70
Lane Grp Cap(c), veh/h	94	220	408	400	0	540	498	0	784	0	0	502
V/C Ratio(X)	0.05	0.45	0.73	0.93	0.00	0.89	0.88	0.00	0.24	0.00	0.00	0.05
Avail Cap(c_a), veh/h	94	317	487	446	0	693	525	0	784	0	0	502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82	0.00	0.00	1.00
Uniform Delay (d), s/veh	44.9	41.0	12.8	37.8	0.0	33.8	41.8	0.0	14.1	0.0	0.0	24.2
Incr Delay (d2), s/veh	0.1	1.7	4.7	23.5	0.0	12.2	12.1	0.0	0.6	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.6	4.2	12.6	0.0	14.5	6.7	0.0	3.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	45.0	42.7	17.5	61.3	0.0	46.0	53.9	0.0	14.7	0.0	0.0	24.4
LnGrp LOS	D	D	B	E		D	D		B			C
Approach Vol, veh/h		399			854			624			23	
Approach Delay, s/veh		24.0			52.7			42.2			24.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		55.4	27.4	17.2	19.2	36.2	10.0	34.6
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		42.2	25.4	17.2	15.4	22.2	4.9	37.7
Max Q Clear Time (g_c+I1), s		8.8	22.7	10.9	14.6	3.0	2.3	27.1
Green Ext Time (p_c), s		1.6	0.1	1.0	0.0	1.4	0.1	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	28	271	74	80	41	153	348	40	20	460	140
Future Volume (veh/h)	187	28	271	74	80	41	153	348	40	20	460	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	203	30	295	80	87	45	166	378	43	22	500	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	234	359	605	95	130	67	670	596	68	328	483	147
Arrive On Green	0.13	0.19	0.19	0.05	0.12	0.12	0.20	0.37	0.37	0.12	0.24	0.24
Sat Flow, veh/h	1757	1845	1528	1757	1127	583	3408	1624	185	1757	1354	412
Grp Volume(v), veh/h	203	30	295	80	0	132	166	0	421	22	0	652
Grp Sat Flow(s),veh/h/ln	1757	1845	1528	1757	0	1711	1704	0	1809	1757	0	1765
Q Serve(g_s), s	11.3	1.3	2.4	4.5	0.0	7.4	4.1	0.0	19.2	1.1	0.0	35.7
Cycle Q Clear(g_c), s	11.3	1.3	2.4	4.5	0.0	7.4	4.1	0.0	19.2	1.1	0.0	35.7
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.10	1.00		0.23
Lane Grp Cap(c), veh/h	234	359	605	95	0	197	670	0	664	328	0	630
V/C Ratio(X)	0.87	0.08	0.49	0.84	0.00	0.67	0.25	0.00	0.63	0.07	0.00	1.03
Avail Cap(c_a), veh/h	323	566	777	95	0	322	670	0	664	328	0	630
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67
Upstream Filter(I)	0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.00	0.71
Uniform Delay (d), s/veh	42.5	33.0	11.0	46.9	0.0	42.4	33.9	0.0	26.1	36.1	0.0	38.0
Incr Delay (d2), s/veh	12.4	0.2	1.4	44.5	0.0	1.5	0.1	0.0	4.6	0.0	0.0	39.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	0.7	4.3	3.4	0.0	3.6	1.9	0.0	10.4	0.5	0.0	24.3
LnGrp Delay(d),s/veh	54.9	33.2	12.4	91.4	0.0	43.9	34.0	0.0	30.7	36.1	0.0	77.4
LnGrp LOS	D	C	B	F		D	C		C	D		F
Approach Vol, veh/h		528			212			587			674	
Approach Delay, s/veh		29.9			61.8			31.6			76.1	
Approach LOS		C			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	42.0	10.0	24.7	24.3	41.0	17.9	16.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	21.2	6.5	4.4	6.1	37.7	13.3	9.4
Green Ext Time (p_c), s	0.1	2.7	0.0	3.4	0.0	0.0	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	49.3
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	49	65	193	245	134	96	260	1073	975	385	1332
v/c Ratio	0.19	0.15	0.39	0.82	0.32	0.23	0.84	0.59	0.94	0.82	0.83
Control Delay	36.6	35.5	6.9	58.8	34.0	4.6	71.3	23.4	31.1	64.9	33.9
Queue Delay	0.0	0.1	0.0	0.0	0.0	0.0	0.1	8.5	33.4	0.0	0.0
Total Delay	36.6	35.6	6.9	58.8	34.0	4.6	71.3	31.9	64.5	64.9	33.9
Queue Length 50th (ft)	31	40	0	150	80	0	194	307	417	148	462
Queue Length 95th (ft)	61	73	54	200	118	22	#319	410	#801	#232	#691
Internal Link Dist (ft)		659			390			292			5070
Turn Bay Length (ft)	150		150	150		150	100			175	
Base Capacity (vph)	324	538	583	381	538	515	342	1806	1038	483	1598
Starvation Cap Reductn	0	0	0	0	0	0	1	697	129	0	0
Spillback Cap Reductn	0	131	0	0	0	0	0	0	52	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.16	0.33	0.64	0.25	0.19	0.76	0.97	1.07	0.80	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	653	395	1713	210	1261
v/c Ratio	0.87	0.97	0.98	0.93	0.54
Control Delay	47.7	66.6	41.4	84.1	8.7
Queue Delay	0.0	0.0	41.1	0.0	2.1
Total Delay	47.7	66.6	82.6	84.1	10.8
Queue Length 50th (ft)	185	177	481	120	170
Queue Length 95th (ft)	#277	#363	#668	#252	218
Internal Link Dist (ft)			126		292
Turn Bay Length (ft)	225			75	
Base Capacity (vph)	751	407	1740	227	2348
Starvation Cap Reductn	0	0	637	0	900
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.87	0.97	1.55	0.93	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	543	882	450	391	79	49
v/c Ratio	0.72	1.01	1.02	0.30	0.33	0.20
Control Delay	26.4	47.8	90.6	4.7	50.1	14.5
Queue Delay	1.6	8.8	0.0	0.0	0.0	0.0
Total Delay	28.0	56.6	90.6	4.7	50.1	14.5
Queue Length 50th (ft)	275	~462	~359	75	55	0
Queue Length 95th (ft)	m318	m#799	#573	108	105	36
Internal Link Dist (ft)	390			3534	66	
Turn Bay Length (ft)						75
Base Capacity (vph)	758	869	442	1286	236	242
Starvation Cap Reductn	90	23	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	1.04	1.02	0.30	0.33	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

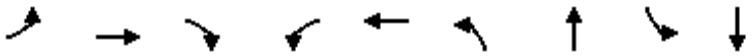
Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	242	154	251	327
v/c Ratio	0.32	0.19	0.34	0.40
Control Delay	17.9	16.3	8.7	17.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.9	16.3	8.7	17.9
Queue Length 50th (ft)	87	52	37	118
Queue Length 95th (ft)	142	92	89	186
Internal Link Dist (ft)	906	599		38
Turn Bay Length (ft)			5	
Base Capacity (vph)	768	809	735	808
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.32	0.19	0.34	0.40

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	5	98	296	372	482	437	187	23
v/c Ratio	0.07	0.48	0.48	0.83	0.71	0.85	0.22	0.04
Control Delay	48.0	48.9	4.4	52.0	32.8	58.1	3.8	17.4
Queue Delay	0.0	0.0	25.4	7.7	0.0	0.0	0.0	0.1
Total Delay	48.0	48.9	29.8	59.7	32.8	58.1	3.8	17.5
Queue Length 50th (ft)	3	60	0	224	238	147	16	3
Queue Length 95th (ft)	15	107	29	#354	373	#223	47	24
Internal Link Dist (ft)		296			144		340	84
Turn Bay Length (ft)	50			125		125		
Base Capacity (vph)	85	317	623	464	737	541	863	512
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	324	62	0	0	0	211
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.31	0.99	0.93	0.65	0.81	0.22	0.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	203	30	295	80	132	166	421	22	652
v/c Ratio	0.81	0.09	0.64	0.38	0.64	0.63	0.42	0.24	0.76
Control Delay	64.4	30.8	17.4	51.8	48.6	55.5	17.4	66.3	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.6
Total Delay	64.4	30.8	17.4	51.8	48.6	55.5	17.4	66.3	88.5
Queue Length 50th (ft)	126	16	56	52	67	53	127	15	406
Queue Length 95th (ft)	198	36	99	#138	122	87	304	m23	#638
Internal Link Dist (ft)		599			784		243		340
Turn Bay Length (ft)	350			325		175		150	
Base Capacity (vph)	322	566	468	210	342	285	1014	129	860
Starvation Cap Reductn	0	0	0	0	0	0	0	0	262
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.05	0.63	0.38	0.39	0.58	0.42	0.17	1.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	22.9
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	205	307	0	271	191	0	239	369
Future Vol, veh/h	0	205	307	0	271	191	0	239	369
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	223	334	0	295	208	0	260	401
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	23.3	19.3	25.4
HCM LOS	C	C	D

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	307	271	191	239	369
LT Vol	205	0	0	0	239	0
Through Vol	0	307	271	0	0	0
RT Vol	0	0	0	191	0	369
Lane Flow Rate	223	334	295	208	260	401
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.5	0.702	0.631	0.403	0.58	0.759
Departure Headway (Hd)	8.084	7.569	7.708	6.987	8.035	6.809
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	446	477	468	515	449	533
Service Time	5.823	5.308	5.448	4.726	5.767	4.54
HCM Lane V/C Ratio	0.5	0.7	0.63	0.404	0.579	0.752
HCM Control Delay	18.7	26.3	22.8	14.4	21.3	28
HCM Lane LOS	C	D	C	B	C	D
HCM 95th-tile Q	2.7	5.4	4.3	1.9	3.6	6.7

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	131	385	289	107	108	148
Future Vol, veh/h	131	385	289	107	108	148
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	142	418	314	116	117	161

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	324	0	-	0	1037	334
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	713	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1230	-	-	-	255	706
Stage 1	-	-	-	-	731	-
Stage 2	-	-	-	-	484	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1218	-	-	-	221	693
Mov Cap-2 Maneuver	-	-	-	-	221	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	424	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	23
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1218	-	-	-	221	693
HCM Lane V/C Ratio	0.117	-	-	-	0.531	0.232
HCM Control Delay (s)	8.3	-	-	-	38.4	11.8
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.4	-	-	-	2.8	0.9

Intersection	
Int Delay, s/veh	8.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	248	0	0	471	314	3
Future Vol, veh/h	248	0	0	471	314	3
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	270	0	0	512	341	3

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	536	280
Stage 1	-	-	-	-	270	-
Stage 2	-	-	-	-	266	-
Critical Hdwy	-	-	-	-	6.645	6.245
Critical Hdwy Stg 1	-	-	-	-	5.445	-
Critical Hdwy Stg 2	-	-	-	-	5.845	-
Follow-up Hdwy	-	-	-	-	3.5285	3.3285
Pot Cap-1 Maneuver	-	0	0	-	488	755
Stage 1	-	0	0	-	772	-
Stage 2	-	0	0	-	753	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	483	748
Mov Cap-2 Maneuver	-	-	-	-	483	-
Stage 1	-	-	-	-	772	-
Stage 2	-	-	-	-	746	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	28.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	483	748	-	-
HCM Lane V/C Ratio	0.707	0.004	-	-
HCM Control Delay (s)	28.5	9.8	-	-
HCM Lane LOS	D	A	-	-
HCM 95th %tile Q(veh)	5.5	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	119	291	245	144	127	127	1174	859	206	726	153
Future Volume (veh/h)	74	119	291	245	144	127	127	1174	859	206	726	153
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	80	129	316	266	157	138	138	1276	934	224	789	166
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	540	454	282	540	454	236	1783	793	277	1253	264
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.13	0.51	0.51	0.08	0.44	0.44
Sat Flow, veh/h	1063	1845	1552	927	1845	1552	1757	3505	1559	3343	2822	594
Grp Volume(v), veh/h	80	129	316	266	157	138	138	1276	934	224	481	474
Grp Sat Flow(s),veh/h/ln	1063	1845	1552	927	1845	1552	1757	1752	1559	1672	1719	1697
Q Serve(g_s), s	7.6	6.4	21.7	28.7	7.9	8.3	8.9	33.8	61.0	7.9	25.9	25.9
Cycle Q Clear(g_c), s	15.5	6.4	21.7	35.1	7.9	8.3	8.9	33.8	61.0	7.9	25.9	25.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	301	540	454	282	540	454	236	1783	793	277	764	754
V/C Ratio(X)	0.27	0.24	0.70	0.94	0.29	0.30	0.59	0.72	1.18	0.81	0.63	0.63
Avail Cap(c_a), veh/h	301	540	454	282	540	454	259	1783	793	315	764	754
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.30	0.30	0.30	0.86	0.86	0.86
Uniform Delay (d), s/veh	38.8	32.3	37.7	48.0	32.8	33.0	48.8	22.8	29.5	54.1	25.7	25.7
Incr Delay (d2), s/veh	0.5	0.2	4.6	34.6	0.2	0.3	0.5	0.8	84.3	9.8	3.4	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.3	9.9	11.5	4.0	3.6	4.3	16.5	44.8	4.0	13.0	12.8
LnGrp Delay(d),s/veh	39.3	32.5	42.3	82.6	33.1	33.3	49.3	23.5	113.8	63.9	29.1	29.1
LnGrp LOS	D	C	D	F	C	C	D	C	F	E	C	C
Approach Vol, veh/h		525			561			2348			1179	
Approach Delay, s/veh		39.4			56.6			61.0			35.7	
Approach LOS		D			E			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.7	66.3		40.0	21.4	58.6		40.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	9.9	63.0		23.7	10.9	27.9		37.1
Green Ext Time (p_c), s	0.1	0.0		3.9	4.2	10.3		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	845	0	608	0	0	0	0	1315	147	219	1043	0
Future Volume (veh/h)	845	0	608	0	0	0	0	1315	147	219	1043	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	918	0	661				0	1429	160	238	1134	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	918	0	661				0	1429	160	238	1134	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	26.7	0.0	37.5				0.0	41.1	2.4	13.3	22.6	0.0
Cycle Q Clear(g_c), s	26.7	0.0	37.5				0.0	41.1	2.4	13.3	22.6	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.79	0.00	1.24				0.00	0.98	0.25	1.12	0.57	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.74	0.74	0.00
Uniform Delay (d), s/veh	32.7	0.0	36.3				0.0	8.9	5.6	48.3	15.0	0.0
Incr Delay (d2), s/veh	3.8	0.0	121.8				0.0	8.6	0.2	89.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.1	0.0	34.3				0.0	19.6	1.0	11.7	11.1	0.0
LnGrp Delay(d),s/veh	36.5	0.0	158.1				0.0	17.5	5.9	137.8	15.9	0.0
LnGrp LOS	D		F					B	A	F	B	
Approach Vol, veh/h		1579						1589			1372	
Approach Delay, s/veh		87.4						16.3			37.1	
Approach LOS		F						B			D	

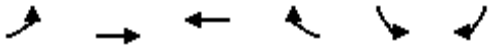
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	43.1		39.5		24.6		
Green Ext Time (p_c), s	0.0	2.6		0.0		36.1		

Intersection Summary	
HCM 2010 Ctrl Delay	47.3
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	760	424	291	304	213	38
Future Volume (veh/h)	760	424	291	304	213	38
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	826	461	316	330	232	41
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	844	942	323	1251	260	232
Arrive On Green	0.51	0.51	0.20	0.75	0.16	0.16
Sat Flow, veh/h	1660	1397	1581	1660	1581	1411
Grp Volume(v), veh/h	826	461	316	330	232	41
Grp Sat Flow(s),veh/h/ln	1660	1397	1581	1660	1581	1411
Q Serve(g_s), s	53.6	17.7	21.9	6.7	15.8	2.7
Cycle Q Clear(g_c), s	53.6	17.7	21.9	6.7	15.8	2.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	844	942	323	1251	260	232
V/C Ratio(X)	0.98	0.49	0.98	0.26	0.89	0.18
Avail Cap(c_a), veh/h	844	942	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.46	0.46	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.5	8.8	43.5	4.2	45.0	39.5
Incr Delay (d2), s/veh	16.7	0.8	43.7	0.1	33.7	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	28.2	10.5	13.5	3.1	9.3	1.2
LnGrp Delay(d),s/veh	43.2	9.6	87.2	4.3	78.7	41.2
LnGrp LOS	D	A	F	A	E	D
Approach Vol, veh/h	1287			646	273	
Approach Delay, s/veh	31.2			44.8	73.0	
Approach LOS	C			D	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	27.0	60.4				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.8	23.9	55.6				8.7
Green Ext Time (p_c), s		0.0	0.0	0.3				13.6

Intersection Summary	
HCM 2010 Ctrl Delay	40.4
HCM 2010 LOS	D



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	167	196	314	512	18
Future Volume (veh/h)	29	167	196	314	512	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	182	213	341	557	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	105	556	687	576	890	32
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	160	1494	1845	1547	1685	61
Grp Volume(v), veh/h	214	0	213	341	578	0
Grp Sat Flow(s),veh/h/ln	1653	0	1845	1547	1749	0
Q Serve(g_s), s	0.0	0.0	7.4	16.0	21.0	0.0
Cycle Q Clear(g_c), s	7.4	0.0	7.4	16.0	21.0	0.0
Prop In Lane	0.15			1.00	0.96	0.03
Lane Grp Cap(c), veh/h	661	0	687	576	923	0
V/C Ratio(X)	0.32	0.00	0.31	0.59	0.63	0.00
Avail Cap(c_a), veh/h	661	0	687	576	923	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	20.1	0.0	20.0	22.7	15.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.1	0.4	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	3.7	6.9	10.8	0.0
LnGrp Delay(d),s/veh	20.3	0.0	20.2	23.2	18.2	0.0
LnGrp LOS	C		C	C	B	
Approach Vol, veh/h		214	554		578	
Approach Delay, s/veh		20.3	22.0		18.2	
Approach LOS		C	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.4		23.0		18.0
Green Ext Time (p_c), s				3.8		1.9		3.3

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	127	249	224	352	3	487	11	223	3	13	9
Future Volume (veh/h)	7	127	249	224	352	3	487	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	8	138	271	243	383	3	529	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	11	228	458	253	491	4	592	42	855	78	330	216
Arrive On Green	0.01	0.12	0.12	0.14	0.27	0.27	0.17	0.57	0.57	0.35	0.35	0.35
Sat Flow, veh/h	1757	1845	1505	1757	1828	14	3408	74	1492	108	933	612
Grp Volume(v), veh/h	8	138	271	243	0	386	529	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1505	1757	0	1842	1704	0	1566	1653	0	0
Q Serve(g_s), s	0.5	7.1	8.9	13.7	0.0	19.4	15.2	0.0	8.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.1	8.9	13.7	0.0	19.4	15.2	0.0	8.3	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	11	228	458	253	0	495	592	0	898	625	0	0
V/C Ratio(X)	0.76	0.60	0.59	0.96	0.00	0.78	0.89	0.00	0.28	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	584	253	0	547	695	0	898	625	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.63	0.00	0.63	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	41.5	12.4	42.5	0.0	33.8	40.4	0.0	10.9	21.2	0.0	0.0
Incr Delay (d2), s/veh	33.4	3.1	1.5	45.3	0.0	6.8	7.8	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.8	3.9	9.9	0.0	10.8	7.8	0.0	3.7	0.5	0.0	0.0
LnGrp Delay(d),s/veh	83.1	44.6	13.9	87.8	0.0	40.6	48.2	0.0	11.4	21.4	0.0	0.0
LnGrp LOS	F	D	B	F		D	D		B	C		
Approach Vol, veh/h		417			629			783			27	
Approach Delay, s/veh		25.4			58.9			36.2			21.4	
Approach LOS		C			E			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		62.6	19.7	17.7	22.0	40.7	5.2	32.2
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.3	15.7	10.9	17.2	3.0	2.5	21.4
Green Ext Time (p_c), s		2.3	0.0	1.4	0.2	2.0	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	169	110	400	56	113	66	308	486	105	40	357	90
Future Volume (veh/h)	169	110	400	56	113	66	308	486	105	40	357	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	184	120	435	61	123	72	335	528	114	43	388	98
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	215	431	683	78	168	98	706	494	107	329	449	113
Arrive On Green	0.12	0.23	0.23	0.04	0.16	0.16	0.21	0.34	0.34	0.06	0.10	0.10
Sat Flow, veh/h	1757	1845	1534	1757	1078	631	3408	1467	317	1757	1417	358
Grp Volume(v), veh/h	184	120	435	61	0	195	335	0	642	43	0	486
Grp Sat Flow(s),veh/h/ln	1757	1845	1534	1757	0	1709	1704	0	1783	1757	0	1775
Q Serve(g_s), s	10.3	5.3	3.6	3.4	0.0	10.9	8.6	0.0	33.7	2.3	0.0	27.0
Cycle Q Clear(g_c), s	10.3	5.3	3.6	3.4	0.0	10.9	8.6	0.0	33.7	2.3	0.0	27.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.18	1.00		0.20
Lane Grp Cap(c), veh/h	215	431	683	78	0	266	706	0	601	329	0	563
V/C Ratio(X)	0.86	0.28	0.64	0.78	0.00	0.73	0.47	0.00	1.07	0.13	0.00	0.86
Avail Cap(c_a), veh/h	394	640	857	95	0	321	706	0	601	329	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00	0.82	0.00	0.82
Uniform Delay (d), s/veh	43.0	31.4	10.0	47.3	0.0	40.2	34.9	0.0	33.2	39.2	0.0	42.6
Incr Delay (d2), s/veh	3.1	0.7	2.0	23.0	0.0	5.0	0.2	0.0	56.3	0.1	0.0	13.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	2.8	6.4	2.2	0.0	5.5	4.1	0.0	25.9	1.1	0.0	15.4
LnGrp Delay(d),s/veh	46.1	32.1	12.1	70.3	0.0	45.2	35.1	0.0	89.5	39.3	0.0	56.3
LnGrp LOS	D	C	B	E		D	D		F	D		E
Approach Vol, veh/h		739			256			977			529	
Approach Delay, s/veh		23.8			51.2			70.8			54.9	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	39.0	9.0	28.7	25.3	37.0	16.8	20.9
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.3	35.7	5.4	7.3	10.6	29.0	12.3	12.9
Green Ext Time (p_c), s	0.1	0.0	0.0	6.4	0.0	1.0	0.0	2.7

Intersection Summary	
HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	80	129	316	266	157	138	138	1276	934	224	955
v/c Ratio	0.29	0.27	0.50	0.90	0.33	0.28	0.53	0.68	0.92	0.73	0.59
Control Delay	37.3	35.9	6.5	74.2	37.1	6.7	55.8	23.7	29.1	67.8	24.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	33.9	0.0	0.0
Total Delay	37.3	35.9	6.5	74.2	37.1	6.7	55.8	53.8	63.0	67.8	24.8
Queue Length 50th (ft)	48	77	0	193	96	0	100	397	436	87	282
Queue Length 95th (ft)	92	128	67	#328	153	48	168	484	#785	#138	360
Internal Link Dist (ft)		659			390			292			5070
Turn Bay Length (ft)	150		150	150		150	100			175	
Base Capacity (vph)	310	539	671	337	539	546	258	1876	1019	321	1606
Starvation Cap Reductn	0	0	0	0	0	0	0	664	146	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.24	0.47	0.79	0.29	0.25	0.53	1.05	1.07	0.70	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	918	661	1429	160	238	1134
v/c Ratio	0.79	1.16	0.98	0.23	1.13	0.57
Control Delay	38.8	121.0	36.6	2.2	145.2	16.4
Queue Delay	0.0	4.1	40.9	1.9	0.0	9.4
Total Delay	38.8	125.1	77.5	4.1	145.2	25.8
Queue Length 50th (ft)	299	~519	570	3	~195	253
Queue Length 95th (ft)	378	#747	m#689	m7	#352	314
Internal Link Dist (ft)			126			292
Turn Bay Length (ft)	225				75	
Base Capacity (vph)	1159	570	1456	698	211	1997
Starvation Cap Reductn	0	0	430	403	0	834
Spillback Cap Reductn	0	209	0	0	0	827
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	1.83	1.39	0.54	1.13	0.98

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	826	461	316	330	232	41
v/c Ratio	0.98	0.48	0.98	0.26	0.90	0.17
Control Delay	54.1	6.7	90.3	4.8	80.6	21.3
Queue Delay	39.6	0.3	0.0	0.0	0.0	0.0
Total Delay	93.7	6.9	90.3	4.8	80.6	21.3
Queue Length 50th (ft)	549	81	224	60	162	8
Queue Length 95th (ft)	#831	136	#403	91	#307	39
Internal Link Dist (ft)	390			3534	66	
Turn Bay Length (ft)						75
Base Capacity (vph)	843	954	322	1251	259	244
Starvation Cap Reductn	163	116	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.55	0.98	0.26	0.90	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

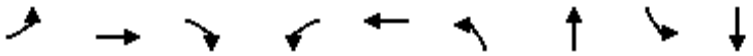
Lane Group	EBT	WBT	WBR	SBL
Lane Group Flow (vph)	214	213	341	577
v/c Ratio	0.33	0.31	0.54	0.63
Control Delay	22.1	21.6	17.5	18.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.1	21.6	17.5	18.7
Queue Length 50th (ft)	86	84	93	217
Queue Length 95th (ft)	143	140	177	327
Internal Link Dist (ft)	906	599		38
Turn Bay Length (ft)			5	
Base Capacity (vph)	640	686	634	923
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.31	0.54	0.63

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	8	138	271	243	386	529	254	27
v/c Ratio	0.11	0.57	0.40	0.77	0.62	0.86	0.27	0.05
Control Delay	49.1	49.2	3.1	56.0	32.6	58.4	4.5	21.1
Queue Delay	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	49.2	3.5	56.0	32.6	58.4	4.5	21.1
Queue Length 50th (ft)	5	84	0	145	191	181	12	8
Queue Length 95th (ft)	20	138	26	#275	324	234	m59	30
Internal Link Dist (ft)		296			144		340	84
Turn Bay Length (ft)	50			125		125		
Base Capacity (vph)	94	381	709	317	631	693	933	521
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	125	0	0	0	0	96
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.36	0.46	0.77	0.61	0.76	0.27	0.06

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	120	435	61	195	335	642	43	486
v/c Ratio	0.75	0.27	0.69	0.69	0.73	1.18	0.70	0.45	0.61
Control Delay	59.9	31.2	17.7	83.5	50.7	150.8	27.8	70.0	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
Total Delay	59.9	31.2	17.7	83.5	50.7	150.8	27.8	70.0	36.9
Queue Length 50th (ft)	114	64	101	39	104	~131	323	28	278
Queue Length 95th (ft)	176	97	142	#102	168	#221	#652	m50	#461
Internal Link Dist (ft)		599			784		243		340
Turn Bay Length (ft)	350			325		175		150	
Base Capacity (vph)	392	640	629	94	348	285	916	112	799
Starvation Cap Reductn	0	0	0	0	0	0	0	0	213
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.19	0.69	0.65	0.56	1.18	0.70	0.38	0.83

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Intersection	
Intersection Delay, s/veh	27.1
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Traffic Vol, veh/h	0	335	274	0	250	355	0	265	249
Future Vol, veh/h	0	335	274	0	250	355	0	265	249
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	364	298	0	272	386	0	288	271
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	2	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	32.2	25.4	23.2
HCM LOS	D	D	C

Lane	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	0%	100%	0%
Vol Thru, %	0%	100%	100%	0%	0%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	335	274	250	355	265	249
LT Vol	335	0	0	0	265	0
Through Vol	0	274	250	0	0	0
RT Vol	0	0	0	355	0	249
Lane Flow Rate	364	298	272	386	288	271
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.828	0.635	0.586	0.755	0.681	0.547
Departure Headway (Hd)	8.187	7.671	7.768	7.047	8.509	7.278
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	444	471	465	513	426	495
Service Time	5.932	5.417	5.514	4.792	6.253	5.021
HCM Lane V/C Ratio	0.82	0.633	0.585	0.752	0.676	0.547
HCM Control Delay	39.8	22.9	21	28.5	27.6	18.5
HCM Lane LOS	E	C	C	D	D	C
HCM 95th-tile Q	7.9	4.3	3.7	6.5	4.9	3.2

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	336	430	134	60	116
Future Vol, veh/h	75	336	430	134	60	116
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	365	467	146	65	126

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	477	0	-	0	1015	487
Stage 1	-	-	-	-	477	-
Stage 2	-	-	-	-	538	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1080	-	-	-	263	579
Stage 1	-	-	-	-	622	-
Stage 2	-	-	-	-	583	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1070	-	-	-	238	568
Mov Cap-2 Maneuver	-	-	-	-	238	-
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	17.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1070	-	-	-	238	568
HCM Lane V/C Ratio	0.076	-	-	-	0.274	0.222
HCM Control Delay (s)	8.6	-	-	-	25.7	13.1
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.1	0.8

Intersection	
Int Delay, s/veh	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h	353	0	0	342	230	10
Future Vol, veh/h	353	0	0	342	230	10
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	384	0	0	372	250	11

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	580	394
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	196	-
Critical Hdwy	-	-	-	-	6.645	6.245
Critical Hdwy Stg 1	-	-	-	-	5.445	-
Critical Hdwy Stg 2	-	-	-	-	5.845	-
Follow-up Hdwy	-	-	-	-	3.5285	3.3285
Pot Cap-1 Maneuver	-	0	0	-	459	652
Stage 1	-	0	0	-	685	-
Stage 2	-	0	0	-	816	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	455	646
Mov Cap-2 Maneuver	-	-	-	-	455	-
Stage 1	-	-	-	-	685	-
Stage 2	-	-	-	-	808	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	21.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBT
Capacity (veh/h)	455	646	-	-
HCM Lane V/C Ratio	0.549	0.017	-	-
HCM Control Delay (s)	22.1	10.7	-	-
HCM Lane LOS	C	B	-	-
HCM 95th %tile Q(veh)	3.2	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	195	184	104	76	231	962	695	291	957	264
Future Volume (veh/h)	49	64	195	184	104	76	231	962	695	291	957	264
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	53	70	212	200	113	83	251	1046	755	316	1040	287
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	300	470	395	302	470	395	278	1816	808	372	1253	344
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.16	0.52	0.52	0.11	0.47	0.47
Sat Flow, veh/h	1161	1845	1550	1074	1845	1550	1757	3505	1559	3343	2661	730
Grp Volume(v), veh/h	53	70	212	200	113	83	251	1046	755	316	669	658
Grp Sat Flow(s),veh/h/ln	1161	1845	1550	1074	1845	1550	1757	1752	1559	1672	1719	1672
Q Serve(g_s), s	4.6	3.5	14.2	21.3	5.8	5.1	16.8	24.6	54.3	11.1	40.5	41.2
Cycle Q Clear(g_c), s	10.4	3.5	14.2	24.8	5.8	5.1	16.8	24.6	54.3	11.1	40.5	41.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	300	470	395	302	470	395	278	1816	808	372	810	787
V/C Ratio(X)	0.18	0.15	0.54	0.66	0.24	0.21	0.90	0.58	0.93	0.85	0.83	0.84
Avail Cap(c_a), veh/h	342	538	452	342	538	452	335	1816	808	454	810	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	0.33	0.33	0.33	0.83	0.83	0.83
Uniform Delay (d), s/veh	39.6	34.6	38.6	44.2	35.5	35.2	49.6	19.9	27.0	52.4	27.5	27.7
Incr Delay (d2), s/veh	0.3	0.1	1.1	3.9	0.3	0.3	8.8	0.4	8.2	8.9	8.0	8.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	6.2	6.7	3.0	2.2	8.8	12.0	25.1	5.6	20.9	20.9
LnGrp Delay(d),s/veh	39.9	34.8	39.7	48.1	35.7	35.4	58.4	20.3	35.2	61.2	35.5	36.3
LnGrp LOS	D	C	D	D	D	D	E	C	D	E	D	D
Approach Vol, veh/h		335			396			2052			1643	
Approach Delay, s/veh		38.7			41.9			30.4			40.7	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.5		35.5	22.7	61.8		35.5
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	13.1	56.3		16.2	18.8	43.2		26.8
Green Ext Time (p_c), s	0.2	0.0		2.9	0.1	5.0		2.0

Intersection Summary	
HCM 2010 Ctrl Delay	35.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	138	237	1120	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	138	237	1120	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	549	0	377				0	1495	150	258	1217	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1605	160	867	3685	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.49	1.00	0.00
Sat Flow, veh/h	3408	0	1568				0	3309	320	1757	3597	0
Grp Volume(v), veh/h	549	0	377				0	809	836	258	1217	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1784	1757	1752	0
Q Serve(g_s), s	13.5	0.0	19.9				0.0	38.6	39.8	7.8	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	19.9				0.0	38.6	39.8	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.18	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	890	867	3685	0
V/C Ratio(X)	0.73	0.00	1.09				0.00	0.92	0.94	0.30	0.33	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	890	867	3685	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.5	0.0	35.0				0.0	21.0	21.3	13.5	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	73.8				0.0	2.3	2.8	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.7				0.0	19.0	20.2	3.8	0.1	0.0
LnGrp Delay(d),s/veh	36.1	0.0	108.8				0.0	23.3	24.1	13.6	0.1	0.0
LnGrp LOS	D		F					C	C	B	A	
Approach Vol, veh/h		926						1645			1475	
Approach Delay, s/veh		65.7						23.7			2.5	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	50.0	50.2		24.4		100.2		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.8	41.8		21.9		2.0		
Green Ext Time (p_c), s	0.5	3.0		0.0		22.2		

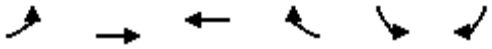
Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	703	306	263	71	120
Future Volume (veh/h)	201	703	306	263	71	120
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	218	764	333	286	77	130
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	218	764	333	286	77	130
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	4.8	54.8	23.0	5.6	5.2	10.3
Cycle Q Clear(g_c), s	4.8	54.8	23.0	5.6	5.2	10.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.29	0.90	0.75	0.22	0.32	0.61
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	8.8	39.3	3.7	45.6	47.7
Incr Delay (d2), s/veh	0.6	10.4	7.0	0.1	3.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.6	10.9	2.6	2.5	4.8
LnGrp Delay(d),s/veh	9.0	19.2	46.3	3.8	49.2	60.4
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	982			619	207	
Approach Delay, s/veh	16.9			26.6	56.2	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		12.3	25.0	56.8				7.6
Green Ext Time (p_c), s		0.3	1.7	0.0				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	97	142	132	293	8
Future Volume (veh/h)	29	97	142	132	293	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	105	154	143	318	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	184	576	810	680	783	22
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	307	1312	1845	1550	1697	48
Grp Volume(v), veh/h	137	0	154	143	328	0
Grp Sat Flow(s),veh/h/ln	1618	0	1845	1550	1751	0
Q Serve(g_s), s	0.0	0.0	4.6	5.1	11.2	0.0
Cycle Q Clear(g_c), s	4.1	0.0	4.6	5.1	11.2	0.0
Prop In Lane	0.23			1.00	0.97	0.03
Lane Grp Cap(c), veh/h	760	0	810	680	807	0
V/C Ratio(X)	0.18	0.00	0.19	0.21	0.41	0.00
Avail Cap(c_a), veh/h	760	0	810	680	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.72	0.72	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.5	15.6	16.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	2.3	5.7	0.0
LnGrp Delay(d),s/veh	15.4	0.0	15.8	16.1	17.6	0.0
LnGrp LOS	B		B	B	B	
Approach Vol, veh/h		137	297		328	
Approach Delay, s/veh		15.4	16.0		17.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				6.1		13.2		7.1
Green Ext Time (p_c), s				2.2		1.0		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	264	298	247	6	405	8	128	0	6	15
Future Volume (veh/h)	6	88	264	298	247	6	405	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	287	324	268	7	440	9	139	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	249	223	412	354	322	8	501	50	775	0	165	377
Arrive On Green	0.14	0.12	0.12	0.20	0.18	0.18	0.15	0.53	0.53	0.00	0.33	0.33
Sat Flow, veh/h	1757	1845	1503	1757	1788	47	3408	95	1473	0	495	1130
Grp Volume(v), veh/h	7	96	287	324	0	275	440	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1503	1757	0	1835	1704	0	1568	0	0	1625
Q Serve(g_s), s	0.3	4.8	9.1	18.1	0.0	14.5	12.6	0.0	4.9	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.3	4.8	9.1	18.1	0.0	14.5	12.6	0.0	4.9	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	249	223	412	354	0	330	501	0	825	0	0	541
V/C Ratio(X)	0.03	0.43	0.70	0.92	0.00	0.83	0.88	0.00	0.18	0.00	0.00	0.04
Avail Cap(c_a), veh/h	249	317	489	446	0	692	525	0	825	0	0	541
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	37.0	40.8	13.0	39.1	0.0	39.5	41.8	0.0	12.4	0.0	0.0	22.6
Incr Delay (d2), s/veh	0.0	1.6	3.8	18.5	0.0	6.5	12.8	0.0	0.4	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	4.2	10.5	0.0	7.9	6.8	0.0	2.2	0.0	0.0	0.5
LnGrp Delay(d),s/veh	37.0	42.4	16.8	57.6	0.0	46.1	54.5	0.0	12.8	0.0	0.0	22.7
LnGrp LOS	D	D	B	E		D	D		B			C
Approach Vol, veh/h		390			599			588			23	
Approach Delay, s/veh		23.4			52.3			44.0			22.7	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		57.9	24.7	17.4	19.3	38.6	18.8	23.3
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		42.2	25.4	17.2	15.4	22.2	4.9	37.7
Max Q Clear Time (g_c+I1), s		6.9	20.1	11.1	14.6	3.0	2.3	16.5
Green Ext Time (p_c), s		1.3	0.1	1.0	0.0	1.1	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	37	153	354	40	18	410	140
Future Volume (veh/h)	150	28	217	74	80	37	153	354	40	18	410	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.95	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	40	166	385	43	20	446	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	305	605	95	128	59	770	597	67	379	468	160
Arrive On Green	0.11	0.17	0.17	0.05	0.11	0.11	0.23	0.37	0.37	0.07	0.12	0.12
Sat Flow, veh/h	1757	1845	1520	1757	1177	541	3408	1628	182	1757	1311	447
Grp Volume(v), veh/h	163	30	236	80	0	127	166	0	428	20	0	598
Grp Sat Flow(s),veh/h/ln	1757	1845	1520	1757	0	1719	1704	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	1.4	1.8	4.5	0.0	7.1	4.0	0.0	19.6	1.1	0.0	33.8
Cycle Q Clear(g_c), s	9.1	1.4	1.8	4.5	0.0	7.1	4.0	0.0	19.6	1.1	0.0	33.8
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	305	605	95	0	187	770	0	664	379	0	628
V/C Ratio(X)	0.84	0.10	0.39	0.84	0.00	0.68	0.22	0.00	0.64	0.05	0.00	0.95
Avail Cap(c_a), veh/h	323	566	821	95	0	323	770	0	664	379	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.00	0.71
Uniform Delay (d), s/veh	43.6	35.4	10.5	46.9	0.0	42.9	31.5	0.0	26.2	36.9	0.0	43.3
Incr Delay (d2), s/veh	3.9	0.3	1.0	44.5	0.0	1.6	0.1	0.0	4.8	0.0	0.0	20.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.7	3.2	3.4	0.0	3.5	1.9	0.0	10.6	0.5	0.0	20.1
LnGrp Delay(d),s/veh	47.6	35.8	11.5	91.4	0.0	44.5	31.5	0.0	31.0	36.9	0.0	64.1
LnGrp LOS	D	D	B	F		D	C		C	D		E
Approach Vol, veh/h		429			207			594			618	
Approach Delay, s/veh		26.9			62.6			31.2			63.2	
Approach LOS		C			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.2	42.0	10.0	21.8	27.2	41.0	15.6	16.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.1	21.6	6.5	3.8	6.0	35.8	11.1	9.1
Green Ext Time (p_c), s	0.1	2.7	0.0	2.8	0.0	0.0	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	44.4
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	6.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	190	176	28
Future Vol, veh/h	96	369	165	190	176	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	207	191	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	809	199
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1379	-	-	-	348	839
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	315	823
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	490	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	29.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1366	-	-	-	315	823
HCM Lane V/C Ratio	0.076	-	-	-	0.607	0.037
HCM Control Delay (s)	7.9	-	-	-	32.6	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	3.7	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	352	129	32	235	128	42
Future Volume (veh/h)	352	129	32	235	128	42
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	383	140	35	255	139	46
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	622	227	193	796	325	290
Arrive On Green	0.48	0.48	0.48	0.48	0.19	0.19
Sat Flow, veh/h	1290	472	91	1651	1757	1568
Grp Volume(v), veh/h	0	523	290	0	139	46
Grp Sat Flow(s),veh/h/ln	0	1761	1742	0	1757	1568
Q Serve(g_s), s	0.0	5.9	0.0	0.0	1.9	0.7
Cycle Q Clear(g_c), s	0.0	5.9	2.6	0.0	1.9	0.7
Prop In Lane		0.27	0.12		1.00	1.00
Lane Grp Cap(c), veh/h	0	849	989	0	325	290
V/C Ratio(X)	0.00	0.62	0.29	0.00	0.43	0.16
Avail Cap(c_a), veh/h	0	3617	3541	0	1658	1479
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.2	4.3	0.0	9.7	9.2
Incr Delay (d2), s/veh	0.0	0.7	0.2	0.0	0.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	1.3	0.0	1.0	0.3
LnGrp Delay(d),s/veh	0.0	5.9	4.5	0.0	10.6	9.5
LnGrp LOS		A	A		B	A
Approach Vol, veh/h	523			290	185	
Approach Delay, s/veh	5.9			4.5	10.4	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		9.5		17.5				17.5
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		25.5		55.5				55.5
Max Q Clear Time (g_c+I1), s		3.9		7.9				4.6
Green Ext Time (p_c), s		0.5		5.1				5.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	320	179	119	108	123	1144	553	140	746	144
Future Volume (veh/h)	79	120	320	179	119	108	123	1144	553	140	746	144
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	86	130	348	195	129	117	134	1243	601	152	811	157
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	321	533	448	271	533	448	242	1871	832	206	1274	247
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.14	0.53	0.53	0.06	0.44	0.44
Sat Flow, veh/h	1111	1845	1552	900	1845	1552	1757	3505	1559	3343	2868	555
Grp Volume(v), veh/h	86	130	348	195	129	117	134	1243	601	152	486	482
Grp Sat Flow(s),veh/h/ln	1111	1845	1552	900	1845	1552	1757	1752	1559	1672	1719	1704
Q Serve(g_s), s	7.7	6.5	24.7	25.4	6.4	7.0	8.5	30.7	35.1	5.4	26.3	26.3
Cycle Q Clear(g_c), s	14.1	6.5	24.7	31.9	6.4	7.0	8.5	30.7	35.1	5.4	26.3	26.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	321	533	448	271	533	448	242	1871	832	206	764	757
V/C Ratio(X)	0.27	0.24	0.78	0.72	0.24	0.26	0.55	0.66	0.72	0.74	0.64	0.64
Avail Cap(c_a), veh/h	326	540	454	275	540	454	259	1871	832	315	764	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	0.56	0.56	0.56	0.86	0.86	0.86
Uniform Delay (d), s/veh	38.0	32.7	39.1	44.9	32.6	32.8	48.3	20.2	21.2	55.3	25.8	25.8
Incr Delay (d2), s/veh	0.4	0.2	8.2	7.3	0.2	0.3	0.6	1.1	3.1	1.7	3.5	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	11.6	6.9	3.3	3.0	4.2	15.1	15.7	2.5	13.2	13.1
LnGrp Delay(d),s/veh	38.5	32.9	47.3	52.1	32.8	33.1	48.8	21.3	24.3	57.0	29.3	29.3
LnGrp LOS	D	C	D	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		564			441			1978			1120	
Approach Delay, s/veh		42.6			41.4			24.1			33.1	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	69.3		39.6	21.8	58.6		39.6
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	7.4	37.1		26.7	10.5	28.3		33.9
Green Ext Time (p_c), s	0.1	19.2		3.0	2.2	10.3		0.6

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	0	582	0	0	0	0	1113	245	271	974	0
Future Volume (veh/h)	695	0	582	0	0	0	0	1113	245	271	974	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	755	0	633				0	1210	266	295	1059	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	755	0	633				0	1210	266	295	1059	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	20.6	0.0	37.5				0.0	20.7	4.9	13.3	20.5	0.0
Cycle Q Clear(g_c), s	20.6	0.0	37.5				0.0	20.7	4.9	13.3	20.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.65	0.00	1.18				0.00	0.83	0.41	1.39	0.53	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.77	0.77	0.00
Uniform Delay (d), s/veh	30.7	0.0	36.3				0.0	7.2	5.8	48.3	14.6	0.0
Incr Delay (d2), s/veh	1.3	0.0	100.7				0.0	1.6	0.5	195.8	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	31.1				0.0	9.4	2.0	18.0	10.1	0.0
LnGrp Delay(d),s/veh	32.0	0.0	137.0				0.0	8.8	6.4	244.2	15.4	0.0
LnGrp LOS	C		F					A	A	F	B	
Approach Vol, veh/h		1388						1476			1354	
Approach Delay, s/veh		79.9						8.3			65.2	
Approach LOS		E						A			E	

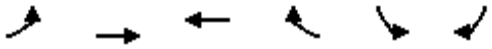
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	22.7		39.5		22.5		
Green Ext Time (p_c), s	0.0	21.8		0.0		36.8		

Intersection Summary	
HCM 2010 Ctrl Delay	50.1
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	312	367	197	199	208	92
Future Volume (veh/h)	312	367	197	199	208	92
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	339	399	214	216	226	100
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	929	1015	242	1251	260	232
Arrive On Green	0.56	0.56	0.15	0.75	0.16	0.16
Sat Flow, veh/h	1660	1399	1581	1660	1581	1411
Grp Volume(v), veh/h	339	399	214	216	226	100
Grp Sat Flow(s),veh/h/ln	1660	1399	1581	1660	1581	1411
Q Serve(g_s), s	12.4	12.1	14.6	4.1	15.3	7.0
Cycle Q Clear(g_c), s	12.4	12.1	14.6	4.1	15.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	929	1015	242	1251	260	232
V/C Ratio(X)	0.36	0.39	0.88	0.17	0.87	0.43
Avail Cap(c_a), veh/h	929	1015	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	5.9	45.6	3.8	44.8	41.3
Incr Delay (d2), s/veh	0.9	1.0	19.4	0.1	30.3	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	7.7	7.7	1.9	8.9	3.1
LnGrp Delay(d),s/veh	14.3	6.8	65.0	3.9	75.1	47.1
LnGrp LOS	B	A	E	A	E	D
Approach Vol, veh/h	738			430	326	
Approach Delay, s/veh	10.3			34.3	66.5	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	21.3	66.1				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.3	16.6	14.4				6.1
Green Ext Time (p_c), s		0.1	0.3	5.0				5.1

Intersection Summary	
HCM 2010 Ctrl Delay	29.5
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	84	196	252	512	18
Future Volume (veh/h)	29	84	196	252	512	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	91	213	274	557	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	159	426	687	576	890	32
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	293	1144	1845	1547	1685	61
Grp Volume(v), veh/h	123	0	213	274	578	0
Grp Sat Flow(s),veh/h/ln	1437	0	1845	1547	1749	0
Q Serve(g_s), s	0.2	0.0	7.4	12.2	21.0	0.0
Cycle Q Clear(g_c), s	7.5	0.0	7.4	12.2	21.0	0.0
Prop In Lane	0.26			1.00	0.96	0.03
Lane Grp Cap(c), veh/h	585	0	687	576	923	0
V/C Ratio(X)	0.21	0.00	0.31	0.48	0.63	0.00
Avail Cap(c_a), veh/h	585	0	687	576	923	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	20.0	21.6	15.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	5.2	10.8	0.0
LnGrp Delay(d),s/veh	19.2	0.0	20.2	21.8	18.2	0.0
LnGrp LOS	B		C	C	B	
Approach Vol, veh/h		123	487		578	
Approach Delay, s/veh		19.2	21.1		18.2	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.5		23.0		14.2
Green Ext Time (p_c), s				2.9		1.9		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	225	195	194	3	445	11	223	3	13	9
Future Volume (veh/h)	8	127	225	195	194	3	445	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	245	212	211	3	484	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	217	429	244	466	7	549	43	872	82	351	231
Arrive On Green	0.01	0.12	0.12	0.14	0.26	0.26	0.16	0.58	0.58	0.38	0.38	0.38
Sat Flow, veh/h	1757	1845	1501	1757	1814	26	3408	74	1492	111	929	612
Grp Volume(v), veh/h	9	138	245	212	0	214	484	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1501	1757	0	1840	1704	0	1566	1652	0	0
Q Serve(g_s), s	0.5	7.1	8.4	11.8	0.0	9.8	13.9	0.0	8.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.1	8.4	11.8	0.0	9.8	13.9	0.0	8.0	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	217	429	244	0	472	549	0	916	664	0	0
V/C Ratio(X)	0.77	0.64	0.57	0.87	0.00	0.45	0.88	0.00	0.28	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	563	253	0	546	695	0	916	664	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.68	0.00	0.68	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	42.1	13.3	42.2	0.0	31.3	41.0	0.0	10.3	19.7	0.0	0.0
Incr Delay (d2), s/veh	31.9	3.7	1.4	24.5	0.0	0.8	6.5	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.9	3.6	7.4	0.0	5.1	7.0	0.0	3.6	0.5	0.0	0.0
LnGrp Delay(d),s/veh	81.5	45.8	14.7	66.7	0.0	32.1	47.6	0.0	10.8	19.8	0.0	0.0
LnGrp LOS	F	D	B	E		C	D		B	B		
Approach Vol, veh/h		392			426			738			27	
Approach Delay, s/veh		27.2			49.3			34.9			19.8	
Approach LOS		C			D			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.8	19.2	17.1	20.7	43.1	5.3	31.0
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.0	13.8	10.4	15.9	3.0	2.5	11.8
Green Ext Time (p_c), s		2.3	0.1	1.4	0.2	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	52	308	492	105	32	322	79
Future Volume (veh/h)	135	110	320	56	113	52	308	492	105	32	322	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	57	335	535	114	35	350	86
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	372	683	78	171	79	815	496	106	385	452	111
Arrive On Green	0.10	0.20	0.20	0.04	0.15	0.15	0.24	0.34	0.34	0.07	0.10	0.10
Sat Flow, veh/h	1757	1845	1529	1757	1179	546	3408	1470	313	1757	1426	350
Grp Volume(v), veh/h	147	120	348	61	0	180	335	0	649	35	0	436
Grp Sat Flow(s),veh/h/ln	1757	1845	1529	1757	0	1725	1704	0	1784	1757	0	1776
Q Serve(g_s), s	8.2	5.6	2.7	3.4	0.0	10.0	8.3	0.0	33.7	1.9	0.0	23.9
Cycle Q Clear(g_c), s	8.2	5.6	2.7	3.4	0.0	10.0	8.3	0.0	33.7	1.9	0.0	23.9
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.18	1.00		0.20
Lane Grp Cap(c), veh/h	177	372	683	78	0	250	815	0	601	385	0	563
V/C Ratio(X)	0.83	0.32	0.51	0.78	0.00	0.72	0.41	0.00	1.08	0.09	0.00	0.77
Avail Cap(c_a), veh/h	394	640	905	95	0	324	815	0	601	385	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	44.1	34.1	9.3	47.3	0.0	40.8	32.1	0.0	33.2	37.1	0.0	41.3
Incr Delay (d2), s/veh	3.1	1.0	1.2	23.0	0.0	3.2	0.1	0.0	60.0	0.0	0.0	8.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.9	4.7	2.2	0.0	5.0	3.9	0.0	26.6	0.9	0.0	13.1
LnGrp Delay(d),s/veh	47.2	35.1	10.5	70.3	0.0	44.0	32.2	0.0	93.2	37.1	0.0	49.7
LnGrp LOS	D	D	B	E		D	C		F	D		D
Approach Vol, veh/h		615			241			984			471	
Approach Delay, s/veh		24.1			50.7			72.4			48.8	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	39.0	9.0	25.5	28.5	37.0	14.7	19.8
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	3.9	35.7	5.4	7.6	10.3	25.9	10.2	12.0
Green Ext Time (p_c), s	0.1	0.0	0.0	5.2	0.0	1.7	0.0	2.6

Intersection Summary	
HCM 2010 Ctrl Delay	52.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	201	84	43
Future Vol, veh/h	75	429	315	201	84	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	218	91	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	352	0	-	0	991	362
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	7.13	6.23
Critical Hdwy Stg 1	-	-	-	-	6.13	-
Critical Hdwy Stg 2	-	-	-	-	6.13	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1201	-	-	-	224	680
Stage 1	-	-	-	-	663	-
Stage 2	-	-	-	-	463	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	208	667
Mov Cap-2 Maneuver	-	-	-	-	208	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	427	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	26.9
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	208	667
HCM Lane V/C Ratio	0.069	-	-	-	0.439	0.07
HCM Control Delay (s)	8.2	-	-	-	35.2	10.8
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.1	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	341	180	155	362	187	96
Future Volume (veh/h)	341	180	155	362	187	96
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	371	196	168	393	203	104
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	691	365	282	602	306	273
Arrive On Green	0.61	0.61	0.61	0.61	0.17	0.17
Sat Flow, veh/h	1138	601	278	992	1757	1568
Grp Volume(v), veh/h	0	567	561	0	203	104
Grp Sat Flow(s),veh/h/ln	0	1739	1270	0	1757	1568
Q Serve(g_s), s	0.0	7.8	6.2	0.0	4.4	2.4
Cycle Q Clear(g_c), s	0.0	7.8	14.1	0.0	4.4	2.4
Prop In Lane		0.35	0.30		1.00	1.00
Lane Grp Cap(c), veh/h	0	1055	885	0	306	273
V/C Ratio(X)	0.00	0.54	0.63	0.00	0.66	0.38
Avail Cap(c_a), veh/h	0	2598	2084	0	832	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	4.7	5.6	0.0	15.9	15.0
Incr Delay (d2), s/veh	0.0	0.4	0.8	0.0	2.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	4.7	0.0	2.4	1.1
LnGrp Delay(d),s/veh	0.0	5.1	6.4	0.0	18.3	15.9
LnGrp LOS		A	A		B	B
Approach Vol, veh/h	567			561	307	
Approach Delay, s/veh	5.1			6.4	17.5	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		11.7		29.5				29.5
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		19.5		61.5				61.5
Max Q Clear Time (g_c+I1), s		6.4		9.8				16.1
Green Ext Time (p_c), s		0.7		9.0				8.9

Intersection Summary	
HCM 2010 Ctrl Delay	8.3
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	473	398	303	473	398	278	1810	805	372	1249	343
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.16	0.52	0.52	0.11	0.47	0.47
Sat Flow, veh/h	1160	1845	1550	1071	1845	1550	1757	3505	1559	3343	2659	731
Grp Volume(v), veh/h	53	70	215	202	114	83	251	1046	755	316	670	659
Grp Sat Flow(s),veh/h/ln	1160	1845	1550	1071	1845	1550	1757	1752	1559	1672	1719	1671
Q Serve(g_s), s	4.6	3.5	14.4	21.6	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Cycle Q Clear(g_c), s	10.4	3.5	14.4	25.1	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	301	473	398	303	473	398	278	1810	805	372	807	785
V/C Ratio(X)	0.18	0.15	0.54	0.67	0.24	0.21	0.90	0.58	0.94	0.85	0.83	0.84
Avail Cap(c_a), veh/h	342	538	452	341	538	452	335	1810	805	454	807	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	0.32	0.32	0.32	0.83	0.83	0.83
Uniform Delay (d), s/veh	39.5	34.5	38.5	44.2	35.3	35.0	49.6	20.0	27.2	52.4	27.7	27.9
Incr Delay (d2), s/veh	0.3	0.1	1.1	4.1	0.3	0.3	8.7	0.4	8.3	8.9	8.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	6.3	6.7	3.0	2.2	8.8	12.0	25.1	5.6	21.0	21.0
LnGrp Delay(d),s/veh	39.8	34.6	39.7	48.2	35.6	35.3	58.3	20.4	35.5	61.2	35.9	36.7
LnGrp LOS	D	C	D	D	D	D	E	C	D	E	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		38.6			41.9			30.6			41.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		35.7	22.7	61.6		35.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	13.1	56.5		16.4	18.8	43.4		27.1
Green Ext Time (p_c), s	0.2	0.0		2.9	0.1	4.8		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		36.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	549	0	377				0	1495	157	261	1221	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1597	166	879	3709	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.50	1.00	0.00
Sat Flow, veh/h	3408	0	1568				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	549	0	377				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1782	1757	1752	0
Q Serve(g_s), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	889	879	3709	0
V/C Ratio(X)	0.73	0.00	1.09				0.00	0.93	0.94	0.30	0.33	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	889	879	3709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.5	0.0	35.0				0.0	21.1	21.4	13.2	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	73.8				0.0	2.5	3.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.7				0.0	19.3	20.3	3.8	0.1	0.0
LnGrp Delay(d),s/veh	36.1	0.0	108.8				0.0	23.5	24.4	13.2	0.1	0.0
LnGrp LOS	D		F					C	C	B	A	
Approach Vol, veh/h		926						1652			1482	
Approach Delay, s/veh		65.7						24.0			2.4	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	50.6	50.2		24.4		100.8		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.8	42.2		21.9		2.0		
Green Ext Time (p_c), s	0.5	2.6		0.0		22.4		

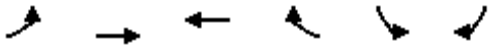
Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	703	306	266	71	120
Future Volume (veh/h)	201	703	306	266	71	120
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	218	764	333	289	77	130
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	218	764	333	289	77	130
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	4.8	54.8	23.0	5.7	5.2	10.3
Cycle Q Clear(g_c), s	4.8	54.8	23.0	5.7	5.2	10.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.29	0.90	0.75	0.22	0.32	0.61
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	8.8	39.3	3.7	45.6	47.7
Incr Delay (d2), s/veh	0.6	10.4	7.0	0.1	3.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.6	10.9	2.6	2.5	4.8
LnGrp Delay(d),s/veh	8.9	19.2	46.3	3.8	49.2	60.4
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	982			622	207	
Approach Delay, s/veh	16.9			26.5	56.2	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		12.3	25.0	56.8				7.7
Green Ext Time (p_c), s		0.3	1.7	0.0				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	97	142	132	293	8
Future Volume (veh/h)	29	97	142	132	293	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	105	154	143	318	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	184	576	810	680	783	22
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	307	1312	1845	1550	1697	48
Grp Volume(v), veh/h	137	0	154	143	328	0
Grp Sat Flow(s),veh/h/ln	1618	0	1845	1550	1751	0
Q Serve(g_s), s	0.0	0.0	4.6	5.1	11.2	0.0
Cycle Q Clear(g_c), s	4.1	0.0	4.6	5.1	11.2	0.0
Prop In Lane	0.23			1.00	0.97	0.03
Lane Grp Cap(c), veh/h	760	0	810	680	807	0
V/C Ratio(X)	0.18	0.00	0.19	0.21	0.41	0.00
Avail Cap(c_a), veh/h	760	0	810	680	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.72	0.72	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.5	15.6	16.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	2.3	5.7	0.0
LnGrp Delay(d),s/veh	15.4	0.0	15.8	16.1	17.6	0.0
LnGrp LOS	B		B	B	B	
Approach Vol, veh/h		137	297		328	
Approach Delay, s/veh		15.4	16.0		17.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				6.1		13.2		7.1
Green Ext Time (p_c), s				2.2		1.0		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Future Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	290	324	272	7	446	9	139	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	247	224	415	354	326	8	506	50	774	0	164	374
Arrive On Green	0.14	0.12	0.12	0.20	0.18	0.18	0.15	0.53	0.53	0.00	0.33	0.33
Sat Flow, veh/h	1757	1845	1503	1757	1789	46	3408	95	1473	0	495	1130
Grp Volume(v), veh/h	7	96	290	324	0	279	446	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1503	1757	0	1835	1704	0	1568	0	0	1625
Q Serve(g_s), s	0.3	4.8	9.2	18.1	0.0	14.7	12.8	0.0	4.9	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.3	4.8	9.2	18.1	0.0	14.7	12.8	0.0	4.9	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	247	224	415	354	0	334	506	0	824	0	0	538
V/C Ratio(X)	0.03	0.43	0.70	0.92	0.00	0.83	0.88	0.00	0.18	0.00	0.00	0.04
Avail Cap(c_a), veh/h	247	317	491	446	0	692	525	0	824	0	0	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	37.1	40.7	12.9	39.1	0.0	39.4	41.7	0.0	12.4	0.0	0.0	22.7
Incr Delay (d2), s/veh	0.0	1.6	3.8	18.5	0.0	6.5	13.1	0.0	0.4	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.6	4.2	10.5	0.0	8.0	6.9	0.0	2.2	0.0	0.0	0.5
LnGrp Delay(d),s/veh	37.1	42.3	16.7	57.6	0.0	45.9	54.8	0.0	12.8	0.0	0.0	22.9
LnGrp LOS	D	D	B	E		D	D		B			C
Approach Vol, veh/h		393			603			594			23	
Approach Delay, s/veh		23.3			52.2			44.4			22.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		57.8	24.7	17.4	19.5	38.4	18.6	23.5
Change Period (Y+Rc), s		5.3	4.6	5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		42.2	25.4	17.2	15.4	22.2	4.9	37.7
Max Q Clear Time (g_c+I1), s		6.9	20.1	11.2	14.8	3.0	2.3	16.7
Green Ext Time (p_c), s		1.3	0.1	1.0	0.0	1.1	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.9
HCM 2010 LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Future Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	45	166	386	43	22	447	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	310	605	95	126	65	760	598	67	374	468	159
Arrive On Green	0.11	0.17	0.17	0.05	0.11	0.11	0.22	0.37	0.37	0.07	0.12	0.12
Sat Flow, veh/h	1757	1845	1521	1757	1127	583	3408	1628	181	1757	1312	446
Grp Volume(v), veh/h	163	30	236	80	0	132	166	0	429	22	0	599
Grp Sat Flow(s),veh/h/ln	1757	1845	1521	1757	0	1710	1704	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	1.4	1.8	4.5	0.0	7.4	4.0	0.0	19.7	1.2	0.0	33.9
Cycle Q Clear(g_c), s	9.1	1.4	1.8	4.5	0.0	7.4	4.0	0.0	19.7	1.2	0.0	33.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	310	605	95	0	191	760	0	664	374	0	628
V/C Ratio(X)	0.84	0.10	0.39	0.84	0.00	0.69	0.22	0.00	0.65	0.06	0.00	0.95
Avail Cap(c_a), veh/h	323	566	817	95	0	321	760	0	664	374	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00	0.72	0.00	0.72
Uniform Delay (d), s/veh	43.6	35.2	10.5	46.9	0.0	42.7	31.7	0.0	26.3	37.1	0.0	43.3
Incr Delay (d2), s/veh	3.9	0.3	1.0	44.5	0.0	1.7	0.1	0.0	4.8	0.0	0.0	21.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.7	3.2	3.4	0.0	3.6	1.9	0.0	10.7	0.6	0.0	20.2
LnGrp Delay(d),s/veh	47.6	35.5	11.5	91.4	0.0	44.4	31.8	0.0	31.1	37.1	0.0	64.4
LnGrp LOS	D	D	B	F		D	C		C	D		E
Approach Vol, veh/h		429			212			595			621	
Approach Delay, s/veh		26.9			62.1			31.3			63.4	
Approach LOS		C			E			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	42.0	10.0	22.1	26.9	41.0	15.6	16.5
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.7	6.5	3.8	6.0	35.9	11.1	9.4
Green Ext Time (p_c), s	0.1	2.7	0.0	2.8	0.0	0.0	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	44.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	198	179	28
Future Vol, veh/h	96	369	165	198	179	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	215	195	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	809	199
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1379	-	-	-	348	839
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	315	823
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	490	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	30
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1366	-	-	-	315	823
HCM Lane V/C Ratio	0.076	-	-	-	0.618	0.037
HCM Control Delay (s)	7.9	-	-	-	33.2	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	3.9	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	352	137	34	235	134	43
Future Volume (veh/h)	352	137	34	235	134	43
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	383	149	37	255	146	47
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	617	240	195	799	322	287
Arrive On Green	0.49	0.49	0.49	0.49	0.18	0.18
Sat Flow, veh/h	1265	492	96	1638	1757	1568
Grp Volume(v), veh/h	0	532	292	0	146	47
Grp Sat Flow(s),veh/h/ln	0	1758	1735	0	1757	1568
Q Serve(g_s), s	0.0	6.1	0.0	0.0	2.0	0.7
Cycle Q Clear(g_c), s	0.0	6.1	2.6	0.0	2.0	0.7
Prop In Lane		0.28	0.13		1.00	1.00
Lane Grp Cap(c), veh/h	0	857	994	0	322	287
V/C Ratio(X)	0.00	0.62	0.29	0.00	0.45	0.16
Avail Cap(c_a), veh/h	0	3572	3482	0	1640	1464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.1	4.3	0.0	9.9	9.4
Incr Delay (d2), s/veh	0.0	0.7	0.2	0.0	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	1.3	0.0	1.1	0.3
LnGrp Delay(d),s/veh	0.0	5.9	4.4	0.0	10.9	9.7
LnGrp LOS		A	A		B	A
Approach Vol, veh/h	532			292	193	
Approach Delay, s/veh	5.9			4.4	10.6	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		9.5		17.8				17.8
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		25.5		55.5				55.5
Max Q Clear Time (g_c+I1), s		4.0		8.1				4.6
Green Ext Time (p_c), s		0.5		5.3				5.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	322	540	454	273	540	454	236	1858	826	206	1270	249
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.13	0.53	0.53	0.06	0.44	0.44
Sat Flow, veh/h	1106	1845	1552	891	1845	1552	1757	3505	1559	3343	2860	562
Grp Volume(v), veh/h	86	130	359	205	134	117	134	1243	601	152	490	485
Grp Sat Flow(s),veh/h/ln	1106	1845	1552	891	1845	1552	1757	1752	1559	1672	1719	1703
Q Serve(g_s), s	7.7	6.4	25.6	27.3	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Cycle Q Clear(g_c), s	14.4	6.4	25.6	33.7	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	322	540	454	273	540	454	236	1858	826	206	764	756
V/C Ratio(X)	0.27	0.24	0.79	0.75	0.25	0.26	0.57	0.67	0.73	0.74	0.64	0.64
Avail Cap(c_a), veh/h	322	540	454	273	540	454	259	1858	826	315	764	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.56	0.56	0.56	0.86	0.86	0.86
Uniform Delay (d), s/veh	37.9	32.3	39.1	45.2	32.4	32.5	48.7	20.5	21.6	55.3	25.9	25.9
Incr Delay (d2), s/veh	0.4	0.2	9.2	9.4	0.2	0.2	0.6	1.1	3.2	1.7	3.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	12.1	7.4	3.4	3.0	4.2	15.1	15.9	2.5	13.3	13.2
LnGrp Delay(d),s/veh	38.3	32.5	48.3	54.6	32.6	32.7	49.3	21.6	24.7	57.0	29.5	29.5
LnGrp LOS	D	C	D	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		43.2			42.5			24.5			33.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	68.9		40.0	21.4	58.6		40.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	7.4	37.4		27.6	10.6	28.6		35.7
Green Ext Time (p_c), s	0.1	19.0		2.9	2.1	10.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	755	0	633				0	1210	290	305	1074	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	755	0	633				0	1210	290	305	1074	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Cycle Q Clear(g_c), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.65	0.00	1.18				0.00	0.83	0.45	1.44	0.54	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.76	0.76	0.00
Uniform Delay (d), s/veh	30.7	0.0	36.3				0.0	7.2	5.9	48.3	14.7	0.0
Incr Delay (d2), s/veh	1.3	0.0	100.7				0.0	1.6	0.6	215.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	31.1				0.0	9.4	2.4	19.1	10.2	0.0
LnGrp Delay(d),s/veh	32.0	0.0	137.0				0.0	8.8	6.5	263.8	15.5	0.0
LnGrp LOS	C		F					A	A	F	B	
Approach Vol, veh/h		1388						1500			1379	
Approach Delay, s/veh		79.9						8.3			70.4	
Approach LOS		E						A			E	

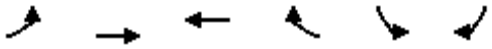
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	22.7		39.5		22.9		
Green Ext Time (p_c), s	0.0	21.8		0.0		36.7		

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	312	367	197	213	208	92
Future Volume (veh/h)	312	367	197	213	208	92
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	339	399	214	232	226	100
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	929	1015	242	1251	260	232
Arrive On Green	0.56	0.56	0.15	0.75	0.16	0.16
Sat Flow, veh/h	1660	1399	1581	1660	1581	1411
Grp Volume(v), veh/h	339	399	214	232	226	100
Grp Sat Flow(s),veh/h/ln	1660	1399	1581	1660	1581	1411
Q Serve(g_s), s	12.4	12.1	14.6	4.4	15.3	7.0
Cycle Q Clear(g_c), s	12.4	12.1	14.6	4.4	15.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	929	1015	242	1251	260	232
V/C Ratio(X)	0.36	0.39	0.88	0.19	0.87	0.43
Avail Cap(c_a), veh/h	929	1015	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	5.9	45.6	3.9	44.8	41.3
Incr Delay (d2), s/veh	0.9	1.0	19.4	0.1	30.3	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	7.7	7.7	2.0	8.9	3.1
LnGrp Delay(d),s/veh	14.3	6.8	65.0	4.0	75.1	47.1
LnGrp LOS	B	A	E	A	E	D
Approach Vol, veh/h	738			446	326	
Approach Delay, s/veh	10.3			33.3	66.5	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	21.3	66.1				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.3	16.6	14.4				6.4
Green Ext Time (p_c), s		0.1	0.3	5.2				5.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	84	196	252	512	18
Future Volume (veh/h)	29	84	196	252	512	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	91	213	274	557	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	159	426	687	576	890	32
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	293	1144	1845	1547	1685	61
Grp Volume(v), veh/h	123	0	213	274	578	0
Grp Sat Flow(s),veh/h/ln	1437	0	1845	1547	1749	0
Q Serve(g_s), s	0.2	0.0	7.4	12.2	21.0	0.0
Cycle Q Clear(g_c), s	7.5	0.0	7.4	12.2	21.0	0.0
Prop In Lane	0.26			1.00	0.96	0.03
Lane Grp Cap(c), veh/h	585	0	687	576	923	0
V/C Ratio(X)	0.21	0.00	0.31	0.48	0.63	0.00
Avail Cap(c_a), veh/h	585	0	687	576	923	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	20.0	21.6	15.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	5.2	10.8	0.0
LnGrp Delay(d),s/veh	19.2	0.0	20.2	21.8	18.2	0.0
LnGrp LOS	B		C	C	B	
Approach Vol, veh/h		123	487		578	
Approach Delay, s/veh		19.2	21.1		18.2	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.5		23.0		14.2
Green Ext Time (p_c), s				2.9		1.9		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Future Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	257	212	222	3	503	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	223	443	244	472	6	567	43	867	81	343	226
Arrive On Green	0.01	0.12	0.12	0.14	0.26	0.26	0.17	0.58	0.58	0.37	0.37	0.37
Sat Flow, veh/h	1757	1845	1503	1757	1815	25	3408	74	1492	110	930	612
Grp Volume(v), veh/h	9	138	257	212	0	225	503	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1503	1757	0	1840	1704	0	1566	1652	0	0
Q Serve(g_s), s	0.5	7.1	8.7	11.8	0.0	10.3	14.4	0.0	8.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.1	8.7	11.8	0.0	10.3	14.4	0.0	8.1	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	223	443	244	0	478	567	0	910	650	0	0
V/C Ratio(X)	0.77	0.62	0.58	0.87	0.00	0.47	0.89	0.00	0.28	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	572	253	0	546	695	0	910	650	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.66	0.00	0.66	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	41.8	12.9	42.2	0.0	31.2	40.8	0.0	10.5	20.2	0.0	0.0
Incr Delay (d2), s/veh	31.9	3.3	1.5	24.5	0.0	0.9	7.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.8	3.8	7.4	0.0	5.4	7.3	0.0	3.6	0.5	0.0	0.0
LnGrp Delay(d),s/veh	81.5	45.1	14.4	66.7	0.0	32.1	47.9	0.0	11.0	20.4	0.0	0.0
LnGrp LOS	F	D	B	E		C	D		B	C		
Approach Vol, veh/h		404			437			757			27	
Approach Delay, s/veh		26.4			48.8			35.5			20.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.4	19.2	17.4	21.2	42.2	5.3	31.3
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.1	13.8	10.7	16.4	3.0	2.5	12.3
Green Ext Time (p_c), s		2.3	0.1	1.4	0.2	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Future Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	72	335	539	114	45	352	86
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	385	683	78	164	96	790	496	105	372	453	111
Arrive On Green	0.10	0.21	0.21	0.04	0.15	0.15	0.23	0.34	0.34	0.07	0.10	0.10
Sat Flow, veh/h	1757	1845	1530	1757	1077	631	3408	1473	311	1757	1428	349
Grp Volume(v), veh/h	147	120	348	61	0	195	335	0	653	45	0	438
Grp Sat Flow(s),veh/h/ln	1757	1845	1530	1757	0	1708	1704	0	1784	1757	0	1777
Q Serve(g_s), s	8.2	5.5	2.7	3.4	0.0	10.9	8.4	0.0	33.7	2.4	0.0	24.0
Cycle Q Clear(g_c), s	8.2	5.5	2.7	3.4	0.0	10.9	8.4	0.0	33.7	2.4	0.0	24.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.17	1.00		0.20
Lane Grp Cap(c), veh/h	177	385	683	78	0	260	790	0	601	372	0	563
V/C Ratio(X)	0.83	0.31	0.51	0.78	0.00	0.75	0.42	0.00	1.09	0.12	0.00	0.78
Avail Cap(c_a), veh/h	394	640	895	95	0	321	790	0	601	372	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	44.1	33.5	9.3	47.3	0.0	40.6	32.7	0.0	33.2	37.8	0.0	41.3
Incr Delay (d2), s/veh	3.1	0.9	1.2	23.0	0.0	5.5	0.1	0.0	62.2	0.0	0.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.9	4.8	2.2	0.0	5.5	4.0	0.0	26.9	1.2	0.0	13.2
LnGrp Delay(d),s/veh	47.2	34.4	10.5	70.3	0.0	46.0	32.9	0.0	95.4	37.8	0.0	49.9
LnGrp LOS	D	C	B	E		D	C		F	D		D
Approach Vol, veh/h		615			256			988			483	
Approach Delay, s/veh		24.0			51.8			74.2			48.8	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	39.0	9.0	26.2	27.8	37.0	14.7	20.5
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.4	35.7	5.4	7.5	10.4	26.0	10.2	12.9
Green Ext Time (p_c), s	0.1	0.0	0.0	5.3	0.0	1.6	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	53.3
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	229	95	43
Future Vol, veh/h	75	429	315	229	95	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	249	103	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	352	0	-	0	991	362
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1201	-	-	-	272	680
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	248	667
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	248	667
HCM Lane V/C Ratio	0.069	-	-	-	0.416	0.07
HCM Control Delay (s)	8.2	-	-	-	29.5	10.8
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	341	210	161	362	211	100
Future Volume (veh/h)	341	210	161	362	211	100
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	371	228	175	393	229	109
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	675	415	275	570	319	285
Arrive On Green	0.63	0.63	0.63	0.63	0.18	0.18
Sat Flow, veh/h	1071	658	281	904	1757	1568
Grp Volume(v), veh/h	0	599	568	0	229	109
Grp Sat Flow(s),veh/h/ln	0	1729	1185	0	1757	1568
Q Serve(g_s), s	0.0	9.4	9.4	0.0	5.9	2.9
Cycle Q Clear(g_c), s	0.0	9.4	18.8	0.0	5.9	2.9
Prop In Lane		0.38	0.31		1.00	1.00
Lane Grp Cap(c), veh/h	0	1090	845	0	319	285
V/C Ratio(X)	0.00	0.55	0.67	0.00	0.72	0.38
Avail Cap(c_a), veh/h	0	2185	1683	0	752	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	6.7	0.0	18.4	17.2
Incr Delay (d2), s/veh	0.0	0.4	0.9	0.0	3.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.5	5.7	0.0	3.1	1.3
LnGrp Delay(d),s/veh	0.0	5.4	7.7	0.0	21.5	18.1
LnGrp LOS		A	A		C	B
Approach Vol, veh/h	599			568	338	
Approach Delay, s/veh	5.4			7.7	20.4	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		13.2		34.7				34.7
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		20.5		60.5				60.5
Max Q Clear Time (g_c+I1), s		7.9		11.4				20.8
Green Ext Time (p_c), s		0.8		9.6				9.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Future Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1845	0	0	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	0	0	73	0	0	600	166	535	114	13	1003	4
Adj No. of Lanes	0	0	1	0	0	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	3	0	0	3	3	3	3	3	3	3
Cap, veh/h	0	0	0	0	0	0	219	2007	426	30	2112	8
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.70	0.70	0.02	0.59	0.59
Sat Flow, veh/h		0			0		1757	2878	611	1757	3580	14
Grp Volume(v), veh/h		0.0			0.0		166	325	324	13	491	516
Grp Sat Flow(s),veh/h/ln							1757	1752	1737	1757	1752	1842
Q Serve(g_s), s							2.9	2.2	2.2	0.2	5.0	5.0
Cycle Q Clear(g_c), s							2.9	2.2	2.2	0.2	5.0	5.0
Prop In Lane							1.00		0.35	1.00		0.01
Lane Grp Cap(c), veh/h							219	1222	1211	30	1034	1086
V/C Ratio(X)							0.76	0.27	0.27	0.43	0.48	0.48
Avail Cap(c_a), veh/h							697	2220	2201	285	1809	1901
HCM Platoon Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)							1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh							13.3	1.8	1.8	15.3	3.7	3.7
Incr Delay (d2), s/veh							5.4	0.1	0.1	9.6	0.3	0.3
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							1.7	1.0	1.0	0.2	2.4	2.5
LnGrp Delay(d),s/veh							18.7	1.9	1.9	24.9	4.0	4.0
LnGrp LOS							B	A	A	C	A	A
Approach Vol, veh/h								815			1020	
Approach Delay, s/veh								5.3			4.3	
Approach LOS								A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2			5	6		
Phs Duration (G+Y+Rc), s	5.0	26.5			8.4	23.1		
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5		
Max Green Setting (Gmax), s	5.1	39.9			12.5	32.5		
Max Q Clear Time (g_c+I1), s	2.2	4.2			4.9	7.0		
Green Ext Time (p_c), s	0.0	13.2			0.2	11.5		

Intersection Summary	
HCM 2010 Ctrl Delay	4.7
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	473	398	303	473	398	278	1810	805	372	1249	343
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.16	0.52	0.52	0.11	0.47	0.47
Sat Flow, veh/h	1160	1845	1550	1071	1845	1550	1757	3505	1559	3343	2659	731
Grp Volume(v), veh/h	53	70	215	202	114	83	251	1046	755	316	670	659
Grp Sat Flow(s),veh/h/ln	1160	1845	1550	1071	1845	1550	1757	1752	1559	1672	1719	1671
Q Serve(g_s), s	4.6	3.5	14.4	21.6	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Cycle Q Clear(g_c), s	10.4	3.5	14.4	25.1	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	301	473	398	303	473	398	278	1810	805	372	807	785
V/C Ratio(X)	0.18	0.15	0.54	0.67	0.24	0.21	0.90	0.58	0.94	0.85	0.83	0.84
Avail Cap(c_a), veh/h	342	538	452	341	538	452	335	1810	805	454	807	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	0.32	0.32	0.32	0.83	0.83	0.83
Uniform Delay (d), s/veh	39.5	34.5	38.5	44.2	35.3	35.0	49.6	20.0	27.2	52.4	27.7	27.9
Incr Delay (d2), s/veh	0.3	0.1	1.1	4.1	0.3	0.3	8.7	0.4	8.3	8.9	8.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	6.3	6.7	3.0	2.2	8.8	12.0	25.1	5.6	21.0	21.0
LnGrp Delay(d),s/veh	39.8	34.6	39.7	48.2	35.6	35.3	58.3	20.4	35.5	61.2	35.9	36.7
LnGrp LOS	D	C	D	D	D	D	E	C	D	E	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		38.6			41.9			30.6			41.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		35.7	22.7	61.6		35.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	13.1	56.5		16.4	18.8	43.4		27.1
Green Ext Time (p_c), s	0.2	0.0		2.9	0.1	4.8		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		36.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	549	0	377				0	1495	157	261	1221	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1597	166	879	3709	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.50	1.00	0.00
Sat Flow, veh/h	3408	0	1568				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	549	0	377				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1782	1757	1752	0
Q Serve(g_s), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	889	879	3709	0
V/C Ratio(X)	0.73	0.00	1.09				0.00	0.93	0.94	0.30	0.33	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	889	879	3709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.5	0.0	35.0				0.0	21.1	21.4	13.2	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	73.8				0.0	2.5	3.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.7				0.0	19.3	20.3	3.8	0.1	0.0
LnGrp Delay(d),s/veh	36.1	0.0	108.8				0.0	23.5	24.4	13.2	0.1	0.0
LnGrp LOS	D		F					C	C	B	A	
Approach Vol, veh/h		926						1652			1482	
Approach Delay, s/veh		65.7						24.0			2.4	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	50.6	50.2		24.4		100.8		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.8	42.2		21.9		2.0		
Green Ext Time (p_c), s	0.5	2.6		0.0		22.4		

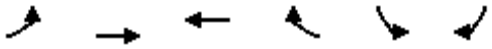
Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	703	306	266	71	120
Future Volume (veh/h)	201	703	306	266	71	120
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	218	764	333	289	77	130
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	218	764	333	289	77	130
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	4.8	54.8	23.0	5.7	5.2	10.3
Cycle Q Clear(g_c), s	4.8	54.8	23.0	5.7	5.2	10.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.29	0.90	0.75	0.22	0.32	0.61
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	8.8	39.3	3.7	45.6	47.7
Incr Delay (d2), s/veh	0.6	10.4	7.0	0.1	3.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.6	10.9	2.6	2.5	4.8
LnGrp Delay(d),s/veh	8.9	19.2	46.3	3.8	49.2	60.4
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	982			622	207	
Approach Delay, s/veh	16.9			26.5	56.2	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		12.3	25.0	56.8				7.7
Green Ext Time (p_c), s		0.3	1.7	0.0				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	97	142	132	507	8
Future Volume (veh/h)	29	97	142	132	507	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	105	154	143	551	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	184	576	810	680	794	13
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	307	1312	1845	1550	1722	28
Grp Volume(v), veh/h	137	0	154	143	561	0
Grp Sat Flow(s),veh/h/ln	1618	0	1845	1550	1753	0
Q Serve(g_s), s	0.0	0.0	4.6	5.1	22.8	0.0
Cycle Q Clear(g_c), s	4.1	0.0	4.6	5.1	22.8	0.0
Prop In Lane	0.23			1.00	0.98	0.02
Lane Grp Cap(c), veh/h	760	0	810	680	808	0
V/C Ratio(X)	0.18	0.00	0.19	0.21	0.69	0.00
Avail Cap(c_a), veh/h	760	0	810	680	808	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.72	0.72	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.5	15.6	19.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	2.3	12.0	0.0
LnGrp Delay(d),s/veh	15.4	0.0	15.8	16.1	24.1	0.0
LnGrp LOS	B		B	B	C	
Approach Vol, veh/h		137	297		561	
Approach Delay, s/veh		15.4	16.0		24.1	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				6.1		24.8		7.1
Green Ext Time (p_c), s				2.2		1.7		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	160	298	250	6	517	8	128	0	6	15
Future Volume (veh/h)	6	88	160	298	250	6	517	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.98	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	174	324	272	7	562	9	139	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	148	403	357	510	13	620	53	822	0	163	373
Arrive On Green	0.01	0.08	0.08	0.20	0.28	0.28	0.18	0.56	0.56	0.00	0.33	0.33
Sat Flow, veh/h	1757	1845	1470	1757	1790	46	3408	95	1474	0	494	1130
Grp Volume(v), veh/h	7	96	174	324	0	279	562	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1470	1757	0	1836	1704	0	1569	0	0	1625
Q Serve(g_s), s	0.4	5.0	5.1	18.0	0.0	12.8	16.2	0.0	4.6	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.4	5.0	5.1	18.0	0.0	12.8	16.2	0.0	4.6	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	148	403	357	0	523	620	0	875	0	0	536
V/C Ratio(X)	0.75	0.65	0.43	0.91	0.00	0.53	0.91	0.00	0.17	0.00	0.00	0.04
Avail Cap(c_a), veh/h	86	317	538	376	0	619	627	0	875	0	0	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.73	0.00	0.73	0.00	0.00	1.00
Uniform Delay (d), s/veh	49.7	44.6	12.0	38.9	0.0	30.1	40.1	0.0	10.8	0.0	0.0	22.8
Incr Delay (d2), s/veh	35.5	5.6	0.9	23.8	0.0	1.0	12.9	0.0	0.3	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	2.2	11.1	0.0	6.7	8.7	0.0	2.0	0.0	0.0	0.5
LnGrp Delay(d),s/veh	85.2	50.2	12.9	62.7	0.0	31.2	53.0	0.0	11.1	0.0	0.0	22.9
LnGrp LOS	F	D	B	E		C	D		B			C
Approach Vol, veh/h		277			603			710			23	
Approach Delay, s/veh		27.7			48.1			44.2			22.9	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		61.1	25.6	13.3	22.8	38.3	5.1	33.8
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		46.2	21.4	* 17	18.4	23.2	4.9	33.7
Max Q Clear Time (g_c+I1), s		6.6	20.0	7.1	18.2	3.0	2.4	14.8
Green Ext Time (p_c), s		1.3	0.3	0.9	0.0	1.1	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	42.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	257	28	324	74	80	41	153	355	40	20	304	140
Future Volume (veh/h)	257	28	324	74	80	41	153	355	40	20	304	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	279	30	352	80	87	45	166	386	43	22	330	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	309	443	605	95	134	69	514	598	67	247	425	196
Arrive On Green	0.18	0.24	0.24	0.05	0.12	0.12	0.15	0.37	0.37	0.05	0.12	0.12
Sat Flow, veh/h	1757	1845	1535	1757	1128	583	3408	1628	181	1757	1190	548
Grp Volume(v), veh/h	279	30	352	80	0	132	166	0	429	22	0	482
Grp Sat Flow(s),veh/h/ln	1757	1845	1535	1757	0	1711	1704	0	1810	1757	0	1739
Q Serve(g_s), s	15.6	1.3	3.0	4.5	0.0	7.4	4.3	0.0	19.7	1.2	0.0	26.9
Cycle Q Clear(g_c), s	15.6	1.3	3.0	4.5	0.0	7.4	4.3	0.0	19.7	1.2	0.0	26.9
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.10	1.00		0.32
Lane Grp Cap(c), veh/h	309	443	605	95	0	203	514	0	664	247	0	621
V/C Ratio(X)	0.90	0.07	0.58	0.84	0.00	0.65	0.32	0.00	0.65	0.09	0.00	0.78
Avail Cap(c_a), veh/h	323	566	708	95	0	322	514	0	664	247	0	621
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.78	0.78	0.78	1.00	0.00	1.00	1.00	0.00	1.00	0.74	0.00	0.74
Uniform Delay (d), s/veh	40.4	29.3	11.5	46.9	0.0	42.1	37.9	0.0	26.3	41.5	0.0	40.2
Incr Delay (d2), s/veh	21.3	0.1	1.7	44.5	0.0	1.3	0.1	0.0	4.8	0.0	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.7	5.3	3.4	0.0	3.6	2.1	0.0	10.7	0.6	0.0	14.2
LnGrp Delay(d),s/veh	61.7	29.5	13.2	91.4	0.0	43.4	38.0	0.0	31.1	41.6	0.0	47.2
LnGrp LOS	E	C	B	F		D	D		C	D		D
Approach Vol, veh/h		661			212			595			504	
Approach Delay, s/veh		34.4			61.5			33.0			46.9	
Approach LOS		C			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.7	42.0	10.0	29.3	19.7	41.0	22.2	17.2
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.2	21.7	6.5	5.0	6.3	28.9	17.6	9.4
Green Ext Time (p_c), s	0.1	2.7	0.0	4.0	0.0	2.1	0.0	2.5

Intersection Summary		
HCM 2010 Ctrl Delay		40.1
HCM 2010 LOS		D

Notes

Intersection	
Int Delay, s/veh	2.9

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	388	7	17	285	99	35
Future Vol, veh/h	388	7	17	285	99	35
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	422	8	18	310	108	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	439	0	638	235
Stage 1	-	-	-	-	436	-
Stage 2	-	-	-	-	202	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1110	-	407	764
Stage 1	-	-	-	-	616	-
Stage 2	-	-	-	-	809	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1099	-	391	750
Mov Cap-2 Maneuver	-	-	-	-	391	-
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	785	-

Approach	NB	SB	SW
HCM Control Delay, s	0	0.6	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	1099	-	447
HCM Lane V/C Ratio	-	-	0.017	-	0.326
HCM Control Delay (s)	-	-	8.3	0.1	16.9
HCM Lane LOS	-	-	A	A	C
HCM 95th %tile Q(veh)	-	-	0.1	-	1.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	492	137	34	235	134	43
Future Volume (veh/h)	492	137	34	235	134	43
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	535	149	37	255	146	47
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	775	216	179	904	278	248
Arrive On Green	0.56	0.56	0.56	0.56	0.16	0.16
Sat Flow, veh/h	1389	387	90	1621	1757	1568
Grp Volume(v), veh/h	0	684	292	0	146	47
Grp Sat Flow(s),veh/h/ln	0	1776	1712	0	1757	1568
Q Serve(g_s), s	0.0	8.8	0.0	0.0	2.4	0.8
Cycle Q Clear(g_c), s	0.0	8.8	2.6	0.0	2.4	0.8
Prop In Lane		0.22	0.13		1.00	1.00
Lane Grp Cap(c), veh/h	0	990	1082	0	278	248
V/C Ratio(X)	0.00	0.69	0.27	0.00	0.53	0.19
Avail Cap(c_a), veh/h	0	3285	3091	0	1249	1115
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	3.7	0.0	12.2	11.6
Incr Delay (d2), s/veh	0.0	0.9	0.1	0.0	1.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.4	1.3	0.0	1.3	0.4
LnGrp Delay(d),s/veh	0.0	5.9	3.8	0.0	13.8	11.9
LnGrp LOS		A	A		B	B
Approach Vol, veh/h	684			292	193	
Approach Delay, s/veh	5.9			3.8	13.3	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		9.5		22.1				22.1
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		22.5		58.5				58.5
Max Q Clear Time (g_c+I1), s		4.4		10.8				4.6
Green Ext Time (p_c), s		0.5		6.9				6.9

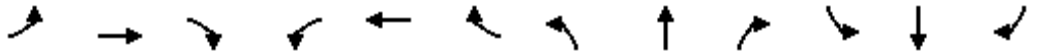
Intersection Summary	
HCM 2010 Ctrl Delay	6.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	322	540	454	273	540	454	236	1858	826	206	1270	249
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.13	0.53	0.53	0.06	0.44	0.44
Sat Flow, veh/h	1106	1845	1552	891	1845	1552	1757	3505	1559	3343	2860	562
Grp Volume(v), veh/h	86	130	359	205	134	117	134	1243	601	152	490	485
Grp Sat Flow(s),veh/h/ln	1106	1845	1552	891	1845	1552	1757	1752	1559	1672	1719	1703
Q Serve(g_s), s	7.7	6.4	25.6	27.3	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Cycle Q Clear(g_c), s	14.4	6.4	25.6	33.7	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	322	540	454	273	540	454	236	1858	826	206	764	756
V/C Ratio(X)	0.27	0.24	0.79	0.75	0.25	0.26	0.57	0.67	0.73	0.74	0.64	0.64
Avail Cap(c_a), veh/h	322	540	454	273	540	454	259	1858	826	315	764	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.56	0.56	0.56	0.86	0.86	0.86
Uniform Delay (d), s/veh	37.9	32.3	39.1	45.2	32.4	32.5	48.7	20.5	21.6	55.3	25.9	25.9
Incr Delay (d2), s/veh	0.4	0.2	9.2	9.4	0.2	0.2	0.6	1.1	3.2	1.7	3.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	12.1	7.4	3.4	3.0	4.2	15.1	15.9	2.5	13.3	13.2
LnGrp Delay(d),s/veh	38.3	32.5	48.3	54.6	32.6	32.7	49.3	21.6	24.7	57.0	29.5	29.5
LnGrp LOS	D	C	D	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		43.2			42.5			24.5			33.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	68.9		40.0	21.4	58.6		40.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	7.4	37.4		27.6	10.6	28.6		35.7
Green Ext Time (p_c), s	0.1	19.0		2.9	2.1	10.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	755	0	633				0	1210	290	305	1074	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	755	0	633				0	1210	290	305	1074	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Cycle Q Clear(g_c), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.65	0.00	1.18				0.00	0.83	0.45	1.44	0.54	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.76	0.76	0.00
Uniform Delay (d), s/veh	30.7	0.0	36.3				0.0	7.2	5.9	48.3	14.7	0.0
Incr Delay (d2), s/veh	1.3	0.0	100.7				0.0	1.6	0.6	215.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	31.1				0.0	9.4	2.4	19.1	10.2	0.0
LnGrp Delay(d),s/veh	32.0	0.0	137.0				0.0	8.8	6.5	263.8	15.5	0.0
LnGrp LOS	C		F					A	A	F	B	
Approach Vol, veh/h		1388						1500			1379	
Approach Delay, s/veh		79.9						8.3			70.4	
Approach LOS		E						A			E	

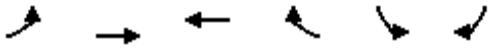
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	22.7		39.5		22.9		
Green Ext Time (p_c), s	0.0	21.8		0.0		36.7		

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	312	367	197	213	208	92
Future Volume (veh/h)	312	367	197	213	208	92
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	339	399	214	232	226	100
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	929	1015	242	1251	260	232
Arrive On Green	0.56	0.56	0.15	0.75	0.16	0.16
Sat Flow, veh/h	1660	1399	1581	1660	1581	1411
Grp Volume(v), veh/h	339	399	214	232	226	100
Grp Sat Flow(s),veh/h/ln	1660	1399	1581	1660	1581	1411
Q Serve(g_s), s	12.4	12.1	14.6	4.4	15.3	7.0
Cycle Q Clear(g_c), s	12.4	12.1	14.6	4.4	15.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	929	1015	242	1251	260	232
V/C Ratio(X)	0.36	0.39	0.88	0.19	0.87	0.43
Avail Cap(c_a), veh/h	929	1015	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	5.9	45.6	3.9	44.8	41.3
Incr Delay (d2), s/veh	0.9	1.0	19.4	0.1	30.3	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	7.7	7.7	2.0	8.9	3.1
LnGrp Delay(d),s/veh	14.3	6.8	65.0	4.0	75.1	47.1
LnGrp LOS	B	A	E	A	E	D
Approach Vol, veh/h	738			446	326	
Approach Delay, s/veh	10.3			33.3	66.5	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	21.3	66.1				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.3	16.6	14.4				6.4
Green Ext Time (p_c), s		0.1	0.3	5.2				5.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	84	196	252	780	18
Future Volume (veh/h)	29	84	196	252	780	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	91	213	274	848	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	159	426	687	576	902	21
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	293	1144	1845	1547	1709	40
Grp Volume(v), veh/h	123	0	213	274	869	0
Grp Sat Flow(s),veh/h/ln	1437	0	1845	1547	1752	0
Q Serve(g_s), s	0.2	0.0	7.4	12.2	41.8	0.0
Cycle Q Clear(g_c), s	7.5	0.0	7.4	12.2	41.8	0.0
Prop In Lane	0.26			1.00	0.98	0.02
Lane Grp Cap(c), veh/h	585	0	687	576	924	0
V/C Ratio(X)	0.21	0.00	0.31	0.48	0.94	0.00
Avail Cap(c_a), veh/h	585	0	687	576	924	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	20.0	21.6	19.9	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.3	18.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	5.2	24.7	0.0
LnGrp Delay(d),s/veh	19.2	0.0	20.2	21.8	38.1	0.0
LnGrp LOS	B		C	C	D	
Approach Vol, veh/h		123	487		869	
Approach Delay, s/veh		19.2	21.1		38.1	
Approach LOS		B	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.5		43.8		14.2
Green Ext Time (p_c), s				2.9		1.3		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.9
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	102	195	204	3	597	11	223	3	13	9
Future Volume (veh/h)	8	127	102	195	204	3	597	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	111	212	222	3	649	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	188	472	244	437	6	695	44	896	78	327	215
Arrive On Green	0.01	0.10	0.10	0.14	0.24	0.24	0.20	0.60	0.60	0.35	0.35	0.35
Sat Flow, veh/h	1757	1845	1491	1757	1815	25	3408	74	1493	107	933	612
Grp Volume(v), veh/h	9	138	111	212	0	225	649	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1491	1757	0	1840	1704	0	1567	1653	0	0
Q Serve(g_s), s	0.5	7.3	3.2	11.8	0.0	10.6	18.7	0.0	7.7	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.3	3.2	11.8	0.0	10.6	18.7	0.0	7.7	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	188	472	244	0	443	695	0	941	619	0	0
V/C Ratio(X)	0.77	0.73	0.24	0.87	0.00	0.51	0.93	0.00	0.27	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	628	253	0	546	695	0	941	619	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.48	0.00	0.48	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	43.6	10.8	42.2	0.0	32.8	39.1	0.0	9.5	21.4	0.0	0.0
Incr Delay (d2), s/veh	31.9	6.6	0.3	24.5	0.0	1.1	11.1	0.0	0.3	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	4.1	1.4	7.4	0.0	5.5	9.9	0.0	3.4	0.5	0.0	0.0
LnGrp Delay(d),s/veh	81.5	50.2	11.1	66.7	0.0	33.9	50.2	0.0	9.9	21.6	0.0	0.0
LnGrp LOS	F	D	B	E		C	D		A	C		
Approach Vol, veh/h		258			437			903			27	
Approach Delay, s/veh		34.4			49.8			38.9			21.6	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		65.4	19.2	15.5	25.0	40.4	5.3	29.4
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		9.7	13.8	9.3	20.7	3.0	2.5	12.6
Green Ext Time (p_c), s		2.3	0.1	0.9	0.0	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	110	454	56	113	66	308	496	105	41	190	79
Future Volume (veh/h)	269	110	454	56	113	66	308	496	105	41	190	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	292	120	493	61	123	72	335	539	114	45	207	86
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	322	547	683	78	170	99	491	496	105	218	391	162
Arrive On Green	0.18	0.30	0.30	0.04	0.16	0.16	0.14	0.34	0.34	0.04	0.10	0.10
Sat Flow, veh/h	1757	1845	1542	1757	1078	631	3408	1473	311	1757	1233	512
Grp Volume(v), veh/h	292	120	493	61	0	195	335	0	653	45	0	293
Grp Sat Flow(s),veh/h/ln	1757	1845	1542	1757	0	1709	1704	0	1784	1757	0	1745
Q Serve(g_s), s	16.3	4.9	6.9	3.4	0.0	10.8	9.3	0.0	33.7	2.5	0.0	15.9
Cycle Q Clear(g_c), s	16.3	4.9	6.9	3.4	0.0	10.8	9.3	0.0	33.7	2.5	0.0	15.9
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.17	1.00		0.29
Lane Grp Cap(c), veh/h	322	547	683	78	0	269	491	0	601	218	0	553
V/C Ratio(X)	0.91	0.22	0.72	0.78	0.00	0.72	0.68	0.00	1.09	0.21	0.00	0.53
Avail Cap(c_a), veh/h	394	640	761	95	0	321	491	0	601	218	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.42	0.42	0.42	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	40.0	26.5	11.3	47.3	0.0	40.0	40.6	0.0	33.2	43.2	0.0	37.7
Incr Delay (d2), s/veh	9.7	0.2	1.9	23.0	0.0	4.7	3.2	0.0	62.2	0.1	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	2.5	3.2	2.2	0.0	5.5	4.6	0.0	26.9	1.2	0.0	8.2
LnGrp Delay(d),s/veh	49.7	26.7	13.2	70.3	0.0	44.7	43.8	0.0	95.4	43.3	0.0	40.7
LnGrp LOS	D	C	B	E		D	D		F	D		D
Approach Vol, veh/h		905			256			988			338	
Approach Delay, s/veh		26.8			50.8			77.9			41.1	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	39.0	9.0	35.0	19.0	37.0	22.9	21.1
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.5	35.7	5.4	8.9	11.3	17.9	18.3	12.8
Green Ext Time (p_c), s	0.1	0.0	0.0	7.0	0.0	1.9	0.1	2.9

Intersection Summary	
HCM 2010 Ctrl Delay	51.5
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	7.8

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Traffic Vol, veh/h	480	17	33	291	188	16
Future Vol, veh/h	480	17	33	291	188	16
Conflicting Peds, #/hr	0	10	10	0	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	522	18	36	316	204	17

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	550	0	781	290
Stage 1	-	-	-	-	541	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	-	1009	-	330	704
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	774	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	999	-	309	691
Mov Cap-2 Maneuver	-	-	-	-	309	-
Stage 1	-	-	-	-	540	-
Stage 2	-	-	-	-	733	-

Approach	NB	SB	SW
HCM Control Delay, s	0	1.1	37.4
HCM LOS			E

Minor Lane/Major Mvmt	NBT	NBR	SBL	SBT	SWLn1
Capacity (veh/h)	-	-	999	-	323
HCM Lane V/C Ratio	-	-	0.036	-	0.686
HCM Control Delay (s)	-	-	8.7	0.2	37.4
HCM Lane LOS	-	-	A	A	E
HCM 95th %tile Q(veh)	-	-	0.1	-	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	495	210	161	362	211	100
Future Volume (veh/h)	495	210	161	362	211	100
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	538	228	175	393	229	109
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	860	364	246	517	290	259
Arrive On Green	0.70	0.70	0.70	0.70	0.17	0.17
Sat Flow, veh/h	1231	522	250	740	1757	1568
Grp Volume(v), veh/h	0	766	568	0	229	109
Grp Sat Flow(s),veh/h/ln	0	1753	990	0	1757	1568
Q Serve(g_s), s	0.0	15.5	18.2	0.0	8.3	4.1
Cycle Q Clear(g_c), s	0.0	15.5	33.7	0.0	8.3	4.1
Prop In Lane		0.30	0.31		1.00	1.00
Lane Grp Cap(c), veh/h	0	1225	763	0	290	259
V/C Ratio(X)	0.00	0.63	0.74	0.00	0.79	0.42
Avail Cap(c_a), veh/h	0	1656	1063	0	491	438
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.3	9.4	0.0	26.5	24.8
Incr Delay (d2), s/veh	0.0	0.5	1.8	0.0	4.8	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.4	8.6	0.0	4.4	1.9
LnGrp Delay(d),s/veh	0.0	5.9	11.3	0.0	31.3	25.9
LnGrp LOS		A	B		C	C
Approach Vol, veh/h	766			568	338	
Approach Delay, s/veh	5.9			11.3	29.5	
Approach LOS	A			B	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		15.4		50.7				50.7
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		18.5		62.5				62.5
Max Q Clear Time (g_c+I1), s		10.3		17.5				35.7
Green Ext Time (p_c), s		0.7		12.4				10.6

Intersection Summary	
HCM 2010 Ctrl Delay	12.5
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Future Volume (veh/h)	0	0	67	0	0	552	153	492	105	12	923	4
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	0	1845	0	0	1845	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	0	0	73	0	0	600	166	535	114	13	1003	4
Adj No. of Lanes	0	0	1	0	0	1	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	0	3	0	0	3	3	3	3	3	3	3
Cap, veh/h	0	0	0	0	0	0	680	2435	517	872	3029	12
Arrive On Green	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.85
Sat Flow, veh/h		0			0		552	2878	611	772	3580	14
Grp Volume(v), veh/h		0.0			0.0		166	325	324	13	491	516
Grp Sat Flow(s),veh/h/ln							552	1752	1737	772	1752	1842
Q Serve(g_s), s							2.7	1.0	1.0	0.1	1.8	1.8
Cycle Q Clear(g_c), s							4.4	1.0	1.0	1.1	1.8	1.8
Prop In Lane							1.00		0.35	1.00		0.01
Lane Grp Cap(c), veh/h							680	1483	1469	872	1483	1558
V/C Ratio(X)							0.24	0.22	0.22	0.01	0.33	0.33
Avail Cap(c_a), veh/h							1224	3209	3180	1632	3209	3373
HCM Platoon Ratio							1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)							1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh							1.0	0.4	0.4	0.5	0.5	0.5
Incr Delay (d2), s/veh							0.2	0.1	0.1	0.0	0.1	0.1
Initial Q Delay(d3),s/veh							0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln							0.4	0.5	0.5	0.0	0.7	0.8
LnGrp Delay(d),s/veh							1.1	0.5	0.5	0.5	0.6	0.6
LnGrp LOS							A	A	A	A	A	A
Approach Vol, veh/h								815			1020	
Approach Delay, s/veh								0.6			0.6	
Approach LOS								A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		
Phs Duration (G+Y+Rc), s		29.2				29.2		
Change Period (Y+Rc), s		4.5				4.5		
Max Green Setting (Gmax), s		53.5				53.5		
Max Q Clear Time (g_c+I1), s		6.4				3.8		
Green Ext Time (p_c), s		18.3				18.6		

Intersection Summary	
HCM 2010 Ctrl Delay	0.6
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Future Volume (veh/h)	49	64	198	186	105	76	231	962	695	291	958	265
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	53	70	215	202	114	83	251	1046	755	316	1041	288
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	301	473	398	303	473	398	278	1810	805	372	1249	343
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.16	0.52	0.52	0.11	0.47	0.47
Sat Flow, veh/h	1160	1845	1550	1071	1845	1550	1757	3505	1559	3343	2659	731
Grp Volume(v), veh/h	53	70	215	202	114	83	251	1046	755	316	670	659
Grp Sat Flow(s),veh/h/ln	1160	1845	1550	1071	1845	1550	1757	1752	1559	1672	1719	1671
Q Serve(g_s), s	4.6	3.5	14.4	21.6	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Cycle Q Clear(g_c), s	10.4	3.5	14.4	25.1	5.9	5.0	16.8	24.7	54.5	11.1	40.7	41.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.44
Lane Grp Cap(c), veh/h	301	473	398	303	473	398	278	1810	805	372	807	785
V/C Ratio(X)	0.18	0.15	0.54	0.67	0.24	0.21	0.90	0.58	0.94	0.85	0.83	0.84
Avail Cap(c_a), veh/h	342	538	452	341	538	452	335	1810	805	454	807	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.98	0.98	0.98	0.32	0.32	0.32	0.83	0.83	0.83
Uniform Delay (d), s/veh	39.5	34.5	38.5	44.2	35.3	35.0	49.6	20.0	27.2	52.4	27.7	27.9
Incr Delay (d2), s/veh	0.3	0.1	1.1	4.1	0.3	0.3	8.7	0.4	8.3	8.9	8.2	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	1.8	6.3	6.7	3.0	2.2	8.8	12.0	25.1	5.6	21.0	21.0
LnGrp Delay(d),s/veh	39.8	34.6	39.7	48.2	35.6	35.3	58.3	20.4	35.5	61.2	35.9	36.7
LnGrp LOS	D	C	D	D	D	D	E	C	D	E	D	D
Approach Vol, veh/h		338			399			2052			1645	
Approach Delay, s/veh		38.6			41.9			30.6			41.1	
Approach LOS		D			D			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.0	67.3		35.7	22.7	61.6		35.7
Change Period (Y+Rc), s	3.7	5.3		4.9	3.7	5.3		4.9
Max Green Setting (Gmax), s	16.3	54.8		35.0	22.9	48.2		35.0
Max Q Clear Time (g_c+I1), s	13.1	56.5		16.4	18.8	43.4		27.1
Green Ext Time (p_c), s	0.2	0.0		2.9	0.1	4.8		2.0

Intersection Summary		
HCM 2010 Ctrl Delay		36.1
HCM 2010 LOS		D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Future Volume (veh/h)	505	0	347	0	0	0	0	1375	144	240	1123	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1900	1845	1845	0
Adj Flow Rate, veh/h	549	0	377				0	1495	157	261	1221	0
Adj No. of Lanes	2	0	1				0	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	754	0	347				0	1597	166	879	3709	0
Arrive On Green	0.22	0.00	0.22				0.00	0.50	0.50	0.50	1.00	0.00
Sat Flow, veh/h	3408	0	1568				0	3293	333	1757	3597	0
Grp Volume(v), veh/h	549	0	377				0	812	840	261	1221	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1782	1757	1752	0
Q Serve(g_s), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Cycle Q Clear(g_c), s	13.5	0.0	19.9				0.0	39.0	40.2	7.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.19	1.00		0.00
Lane Grp Cap(c), veh/h	754	0	347				0	874	889	879	3709	0
V/C Ratio(X)	0.73	0.00	1.09				0.00	0.93	0.94	0.30	0.33	0.00
Avail Cap(c_a), veh/h	754	0	347				0	874	889	879	3709	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.10	0.10	0.59	0.59	0.00
Uniform Delay (d), s/veh	32.5	0.0	35.0				0.0	21.1	21.4	13.2	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	73.8				0.0	2.5	3.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	15.7				0.0	19.3	20.3	3.8	0.1	0.0
LnGrp Delay(d),s/veh	36.1	0.0	108.8				0.0	23.5	24.4	13.2	0.1	0.0
LnGrp LOS	D		F					C	C	B	A	
Approach Vol, veh/h		926						1652			1482	
Approach Delay, s/veh		65.7						24.0			2.4	
Approach LOS		E						C			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	50.6	50.2		24.4		100.8		
Change Period (Y+Rc), s	5.3	* 5.3		4.5		5.3		
Max Green Setting (Gmax), s	11.7	* 45		19.9		60.3		
Max Q Clear Time (g_c+I1), s	9.8	42.2		21.9		2.0		
Green Ext Time (p_c), s	0.5	2.6		0.0		22.4		

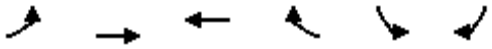
Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	201	703	306	266	71	120
Future Volume (veh/h)	201	703	306	266	71	120
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	218	764	333	289	77	130
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	758	849	444	1287	237	212
Arrive On Green	0.76	0.76	0.28	0.77	0.15	0.15
Sat Flow, veh/h	1660	1396	1581	1660	1581	1411
Grp Volume(v), veh/h	218	764	333	289	77	130
Grp Sat Flow(s),veh/h/ln	1660	1396	1581	1660	1581	1411
Q Serve(g_s), s	4.8	54.8	23.0	5.7	5.2	10.3
Cycle Q Clear(g_c), s	4.8	54.8	23.0	5.7	5.2	10.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	758	849	444	1287	237	212
V/C Ratio(X)	0.29	0.90	0.75	0.22	0.32	0.61
Avail Cap(c_a), veh/h	758	849	444	1287	237	212
HCM Platoon Ratio	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.3	8.8	39.3	3.7	45.6	47.7
Incr Delay (d2), s/veh	0.6	10.4	7.0	0.1	3.6	12.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	27.6	10.9	2.6	2.5	4.8
LnGrp Delay(d),s/veh	8.9	19.2	46.3	3.8	49.2	60.4
LnGrp LOS	A	B	D	A	D	E
Approach Vol, veh/h	982			622	207	
Approach Delay, s/veh	16.9			26.5	56.2	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.5	38.2	59.3				97.5
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.0	33.7	54.8				93.0
Max Q Clear Time (g_c+I1), s		12.3	25.0	56.8				7.7
Green Ext Time (p_c), s		0.3	1.7	0.0				2.6

Intersection Summary	
HCM 2010 Ctrl Delay	24.7
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	97	142	132	293	8
Future Volume (veh/h)	29	97	142	132	293	8
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	105	154	143	318	9
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	184	576	810	680	783	22
Arrive On Green	0.44	0.44	0.44	0.44	0.46	0.46
Sat Flow, veh/h	307	1312	1845	1550	1697	48
Grp Volume(v), veh/h	137	0	154	143	328	0
Grp Sat Flow(s),veh/h/ln	1618	0	1845	1550	1751	0
Q Serve(g_s), s	0.0	0.0	4.6	5.1	11.2	0.0
Cycle Q Clear(g_c), s	4.1	0.0	4.6	5.1	11.2	0.0
Prop In Lane	0.23			1.00	0.97	0.03
Lane Grp Cap(c), veh/h	760	0	810	680	807	0
V/C Ratio(X)	0.18	0.00	0.19	0.21	0.41	0.00
Avail Cap(c_a), veh/h	760	0	810	680	807	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.72	0.72	1.00	0.00
Uniform Delay (d), s/veh	15.3	0.0	15.5	15.6	16.1	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.4	0.5	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	2.4	2.3	5.7	0.0
LnGrp Delay(d),s/veh	15.4	0.0	15.8	16.1	17.6	0.0
LnGrp LOS	B		B	B	B	
Approach Vol, veh/h		137	297		328	
Approach Delay, s/veh		15.4	16.0		17.6	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				44.0		46.0		44.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				39.5		41.5		39.5
Max Q Clear Time (g_c+I1), s				6.1		13.2		7.1
Green Ext Time (p_c), s				2.2		1.0		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Future Volume (veh/h)	6	88	267	298	250	6	410	8	128	0	6	15
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	7	96	290	324	272	7	446	9	139	0	7	16
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	9	219	411	363	584	15	505	51	781	0	168	385
Arrive On Green	0.01	0.12	0.12	0.21	0.33	0.33	0.15	0.53	0.53	0.00	0.34	0.34
Sat Flow, veh/h	1757	1845	1502	1757	1790	46	3408	95	1473	0	495	1131
Grp Volume(v), veh/h	7	96	290	324	0	279	446	0	148	0	0	23
Grp Sat Flow(s),veh/h/ln	1757	1845	1502	1757	0	1836	1704	0	1568	0	0	1625
Q Serve(g_s), s	0.4	5.3	10.2	19.7	0.0	13.3	14.1	0.0	5.4	0.0	0.0	1.0
Cycle Q Clear(g_c), s	0.4	5.3	10.2	19.7	0.0	13.3	14.1	0.0	5.4	0.0	0.0	1.0
Prop In Lane	1.00		1.00	1.00		0.03	1.00		0.94	0.00		0.70
Lane Grp Cap(c), veh/h	9	219	411	363	0	599	505	0	832	0	0	553
V/C Ratio(X)	0.76	0.44	0.71	0.89	0.00	0.47	0.88	0.00	0.18	0.00	0.00	0.04
Avail Cap(c_a), veh/h	78	288	467	470	0	696	632	0	832	0	0	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.86	0.00	0.86	0.00	0.00	1.00
Uniform Delay (d), s/veh	54.6	45.1	14.7	42.5	0.0	29.4	45.9	0.0	13.4	0.0	0.0	24.3
Incr Delay (d2), s/veh	36.7	1.7	4.5	13.9	0.0	0.7	9.1	0.0	0.4	0.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.8	4.7	10.9	0.0	6.9	7.3	0.0	2.4	0.0	0.0	0.5
LnGrp Delay(d),s/veh	91.3	46.7	19.1	56.4	0.0	30.1	55.0	0.0	13.8	0.0	0.0	24.4
LnGrp LOS	F	D	B	E		C	D		B			C
Approach Vol, veh/h		393			603			594			23	
Approach Delay, s/veh		27.2			44.2			44.7			24.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.6	28.0	18.4	20.9	42.7	5.2	41.2
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		48.2	29.4	* 17	20.4	23.2	4.9	41.7
Max Q Clear Time (g_c+I1), s		7.4	21.7	12.2	16.1	3.0	2.4	15.3
Green Ext Time (p_c), s		1.3	1.0	0.8	0.2	1.1	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Future Volume (veh/h)	150	28	217	74	80	41	153	355	40	20	411	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	163	30	236	80	87	45	166	386	43	22	447	152
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	194	310	605	95	126	65	760	598	67	374	468	159
Arrive On Green	0.11	0.17	0.17	0.05	0.11	0.11	0.22	0.37	0.37	0.21	0.36	0.36
Sat Flow, veh/h	1757	1845	1521	1757	1127	583	3408	1628	181	1757	1312	446
Grp Volume(v), veh/h	163	30	236	80	0	132	166	0	429	22	0	599
Grp Sat Flow(s),veh/h/ln	1757	1845	1521	1757	0	1710	1704	0	1810	1757	0	1758
Q Serve(g_s), s	9.1	1.4	1.8	4.5	0.0	7.4	4.0	0.0	19.7	1.0	0.0	33.2
Cycle Q Clear(g_c), s	9.1	1.4	1.8	4.5	0.0	7.4	4.0	0.0	19.7	1.0	0.0	33.2
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.10	1.00		0.25
Lane Grp Cap(c), veh/h	194	310	605	95	0	191	760	0	664	374	0	628
V/C Ratio(X)	0.84	0.10	0.39	0.84	0.00	0.69	0.22	0.00	0.65	0.06	0.00	0.95
Avail Cap(c_a), veh/h	323	566	817	95	0	321	760	0	664	374	0	628
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.95	1.00	0.00	1.00	1.00	0.00	1.00	0.71	0.00	0.71
Uniform Delay (d), s/veh	43.6	35.2	10.5	46.9	0.0	42.7	31.7	0.0	26.3	31.4	0.0	31.4
Incr Delay (d2), s/veh	3.9	0.3	1.0	44.5	0.0	1.7	0.1	0.0	4.8	0.0	0.0	21.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.7	3.2	3.4	0.0	3.6	1.9	0.0	10.7	0.5	0.0	19.8
LnGrp Delay(d),s/veh	47.6	35.5	11.5	91.4	0.0	44.4	31.8	0.0	31.1	31.4	0.0	52.4
LnGrp LOS	D	D	B	F		D	C		C	C		D
Approach Vol, veh/h		429			212			595			621	
Approach Delay, s/veh		26.9			62.1			31.3			51.7	
Approach LOS		C			E			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.9	42.0	10.0	22.1	26.9	41.0	15.6	16.5
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	7.4	36.7	5.4	30.7	8.4	35.7	18.4	* 19
Max Q Clear Time (g_c+I1), s	3.0	21.7	6.5	3.8	6.0	35.2	11.1	9.4
Green Ext Time (p_c), s	0.1	2.7	0.0	2.8	0.0	0.2	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	40.6
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	96	369	165	198	179	28
Future Vol, veh/h	96	369	165	198	179	28
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	104	401	179	215	195	30

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	189	0	-	0	809	199
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	620	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1379	-	-	-	348	839
Stage 1	-	-	-	-	841	-
Stage 2	-	-	-	-	535	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1366	-	-	-	315	823
Mov Cap-2 Maneuver	-	-	-	-	315	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	490	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	30
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1366	-	-	-	315	823
HCM Lane V/C Ratio	0.076	-	-	-	0.618	0.037
HCM Control Delay (s)	7.9	-	-	-	33.2	9.5
HCM Lane LOS	A	-	-	-	D	A
HCM 95th %tile Q(veh)	0.2	-	-	-	3.9	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	352	137	34	235	134	43
Future Volume (veh/h)	352	137	34	235	134	43
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	383	149	37	255	146	47
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	617	240	195	799	322	287
Arrive On Green	0.49	0.49	0.49	0.49	0.18	0.18
Sat Flow, veh/h	1265	492	96	1638	1757	1568
Grp Volume(v), veh/h	0	532	292	0	146	47
Grp Sat Flow(s),veh/h/ln	0	1758	1735	0	1757	1568
Q Serve(g_s), s	0.0	6.1	0.0	0.0	2.0	0.7
Cycle Q Clear(g_c), s	0.0	6.1	2.6	0.0	2.0	0.7
Prop In Lane		0.28	0.13		1.00	1.00
Lane Grp Cap(c), veh/h	0	857	994	0	322	287
V/C Ratio(X)	0.00	0.62	0.29	0.00	0.45	0.16
Avail Cap(c_a), veh/h	0	3572	3482	0	1640	1464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.1	4.3	0.0	9.9	9.4
Incr Delay (d2), s/veh	0.0	0.7	0.2	0.0	1.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.0	1.3	0.0	1.1	0.3
LnGrp Delay(d),s/veh	0.0	5.9	4.4	0.0	10.9	9.7
LnGrp LOS		A	A		B	A
Approach Vol, veh/h	532			292	193	
Approach Delay, s/veh	5.9			4.4	10.6	
Approach LOS	A			A	B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		9.5		17.8				17.8
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		25.5		55.5				55.5
Max Q Clear Time (g_c+I1), s		4.0		8.1				4.6
Green Ext Time (p_c), s		0.5		5.3				5.3

Intersection Summary	
HCM 2010 Ctrl Delay	6.4
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Future Volume (veh/h)	79	120	330	189	123	108	123	1144	553	140	750	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1845	1845	1845	1845	1810	1810	1900
Adj Flow Rate, veh/h	86	130	359	205	134	117	134	1243	601	152	815	160
Adj No. of Lanes	1	1	1	1	1	1	1	2	1	2	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	5	5	5
Cap, veh/h	322	540	454	273	540	454	236	1858	826	206	1270	249
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.13	0.53	0.53	0.06	0.44	0.44
Sat Flow, veh/h	1106	1845	1552	891	1845	1552	1757	3505	1559	3343	2860	562
Grp Volume(v), veh/h	86	130	359	205	134	117	134	1243	601	152	490	485
Grp Sat Flow(s),veh/h/ln	1106	1845	1552	891	1845	1552	1757	1752	1559	1672	1719	1703
Q Serve(g_s), s	7.7	6.4	25.6	27.3	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Cycle Q Clear(g_c), s	14.4	6.4	25.6	33.7	6.7	6.9	8.6	31.0	35.4	5.4	26.6	26.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h	322	540	454	273	540	454	236	1858	826	206	764	756
V/C Ratio(X)	0.27	0.24	0.79	0.75	0.25	0.26	0.57	0.67	0.73	0.74	0.64	0.64
Avail Cap(c_a), veh/h	322	540	454	273	540	454	259	1858	826	315	764	756
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.84	0.84	0.84	0.56	0.56	0.56	0.86	0.86	0.86
Uniform Delay (d), s/veh	37.9	32.3	39.1	45.2	32.4	32.5	48.7	20.5	21.6	55.3	25.9	25.9
Incr Delay (d2), s/veh	0.4	0.2	9.2	9.4	0.2	0.2	0.6	1.1	3.2	1.7	3.5	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.3	12.1	7.4	3.4	3.0	4.2	15.1	15.9	2.5	13.3	13.2
LnGrp Delay(d),s/veh	38.3	32.5	48.3	54.6	32.6	32.7	49.3	21.6	24.7	57.0	29.5	29.5
LnGrp LOS	D	C	D	D	C	C	D	C	C	E	C	C
Approach Vol, veh/h		575			456			1978			1127	
Approach Delay, s/veh		43.2			42.5			24.5			33.2	
Approach LOS		D			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.1	68.9		40.0	21.4	58.6		40.0
Change Period (Y+Rc), s	3.7	5.3		4.9	5.3	* 5.3		4.9
Max Green Setting (Gmax), s	11.3	59.7		35.1	17.7	* 53		35.1
Max Q Clear Time (g_c+I1), s	7.4	37.4		27.6	10.6	28.6		35.7
Green Ext Time (p_c), s	0.1	19.0		2.9	2.1	10.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	31.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Future Volume (veh/h)	695	0	582	0	0	0	0	1113	267	281	988	0
Number	7	4	14				5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	0	1845				0	1845	1845	1845	1845	0
Adj Flow Rate, veh/h	755	0	633				0	1210	290	305	1074	0
Adj No. of Lanes	2	0	1				0	2	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	0	3				0	3	3	3	3	0
Cap, veh/h	1162	0	535				0	1456	644	212	1998	0
Arrive On Green	0.34	0.00	0.34				0.00	0.83	0.83	0.12	0.57	0.00
Sat Flow, veh/h	3408	0	1568				0	3597	1549	1757	3597	0
Grp Volume(v), veh/h	755	0	633				0	1210	290	305	1074	0
Grp Sat Flow(s),veh/h/ln	1704	0	1568				0	1752	1549	1757	1752	0
Q Serve(g_s), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Cycle Q Clear(g_c), s	20.6	0.0	37.5				0.0	20.7	5.6	13.3	20.9	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1162	0	535				0	1456	644	212	1998	0
V/C Ratio(X)	0.65	0.00	1.18				0.00	0.83	0.45	1.44	0.54	0.00
Avail Cap(c_a), veh/h	1162	0	535				0	1456	644	212	1998	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.76	0.76	0.00
Uniform Delay (d), s/veh	30.7	0.0	36.3				0.0	7.2	5.9	48.3	14.7	0.0
Incr Delay (d2), s/veh	1.3	0.0	100.7				0.0	1.6	0.6	215.5	0.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	31.1				0.0	9.4	2.4	19.1	10.2	0.0
LnGrp Delay(d),s/veh	32.0	0.0	137.0				0.0	8.8	6.5	263.8	15.5	0.0
LnGrp LOS	C		F					A	A	F	B	
Approach Vol, veh/h		1388						1500			1379	
Approach Delay, s/veh		79.9						8.3			70.4	
Approach LOS		E						A			E	

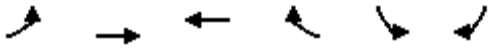
Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	17.0	51.0		42.0		68.0		
Change Period (Y+Rc), s	3.7	5.3		4.5		5.3		
Max Green Setting (Gmax), s	13.3	45.7		37.5		62.7		
Max Q Clear Time (g_c+I1), s	15.3	22.7		39.5		22.9		
Green Ext Time (p_c), s	0.0	21.8		0.0		36.7		

Intersection Summary	
HCM 2010 Ctrl Delay	51.7
HCM 2010 LOS	D

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	312	367	197	213	208	92
Future Volume (veh/h)	312	367	197	213	208	92
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.99	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1660	1660	1660	1660	1660	1660
Adj Flow Rate, veh/h	339	399	214	232	226	100
Adj No. of Lanes	1	1	1	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	929	1015	242	1251	260	232
Arrive On Green	0.56	0.56	0.15	0.75	0.16	0.16
Sat Flow, veh/h	1660	1399	1581	1660	1581	1411
Grp Volume(v), veh/h	339	399	214	232	226	100
Grp Sat Flow(s),veh/h/ln	1660	1399	1581	1660	1581	1411
Q Serve(g_s), s	12.4	12.1	14.6	4.4	15.3	7.0
Cycle Q Clear(g_c), s	12.4	12.1	14.6	4.4	15.3	7.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	929	1015	242	1251	260	232
V/C Ratio(X)	0.36	0.39	0.88	0.19	0.87	0.43
Avail Cap(c_a), veh/h	929	1015	323	1251	260	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.4	5.9	45.6	3.9	44.8	41.3
Incr Delay (d2), s/veh	0.9	1.0	19.4	0.1	30.3	5.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	7.7	7.7	2.0	8.9	3.1
LnGrp Delay(d),s/veh	14.3	6.8	65.0	4.0	75.1	47.1
LnGrp LOS	B	A	E	A	E	D
Approach Vol, veh/h	738			446	326	
Approach Delay, s/veh	10.3			33.3	66.5	
Approach LOS	B			C	E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4				8
Phs Duration (G+Y+Rc), s		22.6	21.3	66.1				87.4
Change Period (Y+Rc), s		4.5	4.5	4.5				4.5
Max Green Setting (Gmax), s		18.1	22.5	55.9				82.9
Max Q Clear Time (g_c+I1), s		17.3	16.6	14.4				6.4
Green Ext Time (p_c), s		0.1	0.3	5.2				5.2

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	29	84	196	252	512	18
Future Volume (veh/h)	29	84	196	252	512	18
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.99	1.00	0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1845	1845	1845	1900
Adj Flow Rate, veh/h	32	91	213	274	557	20
Adj No. of Lanes	0	1	1	1	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	0	0
Cap, veh/h	159	426	687	576	890	32
Arrive On Green	0.37	0.37	0.37	0.37	0.53	0.53
Sat Flow, veh/h	293	1144	1845	1547	1685	61
Grp Volume(v), veh/h	123	0	213	274	578	0
Grp Sat Flow(s),veh/h/ln	1437	0	1845	1547	1749	0
Q Serve(g_s), s	0.2	0.0	7.4	12.2	21.0	0.0
Cycle Q Clear(g_c), s	7.5	0.0	7.4	12.2	21.0	0.0
Prop In Lane	0.26			1.00	0.96	0.03
Lane Grp Cap(c), veh/h	585	0	687	576	923	0
V/C Ratio(X)	0.21	0.00	0.31	0.48	0.63	0.00
Avail Cap(c_a), veh/h	585	0	687	576	923	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.09	0.09	1.00	0.00
Uniform Delay (d), s/veh	19.0	0.0	20.0	21.6	15.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.3	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	3.7	5.2	10.8	0.0
LnGrp Delay(d),s/veh	19.2	0.0	20.2	21.8	18.2	0.0
LnGrp LOS	B		C	C	B	
Approach Vol, veh/h		123	487		578	
Approach Delay, s/veh		19.2	21.1		18.2	
Approach LOS		B	C		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				38.0		52.0		38.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				33.5		47.5		33.5
Max Q Clear Time (g_c+I1), s				9.5		23.0		14.2
Green Ext Time (p_c), s				2.9		1.9		2.8

Intersection Summary	
HCM 2010 Ctrl Delay	19.5
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Future Volume (veh/h)	8	127	236	195	204	3	463	11	223	3	13	9
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.98	1.00		0.99	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1900	1845	1900
Adj Flow Rate, veh/h	9	138	257	212	222	3	503	12	242	3	14	10
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	12	223	443	244	472	6	567	43	867	81	343	226
Arrive On Green	0.01	0.12	0.12	0.14	0.26	0.26	0.17	0.58	0.58	0.37	0.37	0.37
Sat Flow, veh/h	1757	1845	1503	1757	1815	25	3408	74	1492	110	930	612
Grp Volume(v), veh/h	9	138	257	212	0	225	503	0	254	27	0	0
Grp Sat Flow(s),veh/h/ln	1757	1845	1503	1757	0	1840	1704	0	1566	1652	0	0
Q Serve(g_s), s	0.5	7.1	8.7	11.8	0.0	10.3	14.4	0.0	8.1	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	7.1	8.7	11.8	0.0	10.3	14.4	0.0	8.1	1.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	1.00		0.95	0.11		0.37
Lane Grp Cap(c), veh/h	12	223	443	244	0	478	567	0	910	650	0	0
V/C Ratio(X)	0.77	0.62	0.58	0.87	0.00	0.47	0.89	0.00	0.28	0.04	0.00	0.00
Avail Cap(c_a), veh/h	95	382	572	253	0	546	695	0	910	650	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.66	0.00	0.66	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.6	41.8	12.9	42.2	0.0	31.2	40.8	0.0	10.5	20.2	0.0	0.0
Incr Delay (d2), s/veh	31.9	3.3	1.5	24.5	0.0	0.9	7.1	0.0	0.5	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.8	3.8	7.4	0.0	5.4	7.3	0.0	3.6	0.5	0.0	0.0
LnGrp Delay(d),s/veh	81.5	45.1	14.4	66.7	0.0	32.1	47.9	0.0	11.0	20.4	0.0	0.0
LnGrp LOS	F	D	B	E		C	D		B	C		
Approach Vol, veh/h		404			437			757			27	
Approach Delay, s/veh		26.4			48.8			35.5			20.4	
Approach LOS		C			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s		63.4	19.2	17.4	21.2	42.2	5.3	31.3
Change Period (Y+Rc), s		5.3	5.3	* 5.3	4.6	5.3	4.6	5.3
Max Green Setting (Gmax), s		49.7	14.4	* 21	20.4	24.7	5.4	29.7
Max Q Clear Time (g_c+I1), s		10.1	13.8	10.7	16.4	3.0	2.5	12.3
Green Ext Time (p_c), s		2.3	0.1	1.4	0.2	2.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	36.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Future Volume (veh/h)	135	110	320	56	113	66	308	496	105	41	324	79
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1845	1845	1845	1900	1845	1845	1900	1845	1845	1900
Adj Flow Rate, veh/h	147	120	348	61	123	72	335	539	114	45	352	86
Adj No. of Lanes	1	1	1	1	1	0	2	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	177	385	683	78	164	96	790	496	105	372	453	111
Arrive On Green	0.10	0.21	0.21	0.04	0.15	0.15	0.23	0.34	0.34	0.07	0.10	0.10
Sat Flow, veh/h	1757	1845	1530	1757	1077	631	3408	1473	311	1757	1428	349
Grp Volume(v), veh/h	147	120	348	61	0	195	335	0	653	45	0	438
Grp Sat Flow(s),veh/h/ln	1757	1845	1530	1757	0	1708	1704	0	1784	1757	0	1777
Q Serve(g_s), s	8.2	5.5	2.7	3.4	0.0	10.9	8.4	0.0	33.7	2.4	0.0	24.0
Cycle Q Clear(g_c), s	8.2	5.5	2.7	3.4	0.0	10.9	8.4	0.0	33.7	2.4	0.0	24.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.17	1.00		0.20
Lane Grp Cap(c), veh/h	177	385	683	78	0	260	790	0	601	372	0	563
V/C Ratio(X)	0.83	0.31	0.51	0.78	0.00	0.75	0.42	0.00	1.09	0.12	0.00	0.78
Avail Cap(c_a), veh/h	394	640	895	95	0	321	790	0	601	372	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.82	0.82	0.82	1.00	0.00	1.00	1.00	0.00	1.00	0.83	0.00	0.83
Uniform Delay (d), s/veh	44.1	33.5	9.3	47.3	0.0	40.6	32.7	0.0	33.2	37.8	0.0	41.3
Incr Delay (d2), s/veh	3.1	0.9	1.2	23.0	0.0	5.5	0.1	0.0	62.2	0.0	0.0	8.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	2.9	4.8	2.2	0.0	5.5	4.0	0.0	26.9	1.2	0.0	13.2
LnGrp Delay(d),s/veh	47.2	34.4	10.5	70.3	0.0	46.0	32.9	0.0	95.4	37.8	0.0	49.9
LnGrp LOS	D	C	B	E		D	C		F	D		D
Approach Vol, veh/h		615			256			988			483	
Approach Delay, s/veh		24.0			51.8			74.2			48.8	
Approach LOS		C			D			E			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	39.0	9.0	26.2	27.8	37.0	14.7	20.5
Change Period (Y+Rc), s	4.6	5.3	4.6	5.3	4.6	5.3	4.6	* 5.3
Max Green Setting (Gmax), s	6.4	33.7	5.4	34.7	8.4	31.7	22.4	* 19
Max Q Clear Time (g_c+I1), s	4.4	35.7	5.4	7.5	10.4	26.0	10.2	12.9
Green Ext Time (p_c), s	0.1	0.0	0.0	5.3	0.0	1.6	0.0	2.3

Intersection Summary	
HCM 2010 Ctrl Delay	53.3
HCM 2010 LOS	D

Notes

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Traffic Vol, veh/h	75	429	315	229	95	43
Future Vol, veh/h	75	429	315	229	95	43
Conflicting Peds, #/hr	10	0	0	10	10	10
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	200	0	200
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	82	466	342	249	103	47

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	352	0	-	0	991	362
Stage 1	-	-	-	-	352	-
Stage 2	-	-	-	-	639	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1201	-	-	-	272	680
Stage 1	-	-	-	-	710	-
Stage 2	-	-	-	-	524	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1190	-	-	-	248	667
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	483	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	23.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	248	667
HCM Lane V/C Ratio	0.069	-	-	-	0.416	0.07
HCM Control Delay (s)	8.2	-	-	-	29.5	10.8
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	0.2	-	-	-	1.9	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	341	210	161	362	211	100
Future Volume (veh/h)	341	210	161	362	211	100
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1900	1845	1845	1845
Adj Flow Rate, veh/h	371	228	175	393	229	109
Adj No. of Lanes	1	0	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	675	415	275	570	319	285
Arrive On Green	0.63	0.63	0.63	0.63	0.18	0.18
Sat Flow, veh/h	1071	658	281	904	1757	1568
Grp Volume(v), veh/h	0	599	568	0	229	109
Grp Sat Flow(s),veh/h/ln	0	1729	1185	0	1757	1568
Q Serve(g_s), s	0.0	9.4	9.4	0.0	5.9	2.9
Cycle Q Clear(g_c), s	0.0	9.4	18.8	0.0	5.9	2.9
Prop In Lane		0.38	0.31		1.00	1.00
Lane Grp Cap(c), veh/h	0	1090	845	0	319	285
V/C Ratio(X)	0.00	0.55	0.67	0.00	0.72	0.38
Avail Cap(c_a), veh/h	0	2185	1683	0	752	672
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	5.0	6.7	0.0	18.4	17.2
Incr Delay (d2), s/veh	0.0	0.4	0.9	0.0	3.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.5	5.7	0.0	3.1	1.3
LnGrp Delay(d),s/veh	0.0	5.4	7.7	0.0	21.5	18.1
LnGrp LOS		A	A		C	B
Approach Vol, veh/h	599			568	338	
Approach Delay, s/veh	5.4			7.7	20.4	
Approach LOS	A			A	C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4				8
Phs Duration (G+Y+Rc), s		13.2		34.7				34.7
Change Period (Y+Rc), s		4.5		4.5				4.5
Max Green Setting (Gmax), s		20.5		60.5				60.5
Max Q Clear Time (g_c+I1), s		7.9		11.4				20.8
Green Ext Time (p_c), s		0.8		9.6				9.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.6
HCM 2010 LOS	A

APPENDIX E

HCS 2010 Worksheets

EXISTING WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2160	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	617	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2160		617		127		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	587		168		35		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2470	704	145	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2470 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2470	4700	No
$v_{FO} = v_F - v_R$	1766	4700	No
v_R	704	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2470 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2470	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 15.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.361	
Space mean speed in ramp influence area,	S_R = 56.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1543	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	617	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1543	127	617	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	419	35	168	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1764	145	704	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1764 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1909	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1764 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1909	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.237	
Space mean speed in ramp influence area,	S_R = 59.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1670	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	148	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	99	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1670		148		99		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	454		40		27		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1910	169	113	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1910 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1910	4700	No
$v_{FO} = v_F - v_R$	1741	4700	No
v_R	169	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1910 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1910	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 9.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.313	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1522	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	99	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	148	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1522	99	148	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	414	27	40	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1740	113	169	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 1740 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1853	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1740 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1853	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.278	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1669	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	102	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	242	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1669	102	242	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	454	28	66	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1908	116	276	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1908 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1908	4700	No
$v_{FO} = v_F - v_R$	1792	4700	No
v_R	116	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1908 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1908	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 8.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.308	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1567	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	242	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	102	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1567	242	102	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	426	66	28	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1792	276	116	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1792 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2068	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1792 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2068	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.253	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1809	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	46	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	952	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1809		46		952		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	492		12		259		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2069	52	1087	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2069 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2069	4700	No
$v_{FO} = v_F - v_R$	2017	4700	No
v_R	52	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2069 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2069	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.303	
Space mean speed in ramp influence area,	S_R = 58.0	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1763	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	952	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	46	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1763	952	46	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	479	259	12	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2016	1087	52	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2016 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3103	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2016 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3103	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2728	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	921	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	229	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2728		921		229		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	741		250		62		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3119	1051	261	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3119 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3119	4700	No
$v_{FO} = v_F - v_R$	2068	4700	No
v_R	1051	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3119 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3119	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 20.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.393	
Space mean speed in ramp influence area,	S_R = 56.0	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1807	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	229	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	921	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1807	229	921	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	491	62	250	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2066	261	1051	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2066 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2327	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2066 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2327	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.251	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2036	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	282	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	54	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2036		282		54		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	553		77		15		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2328	322	62	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2328 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2328	4700	No
$v_{FO} = v_F - v_R$	2006	4700	No
v_R	322	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2328 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2328	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 12.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.327

Space mean speed in ramp influence area, S_R = 57.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.5 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1754	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	54	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	282	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1754	54	282	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	477	15	77	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2006	62	322	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2006 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2068	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2006 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2068	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.284	
Space mean speed in ramp influence area,	S_R = 58.5	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1637	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	86	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	183	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1637	86	183	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	445	23	50	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1872	98	209	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1872 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1872	4700	No
$v_{FO} = v_F - v_R$	1774	4700	No
v_R	98	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1872 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1872	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 8.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.307	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1551	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	86	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1551	183	86	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	421	50	23	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1774	209	98	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1774 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1983	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1774 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1983	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.250	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1734	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	119	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	486	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1734		119		486		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	471		32		132		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1983	136	555	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1983 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1983	4700	No
$v_{FO} = v_F - v_R$	1847	4700	No
v_R	136	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1983 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1983	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 13.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1615	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	486	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	119	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1615	486	119	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	439	132	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1847	555	136	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1847 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2402	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1847 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2402	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.288	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.4	mph

EXISTING PLUS PROJECT WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2172	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	629	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	127	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2172		629		127		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	590		171		35		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2484	718	145	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2484 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2484	4700	No
$v_{FO} = v_F - v_R$	1766	4700	No
v_R	718	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2484 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2484	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 15.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.363	
Space mean speed in ramp influence area,	S_R = 56.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1543	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	127	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	629	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1543	127	629	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	419	35	171	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1764	145	718	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1764 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1909	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1764 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1909	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 12.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.237	
Space mean speed in ramp influence area,	S_R = 59.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1670	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	148	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	102	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1670		148		102		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	454		40		28		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1910	169	116	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1910 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1910	4700	No
$v_{FO} = v_F - v_R$	1741	4700	No
v_R	169	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1910 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1910	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 9.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.313	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1522	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	102	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	148	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1522	102	148	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	414	28	40	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1740	116	169	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1740 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1856	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1740 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1856	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.278	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1674	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	107	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	242	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1674	107	242	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	455	29	66	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1914	122	276	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1914 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1914	4700	No
$v_{FO} = v_F - v_R$	1792	4700	No
v_R	122	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1914 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1914	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 8.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1567	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	242	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	107	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1567	242	107	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	426	66	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1792	276	122	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1792 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2068	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1792 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2068	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.253	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1809	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	46	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	958	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1809		46		958		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	492		12		260		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2069	52	1093	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2069 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2069	4700	No
$v_{FO} = v_F - v_R$	2017	4700	No
v_R	52	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2069 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2069	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 13.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.303	
Space mean speed in ramp influence area,	S_R = 58.0	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1763	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	958	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	46	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1763	958	46	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	479	260	12	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2016	1093	52	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2016 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3109	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2016 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3109	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.332	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2774	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	967	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	229	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2774		967		229		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	754		263		62		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3172	1104	261	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3172 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3172	4700	No
$v_{FO} = v_F - v_R$	2068	4700	No
v_R	1104	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3172 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3172	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 21.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.397	
Space mean speed in ramp influence area,	S_R = 55.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1807	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	229	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	967	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1807	229	967	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	491	62	263	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2066	261	1104	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2066 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2327	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2066 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2327	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.251	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2036	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	282	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	67	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2036		282		67		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	553		77		18		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2328	322	76	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2328 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2328	4700	No
$v_{FO} = v_F - v_R$	2006	4700	No
v_R	322	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2328 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2328	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 12.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.327	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1754	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	67	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	282	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1754	67	282	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	477	18	77	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2006	76	322	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2006 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2082	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2006 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2082	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.285	
Space mean speed in ramp influence area,	S_R = 58.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1657	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	106	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	183	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1657		106		183		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	450		29		50		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1895	121	209	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1895 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1895	4700	No
$v_{FO} = v_F - v_R$	1774	4700	No
v_R	121	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1895 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1895	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 8.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1551	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	183	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	106	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1551	183	106	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	421	50	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1774	209	121	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1774 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1983	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1774 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1983	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 13.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.250	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1734	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	119	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	515	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1734		119		515		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	471		32		140		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1983	136	588	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1983 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1983	4700	No
$v_{FO} = v_F - v_R$	1847	4700	No
v_R	136	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1983 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1983	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 13.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2017
Description:	Existing Plus Project

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1615	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	515	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	119	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1615	515	119	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	439	140	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1847	588	136	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1847 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2435	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1847 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2435	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.289	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.4	mph

NEAR-TERM (YEAR 2018) WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2203	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	630	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	130	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2203		630		130		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	599		171		35		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2519	719	148	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2519 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2519	4700	No
$v_{FO} = v_F - v_R$	1800	4700	No
v_R	719	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2519 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2519	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.363	
Space mean speed in ramp influence area,	S_R = 56.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1573	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	130	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	630	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1573	130	630	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	427	35	171	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1799	148	719	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1799 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1947	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1799 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1947	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 12.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.238	
Space mean speed in ramp influence area,	S_R = 59.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1703	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	101	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1703		151		101		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	463		41		27		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1947	172	115	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1947 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1947	4700	No
$v_{FO} = v_F - v_R$	1775	4700	No
v_R	172	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1947 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1947	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 9.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.313	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1522	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	101	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	151	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1522	101	151	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	414	27	41	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1740	115	172	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1740 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1855	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1740 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1855	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.278	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1702	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	104	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1702	104	247	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	462	28	67	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1946	119	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1946 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1946	4700	No
$v_{FO} = v_F - v_R$	1827	4700	No
v_R	119	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1946 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1946	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 8.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1598	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	104	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1598	247	104	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	434	67	28	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1827	282	119	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1827 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2109	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1827 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2109	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.254	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1845	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	47	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	971	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1845		47		971		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	501		13		264		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2110	54	1108	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2110 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2110	4700	No
$v_{FO} = v_F - v_R$	2056	4700	No
v_R	54	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2110 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2110	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 14.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.303

Space mean speed in ramp influence area, S_R = 58.0 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 58.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1798	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	971	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	47	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1798	971	47	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	489	264	13	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2056	1108	54	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2056 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3164	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2056 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3164	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2783	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	940	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2783		940		234		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	756		255		64		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3182	1073	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3182 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3182	4700	No
$v_{FO} = v_F - v_R$	2109	4700	No
v_R	1073	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3182 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3182	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 21.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.395	
Space mean speed in ramp influence area,	S_R = 55.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1843	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	940	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1843	234	940	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	501	64	255	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2107	267	1073	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2107 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2374	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2107 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2374	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.253	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2077	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	55	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2077		287		55		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	564		78		15		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2375	328	63	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2375 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2375	4700	No
$v_{FO} = v_F - v_R$	2047	4700	No
v_R	328	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2375 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2375	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.328

Space mean speed in ramp influence area, S_R = 57.5 mph

Space mean speed in outer lanes, S_O = N/A mph

Space mean speed for all vehicles, S = 57.5 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1790	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	55	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	287	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1790	55	287	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	486	15	78	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2047	63	328	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2047 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2110	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2047 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2110	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 17.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.286	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1671	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	88	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	186	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1671		88		186		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	454		24		51		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1911	100	212	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1911 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1911	4700	No
$v_{FO} = v_F - v_R$	1811	4700	No
v_R	100	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1911 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1911	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 8.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.307	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1583	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	186	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	88	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1583	186	88	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	430	51	24	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1810	212	100	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 1810 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2022	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1810 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2022	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.251	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1769	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	121	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	496	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1769		121		496		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	481		33		135		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2023	138	566	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2023 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2023	4700	No
$v_{FO} = v_F - v_R$	1885	4700	No
v_R	138	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2023 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2023	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 13.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1648	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	496	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	121	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1648	496	121	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	448	135	33	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1884	566	138	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1884 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2450	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1884 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2450	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.290	
Space mean speed in ramp influence area,	S_R = 58.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2205	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	632	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	130	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2205		632		130		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	599		172		35		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2521	721	148	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2521 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2521	4700	No
$v_{FO} = v_F - v_R$	1800	4700	No
v_R	721	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2521 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2521	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 15.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.363	
Space mean speed in ramp influence area,	S_R = 56.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1573	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	130	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	632	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1573	130	632	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	427	35	172	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1799	148	721	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1799 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1947	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1799 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1947	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 12.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.238	
Space mean speed in ramp influence area,	S_R = 59.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1703	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	151	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	102	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1703	151	102	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	463	41	28	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1947	172	116	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1947 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1947	4700	No
$v_{FO} = v_F - v_R$	1775	4700	No
v_R	172	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1947 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1947	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 9.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable, D_S = 0.313

Space mean speed in ramp influence area, S_R = 57.8 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.8 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1552	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	102	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	151	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1552	102	151	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	422	28	41	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1775	116	172	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1775 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	1891	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1775 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	1891	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 15.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.279	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1703	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1703	105	247	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	463	29	67	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1947	120	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1947 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1947	4700	No
$v_{FO} = v_F - v_R$	1827	4700	No
v_R	120	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1947 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1947	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 8.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1598	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	105	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1598	247	105	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	434	67	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1827	282	120	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1827 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2109	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1827 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2109	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 14.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.254	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1845	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	47	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	972	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1845	47	972	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	501	13	264	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2110	54	1109	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2110 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2110	4700	No
$v_{FO} = v_F - v_R$	2056	4700	No
v_R	54	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2110 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2110	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 14.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.303	
Space mean speed in ramp influence area,	S_R = 58.0	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1798	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	972	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	47	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1798	972	47	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	489	264	13	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2056	1109	54	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2056 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3165	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2056 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3165	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.337	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2818	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	975	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2818		975		234		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	766		265		64		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3222	1113	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3222 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3222	4700	No
$v_{FO} = v_F - v_R$	2109	4700	No
v_R	1113	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3222 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3222	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 21.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.398	
Space mean speed in ramp influence area,	S_R = 55.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1843	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	975	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1843	234	975	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	501	64	265	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2107	267	1113	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2107 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2374	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2107 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2374	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 16.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.253	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2077	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	287	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	63	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2077		287		63		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	564		78		17		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2375	328	72	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2375 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2375	4700	No
$v_{FO} = v_F - v_R$	2047	4700	No
v_R	328	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2375 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2375	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 13.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.328	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1790	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	63	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	287	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1790	63	287	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	486	17	78	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2047	72	328	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2047 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2119	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2047 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2119	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 17.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.286	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1686	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	103	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	186	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1686	103	186	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	458	28	51	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1928	118	212	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 1928 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	1928	4700	No
$v_{FO} = v_F - v_R$	1810	4700	No
v_R	118	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1928 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	1928	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 8.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence A

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1583	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	186	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	103	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1583	186	103	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	430	51	28	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1810	212	118	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 1810 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2022	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1810 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2022	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 14.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.251	
Space mean speed in ramp influence area,	S_R = 59.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 59.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1769	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	121	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	513	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	1769		121		513		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	481		33		139		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2023	138	585	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2023 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2023	4700	No
$v_{FO} = v_F - v_R$	1885	4700	No
v_R	138	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2023 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2023	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 13.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2018
Description:	Near-Term Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	1648	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	513	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	121	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	1648	513	121	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	448	139	33	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	1884	585	138	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 1884 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2469	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1884 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2469	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.291	
Space mean speed in ramp influence area,	S_R = 58.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.3	mph

CUMULATIVE YEAR 2040 WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3377	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	952	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3377		952		247		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	918		259		67		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3862	1087	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3862 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3862	4700	No
$v_{FO} = v_F - v_R$	2775	4700	No
v_R	1087	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3862 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3862	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 27.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.396

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 55.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2425	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	952	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2425	247	952	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	659	67	259	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2773	282	1087	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2773 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3055	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2773 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3055	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2672	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	301	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	257	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2672		301		257		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	726		82		70		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3055	344	293	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3055 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3055	4700	No
$v_{FO} = v_F - v_R$	2711	4700	No
v_R	344	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3055 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3055	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2371	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	257	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	301	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2371	257	301	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	644	70	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2711	293	344	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2711 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3004	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2711 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3004	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.332	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2913	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	312	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	293	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2913	312	293	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	792	85	80	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3331	356	334	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3331 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3331	4700	No
$v_{FO} = v_F - v_R$	2975	4700	No
v_R	356	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3331 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3331	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 20.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2601	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	293	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	312	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2601	293	312	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	707	80	85	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2974	334	356	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2974 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3308	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2974 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3308	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2894	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	118	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1219	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2894		118		1219		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	786		32		331		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3309	135	1391	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3309 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3309	4700	No
$v_{FO} = v_F - v_R$	3174	4700	No
v_R	135	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3309 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3309	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2776	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1219	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	118	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2776	1219	118	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	754	331	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3174	1391	135	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3174 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4565	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3174 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4565	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 35.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable,	M_S = 0.619	
Space mean speed in ramp influence area,	S_R = 50.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 50.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4299	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1407	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4299		1407		366		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1168		382		99		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4916	1606	418	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4916 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4916	4700	Yes
$v_{FO} = v_F - v_R$	3310	4700	No
v_R	1606	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4916 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4916	4400	Yes

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 36.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.443	
Space mean speed in ramp influence area,	S_R = 54.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 54.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2892	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1407	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2892	366	1407	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	786	99	382	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3307	418	1606	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3307 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3725	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3307 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3725	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.372	
Space mean speed in ramp influence area,	S_R = 56.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3258	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	530	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	330	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3258	530	330	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	885	144	90	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3725	605	377	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3725 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3725	4700	No
$v_{FO} = v_F - v_R$	3120	4700	No
v_R	605	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3725 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3725	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2728	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	330	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	530	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2728	330	530	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	741	90	144	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3119	377	605	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3119 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3496	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3119 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3496	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 27.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.382	
Space mean speed in ramp influence area,	S_R = 56.2	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2650	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	220	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	344	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2650	220	344	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	720	60	93	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3030	251	393	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3030 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3030	4700	No
$v_{FO} = v_F - v_R$	2779	4700	No
v_R	251	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3030 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3030	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.321	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2430	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	344	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	220	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2430	344	220	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	660	93	60	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2779	393	251	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2779 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3172	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2779 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3172	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.315	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2774	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	251	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	686	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2774	251	686	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	754	68	186	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3172	286	783	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3172 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3172	4700	No
$v_{FO} = v_F - v_R$	2886	4700	No
v_R	286	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3172 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3172	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2523	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	686	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	251	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2523	686	251	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	686	186	68	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2885	783	286	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2885 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3668	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2885 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3668	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 28.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.397	
Space mean speed in ramp influence area,	S_R = 55.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 55.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3389	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	964	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3389		964		247		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	921		262		67		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3875	1100	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3875 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3875	4700	No
$v_{FO} = v_F - v_R$	2775	4700	No
v_R	1100	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3875 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3875	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 27.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.397	
Space mean speed in ramp influence area,	S_R = 55.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2425	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	964	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2425	247	964	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	659	67	262	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2773	282	1100	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2773 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3055	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2773 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3055	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2672	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	301	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	260	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2672	301	260	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	726	82	71	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3055	344	297	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3055 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3055	4700	No
$v_{FO} = v_F - v_R$	2711	4700	No
v_R	344	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3055 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3055	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 19.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2371	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	260	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	301	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2371	260	301	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	644	71	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2711	297	344	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2711 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3008	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2711 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3008	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.332	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2918	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	317	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	293	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2918		317		293		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	793		86		80		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3337	362	334	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3337 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3337	4700	No
$v_{FO} = v_F - v_R$	2975	4700	No
v_R	362	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3337 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3337	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 20.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2601	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	293	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	317	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2601	293	317	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	707	80	86	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2974	334	362	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2974 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3308	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2974 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3308	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2894	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	118	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1225	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2894		118		1225		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	786		32		333		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3309	135	1398	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3309 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3309	4700	No
$v_{FO} = v_F - v_R$	3174	4700	No
v_R	135	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3309 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3309	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 24.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.310

Space mean speed in ramp influence area, S_R = 57.9 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.9 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2776	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1225	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	118	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2776	1225	118	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	754	333	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3174	1398	135	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3174 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4572	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3174 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4572	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 35.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence E

Speed Estimation

Intermediate speed variable,	M_S = 0.622	
Space mean speed in ramp influence area,	S_R = 50.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 50.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1453	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4345		1453		366		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1181		395		99		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4968	1658	418	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4968 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4968	4700	Yes
$v_{FO} = v_F - v_R$	3310	4700	No
v_R	1658	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4968 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4968	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 36.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence F

Speed Estimation

Intermediate speed variable,	D_S = 0.447	
Space mean speed in ramp influence area,	S_R = 54.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 54.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2892	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	366	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1453	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2892	366	1453	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	786	99	395	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3307	418	1658	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3307 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3725	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3307 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3725	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.372	
Space mean speed in ramp influence area,	S_R = 56.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3258	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	530	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	343	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3258		530		343		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	885		144		93		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3725	605	391	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3725 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3725	4700	No
$v_{FO} = v_F - v_R$	3120	4700	No
v_R	605	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3725 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3725	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2728	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	343	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	530	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2728	343	530	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	741	93	144	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3119	391	605	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3119 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3510	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3119 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3510	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 28.0- pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.384	
Space mean speed in ramp influence area,	S_R = 56.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2670	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	240	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	344	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2670		240		344		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	726		65		93		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3053	274	393	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3053 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3053	4700	No
$v_{FO} = v_F - v_R$	2779	4700	No
v_R	274	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3053 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3053	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 18.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2430	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	344	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	240	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2430	344	240	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	660	93	65	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2779	393	274	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2779 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3172	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2779 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3172	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.315	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2774	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	251	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	715	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2774		251		715		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	754		68		194		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3172	286	816	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3172 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3172	4700	No
$v_{FO} = v_F - v_R$	2886	4700	No
v_R	286	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3172 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3172	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2523	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	715	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	251	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2523	715	251	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	686	194	68	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2885	816	286	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2885 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3701	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2885 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3701	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 28.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.402	
Space mean speed in ramp influence area,	S_R = 55.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 55.7	mph

CUMULATIVE YEAR 2040 WITH INTERCHANGE WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3149	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	375	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3149	852	375	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	856	232	102	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3601	972	428	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3601 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3601	4700	No
$v_{FO} = v_F - v_R$	2629	4700	No
v_R	972	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3601 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3601	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 24.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2297	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	375	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	852	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2297	375	852	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	624	102	232	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2627	428	972	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2627 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3055	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2627 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3055	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2706	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	301	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	161	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2706	301	161	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	735	82	44	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3094	344	184	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3094 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3094	4700	No
$v_{FO} = v_F - v_R$	2750	4700	No
v_R	344	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3094 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3094	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 19.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2405	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	161	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	301	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2405	161	301	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	654	44	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2750	184	344	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2750 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2934	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2750 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2934	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.327	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2418	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	312	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	616	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2418	312	616	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	657	85	167	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2765	356	703	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2765 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2765	4700	No
$v_{FO} = v_F - v_R$	2409	4700	No
v_R	356	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2765 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2765	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_{12}$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2106	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	616	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	312	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2106	616	312	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	572	167	85	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2408	703	356	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2408 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3111	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2408 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3111	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3009	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	191	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1009	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3009	191	1009	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	818	52	274	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3441	218	1152	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3441 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3441	4700	No
$v_{FO} = v_F - v_R$	3223	4700	No
v_R	218	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3441 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3441	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 25.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2818	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2818	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	766	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3222	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3222 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4374	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3222 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4374	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 33.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.554	
Space mean speed in ramp influence area,	S_R = 52.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 52.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2672	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	274	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	105	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2672	274	105	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	726	74	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3055	313	120	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3055 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3055	4700	No
$v_{FO} = v_F - v_R$	2742	4700	No
v_R	313	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3055 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3055	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 20.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.326

Space mean speed in ramp influence area, S_R = 57.5 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.5 mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2398	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	274	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2398	105	274	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	652	29	74	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2742	120	313	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2742 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2862	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2742 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2862	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.279	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2503	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	105	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2503	203	105	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	680	55	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2862	232	120	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2862 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3094	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2862 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3094	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.297	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2722	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	103	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2722		103		234		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	740		28		64		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3113	118	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3113 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3113	4700	No
$v_{FO} = v_F - v_R$	2995	4700	No
v_R	118	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3113 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3113	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	103	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2619	234	103	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	712	64	28	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2995	267	118	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2995 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3262	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2995 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3262	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	156	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	234	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2853	156	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	775	42	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3262	178	267	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3262 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3440	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3262 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3440	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.344	
Space mean speed in ramp influence area,	S_R = 57.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4019	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	516	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4019	1277	516	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1092	347	140	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4596	1457	589	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4596 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4596	4700	No
$v_{FO} = v_F - v_R$	3139	4700	No
v_R	1457	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4596 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4596	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.429	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2742	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	516	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1277	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2742	516	1277	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	745	140	347	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3135	589	1457	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3135 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3724	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3135 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3724	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.372	
Space mean speed in ramp influence area,	S_R = 56.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3018	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	530	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	281	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3018	530	281	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	820	144	76	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3451	605	321	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3451 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3451	4700	No
$v_{FO} = v_F - v_R$	2846	4700	No
v_R	605	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3451 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3451	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2488	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	281	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	530	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2488	281	530	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	676	76	144	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2845	321	605	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2845 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3166	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2845 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3166	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.346	
Space mean speed in ramp influence area,	S_R = 57.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2350	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	231	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	568	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2350	231	568	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	639	63	154	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2687	264	648	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2687 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2687	4700	No
$v_{FO} = v_F - v_R$	2423	4700	No
v_R	264	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2687 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2687	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_{12}$ = 15.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.322

Space mean speed in ramp influence area, S_R = 57.6 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.6 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2119	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	568	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	231	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2119	568	231	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	576	154	63	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2423	648	264	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2423 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3071	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2423 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3071	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.306	
Space mean speed in ramp influence area,	S_R = 58.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2752	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	300	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	564	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2752	300	564	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	748	82	153	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3147	342	644	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3147 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3147	4700	No
$v_{FO} = v_F - v_R$	2805	4700	No
v_R	342	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3147 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3147	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2452	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2452	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2804	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2804 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3448	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2804 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3448	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.367	
Space mean speed in ramp influence area,	S_R = 56.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3258	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	490	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	119	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3258	490	119	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	885	133	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3725	559	136	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3725 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3725	4700	No
$v_{FO} = v_F - v_R$	3166	4700	No
v_R	559	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3725 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3725	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 25.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.348

Space mean speed in ramp influence area, S_R = 57.0 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 57.0 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2768	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	119	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	490	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2768	119	490	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	752	32	133	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3165	136	559	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3165 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3301	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3165 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3301	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.317	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2887	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	131	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	119	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2887	131	119	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	785	36	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3301	150	136	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3301 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3451	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3301 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3451	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.334	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2687	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	237	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2687	237	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	730	64	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3073	270	208	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3073 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3073	4700	No
$v_{FO} = v_F - v_R$	2803	4700	No
v_R	270	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3073 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3073	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.322	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2450	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	237	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2450	182	237	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	49	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2802	208	270	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2802 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3010	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2802 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3010	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 58.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2632	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	120	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2632	120	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	715	33	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3010	137	208	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3147	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3010 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3147	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.313	
Space mean speed in ramp influence area,	S_R = 57.8	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3615 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	4700	No
$v_{FO} = v_F - v_R$	2643	4700	No
v_R	972	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3615 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3615	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 25.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2309	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	384	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	852	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2309	384	852	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	627	104	232	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2640	438	972	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2640 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3078	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2640 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3078	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.295	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2709	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	301	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	161	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2709	301	161	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	736	82	44	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3098	344	184	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3098 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3098	4700	No
$v_{FO} = v_F - v_R$	2754	4700	No
v_R	344	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3098 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3098	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 19.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2408	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	161	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	301	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2408	161	301	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	654	44	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2753	184	344	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2753 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2937	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2753 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2937	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.327	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2423	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	315	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	616	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2423		315		616		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	658		86		167		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2771	360	703	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2771 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2771	4700	No
$v_{FO} = v_F - v_R$	2411	4700	No
v_R	360	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2771 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2771	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2108	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	616	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	315	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2108	616	315	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	573	167	86	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2410	703	360	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2410 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3113	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2410 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3113	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3018	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	191	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1009	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3018	191	1009	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	820	52	274	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3451	218	1152	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3451$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3451	4700	No
$v_{FO} = v_F - v_R$	3233	4700	No
v_R	218	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3451 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3451	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 25.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3233 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3233 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 33.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.557	
Space mean speed in ramp influence area,	S_R = 52.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2693	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	295	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	108	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2693		295		108		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	732		80		29		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3079	337	123	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3079 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3079	4700	No
$v_{FO} = v_F - v_R$	2742	4700	No
v_R	337	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3079 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3079	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.328	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2398	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	108	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	295	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2398	108	295	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	652	29	80	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2742	123	337	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2742 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2865	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2742 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2865	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.279	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2506	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	108	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2506	203	108	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	681	55	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2866	232	123	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2866 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3098	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2866 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3098	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.297	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2724	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2724	105	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	740	29	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3115	120	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3115 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3115	4700	No
$v_{FO} = v_F - v_R$	2995	4700	No
v_R	120	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3115 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3115	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	105	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2619	234	105	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	712	64	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2995	267	120	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2995 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3262	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2995 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3262	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	165	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	234	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2853	165	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	775	45	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3262	188	267	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3262 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3450	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3262 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3450	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 25.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.345	
Space mean speed in ramp influence area,	S_R = 57.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4065	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	548	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4065		1277		548		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1105		347		149		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4648	1457	625	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4648 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4648	4700	No
$v_{FO} = v_F - v_R$	3191	4700	No
v_R	1457	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4648 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4648	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.429	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2788	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	548	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1277	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2788	548	1277	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	758	149	347	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3188	625	1457	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3188 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3813	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3188 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3813	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.387	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3031	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	530	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	281	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	530	281	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	824	144	76	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3466	605	321	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3466 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3466	4700	No
$v_{FO} = v_F - v_R$	2861	4700	No
v_R	605	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3466 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3466	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 22.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2501	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	281	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	530	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2501	281	530	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	680	76	144	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2860	321	605	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2860 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3181	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2860 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3181	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.347	
Space mean speed in ramp influence area,	S_R = 57.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2370	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	241	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	568	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2370	241	568	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	644	65	154	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2710	275	648	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2710 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2710	4700	No
$v_{FO} = v_F - v_R$	2435	4700	No
v_R	275	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2710 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2710	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2129	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	568	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	241	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2129	568	241	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	579	154	65	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2434	648	275	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2434 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3082	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2434 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3082	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 22.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.307	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2781	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	300	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	564	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2781		300		564		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	756		82		153		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3180	342	644	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3180 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3180	4700	No
$v_{FO} = v_F - v_R$	2838	4700	No
v_R	342	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3180 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3180	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.371	
Space mean speed in ramp influence area,	S_R = 56.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.5	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3336	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	568	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	132	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3336		568		132		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	907		154		36		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3815	648	151	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3815 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3815	4700	No
$v_{FO} = v_F - v_R$	3167	4700	No
v_R	648	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3815 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3815	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.356	
Space mean speed in ramp influence area,	S_R = 56.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2768	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	132	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	568	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2768	132	568	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	752	36	154	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3165	151	648	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3165 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3316	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3165 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3316	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2900	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	131	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	132	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2900	131	132	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	788	36	36	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3316	150	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3316 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3466	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3316 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3466	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.336	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2697	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2697	247	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	733	67	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3084	282	208	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3084 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3084	4700	No
$v_{FO} = v_F - v_R$	2802	4700	No
v_R	282	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3084 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3084	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2450	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	149	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2450	182	149	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	49	40	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2802	208	170	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2802 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3010	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2802 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3010	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 58.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2632	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	149	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2632	149	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	715	40	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3010	170	208	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3180	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3010 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3180	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

CUMULATIVE YEAR 2040 WITH INTERCHANGE ALTERNATIVES 1 AND 2 WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3615 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	4700	No
$v_{FO} = v_F - v_R$	2643	4700	No
v_R	972	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3615 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3615	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 25.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.3

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2309	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	384	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	852	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2309	384	852	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	627	104	232	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2640	438	972	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2640 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3078	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2640 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3078	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.295	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2990	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	515	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	161	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2990	515	161	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	812	140	44	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3419	588	184	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3419 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3419	4700	No
$v_{FO} = v_F - v_R$	2831	4700	No
v_R	588	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3419 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3419	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 22.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.351	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2475	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	161	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	515	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2475	161	515	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	673	44	140	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2830	184	588	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2830 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3014	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2830 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3014	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.333	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2423	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	315	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	809	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2423	315	809	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	658	86	220	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2771	360	923	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2771 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2771	4700	No
$v_{FO} = v_F - v_R$	2411	4700	No
v_R	360	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2771 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2771	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2108	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	809	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	315	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2108	809	315	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	573	220	86	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2410	923	360	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2410 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3333	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2410 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3333	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3018	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	191	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1009	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3018		191		1009		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	820		52		274		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3451	218	1152	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3451$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3451	4700	No
$v_{FO} = v_F - v_R$	3233	4700	No
v_R	218	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3451 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3451	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 25.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3233 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3233 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 33.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.557	
Space mean speed in ramp influence area,	S_R = 52.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2693	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	97	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	175	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2693		97		175		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	732		26		48		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3079	111	200	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3079 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3079	4700	No
$v_{FO} = v_F - v_R$	2968	4700	No
v_R	111	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3079 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3079	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.308	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2596	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	175	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	97	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2596	175	97	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	705	48	26	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2968	200	111	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2968 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3168	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2968 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3168	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.303	
Space mean speed in ramp influence area,	S_R = 58.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.0	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2771	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	219	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	175	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2771	219	175	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	753	60	48	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3169	250	200	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3169 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3419	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3169 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3419	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 24.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2917	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	298	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2917		298		234		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	793		81		64		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3336	340	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3336 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3336	4700	No
$v_{FO} = v_F - v_R$	2996	4700	No
v_R	340	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3336 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3336	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 20.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	298	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2619	234	298	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	712	64	81	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2995	267	340	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2995 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3262	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2995 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3262	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	165	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	234	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2853	165	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	775	45	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3262	188	267	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3262 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3450	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3262 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3450	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 25.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.345	
Space mean speed in ramp influence area,	S_R = 57.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4065	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	548	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4065	1277	548	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1105	347	149	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4648	1457	625	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4648 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4648	4700	No
$v_{FO} = v_F - v_R$	3191	4700	No
v_R	1457	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4648 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4648	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.429	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2788	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	548	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1277	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2788	548	1277	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	758	149	347	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3188	625	1457	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3188 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3813	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3188 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3813	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.387	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3348	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	798	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	281	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3348	798	281	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	910	217	76	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3828	911	321	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3828 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3828	4700	No
$v_{FO} = v_F - v_R$	2917	4700	No
v_R	911	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3828 (Equation 13-15, 13-16, 18, or 19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3828	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 25.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.380	
Space mean speed in ramp influence area,	S_R = 56.3	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.3	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2550	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	281	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	798	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2550	281	798	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	693	76	217	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2916	321	911	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2916 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3237	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2916 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3237	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.353	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2370	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	241	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	926	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2370	241	926	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	644	65	252	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2710	275	1057	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2710 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2710	4700	No
$v_{FO} = v_F - v_R$	2435	4700	No
v_R	275	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2710 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2710	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2129	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	929	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	241	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2129	929	241	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	579	252	65	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2434	1060	275	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2434 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3494	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2434 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3494	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.350	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2781	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	300	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	564	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2781		300		564		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	756		82		153		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3180	342	644	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3180 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3180	4700	No
$v_{FO} = v_F - v_R$	2838	4700	No
v_R	342	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3180 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3180	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.371	
Space mean speed in ramp influence area,	S_R = 56.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3336	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	335	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	181	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3336	335	181	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	907	91	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3815	382	207	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3815 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3815	4700	No
$v_{FO} = v_F - v_R$	3433	4700	No
v_R	382	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3815 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3815	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.332	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3001	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	181	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	335	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3001	181	335	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	815	49	91	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3432	207	382	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3432 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3639	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3432 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3639	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 26.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.359	
Space mean speed in ramp influence area,	S_R = 56.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3182	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	166	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	181	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3182	166	181	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	865	45	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3639	189	207	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3639 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3828	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3639 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3828	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 27.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.390	
Space mean speed in ramp influence area,	S_R = 56.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3055	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	605	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3055		605		182		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	830		164		49		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3493	690	208	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3493 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3493	4700	No
$v_{FO} = v_F - v_R$	2803	4700	No
v_R	690	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3493 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3493	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.360

Space mean speed in ramp influence area, S_R = 56.7 mph

Space mean speed in outer lanes, S_0 = N/A mph

Space mean speed for all vehicles, S = 56.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2450	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	149	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2450	182	149	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	49	40	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2802	208	170	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2802 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3010	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2802 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3010	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 58.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2632	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	149	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2632	149	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	715	40	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3010	170	208	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3180	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3010 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3180	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3615 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	4700	No
$v_{FO} = v_F - v_R$	2643	4700	No
v_R	972	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3615 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3615	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 25.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2309	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	384	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	852	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2309	384	852	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	627	104	232	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2640	438	972	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2640 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3078	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2640 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3078	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.295	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2709	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	301	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	161	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2709	301	161	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	736	82	44	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3098	344	184	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3098 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3098	4700	No
$v_{FO} = v_F - v_R$	2754	4700	No
v_R	344	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3098 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3098	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 19.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2408	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	161	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	301	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2408	161	301	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	654	44	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2753	184	344	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2753 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2937	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2753 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2937	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.327	
Space mean speed in ramp influence area,	S_R = 57.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2423	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	315	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	616	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	2423		315		616		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	658		86		167		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2771	360	703	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2771 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2771	4700	No
$v_{FO} = v_F - v_R$	2411	4700	No
v_R	360	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2771 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2771	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 15.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2108	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	616	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	315	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2108	616	315	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	573	167	86	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2410	703	360	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2410 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3113	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2410 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3113	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.310	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3018	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	191	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	1009	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3018		191		1009		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	820		52		274		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3451	218	1152	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD} = 3451$ pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3451	4700	No
$v_{FO} = v_F - v_R$	3233	4700	No
v_R	218	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3451 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3451	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 25.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3233 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3233 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 33.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	M_S = 0.557	
Space mean speed in ramp influence area,	S_R = 52.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 52.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2693	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	295	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	108	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2693	295	108	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	732	80	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3079	337	123	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3079 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3079	4700	No
$v_{FO} = v_F - v_R$	2742	4700	No
v_R	337	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3079 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3079	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 20.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.328	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2398	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	108	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	295	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2398	108	295	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	652	29	80	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2742	123	337	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2742 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	2865	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2742 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	2865	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 20.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.279	
Space mean speed in ramp influence area,	S_R = 58.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2506	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	203	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	108	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2506	203	108	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	681	55	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2866	232	123	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2866 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3098	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2866 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3098	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 21.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.297	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.2	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2724	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	105	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	234	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2724	105	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	740	29	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3115	120	267	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3115 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3115	4700	No
$v_{FO} = v_F - v_R$	2995	4700	No
v_R	120	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3115 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3115	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.309	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2619	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	234	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	105	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2619	234	105	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	712	64	29	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2995	267	120	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2995 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3262	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2995 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3262	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2853	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	165	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	234	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2853	165	234	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	775	45	64	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3262	188	267	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3262 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3450	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3262 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3450	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 25.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.345	
Space mean speed in ramp influence area,	S_R = 57.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4065	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	548	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4065		1277		548		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1105		347		149		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4648	1457	625	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 4648 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4648	4700	No
$v_{FO} = v_F - v_R$	3191	4700	No
v_R	1457	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 4648 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	4648	4400	Yes

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 33.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence D

Speed Estimation

Intermediate speed variable,	D_S = 0.429	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 55.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2788	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	548	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	1277	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2788	548	1277	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	758	149	347	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3188	625	1457	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 3188 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3813	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3188 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3813	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.387	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.1	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3031	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	530	vph
Length of first accel/decel lane	1275	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	281	vph
Position of adjacent ramp	Upstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3031	530	281	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	824	144	76	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3466	605	321	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3466 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3466	4700	No
$v_{FO} = v_F - v_R$	2861	4700	No
v_R	605	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3466 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3466	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 22.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.352	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.9	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2501	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	281	vph
Length of first accel/decel lane	750	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	530	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1800	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2501	281	530	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	680	76	144	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2860	321	605	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2860 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3181	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2860 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3181	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.347	
Space mean speed in ramp influence area,	S_R = 57.0	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.0	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2370	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	241	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	568	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2370	241	568	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	644	65	154	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2710	275	648	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2710 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	2710	4700	No
$v_{FO} = v_F - v_R$	2435	4700	No
v_R	275	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2710 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2710	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 15.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Road 156
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2129	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	568	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	241	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2129	568	241	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	579	154	65	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2434	648	275	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 2434 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3082	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2434 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3082	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 22.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.307	
Space mean speed in ramp influence area,	S_R = 57.9	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.9	mph

HCS 2010: Freeway Merge and Diverge Segments Release 6.1

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2781	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	300	vph
Length of first accel/decel lane	925	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	564	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2781	300	564	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	756	82	153	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3180	342	644	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3180 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3180	4700	No
$v_{FO} = v_F - v_R$	2838	4700	No
v_R	342	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3180 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3180	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.329	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2837 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2837 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 27.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.371	
Space mean speed in ramp influence area,	S_R = 56.5	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 56.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3336	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	568	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	132	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3336		568		132		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	907		154		36		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3815	648	151	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3815 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3815	4700	No
$v_{FO} = v_F - v_R$	3167	4700	No
v_R	648	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3815 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3815	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 26.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.356	
Space mean speed in ramp influence area,	S_R = 56.8	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 56.8	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2768	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	132	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	568	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2768	132	568	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	752	36	154	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3165	151	648	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3165 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3316	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3165 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3316	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 23.6 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.318	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2900	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	131	vph
Length of first accel/decel lane	1225	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	132	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2900	131	132	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	788	36	36	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3316	150	151	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3316 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3466	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3316 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3466	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 24.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.336	
Space mean speed in ramp influence area,	S_R = 57.3	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2697	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	247	vph
Length of first accel/decel lane	1375	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	182	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2697	247	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	733	67	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3084	282	208	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 1.000 Using Equation 0

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3084 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3084	4700	No
$v_{FO} = v_F - v_R$	2802	4700	No
v_R	282	2100	No
v_3 or v_{av34}	0 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3084 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3084	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 18.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.323	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = N/A	mph
Space mean speed for all vehicles,	S = 57.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2450	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	182	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	149	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2450	182	149	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	49	40	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2802	208	170	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM})$ = 2802 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3010	4700	No

v_3 or v_{av34} = 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2802 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3010	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.301	
Space mean speed in ramp influence area,	S_R = 58.1	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 58.1	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Tower Street
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	2	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2632	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	149	vph
Length of first accel/decel lane	1100	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	182	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	2975	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2632	149	182	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	715	40	49	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3010	170	208	pcph

Estimation of V12 Merge Areas

L_{EQ} = (Equation 13-6 or 13-7)

P_{FM} = 1.000 Using Equation 0

$v_{12} = v_F (P_{FM}) =$ 3010 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3180	4700	No

v_3 or v_{av34} 0 pc/h (Equation 13-14 or 13-17)

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3010 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3180	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A =$ 23.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.316	
Space mean speed in ramp influence area,	S_R = 57.7	mph
Space mean speed in outer lanes,	S_0 = N/A	mph
Space mean speed for all vehicles,	S = 57.7	mph

MITIGATION WORKSHEETS

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3377	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	952	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	3377		952		247		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	918		259		67		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3862	1087	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.613 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2789 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3862	7050	No
$v_{FO} = v_F - v_R$	2775	7050	No
v_R	1087	2100	No
v_3 or v_{av34}	1073 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2789 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2789	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_{12}$ = 17.9 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.396	
Space mean speed in ramp influence area,	S_R = 55.9	mph
Space mean speed in outer lanes,	S_O = 71.0	mph
Space mean speed for all vehicles,	S = 59.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2776	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1219	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	118	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2776	1219	118	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	754	331	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3174	1391	135	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1305.71 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1909 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4565	7050	No
v_3 or v_{av34}	1265 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1909 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4565	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.350	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = 62.2	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4299	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1407	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4299		1407		366		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1168		382		99		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4916	1606	418	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.563 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3470 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4916	7050	No
$v_{FO} = v_F - v_R$	3310	7050	No
v_R	1606	2100	No
v_3 or v_{av34}	1446 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3470 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3470	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.443	
Space mean speed in ramp influence area,	S_R = 54.8	mph
Space mean speed in outer lanes,	S_O = 69.6	mph
Space mean speed for all vehicles,	S = 58.5	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 No Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2523	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	686	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	251	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2523	686	251	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	686	186	68	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2885	783	286	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1113.75 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1735 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3668	7050	No
v_3 or v_{av34}	1150 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1735 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3668	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.4 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.293	
Space mean speed in ramp influence area,	S_R = 58.3	mph
Space mean speed in outer lanes,	S_O = 62.7	mph
Space mean speed for all vehicles,	S = 59.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3389	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	964	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	247	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3389	964	247	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	921	262	67	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3875	1100	282	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.613 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2800 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3875	7050	No
$v_{FO} = v_F - v_R$	2775	7050	No
v_R	1100	2100	No
v_3 or v_{av34}	1075 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 2800 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2800	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 18.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable, D_S = 0.397

Space mean speed in ramp influence area, S_R = 55.9 mph

Space mean speed in outer lanes, S_O = 71.0 mph

Space mean speed for all vehicles, S = 59.4 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2776	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1225	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	118	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2776	1225	118	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	754	333	32	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3174	1398	135	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1307.21 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1909 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4572	7050	No
v_3 or v_{av34}	1265 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1909 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4572	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 25.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.351	
Space mean speed in ramp influence area,	S_R = 56.9	mph
Space mean speed in outer lanes,	S_O = 62.2	mph
Space mean speed for all vehicles,	S = 58.3	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4345	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1453	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	366	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway		Ramp		Adjacent Ramp		
Volume, V (vph)	4345		1453		366		vph
Peak-hour factor, PHF	0.92		0.92		0.92		
Peak 15-min volume, v15	1181		395		99		v
Trucks and buses	10		10		10		%
Recreational vehicles	1		0		0		%
Terrain type:	Level		Level		Level		
Grade	0.00	%	0.00	%	0.00	%	
Length	0.00	mi	0.00	mi	0.00	mi	
Trucks and buses PCE, ET	1.5		1.5		1.5		
Recreational vehicle PCE, ER	1.2		1.2		1.2		

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4968	1658	418	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.560 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3510 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4968	7050	No
$v_{FO} = v_F - v_R$	3310	7050	No
v_R	1658	2100	No
v_3 or v_{av34}	1458 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 3510 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3510	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086\, v_R - 0.009\, L_D$ = 24.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.447	
Space mean speed in ramp influence area,	S_R = 54.7	mph
Space mean speed in outer lanes,	S_O = 69.5	mph
Space mean speed for all vehicles,	S = 58.4	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project Conditions

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2523	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	715	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	251	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2523	715	251	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	686	194	68	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2885	816	286	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1120.81 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1735 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3701	7050	No
v_3 or v_{av34}	1150 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1735 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3701	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 19.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.294	
Space mean speed in ramp influence area,	S_R = 58.2	mph
Space mean speed in outer lanes,	S_O = 62.7	mph
Space mean speed for all vehicles,	S = 59.5	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3149	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	375	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3149	852	375	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	856	232	102	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3091	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1236.80 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1859 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4243	7050	No
v_3 or v_{av34}	1232 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 1859 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4243	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.1 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.324	
Space mean speed in ramp influence area,	S_R = 57.6	mph
Space mean speed in outer lanes,	S_O = 62.4	mph
Space mean speed for all vehicles,	S = 58.9	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4019	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	516	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4019	1277	516	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1092	347	140	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4596	1457	589	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.578 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3272 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4596	7050	No
$v_{FO} = v_F - v_R$	3139	7050	No
v_R	1457	2100	No
v_3 or v_{av34}	1324 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3272 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3272	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 22.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	D_S = 0.429	
Space mean speed in ramp influence area,	S_R = 55.1	mph
Space mean speed in outer lanes,	S_O = 70.0	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2818	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2818	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	766	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3222	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1264.84 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1937 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4374	7050	No
v_3 or v_{av34}	1285 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1937 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4374	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.7 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.330	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = 62.2	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 No Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2452	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2452	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	666	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2804	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1066.67 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1686 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3448	7050	No
v_3 or v_{av34}	1118 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1686 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3448	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.0 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.285	
Space mean speed in ramp influence area,	S_R = 58.5	mph
Space mean speed in outer lanes,	S_0 = 62.8	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.625 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2624 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	7050	No
$v_{FO} = v_F - v_R$	2643	7050	No
v_R	972	2100	No
v_3 or v_{av34}	991 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2624 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2624	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_O = 71.3	mph
Space mean speed for all vehicles,	S = 59.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4065	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	548	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4065	1277	548	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1105	347	149	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4648	1457	625	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.577 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3297 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4648	7050	No
$v_{FO} = v_F - v_R$	3191	7050	No
v_R	1457	2100	No
v_3 or v_{av34}	1351 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3297 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3297	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 22.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.429

Space mean speed in ramp influence area, S_R = 55.1 mph

Space mean speed in outer lanes, S_O = 69.9 mph

Space mean speed for all vehicles, S = 58.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1267.19 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1944 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	7050	No
v_3 or v_{av34}	1289 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1944 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = 62.2	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project Conditions With Interchange

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1073.73 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1706 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	7050	No
v_3 or v_{av34}	1131 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1706 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.285	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_O = 62.7	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.625 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2624 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	7050	No
$v_{FO} = v_F - v_R$	2643	7050	No
v_R	972	2100	No
v_3 or v_{av34}	991 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2624 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2624	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_O = 71.3	mph
Space mean speed for all vehicles,	S = 59.6	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	4065	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	1277	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	548	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	4065	1277	548	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	1105	347	149	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	4648	1457	625	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.577 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 3297 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	4648	7050	No
$v_{FO} = v_F - v_R$	3191	7050	No
v_R	1457	2100	No
v_3 or v_{av34}	1351 pc/h	(Equation 13-14 or 13-17)	

Is v_3 or v_{av34} > 2700 pc/h? No

Is v_3 or v_{av34} > 1.5 v_{12} /2 No

If yes, v_{12A} = 3297 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	3297	4400	No

Level of Service Determination (if not F)

Density, $D = 4.252 + 0.0086 v_R - 0.009 L_D$ = 22.3 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable, D_S = 0.429

Space mean speed in ramp influence area, S_R = 55.1 mph

Space mean speed in outer lanes, S_O = 69.9 mph

Space mean speed for all vehicles, S = 58.7 mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040
Description:	Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1267.19 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1944 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	7050	No
v_3 or v_{av34}	1289 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1944 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = 62.2	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 1

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1073.73 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1706 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	7050	No
v_3 or v_{av34}	1131 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1706 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.285	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_O = 62.7	mph
Space mean speed for all vehicles,	S = 59.8	mph

Phone: Fax:
E-mail:

Diverge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Eastbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Diverge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	3161	vph

Off Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-Flow speed on ramp	45.0	mph
Volume on ramp	852	vph
Length of first accel/decel lane	1150	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent ramp	384	vph
Position of adjacent ramp	Downstream	
Type of adjacent ramp	On	
Distance to adjacent ramp	2525	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	3161	852	384	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	859	232	104	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	0.00 %	0.00 %	0.00 %	
Length	0.00 mi	0.00 mi	0.00 mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3615	972	438	pcph

Estimation of V12 Diverge Areas

L_{EQ} = (Equation 13-12 or 13-13)

P_{FD} = 0.625 Using Equation 5

$v_{12} = v_R + (v_F - v_R) P_{FD}$ = 2624 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
$v_{Fi} = v_F$	3615	7050	No
$v_{FO} = v_F - v_R$	2643	7050	No
v_R	972	2100	No
v_3 or v_{av34}	991 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 2624 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Diverge Influence Area

	Actual	Max Desirable	Violation?
v_{12}	2624	4400	No

Level of Service Determination (if not F)

Density, $D_R = 4.252 + 0.0086\, v_{12} - 0.009\, L_D$ = 16.5 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	D_S = 0.385	
Space mean speed in ramp influence area,	S_R = 56.1	mph
Space mean speed in outer lanes,	S_O = 71.3	mph
Space mean speed for all vehicles,	S = 59.6	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	AM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2827	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	1009	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	191	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2827	1009	191	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	768	274	52	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	3233	1152	218	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1267.19 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1944 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	4385	7050	No
v_3 or v_{av34}	1289 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1944 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	4385	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 23.8 pc/mi/ln

Level of service for ramp-freeway junction areas of influence C

Speed Estimation

Intermediate speed variable,	M_S = 0.331	
Space mean speed in ramp influence area,	S_R = 57.4	mph
Space mean speed in outer lanes,	S_0 = 62.2	mph
Space mean speed for all vehicles,	S = 58.7	mph

Phone: Fax:
E-mail:

Merge Analysis

Analyst:	VRPA Technologies, Inc.
Agency/Co.:	City of Visalia
Date performed:	9/26/2017
Analysis time period:	PM Peak Hour
Freeway/Dir of Travel:	SR 198 Westbound
Junction:	Lovers Lane
Jurisdiction:	Caltrans
Analysis Year:	2040

Description: Cumulative 2040 Plus Project With Interchange Alternative 2

Freeway Data

Type of analysis	Merge	
Number of lanes in freeway	3	
Free-flow speed on freeway	65.0	mph
Volume on freeway	2481	vph

On Ramp Data

Side of freeway	Right	
Number of lanes in ramp	1	
Free-flow speed on ramp	45.0	mph
Volume on ramp	564	vph
Length of first accel/decel lane	850	ft
Length of second accel/decel lane		ft

Adjacent Ramp Data (if one exists)

Does adjacent ramp exist?	Yes	
Volume on adjacent Ramp	300	vph
Position of adjacent Ramp	Upstream	
Type of adjacent Ramp	Off	
Distance to adjacent Ramp	1575	ft

Conversion to pc/h Under Base Conditions

Junction Components	Freeway	Ramp	Adjacent Ramp	
Volume, V (vph)	2481	564	300	vph
Peak-hour factor, PHF	0.92	0.92	0.92	
Peak 15-min volume, v15	674	153	82	v
Trucks and buses	10	10	10	%
Recreational vehicles	1	0	0	%
Terrain type:	Level	Level	Level	
Grade	%	%	%	
Length	mi	mi	mi	
Trucks and buses PCE, ET	1.5	1.5	1.5	
Recreational vehicle PCE, ER	1.2	1.2	1.2	

Heavy vehicle adjustment, fHV	0.951	0.952	0.952	
Driver population factor, fP	1.00	1.00	1.00	
Flow rate, vp	2837	644	342	pcph

Estimation of V12 Merge Areas

L_{EQ} = 1073.73 (Equation 13-6 or 13-7)

P_{FM} = 0.601 Using Equation 1

$v_{12} = v_F (P_{FM})$ = 1706 pc/h

Capacity Checks

	Actual	Maximum	LOS F?
v_{FO}	3481	7050	No
v_3 or v_{av34}	1131 pc/h	(Equation 13-14 or 13-17)	
Is v_3 or v_{av34}	> 2700 pc/h?	No	
Is v_3 or v_{av34}	> 1.5 v_{12} /2	No	

If yes, v_{12A} = 1706 (Equation 13-15, 13-16, 13-18, or 13-19)

Flow Entering Merge Influence Area

	Actual	Max Desirable	Violation?
v_{R12}	3481	4600	No

Level of Service Determination (if not F)

$D_R = 5.475 + 0.00734\, v_R + 0.0078\, v_{12} - 0.00627\, L_A$ = 18.2 pc/mi/ln

Level of service for ramp-freeway junction areas of influence B

Speed Estimation

Intermediate speed variable,	M_S = 0.285	
Space mean speed in ramp influence area,	S_R = 58.4	mph
Space mean speed in outer lanes,	S_O = 62.7	mph
Space mean speed for all vehicles,	S = 59.8	mph

APPENDIX F

City of Visalia City Council Resolution No. 95-134

RESOLUTION NO. 95-134

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF VISALIA, APPROVING SPECIFIC PLAN AMENDMENT NO. 9509 (REVISED), A REQUEST TO AMEND THE NORTHEAST SPECIFIC PLAN LAND USE DESIGNATION FROM R-1-20 (SINGLE FAMILY RESIDENTIAL) TO R-1-12.5 (SINGLE FAMILY RESIDENTIAL), FOR PROPERTY LOCATED ON THE SOUTH SIDE OF HOUSTON AVENUE, APPROXIMATELY 800 FEET EAST OF SOL ROAD; BENART-EASTOAK ESTATES; GARY BECKERS, AGENT

WHEREAS, a revised specific plan amendment application was filed by Benart-Eastoak Estates, Gary Beckers, agent, to amend the Northeast Specific Plan Land Use designation from R-1-20 (Single Family Residential) to R-1-12.5 (Single Family Residential) and includes a precise Development Plan, for property located on the south side of Houston Avenue, approximately 800 feet east of Sol Road; a portion of APN: 103-120-076 and 103-320-012, City of Visalia; and

WHEREAS, the Planning Commission of the City of Visalia, after ten (10) days published notice did hold a public hearing before said Commission on November 13, 1995; and

WHEREAS, an appeal of the Planning Commission action was received on November 13, 1995; and

WHEREAS, the City Council of the City of Visalia, after ten (10) days published notice held a public hearing before said Council on December 4, 1995; and

WHEREAS, an Initial Study was prepared which disclosed that no significant environmental impacts would result from this project, and no mitigation measures would be required; and

NOW, THEREFORE, BE IT RESOLVED a Negative Declaration was prepared consistent with the California Environmental Quality Act and City of Visalia Environmental Guidelines.

NOW, THEREFORE, BE IT FURTHER RESOLVED that the City Council of the City of Visalia hereby adopts Negative Declaration No. 9524 and approves Specific Plan Amendment No. 9509 based on the following specific findings and evidence presented:

1. That the amendment to the Northeast Specific Plan land use designation from "R-1-20" to "R-1-12.5 is consistent with the goals and objectives of the General Plan.

2. That due to existing development constraints placed on the site from being adjacent to Mill Creek, the electric transmission lines and Houston Avenue (arterial), the practical development potential of the site is limited.

3. That the proposed development plan, as modified by staff, will provide for secondary access to the property and allow for connectivity to the future arterial and existing / future neighborhoods in the area.

4. That through implementation of General Plan policies and by applying city development standards to future development, resulting from the change of land use designation to "R-1-12.5", will insure compatibility with adjacent land uses.

5. That the change in land use designation from "R-1-20" to "R-1-12.5" is consistent with past (1976) General Plan Policies.

6. That one of the reasons for the original Northeast Specific Plan designation of "R-1-20" for the subject site was the lack of sewer capacity in the northeast quadrant of the community.

7. That the amendment would not be detrimental to the public health, safety, or welfare, nor materially injurious to properties in the vicinity.

8. That an Initial Study was prepared for this project, consistent with CEQA, which disclosed that environmental impacts are determined to be not significant, and Negative Declaration No. 95-24 is hereby recommended for adoption by City Council.

BE IT FURTHER RESOLVED that the City Council of the City of Visalia approves the specific plan amendment on the real property described herein, in accordance with the terms of this resolution and under the provisions of Section 7586 of the Ordinance Code of the City of Visalia, subject to the following conditions:

1. That the development plan, as modified by staff, (see attached Exhibit "B") be adopted as a precise development plan for the site.

2. That the precise development plan be limited to 70 lots, with R-1-20 lots (and Zoning) along the entire western edge of the Benart property, with rear yards of said lots backing up to the rear yards of The Sol Street properties.

3. That the rear yard building setback for lots along the western edge of the Benart property be 50 feet, measured from property line.

4. That the balance of the Benart property is to consist of lots having a density of not less than R-1-12.5 (12,500 sq.ft. min. lot size).

5. That Race Street be developed as a closed street with an emergency access gate allowing for pedestrian, bicycle, and emergency vehicle access.

6. That Milestone, Douglas, and Race Courts be developed as stub streets to Benart's eastern property line.

7. That the Comstock Street access to Houston Avenue be considered temporary, to be abandoned at such time as the future arterial intersection is developed on Houston Avenue.

8. That a uniform "good neighbor" type fence be constructed along the western boundary of the project site in conjunction with the development of an approved subdivision for the property.

PASSED AND ADOPTED: December 18, 1995 RANDY GROOM, CITY CLERK

STATE OF CALIFORNIA)
COUNTY OF TULARE) ss.
CITY OF VISALIA)

I, Randy Groom, City Clerk of the City of Visalia, certify the foregoing is the full and true Resolution No. 95-134 passed and adopted by the Council of the City of Visalia at a regular meeting held on December 18, 1995.

DATED: December 19, 1995

RANDY GROOM, CITY CLERK

By Linda Rodriguez Todd, Deputy

TEMPORARY HOUSTON ACCESS

STUB STREET

SPECIFIC PLAN AMENDMENT NO. 9509 (REVISED)

CHANGE OF ZONE NO. 9506 (REVISED)

STUB STREET

STUB STREET

EMERGENCY ACCESS GATE; ALLOWING FOR PEDESTRIAN & BICYCLE ACCESS.

Tentative Subdivision Map: East Oak Estates

CITY COUNCIL APPROVED MODIFICATIONS

EXHIBIT "B"

APPENDIX G

Approved/Pending Projects

NOTICE OF PREPARATION

To: State Clearinghouse
PO Box 3044/ 1400 Tenth St
Sacramento CA 95814

From: County of Tulare – RMA
5961 S Mooney Blvd
Visalia CA 93277

Date: January 12, 2017

Subject: **Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR)**

Project Title: Sequoia Drive-In Business Project

Project Applicant: Castlewood Partners

Project Location: The project is located at 29421 Road 156, the southwest corner of Avenue 296 (Noble Avenue) and Road 156. The project is south of and adjacent to State Route 198, less than one mile east of the City of Visalia and less than one mile west of the City of Farmersville. The entire 46.17-acre site is within the Exeter USGS 7.5 minute quadrangle and is on Tulare County APNs 101-090-014, -015 and 101-100-009, -010. The site is within the NE ¼ portion of Section 35, Township 18 South, Range 25 East, MDB&M.

Tulare County Resource Management Agency (RMA) will be the Lead Agency and will prepare an Environmental Impact Report (EIR) for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials. The NOP is available on the County website at:
http://tularecounty.ca.gov//rma/index.cfm/documents-and-forms/planning-documents/environmental-planning/environmental-impact-reports/

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but not later than 30 days after receipt of this notice.

A scoping meeting is scheduled for **Thursday, February 2, 2017, at 1:30 p.m.** in the Main Conference Room of the Tulare County Resource Management Agency at the address shown above.

Please direct your response to Hector Guerra, Chief Environmental Planner at the address shown above. He may be contacted by e-mail at hguerra@co.tulare.ca.us or by telephone at 559-624-7121.

Please provide us with the name of a contact person in your agency.

Signature _____ Date: 1/12/17
Hector Guerra,
Title: Chief Environmental Planner

Signature _____ Date: 1/12/17
Benjamin Ruiz Jr.
Title: Resource Management Agency Director/Environmental Assessment Officer

Reference: California Code of Regulations, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375

PROJECT LOCATION AND SETTING

The proposed Sequoia Drive-In Business Park (Project) will be located at the southwest corner of Road 156 and Avenue 296 (Noble Avenue). The project is south of and adjacent to State Route 198, less than one mile east of the City of Visalia and less than one mile west of the City of Farmersville. The 46.17-acre site is located on Tulare County APNs 101-090-014, -015 and 101-100-009, -010. The site is currently zoned zoned PD-C-3-SC (Planned Development, Service Commercial, Scenic Corridor Combining Zone) and is located within the Exeter USGS 7.5 Minute Quadrangle. The proposed Project site lies within the NE ¼ portion of Section 35, Township 18 South, Range 25 East, MDB&M.

PROJECT DESCRIPTION

In accordance with the California Environmental Quality Act (CEQA) (Pub. Resources Code, § 21000 et seq.), the County of Tulare Resource Management Agency (RMA) will be preparing an Draft Environmental Impact Report (EIR) to evaluate the environmental effects associated with the development of the proposed Sequoia Drive-In Business Park.

The Applicant is proposing to construct a 358,370 square foot business park consisting of a total of 30 buildings (46 units), access roads, and stormwater retention basins. The Project will be developed in four (4) separate phases of construction.

Phase 1 will include a convenience market with gas pumps and an attached fast-food restaurant, along with five (5) separate commercial buildings for a total combined square footage of 68,340. Access into the development will occur on Road 156, and will eventually connect access from Noble Avenue during Phase 3.

Phase 2 will construct 14 commercial buildings for a total combined square footage of 88,000, leaving a remainder lot for the existing cellular tower. Two access points into the development will occur on Road 156, providing a circle drive connecting part of Phase1, and all of Phase 2 and Phase 4.

Phase 3 will include ten (10) separate commercial buildings with one (1) remaining lots for a retention pond. A stormwater retention pond will be installed for on-site water storage in the event of extreme weather. The total square footage buildout for phase 3 will be 104,000.

Phase 4, the final phase, will include 13 commercial buildings and a remaining lot for a second stormwater retention pond for on-site water storage. The total square footage buildout for Phase 4 will be 98,030.

The local electricity and gas service provider is Southern California Edison and Southern California Gas; respectively. As such, the Project will likely receive these utilities from Southern California Edison and Southern California Gas. The Applicant proposes receiving water supplied through an on-site domestic well and proposes that sewage be treated with an on-site engineered septic/wastewater treatment system. USA Waste is the franchise solid waste disposal service for the Project area.

To accommodate the proposed development, the following two actions will need to occur: (1) update to the existing Development Agreement and (2) Tulare County approval of a Tentative Subdivision Map.

If you require additional information related to this notice, please contact:

Hector Guerra, Chief Environmental Planner
hguerra@co.tulare.ca.us or at (559) 624-7121

REVIEWING AGENCIES AND POTENTIAL APPROVALS REQUIRED:

The following agencies may have jurisdiction over elements of the proposed Project:

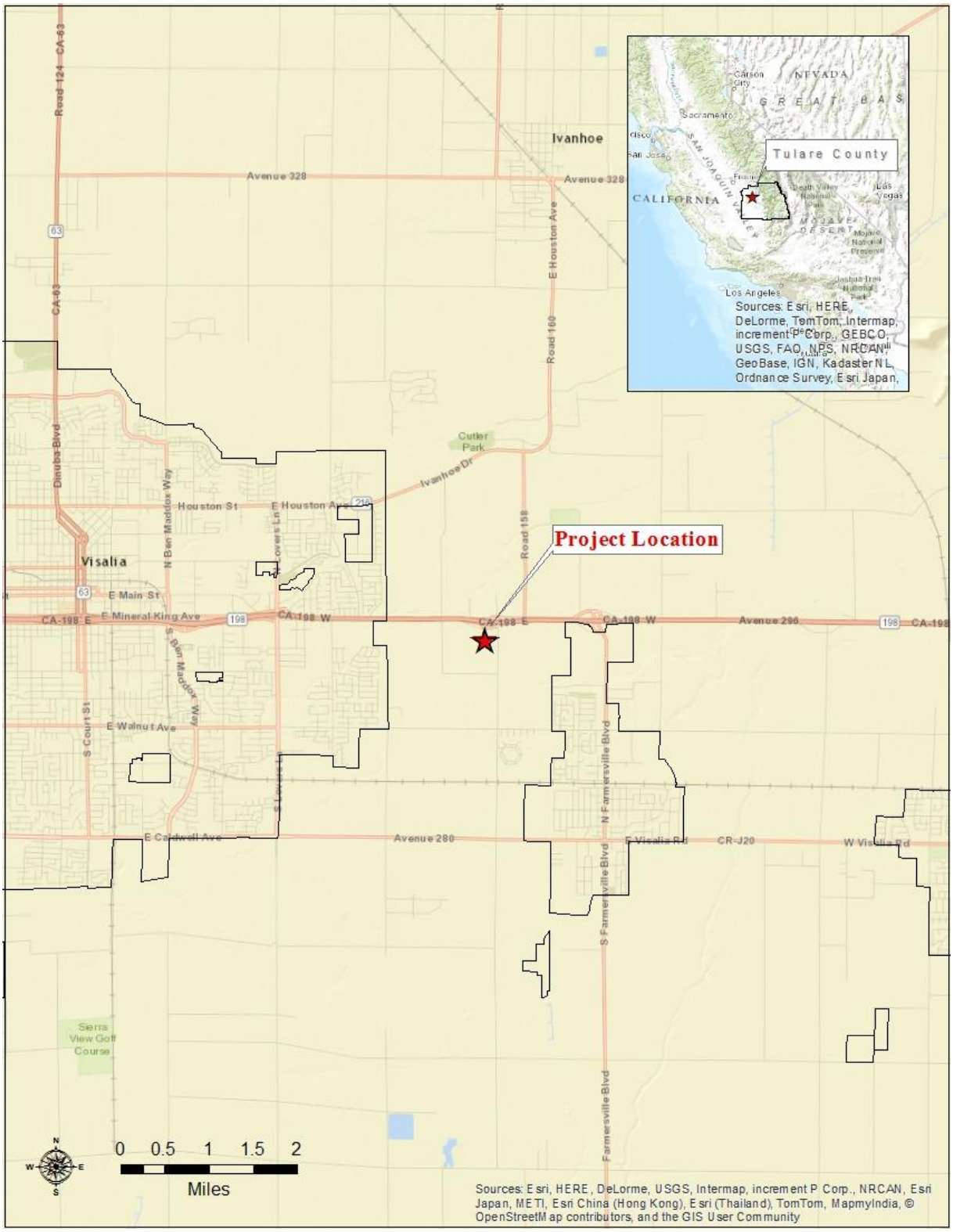
State and Federal:

- California Air Resources Board
- California Department of Conservation
- California Department of Fish and Wildlife
- California Department of Toxic Substances Control
- California Department of Transportation
- California Department of Water Resources
- California Native American Heritage Commission
- California Office of Emergency Services
- California Office of Historic Preservation
- California Public Utilities Commission
- California Resources Agency
- California State Water Resources Control Board
- United States Army Corps of Engineers
- United States Fish and Wildlife Service

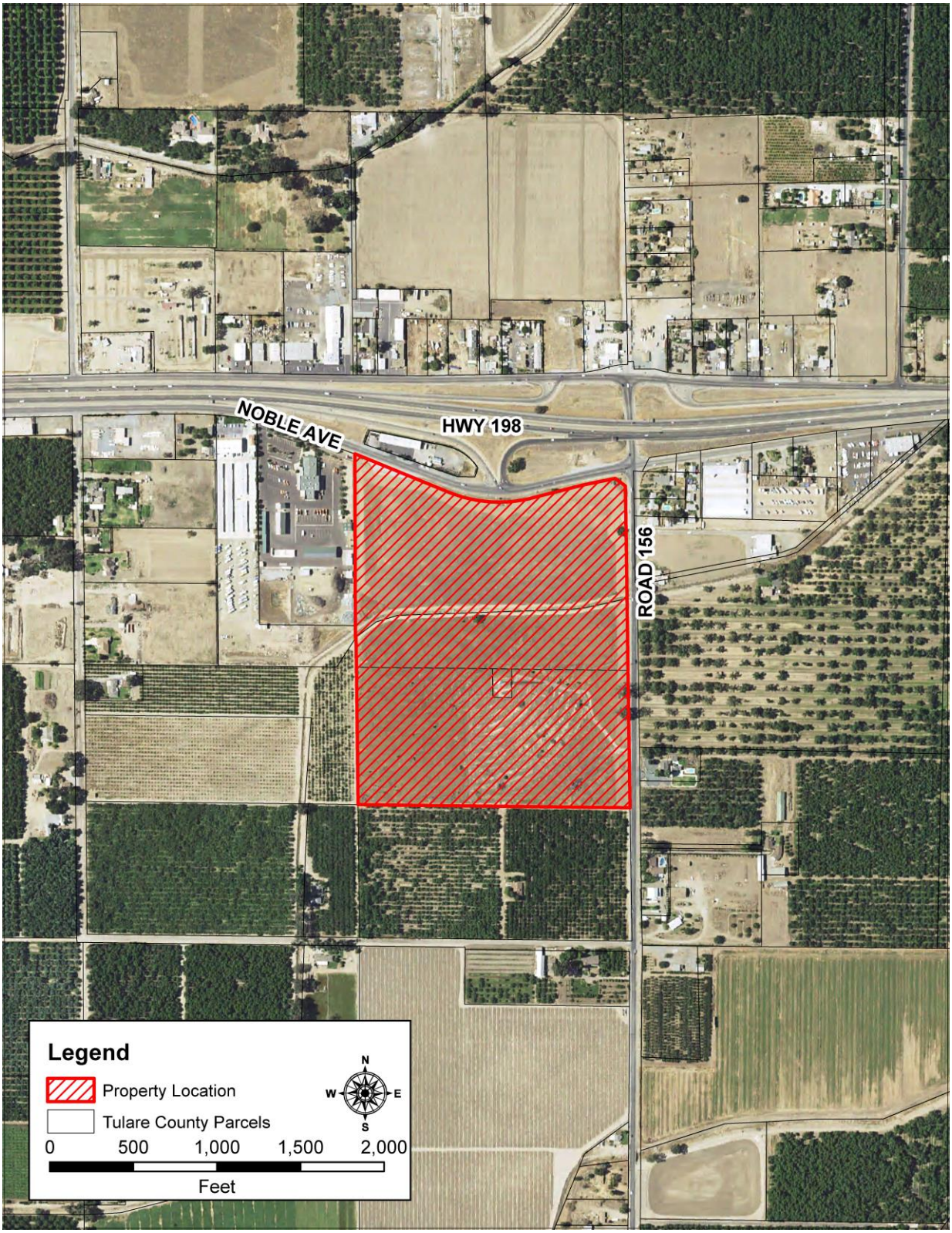
Local and Regional:

- Central Valley Flood Protection Board
- Central Valley Regional Water Quality Control Board
- City of Farmersville
- City of Visalia
- San Joaquin Valley Unified Air Pollution Control District
- Southern California Edison
- Southern California Gas Company
- Tulare County Association of Governments
- Tulare County Fire Warden
- Tulare County Health and Human Services Agency (Environmental Health)
- Tulare County Local Agency Formation Commission
- Tulare County Office of Emergency Services
- Tulare County Resource Management Agency (Fire, Flood Control, Planning, Public Works)
- Tulare County Sheriff's Office

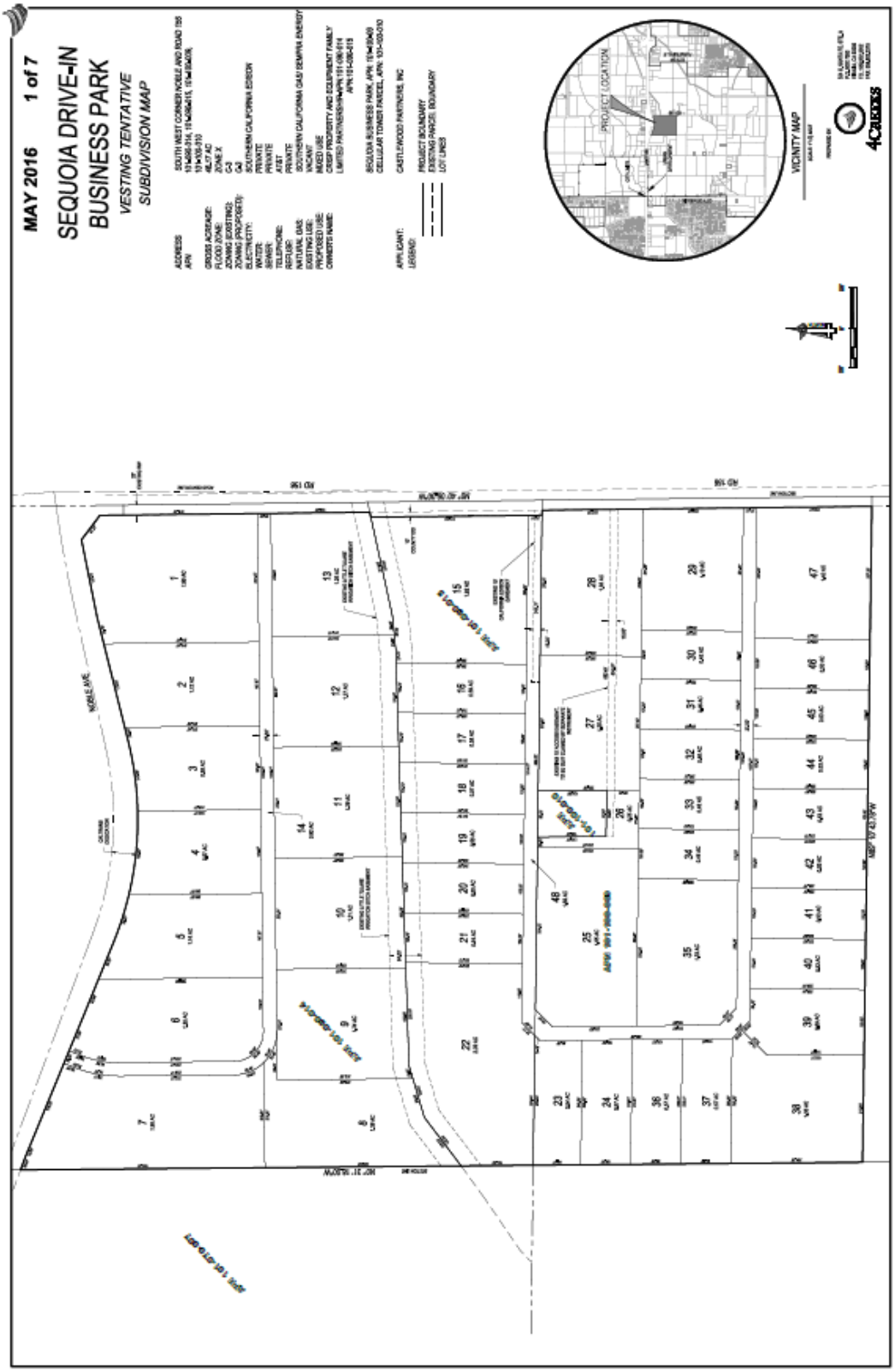
Regional Location Map for the Sequoia Drive-In Business Park Project



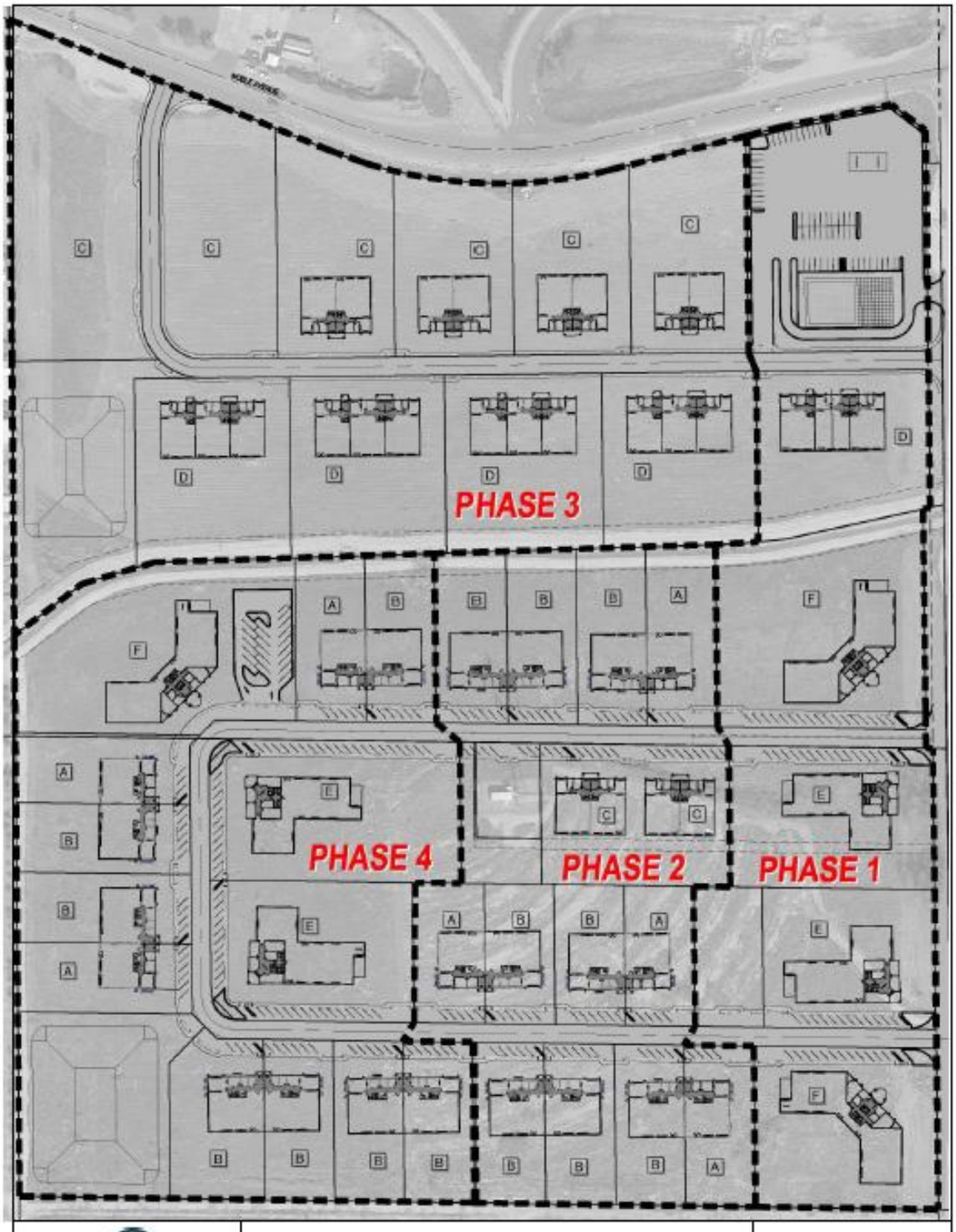
Vicinity Map for the Sequoia Drive-In Business Park Project



Subdivision Map for the Sequoia Drive-In Business Park Project



Site Map for the Sequoia Drive-In Business Park Project



SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

The EIR will address all checklist items contained in Appendix G of the State CEQA Guidelines. The analysis will address the probable direct, indirect, and cumulative environmental impacts associated with construction and operation of the Sequoia Drive-In Business Park (Project). The following is a discussion of the environmental topics to be covered in the EIR:

Aesthetic/ Visual Resources

The Project site can be characterized as vacant land in the "PD-C-3-SC" (Planned Development, Service Commercial, Scenic Corridor Combining) Zone. The Project site is on property that encompasses four parcels directly south of State Route 198 on the southwest corner of Noble Avenue and Road 156. The C-2 (General Commercial) and C-3 (Service Commercial) Zones are located to the north of the Project site along State Route 198. The surrounding properties to the east, west, and south are zoned AE-20 (Exclusive Agriculture, 20-acre minimum) and C-3-SC (Service Commercial, Scenic Corridor Combining Zone). The Project area is bounded on the west by a Caltrans maintenance yard, and is bounded on the south by tree crops. A Tulare Irrigation Canal traverses the Project site in an east-west direction and bisects the Project site. The EIR will provide an assessment of Project related impacts to visual resources, as well as lighting and glare impacts.

Agriculture Resources

According to the Soil Survey of Tulare County, Western Part, the on-site soil is classified Nord Fine Sandy Loam, which is considered Prime Farmland if irrigated and either protected from flooding or not frequently flooded during the growing season. The Department of Conservation California Important Farmland Finder identifies the northern and southwestern portion of the Project property as Farmland of Local Importance and the southeastern portion of the property as Vacant or Disturbed Land. The Project site is located within the Tulare County East Visalia Urban Development Boundary (UDB) of the Visalia Area Land Use Plan and is currently zoned for service commercial land uses. There are commercial uses located directly west, north, and east of the Project site. The southeastern portion of the Project site was previously a drive-in movie theater. There are currently no agricultural operations occurring on the northern and southwestern portions of the Project site which have been agriculturally unproductive for many years. With the exception of the single cellular tower on-site, the entire site remains in undeveloped open space conditions. The Project will not encroach into adjacent agricultural uses and will not require adjacent properties to discontinue any agriculture related operations. The EIR will provide an assessment of potential Project related impacts to agricultural resources.

Air Quality / Greenhouse Gas Emissions

The EIR will describe regional and local air quality in the vicinity of the proposed Project site and evaluate impacts to air quality associated with Project construction and operation. An air quality study will be prepared to establish baseline, project, and cumulative impacts. The Project-related estimated air emissions will be compared to emissions thresholds of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The EIR will describe existing air quality conditions within the San Joaquin Valley Air Basin and will evaluate the proposed Project's potential air quality impacts. Potential air quality emissions impacts include odor, dust, pathogens, and construction and operations related activities. The EIR will also include a discussion of greenhouse gas emissions and the proposed Project's contribution to potential cumulative impacts on global climate.

Biological Resources

The proposed Project site has been previously disturbed. Potential habitats within the Project site include an agricultural left in open space conditions, a vacant lot that was formally a drive-in theater, and scattered on-site trees. The Project site is bisected by one hydrological feature, a Tulare Irrigation Canal, which would likely be considered a water of the U.S. based on its connectivity with other known waters of the U.S. A biological evaluation of the proposed Project site will be conducted and the proposed Project's potential to affect biological resources will be analyzed in the EIR.

Cultural Resources / Tribal Cultural Resources

Although the proposed Project will be constructed on previously disturbed land, it cannot be definitively concluded that cultural resources are absent. A search of the Southern San Joaquin Valley Information Center California Historical Resources Information System (CHRIS) was conducted. The search identified one recorded cultural resource, a Tulare Irrigation Canal, within the Project site. The search also identified six recorded resources within a one-half mile radius, including a prehistoric era mound, an historic period ranch, barn, single-family residence, canal, and drive-in theater. There are no recorded cultural resources within the Project site or radius that are listed in the National Register of Historic Places, the California Register of Historical Resources, the California Points of Historical Interest, California Inventory of Historic Resources, or the California State Historic Landmarks. A Sacred Land File (SLF) Search was submitted to the Native American Heritage Commission (NAHC) on August 31, 2016. The NAHC responded on September 8, 2016, stating that the SLF search was completed with "negative" results. The NAHC provided a list of nine (9) tribes that are traditionally and culturally affiliated with the Project area. Pursuant to the requirements of AB 52 and SB 18, on September 14, 2016, the County mailed twenty-seven (27) tribal consultation requests, representing twenty-one (21) tribes, which included the nine (9) tribes listed on the SLF search. Depending upon responses from tribal consultation, a cultural resources evaluation may be prepared for this Project. The EIR will examine the proposed Project's potential to affect cultural resources and Tribal cultural resources.

Geology, Soils, and Mineral Resources,

Initial construction, buildout, and operation of the proposed Project on the Project site could result in impacts related to geotechnical hazards, including seismicity of the area, potential for liquefaction and subsidence, potential for soil erosion, soil stability characteristics, and shrink/swell potential of site soils, as applicable. According to the USDA Natural Resources Conservation Service Web Soil Survey, the entire Project site consists of Nord fine sandy loam, 0 to 2 percent slopes. Nord fine sandy loam is considered to be well drained soil. According to the Tulare County General Plan 2030 Update EIR, there are no known potential mineral resources on or in the vicinity of the Project site. It is currently unknown whether the proposed Project site soils have the potential to contain paleontological resources. If such resources exist on the site, construction, expansion, and continued operational activities could result in potentially significant impacts. A geological evaluation of the proposed Project site will be conducted to establish baseline, project, and cumulative impacts related to geology, soils, mineral resources, and paleontological resources.

Hazards and Hazardous Materials

There are no known hazards or hazardous materials located within the proposed Project site, nor is the proposed Project site located on a Cortese List site. The EIR will evaluate the potential for the proposed Project to result in, or be affected by, impacts associated with hazards and hazardous materials.

Hydrology, Water Quality, and Water Supply

The Project site lies within flood Zone X (Shaded), which is a moderate flood hazard area with a 0.2 percent annual chance or a 500 year flood according to the Federal Emergency Management Agency (FEMA) flood zone designation. Construction of buildings within this flood zone require no specific flood mitigation measures; however, it is recommended that all finished floor levels be elevated one (1) foot above adjacent natural ground. The proposed Project is within the Kaweah River Watershed and over the Kaweah River Groundwater Basin. The Applicant proposes receiving water supplied through an on-site domestic well and proposes that sewage be treated with an on-site engineered septic/wastewater treatment system The EIR will describe the proposed Project's effect, both directly and cumulatively on the hydrology, water quality, and water supply resources. A hydrological and water sustainability evaluation will be prepared to establish baseline, project, and cumulative impacts.

Land Use and Planning

The EIR will describe the proposed Project's potential effects on existing and planned land uses. The proposed Project is outside of the City of Visalia city limits, but within the Tulare County East Visalia UDB of the Visalia Area Land Use Plan. The Visalia Area Land Use Plan zoning designation is PD-C-3-SC (Planned Development, Service Commercial, Scenic Corridor Combining Zone). The Project is an allowed use "by right" under the current zoning "C-3" zoning; however, when the "SC" zone is combined with other zones, allowed uses in the underlying or base zone are allowed if the project is approved in accordance with the procedures referred to in Chapter 9 of Part VII of the Ordinance Code of Tulare County. As such, the EIR will provide a discussion of relevant local plans and policies because conflicts could potentially result in environmental impacts.

Noise

The EIR will describe the noise levels associated with proposed Project construction and operation and will compare these levels to applicable noise thresholds to determine whether the proposed Project would result in a significant noise impact.

Population and Housing

The EIR will evaluate the Project's effect on population and housing in the local area based on estimations of Project employment and distribution of the employees by place of residence.

Public Services and Recreation

The EIR will evaluate the proposed Project's potential to create an adverse impact to schools, and will also evaluate effects on local police and fire services along with parks and regional recreational facilities.

Transportation/Traffic

The EIR will evaluate the proposed Project's impact on regional and local transportation facilities based on a transportation analysis that will assess both construction-related impacts (heavy truck trips and construction worker trips), as well as operational impacts (employee and visitor trips). The Project site is located at the intersection of Avenue 296 (Noble Avenue) and Road 156. Avenue 296 (Noble Avenue) and Road 156 are County-designated minor collector streets. The Project site is also located adjacent to and south of State Route 198, which is a four-lane divided freeway in the Project area and designated in the General Plan as a Scenic Corridor. The Project includes the construction of two new roadways, with four ingress/egress points within the Project site. The northern road will run through the northern half of the Project site (north of the Tulare Irrigation Canal) and will connect Avenue 296 (Noble Avenue) to

Road 156. The southern road will provide two access points on Road 156, which requires a "U" shaped configuration such that the road is contained fully within the Project site. The Tulare County General Plan 2030 Update considers LOS D as the minimum acceptable LOS standard during peak hours for County roadways and intersections. A traffic impact study will be prepared to establish a baseline, and to evaluate project and cumulative impacts for the proposed Project in consultation with the County of Tulare, the Tulare County Association of Governments, and Caltrans. Similarly, the EIR will examine alternative traffic distribution.

Utilities

The proposed Project site can be characterized as vacant land in the "PD-C-3-SC" (Planned Development, Service Commercial, Scenic Corridor Combining) Zone. The local electricity and gas service provider is Southern California Edison and Southern California Gas; respectively. As such, the Project will likely receive these utilities from Southern California Edison and Southern California Gas. The Applicant proposes receiving water supplied through an on-site domestic well and proposes that sewage be treated with an on-site engineered septic/wastewater treatment system. USA Waste will provide solid waste disposal services. The EIR will analyze the current capacity of the above-mentioned services, as well as the proposed Project's impact on these systems and the capacity available to support the proposed Project. The EIR will also describe the solid waste facilities that would serve the proposed site.

The applicant would be required to construct infrastructure to urban development standards set forth by Tulare County, including the construction of appropriate Caltrans road improvements to Avenue 296 (Noble Avenue), Road 156, and State Route 198 to the extent that an appropriate nexus to the proposed Project is established. The EIR prepared for the Project will analyze the adequacy of infrastructure services for the Project including road, water and wastewater services, and if appropriate, may require mitigation measures.

Growth Inducement

The EIR will evaluate the proposed Project's potential for growth inducement resulting from the establishment of a new source of employment, as well as new demand for housing, and goods and services. The effect of primary and secondary increases in employment and economic activity will be discussed.

Cumulative Impacts

The EIR will discuss the incremental contribution of the proposed Project to cumulative effects of other past, current, and planned and reasonably foreseeable projects in the vicinity. The summary of projects method will be used where applicable. Also, to the extent feasible, the Cumulative Impacts section will quantify the degree of severity of any cumulative impact.

ALTERNATIVES EVALUATED IN THE EIR

In accordance with the CEQA Guidelines Section 15126.6, the EIR will describe a reasonable range of alternatives to the proposed Project that are capable of meeting most of the proposed Project's objectives, but would avoid or substantially lessen any of the significant effects of the proposed Project. The EIR will also identify any alternatives that were considered but rejected by the Lead Agency as infeasible and briefly explain the reasons why. The EIR will also provide an analysis of the No Project Alternative.

OPPORTUNITY FOR PUBLIC COMMENT

Interested individuals, groups, and agencies may provide to the County of Tulare Resource Management Agency, Planning Branch, written comments on topics to be addressed in the EIR for the proposed Project. Because of time limits mandated by state law, comments should be provided no later than ***5:00 p.m. Monday, February 13, 2017***. Agencies that will need to use the EIR when considering permits or other approvals for the proposed Project should provide the name of a staff contact person. Please send all comments to:

Hector Guerra, Chief Environmental Planner
Tulare County Resource Management Agency
Economic Development and Planning Branch
5961 South Mooney Boulevard
Visalia, CA 93277-9394
or via e-mail at: HGuerra@co.tulare.ca.us
or via facsimile: 559-730-2653
or via phone: 559-624-7121

Residential Subdivisions under Construction between October 2014-August 2015									
SBDN NO.	**NAME**	**APN**	**GENERAL LOCATION**	**QUADRANT**	**Total Subdivision AC**	**# New Units**	**# Units Approved to SBDN**	**Applicant**	**PC Approval Date**
5468	Ashley Grove Unit No 12	089-010-002	Riggin Ave& Mooney Blvd	NW	7.63	30	118	Smee Builders INc	02/27/2006
5498	Ashley Grove Unit No 13	089-010-002	NW Corner of Ferguson Ave and Mooney Blvd	NW	28.96	48	118	Lennar-Fresno	10/10/2005
5424	Ashley Grove Unit no 5 & 6	089-010-12	Between Ferguson & Riggin Ave	NW	178	11	74	Wathen Castanos Hybrid Homes	09/22/2003
5464	Avalon	077-060-25,026	NE Corner of Mineral King Ave and McAuliff St	NW	80	25	186	Wathen Castanos Hybrid Homes	10/11/2004
5360	Bonaventure Unit no 2 Phase 2	101-050-31, 32	McAuliff Street, west side; south of Packwood Creek	SE	43	1	109	Gatewood Henry Construction	04/27/1999
5421	Cobblestone Estates II Unit No 2	077-080-08, 077-410-30	1428 N Rova St	NW	29	1	68	Atkin Bergreen Inc	08/11/2003
5444	Da Vinci at Bella Serra	077-080-31	1742 N Pratos St	NW	20	1	32	Peters Construction Inc	06/14/2004
5454	Eagle Creek No 6	077-100-20, 32, 50	Good Ave between Linda Vista St and Woodland St	NW	83	8	272	Wathen Castanos Hybrid Homes	06/14/2004
5440	Four Creeks Estates II Phase 1	091-060-16	Burke St at Buena Vista Avenue	NE	18.3	13	86	Osborn Ron/ Cerutti Construction Company	04/26/2004
5480	Hall Estates	127-030-014	3027 E Beech Ct	SE	9.42	1	30	Daley Enterprises Inc	05/23/2005
5416	La Valencia	077-170-04	Linwood Street Approximately 700 ft south of Riggin Avenue	NW	19.62	5	39	Gatewood Henry Construction/ Witschi Construction Inc	N/A
5481	Luisi Ranch Unit No 3	089-020-006, 007	Demaree St between Ferguson Avenue and Houston Avenue	NW	73.49	37	278	Woodside 06N LP	08/22/2005
5504	Maddox @ Caldwell 6 Phase 1 & 2	123-130-025, 026 027 & 126-590-039	Monte Verde Avenue between Ben Maddox Way and Burke Street	SE	29.29	38	148	JJR Management Services Inc	08/14/2006
N/A	MISC 2010 Subdivisions	119-171-018	2427 S Memory St	SW	N/A	1	N/A	Owner Builder	N/A
N/A	Misc 2013 Residential Project	911-143-004, 900-730-21	1429 N Bridge St & 1010 W Prospect Ave	NE	N/A	2	N/A	Silberman Bill Construction	N/A
N/A	Misc 2014 Residential Project	912-130-58, 891700-39, 891-500-31, 855-300-16, 901-420-09, 127-150-089	1514 N Thomas Ct, 440 N Lombard St, 510 N Powell Ct, 715 N Tommy St,1401 N Divisadero St, 3129 E Beech Ct	NE	N/A	6	N/A	Service Master by Benevento/ Daley Enterprises Inc	N/A

5391	Northgate Estates	077-310-13, 14 & 15	Linda Vista (1103), west side of Linwood north of Ferguson	NW	10.48	2	16	Owner Builder/ Robinson Ryan Construction	09/31/2001
5352	Oak Meadow Estates No 2	119-022-37	6503 W Wagner Ct	SW	32	1	48	G J Gardner Homes	02/08/1999
5218	Park West No 7 Phase 1	122-183-11	3102 S Stevenson St	SE	6.69	1	24	William James Silbermann	01/08/1990
5548	Pheasant Ridge 7 Phase 1	077-100-079	On the southeast corner of Riggin Avenue and Shirk Street	NW	27.10	20	108	JJR Management Services Inc	03/10/2014
5429	Riggin Ranch	077-170-05,06	4525 W Lark Ct	NW	20	1	33	Gatewood Henry Construction	11/24/2003
5477	Riverbend Village Unit 7	091-010-033, 036, 025	This site is located south of Riggin Avenue, between Dinuba Boulevard and Santa Fe Street.	NE	36	7	128	Hughes Homes Inc	05/23/2005
5493	Sequoia Crossing	119-007-041(portion of)	southeast corner of Akers Street and Caldwell Avenue	SW	18.2	19	86	Summit Homebuilders	09/26/2005
5458	Shannon Ranch 2 Unit 3-5	078-010-11	This site is located on the north side of Riggin Avenue, between County Center and Mooney Boulevard	NW	159	27	454	Centex Homes	09/13/2004
5340	Sierra Village	087-020-43	Roeben Street, between Tulare Avenue and Highway 198	SW	29	2	67	Randolph Construction	03/23/1998
5422	Sterling Oaks Unit No 2	089-010-10, 089-010-12 (portion)	Sterling Oaks Tentative Subdivision Map: A request by Mangano Homes to divide 83 acres into 208 lots, located on the Southwest corner of Riggin Avenue and Demaree Street APN: 089-010-10,12 (portion)	NW	83	3	208	Stonegate Development Group	N/A
5436	The Country Club Phase 1-3	089-030-11,12,21	This site is located on the south side of Huston Avenue between Demaree Street and Mooney .	NW	134	41	391	Bonadelle Homes Inc	03/22/2004
5435	Turnberry Place	119-320-38	The site is located at 5500 West Caldwell Avenue	SW	7.1	4	39	West Star Construction Inc	04/12/2004
5497	Valley Oak	119-540-017, 119-620-008	southeast corner of Shirk Road and Walnut Avenue, in unincorporated Tulare County	SW	19.21	6	28	J L G Construction Inc	11/29/2005
5462	Valley Palms	077-180-015	This site is located on the south side of Riggin Avenue, approximately 1000 feet west of Demaree Street.	NW	16.2	2	36	Dutch Malcom Construction	10/25/2004

5492	Woodside Sousa Prop #3 & 4	127-030-026	south of Walnut Avenue, east of McAuliff Street, outside of the current City boundaries	SE	53	42	256	Woodside 06N LP	09/26/2005

Conditional Use Permits for new buildings between October 2014-August 2015							
Permit No.	**LOCATION**	**USE/ NOTES**	**Applicant**	**Received Application Date**	**APN**	**Approval Date**	**Site Plan Review (SPR) connection with the project**
2014-11	east side of Lovers Lane, approximately 310 feet south of Noble Avenue	To create six commercial parcels, consisting of a gasoline service station, fastfood with drive-thru, three-story hotel, drug store with drive-thru, and general retail space totaling 106,400 sq.ft. of commercial building space on 12 acres.	Chandi Group-4-Creeks Inc. agent	03/13/2014	101-030-025, 026, 027, 028	05/27/2014	2013-194
2014-19	Southwest Corner of Plaza Drive and Crowley Ave.	To establish a 25-acre master-planned multi-use business park development. The development is generally comprised of 97,200 square feet of office space, 38,200 square feet of retail, gas station/convenience store, a three-story 65-room hotel with 4,575 square feet of associated conference room space, 11,250 square foot restaurant space, 23 townhome residential units, 28 executive lofts, 808 parking stalls, and a pedestrian trail along the periphery of the site.	Roye Family; 4-Creeks Inc. agent	05/30/2014	081-170-001; 002; 003; 009; 010 & 014	11/10/2014	2013-198
2014-29	Tulare Ave and Sante Fe St	To allow the expansion of the existing non-medical licensed care facility for clients with mental illness, to add three existing residential units, for an increase from 40 to 54 clients. The units will be 1,027 square feet, 1,827 square feet, and 1,091 square feet respectively.	Tulare County Mental Health/Transitional Living Center	10/31/2014	097-094-055, 056, 060, 066, & 068	12/08/2014	2014-148
2014-32	1111 South Conyer Street	to include the removal of the existing administrative building and to construct a new two-story classroom building (9,030 square feet), a preschool administration building (780 square feet), new bathroom addition (128 square feet), installation of a modular classroom building(1440 square feet) and construction of a new parking lot (4000 square feet).	Grace Christian School	11/10/2014	096-093-015	01/12/2015	2012-117 & 2014-156

2014-33	SW corner of Houston & Woodland	to allow for the development of a 168-unit multi-family apartment development on 12.89 acres	Country Club Estates, Poloma Development	12/17/2014	089-030-031, 032, 033	02/09/2015	2014-152
2014-35	1111 N. Miller Park Court	To allow an addition of a 60,765 sq. ft. finished goods storage building.	Perfection Pet Foods, LLC	12/24/2014	073-160-032, 033	02/23/2015	2014-161
2015-03	Plaza Drive and Highway 198	To allow the development of a 95-room, 68,455 sq. ft. hotel on 2.66 acres.	Raj Verma; Ayan Hospitality, LLC	03/09/2015	081-160-002 & 003	05/26/2015	2015-004
2015-06	Southwest Corner of Plaza Drive and Crowley Ave.	to construct a new ARCO fueling station with a 6,000 square foot convenience store with a drive-thru lane.	Chandi Group-Mark Deveau	03/13/2015	081-170-001, 081-170-002, 081-170-003, 081-170-009, 081-170-010, and 081-170-014	04/13/2015	2014-144
2015-09	2106 S. Garden Street	to construct an 11-unit addition to a senior citizen residential development on one acre	Joe & Maria Silveira	03/20/2015	123-063-032	04/27/2015	2015-015
2015-10	4715 W. Myrtle Avenue	to construct a 13-unit addition to a senior citizen assisted living residential development on 10,650 square feet.	Quail Park Retirement Village, LLC	03/24/2015	087-041-003	04/27/2015	2014-134
2015-17	West Cypress Avenue just West of Acres	to construct a new 59,972 square foot five-story Holiday Inn Express with 104 rooms on a 3.68-acre	Grand Shangrila International, Inc. - Alfred Chang, President	05/0/2015	087-450-022	06/08/2015	2014-158
2015-18	Caldwell & Court	To allow the development of a 3,037 square foot Jack in the Box fast-food restaurant with a drive-thru lane.	Cameron Creek Marketplace, LLC	05/28/2015	126-870-003	07/13/2015	2015-045, 2014-174

Site Plan Review Items for New Buildings between October 2014-August 2015								
Site Plan Review No.	**APN**	**Location**	**Property Owner**	**Applicant Title**	**Project Title**	**Project Description**	**Revise and Proceed (Approval) Date**	**Expires**
14-138	085-240-022	5448 DE LAS ROBLES, W	MISSION OAKS COMPANY	LOSTROM ERNIE	MEDICAL OFFICE BUILDING	MEDICAL OFFICE BUILDING (9,000 SQ FT) TO BE BUILT ON PARCEL 4 OF MISSION OAKS PLAZA ON 19,832 SQ FT AREA (PA ZONED)	10/15/2014	10/15/2015
14-140	093-112-006	1020 TURNER, N	MAXEY DEREK JAMES	GONZALEZ MARTI	2ND UNIT	PROPOSED 1,100 SF 2ND UNIT/GRANNY PAD WITH SEPARATE UTILITIES ON 8,700 SF AREA (R16) (X)	10/22/2014	10/22/2015
14-142	090-060-019	DINUBA & FERGUSON, NW CORNER	AMERICAN LEGION-SIERRA POST785	198/43 LLC	SHOPPING CENTER & MULTI FAMILY	RETAIL AND MULTI FAMILY ON 12.59 ACRES (CSO/RM2 ZONED) (X/AE) (DISTRICT B)	10/22/2014	10/22/2015
14-150	097-094-050	1021 BURKE, S	CH-THE ROAD CHURCH	CH-THE ROAD CHURCH - HALL BRANDON	THE ROAD CHURCH	950 SF ADDITION TO EXISTING 8,600 SF SANCTUARY ON 2.16 ACRES (R16 ZONED) (AE)	11/05/2014	11/05/2015
14-164	094-201-031	1214 MAIN, E	KALFAYAN SIRAG & ANNA	JOHN KALFAYAN	FUTURE AUTO RETAIL	FUTURE AUTO RETAIL 6,480 SQ FT ON 43,095 SQ FT AREA (CS ZONED) (DISTRICT E)	11/19/2014	11/19/2015
14-172	098-142-040	139 CAIN, N	MC ELREE JOHNNY M & DEBRA J (TRS)	BRIAN GEARY	TOMMYS PUMP DBA CARVER PUMP MOVING TO NEW LOCATION	TOMMYS PUMP DBA CARVER PUMP MOVING TO NEW LOCATION ON 4.77 ACRES 2 BLDGS 5,000 AND 8,000 SQ. FT. (CS ZONED) (DISTRICT E)	11/19/2014	11/19/2015
14-177	122-320-077	2950 MOONEY, S	CRENSHAW BONNIE(SCS R TR MCMILLAN FAM RES	LARS ANDERSEN & ASSOC INC	SHOE PALACE CORPORATION	REMOVE EXISTING BUILDINGS AND REBUILD NEW 11,146 SF BUILDING ON 1.11 ACRES (CR ZONED) (X) (DISTRICT A)	11/26/2014	11/26/2015

14-178	096-093-016	1100 SOWELL, S	CH-FIRST BAPTIST OF VISALIA INC	PASTOR ED KEMP	GATEWAY CHURCH VISALIA	CONSTRUCT NEW CHILD CARE FACILITY AND ASSEMBLY BUILDING (12,938 NEW), DEMO EXISTING 9,132 SF BLDG ON 4.46 ACRES (QP ZONED) (X/AE)	11/26/2014	11/26/2015
14-183	098-110-027	2115 MAIN, E	DUNSWORTH PROPERTIES LP	PACHECO JESSE	JP ELECTRIC & SOLAR	CONSTRUCT NEW 3,200 SF BUILDING AND MONUMENT SIGN ON 47,296 SF AREA (CS ZONED) (AE) (DISTRICT C)	12/10/2014	12/10/2015
14-192	078-120-019	GIDDINGS & SHANNON, NW CORNER	TE VELDE BERNARD & REBECCA (CO TRS)	VISALIA UNIFIED SCHOOL DISTRICT	GLENDALE ELEMENTARY SCHOOL	NEW ELEMENTARY SCHOOL ON 12.5 ACRES (R16 ZONED) (X/AE)	12/17/2014	12/17/2015
14-194	098-220-057	1720 ST. JOHNS, E	VANDER WEERD HENRY M & ALICE A(TRS)	SABBAH SAMER	CENTRAL CALI CAPITAL INC	NEW 32 UNIT APRTMENT COMPLEX ON 1.8 ACRES(R14.5 ZONED) (AE)	12/17/2014	12/17/2015
14-197	081-071-031	100 KELSEY, N	F & T FINANCIAL SERVICES INC	LUCIO ALEX	DEVELOPMENT OF VACANT LAND	SITE ONE; PROPOSED PAINT & BODY SITE TWO; WAREHOUSE AND INDIVIDUAL TENANT SPACES FOR RENT ON 3.19 ACRES (CS ZONED) (X/AE) (DISTRICT H)	01/07/2015	01/07/2016
14-198	085-130-057	5020 MINERAL KING, W	ARM PROPERTIES	ARM PROPERTIES	DR CHAUDHRI OFFICE BUILDING	NEW 2,077 SF BUILDING ON PORTION OF 35,918 SF AREA (OG ZONED) (X/AE) (DISTRICT F)	01/07/2015	01/07/2016
14-199	087-060-004	4420 MYRTLE, W	SEQUOIA OAK INVESTMENTS LLC	SABBAH SAM	MULTI FAMILY PROJECT	TWO NEW 2-STORY 4 PLEX UNITS AND ONE NEW 2-STORY 6 PLEX UNIT ON 40,861 SF (RM2 ZONED) (X)	01/07/2015	01/07/2016
15-003	103-340-106	4046 WILLOW, E	WINDOWS PLUS CONSTRUCTION INC	SILER STEVE @ THE DRAWING BOARD	SIERRA POINT VILLAS	IN-FILL 15 EXISTING LOTS WITH 27,909 SF IN RESIDENTIAL DWELLINGS ON 78,437 SF TOTAL AREA (R16 ZONED) (XL)	01/14/2015	01/14/2016

15-013	094-212-048	1130 MINERAL KING, E	CERM PROPERTIES LLC	FRIDLUND CRAIG	NEW COMMERCIAL BUILDING	NEW 6,528 SF METAL BUILDING COMPLEX ON 21,149 SF AREA (CS ZONED) (X) (DISTRICT C)	01/28/2015	01/28/2016
15-014	094-296-016	229 MAIN, E	MOSLEY LLOYD H & LESLIE A (TRS)(FAM TR)	MG FOOD SERVICES - GHANIEM GADIJA	OCEAN BASKET	EXISTING RESTAURANT REQUEST TO ADD LIVE ENTERTAINMENT (CDT ZONED) (X/AE) (DISTRICT DRD)	01/28/2015	01/28/2016
15-021	096-143-004	669 WATSON, S	VISALIA ROTARY COMMUNITY FOUNDATIO N	SCOTT & ASSOCIATES - SCOTT FRED	ROTARY RESPITE HOUSE	DEMOLISH EXISTING RESIDENCE AND BUILD NEW 3,004 SF DUPLEX TO BE LOANED OUT AS HOUSING FOR KDDH PATIENTS FAMILIES ON 7,688 SF AREA (R16 ZONED) (X) (HISTORIC)	02/04/2015	02/04/2016
15-022	126-870-028	231 CALDWELL, E	CALDWELL PROPERTIES LLC	BILL MORGAN	NEW IMMEDIATE CARE BUILDING AT TUSCAN PLAZA (NO MAP)	CONSTRUCT NEW 3,820 SQ FT SHELL BUILDING FOR IMMEDIATE CARE ON 5,098 SQ FT AREA (CSO ZONED) (DISTRICT A) (X)	02/11/2015	02/11/2016
15-026	100-350-078	1706 TULARE, E	CH-VISALIA CALVARY BAPTIST	JONES JOSHUA	NEW PARSONAGE	NEW 1,767 SF MODULAR PARSONAGE FOR PASTORAL FAMILY ON PORTION OF 88,180 SF AREA	02/25/2015	02/25/2016
15-028	078-210-021	DEMAREE & FLAGSTAFF, NE CORNER	QUAIL PARK RETIREMENT VILLAGE LLC	KAWEAH DELTA HEALTH CARE DISTRICT	KAWEAH DELTA HEALTH CARE DISTRICT	NEW 5,200 SF WALK IN MEDICAL CLINIC TO PROVIDE EPISODIC CARE SERVICES ON PORTION OF 4.66 ACRES (RM2 ZONED) (X)	02/25/2015	02/25/2016
15-029	078-210-021	]DEMAREE & FLAGSTAFF, NE CORNER	QUAIL PARK RETIREMENT VILLAGE LLC	QUAIL PARK LLC	QUAIL PARK LLC	CONSTRUCT NEW 120 UNIT ASSISTED AND INDEPENDENT LIVING ON 3.58 ACRES OF 4.66 ACRES TOTAL (RM2 ZONED) (X)	02/25/2015	02/25/2016
15-038	100-030-022	1400 NOBLE, E	VZSA PIZZA THREE INC	SALIM TAHIR	NOBLE AVE CAR WASH (CUP)	CONDITIONAL USE FOR NEW UNMANNED CAR	03/11/2015	03/11/2016

						WASH WITH NEW 1,634 SF BUILDING ON 1 ACRE (CSO ZONED) (X) (DISTRICT A)		
15-047	077-130-078	7440 DOE, W	BLUE SCOPE BUILDINGS NA INC	GODDARD MATTHEW	BLUESCOPE - HAZARDOUS MATERIAL STORAGE	NEW 720 SF STORAGE BUILDING FOR HAZARDOUS MATERIAL ON PORTION OF 34.2 ACRES (IH ZONE) (X) (DISTRICT H)	04/01/2015	04/01/2016
15-050	100-090-022	637 LOVERS, S	HABITAT FOR HUMANITY TULARE COUNTY	RINDGE RON	HABITAT FOR HUMANITY	CONSTRUCT NEW 20X52 METAL STRUCTURE FOR SHADE ON 30,699 SF AREA (CSO ZONED) (X) (DISTRICT B)	04/01/2015	04/01/2016
15-061	077-130-012	7227 DOE, W	SUNSHINE REALTY CORP	VERMELTFOORT ROBERT	HELLER INDUSTRIAL WEST	TWO NEW WAREHOUSES 1 @ 407,000 SF AND 1 @ 405,590 SF ON 39.9 ACRES (IH ZONED) (X/AE) (DISTRICT H)	04/22/2015	04/22/2016
15-062	077-780-005	1440 SHIRK, N	SCALIA INC	GRAHAM MATT	FOUR SEASONS HAULING INC	NEW BUILDINGS FOR STORAGE OF NON-HAZARDOUS MATERIALS AND CONVERT EXISTING AWNING INTO A WAREHOUSE FOR PACKAGED PRODUCT FOR TOTAL OF 5,000 SF ON 15.89 ACRES (IH ZONES) (X) (DISTRICT H) (REFER 12-156)	04/22/2015	04/22/2016
15-066	094-180-007	BURKE & GOSHEN	CITY OF VISALIA	PORTER MIKE	VISALIA EMERGENCY COMMUNICATION CENTER	CONSTRUCTION OF NEW 18,794 SF BUILDING FOR USE AS ENERGENCY COMMUNICATION CENTER ON 4.2 ACRE PORTION OF 11.3 ACRES (CS ZONED) (AE) (DISTRICT E)	04/29/2015	04/29/2016
15-068	098-200-060	HOUSTON EAST OF CAIN	VARO-REAL INVESTMENTS INC	ESPINOZA-MARTINEZ DIEGO	HOUSTON AVENUE APARTMENTS	MULTI FAMILY HOUSING UNIT WITH FOUR STUDIO APARTMENTS, 14 - 2BED/1BATH UNITS, FOUR 3BED/2BATH UNITS AND GYM ON 46,831 SF AREA	04/29/2015	04/29/2016

						(PA & R16 ZONED) (X/AE) (DISTRICT B)		
15-072	094-150-031	1110 DOUGLAS, E	SCHRIMSHIRE DONOVAN	COBILLAS JOE	STUDENT TRANSPORTATION OF AMERICA	SCHOOL BUS CONTRACTOR AND VEHICLE MAINTENANCE AREA ON EXISTING 2.4 ACRE SITE (CS ZONED) (X) (DISTRICT E)	05/06/2015	05/06/2016
15-073	081-150-022	6913 PERSHING, W	CONWAY JIM L & MARLA SUZANNE (TRS FAM TR)	BJ PERCH CONSTRUCTION INC	SITE IMPROVEMENTS	TWO NEW BUILDINGS ONE @ 5,570 SF AND ONE @ 5,000 SF ON 42,000 SF AREA (IL ZONED) (X) (DISTRICT H)	05/06/2015	05/06/2016
15-074	121-400-040	CALDWELL & DANS	CALDWELL PALMS LLC	CALDWELL PALMS LLC	NEW COMMERCIAL BUILDINGS	TWO NEW 4,000 SF BUILDINGS ON 45,050 SF AREA (PA ZONED) (X) (DISTRICT K)	05/06/2015	05/06/2016
15-077	081-100-058	1105 NEVADA, N	TODD JAMES WILLIAM SR & PAMELA LISA (TRS)	TODD JIM	LOVERIN PUMP & DRILLING INC	NEW 3,750 SF BUILDING ON PORTION OF 2.28 ACRES (IL ZONED) (X) (DISTRICT H)	05/13/2015	05/13/2016
15-078	093-112-007	1021 JABOB, N	MAXEY DYLON LYNOLD	GONZALEZ MARTI	SECOND DWELLING UNIT	SECOND DWELLING UNIT FOR 532SF GARAGE CONVERSION ON 8,190 SF AREA (R16 ZONED) (X)	05/13/2015	05/13/2016
15-085	097-085-006	821 BRIDGE, S	ALCAUTER SALGADO RENE ROBERTO	ALCAUTER RENE	NEW RESTAURANT	TO BUILD A 18OO SF CHICAGO STYLE FAST FOOD RESTAURANT(CS) (AE) (C)	06/10/2015	06/10/2016
15-090	087-100-017	917 FULGHAM, S	RIVERA JULIO & PEREZ DIANE	HORTA CARLOS	DEMO AND CONSTRUCT 2 NEW HOMES	DEMOLISH EXISTING HOME AND CONSTRUCT 2 NEW HOMES. HOUSE A 1536 SF, HOUSE B 1130 SF. ON 10, 516 SF PARCEL. (RM2) (X)	06/24/2015	06/24/2016

15-093	095-010-068	3533 NOBLE, W	RREF II-WPG VISALIA FINANCED PARCELS LLC	HALLAIAN CHRISTIAN	DOLLAR TREE STORE	LOT LINE ADJUSTMENT AND NEW DOLLAR TREE STORE (CSO) (X) (F)	06/24/2015	06/24/2016
15-094	122-300-050	3350 MOONEY, S	VISALIA NUMBER ONE LTD	OLEY FRANK	DEMO & CONSTRUCT NEW CARL'S JR RESTAURANT	DEMOLISH EXISTING CARL'S JR RESTAURANT AND ASSOCIATED SITE IMPROVEMENTS, AND CONSTRUCT NEW SITE IMPROVENTS (NEW LAYOUT) AND NEW RESTAURANT BUILDING.	06/24/2015	06/24/2016
15-095	081-130-032	9715 GROVE, W	PICKETT JOSEPH E JR & RACHELE A (TRS)	O'NEAL PAUL	NEW BUILDING WITH OFFICE IN INDUSTRIALPARK	4901 SF NEW BUILDING WITH 1250 SF INTERIOR OFFICE (LOT 17) (IL) (X) (H)	06/24/2015	06/24/2016
15-096	081-130-049	732 ELKO, N	PICKETT JOSEPH E JR & RACHELE A (TRS)	O'NEAL PAUL	NEW BUILDING WITH OFFICE IN THE INDUSTRIAL PARK	7500 SF NEW BUILDING WITH 1700 SF INTERIOR OFFICE (LOT 34) (IL) (X/AE) (H)	06/24/2015	06/24/2016
15-097	081-130-061	754 GATEWAY, N	PICKETT JOSEPH E JR & RACHELE A (TRS)	O'NEAL PAUL	NEW BUILDING WITH OFFICE IN INDUSTRIAL PARK	4901 SF NEW BUILDING WITH 1250 SF INTERIOR OFFICE (LOT 46) (IL) (X) (H)	06/24/2015	06/24/2016
15-100	095-134-052	1703 MOONEY, S	DABEEN LLC	OH SAE KYU	NEW CONSTRUCTION OF A DENTAL OFFICE	2 STORY DENTAL OFFICE (5,703 SF) ON EMPTY LOT ON MOONEY BLVD. (REFER SPR12-219 & 12-219 B) (CSO) (X) (A)	07/01/2015	07/01/2016
15-104	100-140-030	1237 PINKHAM, S	BERTRAM ENTERPRISES INC	CURTISS AND COMPANY	EAST HAVEN	15 UNIT (1100 SF PER UNIT) GARDEN DUPLEX COMMUNITY-DEMO OF EXISTING RESIDENSE, SITE DEVELOPMENT AND CONSTRUCTION OF 15 RESIDENTIAL APPARTMENT UNITS (R-1-6) (X)	07/01/2015	07/01/2016
15-118	081-130-018	9810 GROVE, W	RAY A MORGAN COMPANY	SANDERS HEATHER	RAY MORGAN COMPANY	TO BUILD A 1710 SF STEEL BUILDING BEHIND EXISTING BUILDING FOR ADDITION STORAGE USE (IL) (X) (D)	07/29/2015	07/29/2016
15-122	126-730-010	4004 MOONEY, S	CROSBY KATHRYN M (TR)	COASTAL REALTY INVESTORS NO 4 LLC	DEMO AND NEW MUILTI-TENANT RETAIL BUILDING	DEMO 6853 SF RESTAURANT AND CONSTRUCT NEW 6928 SF MULTI-TENANT RETAIL	07/29/2015	07/29/2016

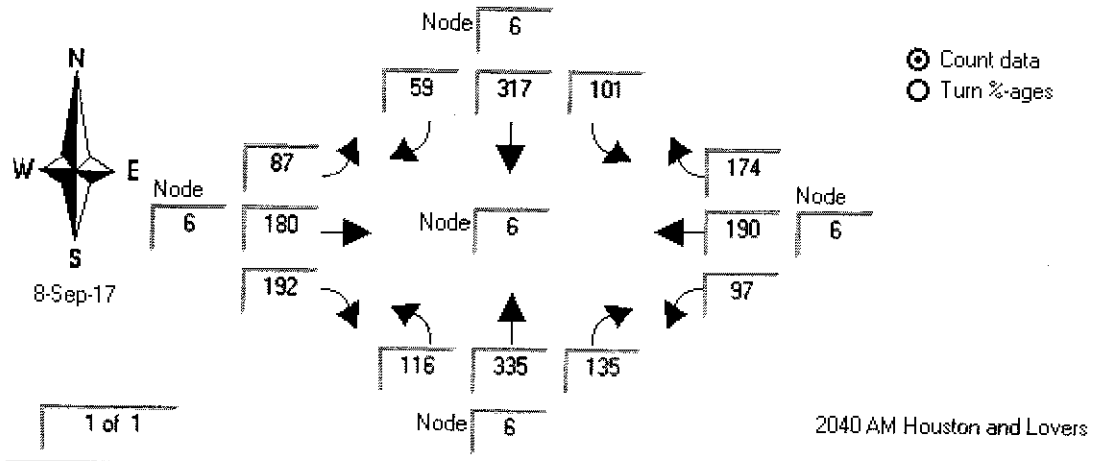
						BULDING (RESTAURANTS-TWO TENANTS) (CR) (X) (A)		

CUMULATIVE PROJECT LIST
FOR THE
EAST SIDE REGIONAL PARK (VISALIA)

Project Number	Applicant	Location	Assessor Parcel Number	Distance from Project	Status	Acreage
TM 834 19 Lot Subdivision	Castlewood Partners.	Southwest corner of Noble Ave. & Road 156	101-090-014	½ mile east	Pending	18.5
PSP 14-064 – Contractor's Storage Yard	Helena Hughes	Avenue 272 & Santa Fe	126-380-017	3 miles south	Pending	2.66
PZV 14-004 & PSP 14-027 for Swap Meet parking	Karen Green	Mineral King Ave. & Road 152	103-090-052	Adjacent on east	Approved	6.56
GPI 14-003 – General Plan Amendment and Zone Change from AE-40 to R-A	Paula Simon	Road 140 & Avenue 328	079-190-017	4 miles north	Pending	27.83

APPENDIX H

TurnsW32 Worksheets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W
E
S
8-Sep-17
Node 6
59
317
101
87
174
Node 6
180
Node 6
190
Node 6
192
97
116
335
135
Node 6
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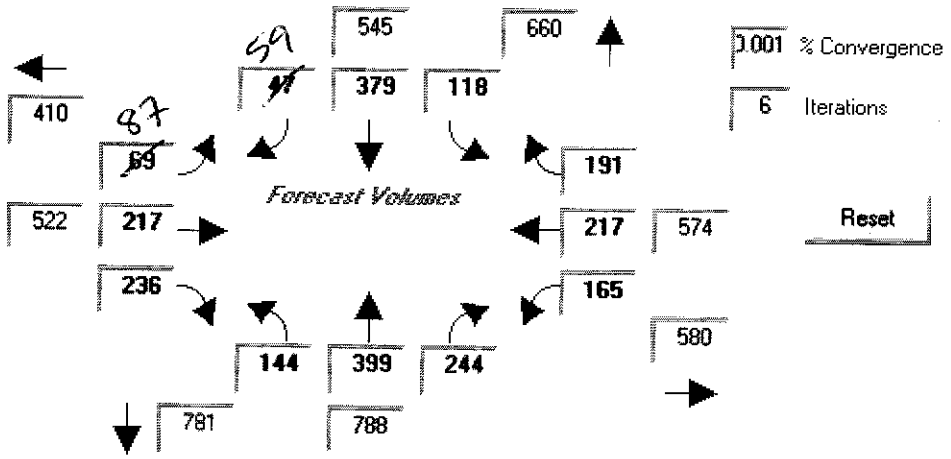
Turn %-ages
1 of 1
2040 AM Houston and Lovers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545
660
410
87
379
118
191
Forecast Volumes
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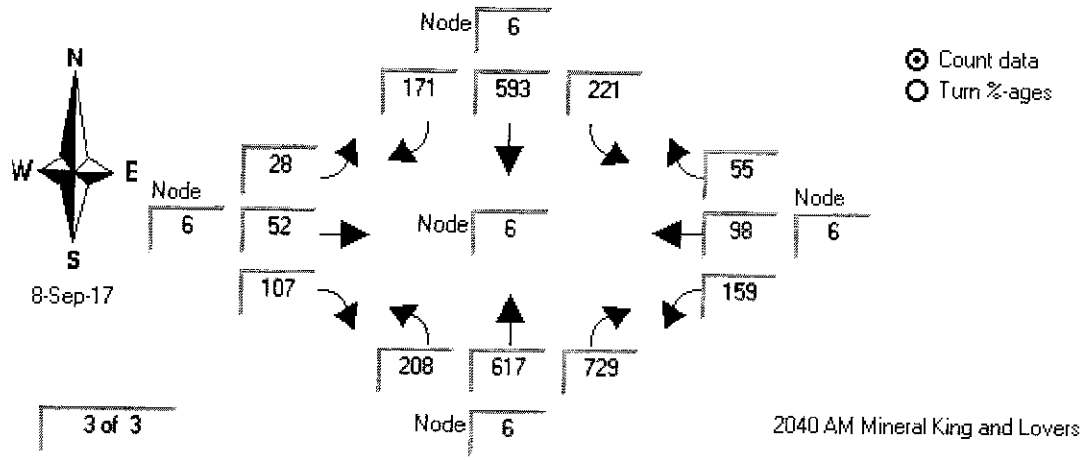
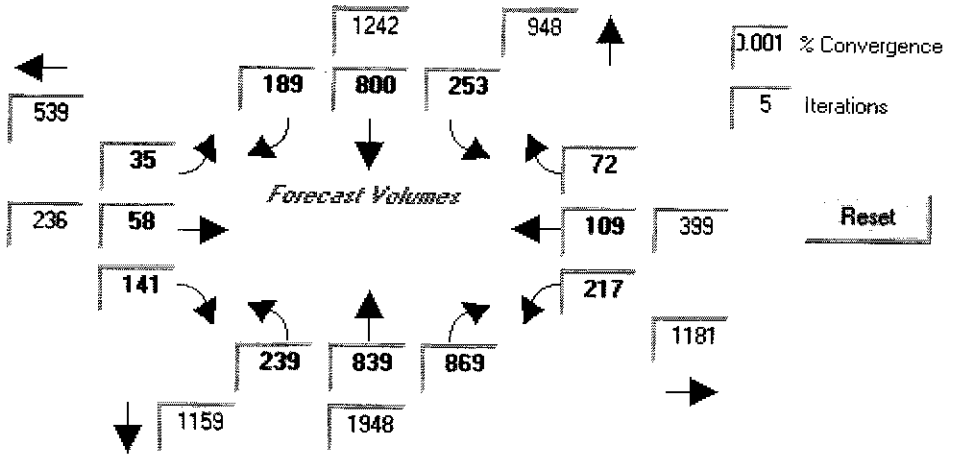
217
217
574
236
165
580
144
399
244
781
788
0.001 % Convergence
6 Iterations
Reset


N
W
E
S
8-Sep-17
Node 6
171
593
221
28
55
Node 6
52
Node 6
98
Node 6
107
159
208
617
729
Node 6
Count data
Turn %-ages
3 of 3
2040 AM Mineral King and Lovers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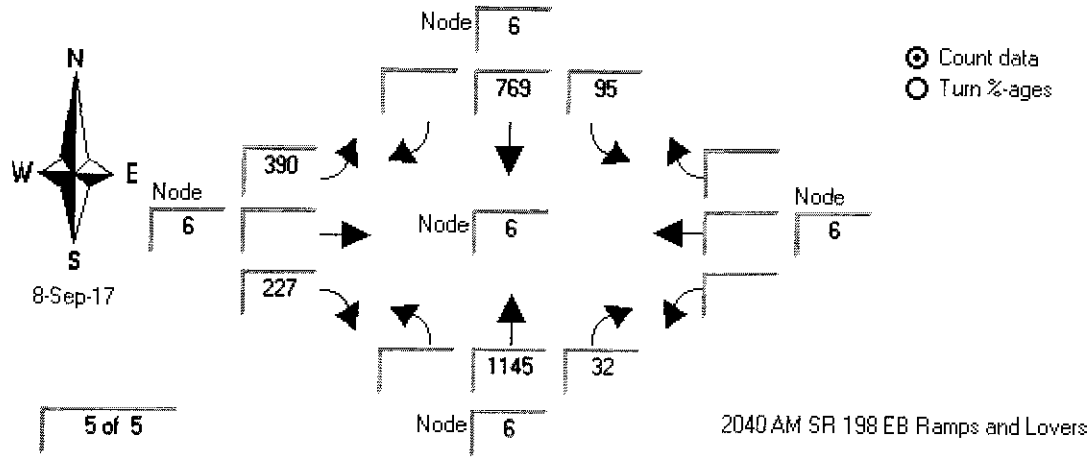
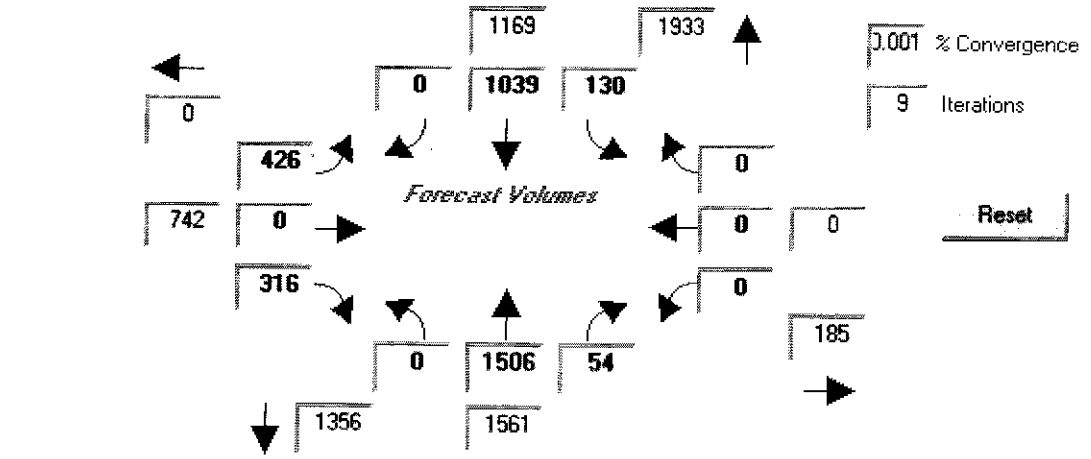
948
189
800
253
539
35
72
Forecast Volumes
236
58
109
399
141
217
239
839
869
1181
1159
1948
0.001 % Convergence
5 Iterations
Reset


N
W
E
S
8-Sep-17
Node 6
769
95
390
Node 6
Node 6
Node 6
227
1145
32
Node 6
Count data
Turn %-ages
5 of 5
2040 AM SR 198 EB Ramps and Lovers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1933
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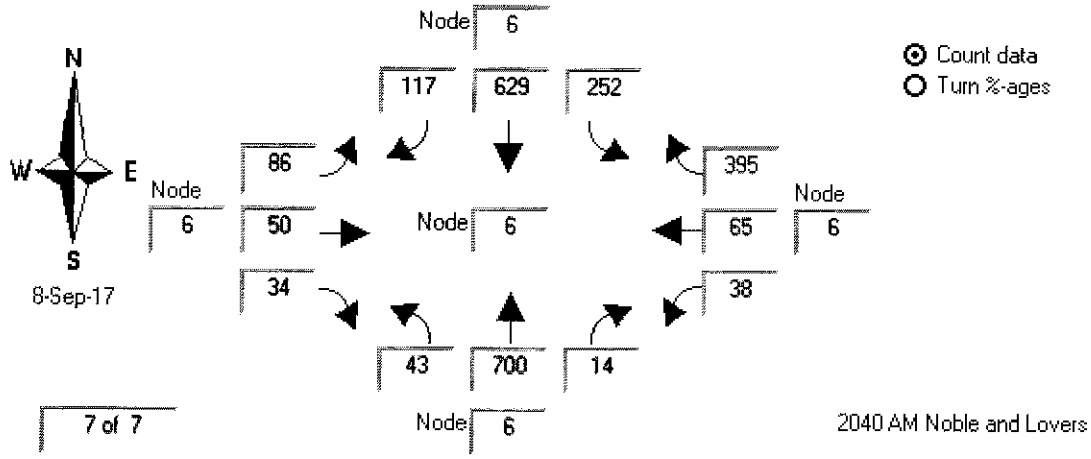
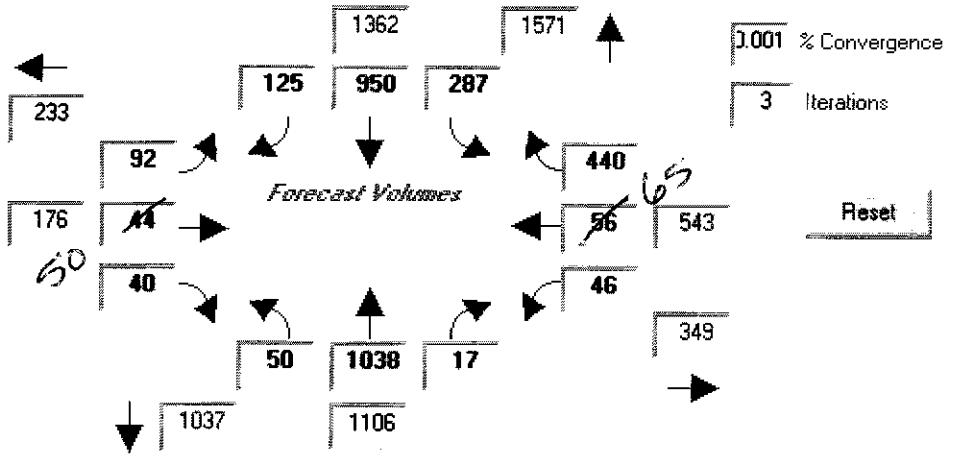
1039
130
0
426
0
Forecast Volumes
742
0
0
0
316
0
185
0
1506
54
1356
1561
0.001 % Convergence
9 Iterations
Reset


Node 6
N
W
E
S
8-Sep-17
117
629
252
86
395
Node 6
50
Node 6
65
Node 6
34
38
43
700
14
Count data
Turn %-ages
7 of 7
Node 6
2040 AM Noble and Lovers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1571
233
125
950
287
92
440
Forecast Volumes
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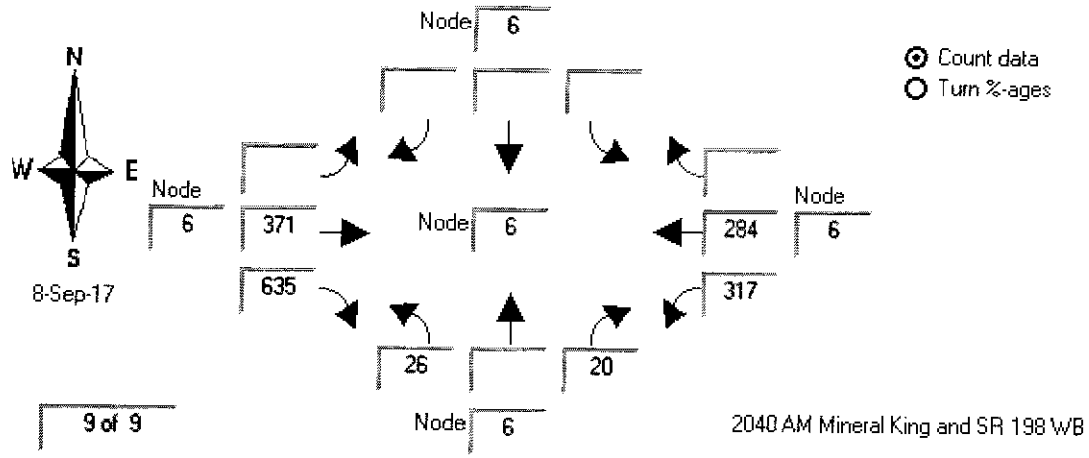
56
543
40
46
50
1038
17
349
1037
1106
0.001 % Convergence
3 Iterations
Reset



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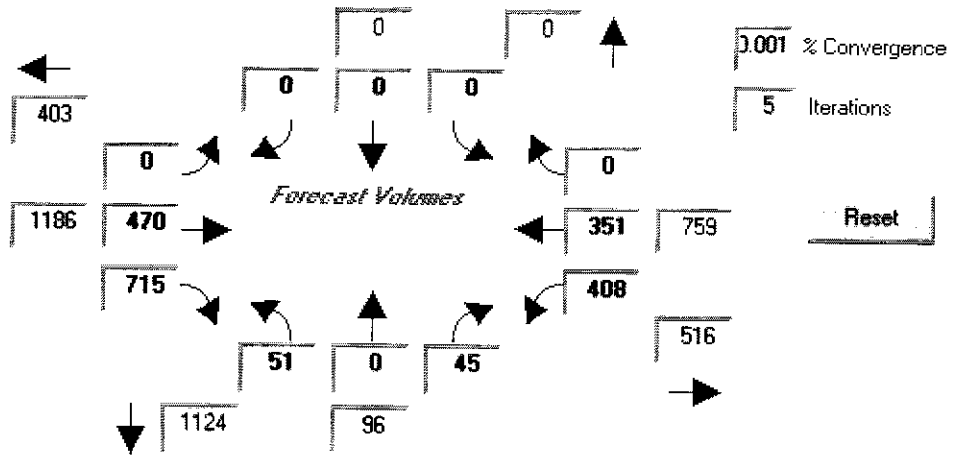
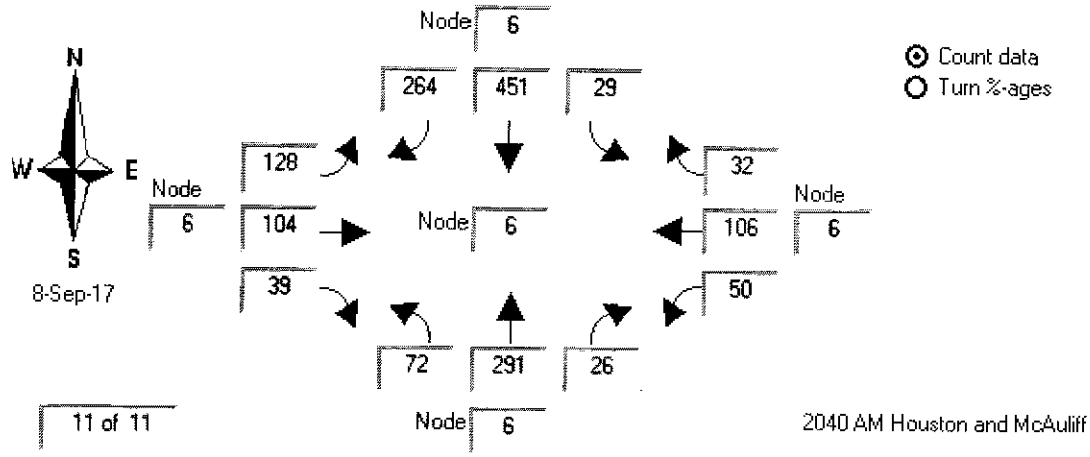
2040 AM Mineral King and SR 198 WB

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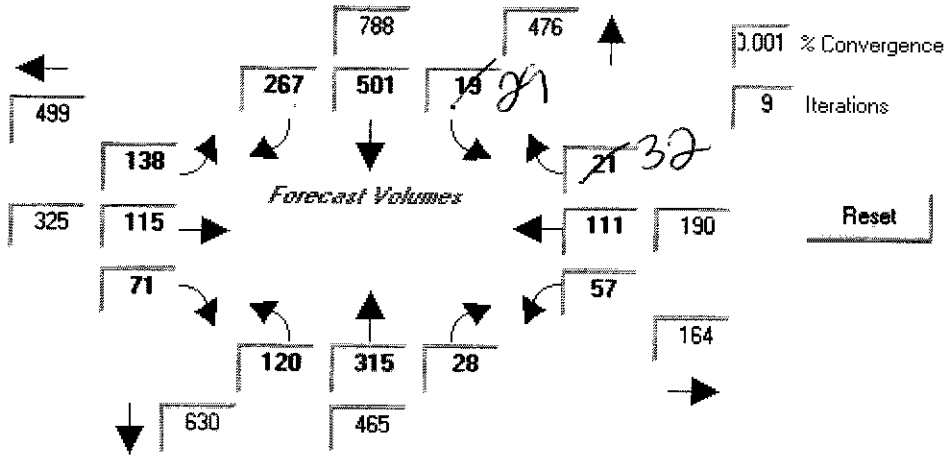
W
E
S
8-Sep-17
Node 6
264
451
29
128
32
Node 6
104
Node 6
106
Node 6
39
50
72
291
26
Node 6
Count data
Turn %-ages
11 of 11
2040 AM Houston and McAuliff


788
476
0.001 % Convergence
267
501
19 21
9 Iterations
499
138
21 32
Forecast Volumes
325
115
111
190
Reset
71
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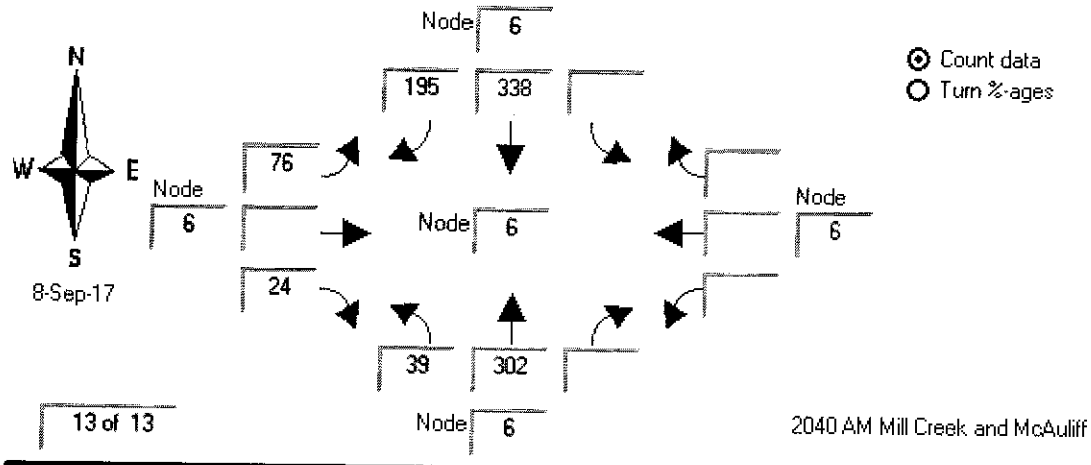
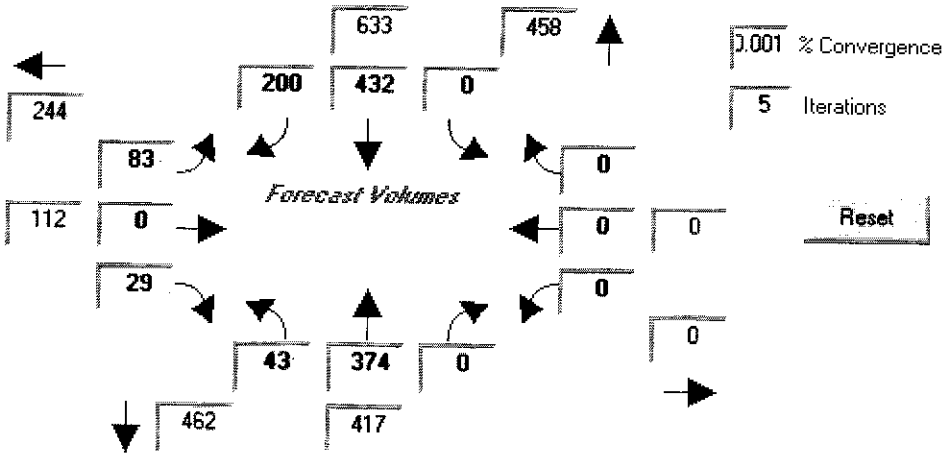
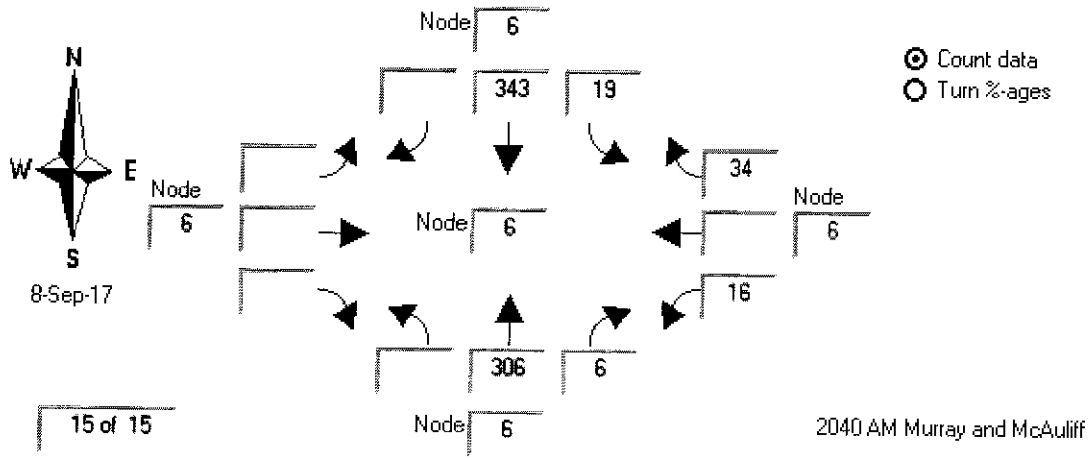
164
120
315
28
630
465


N
W
E
S
8-Sep-17
Node 6
195
338
76
Node 6
Node 6
Node 6
24
39
302
Node 6
Count data
Turn %-ages
13 of 13
2040 AM Mill Creek and McAuliff


633
458
200
432
0
244
83
0
112
0
0
0
29
0
43
374
0
0
462
417
Forecast Volumes
0.001 % Convergence
5 Iterations
Reset



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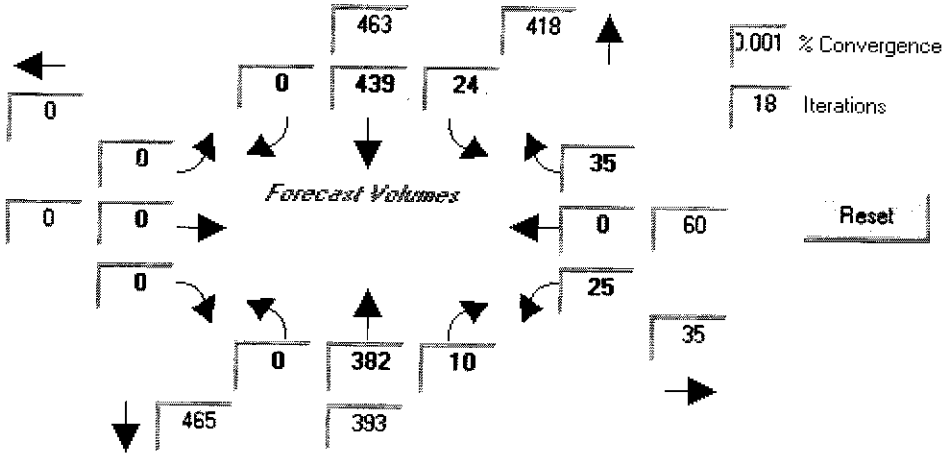
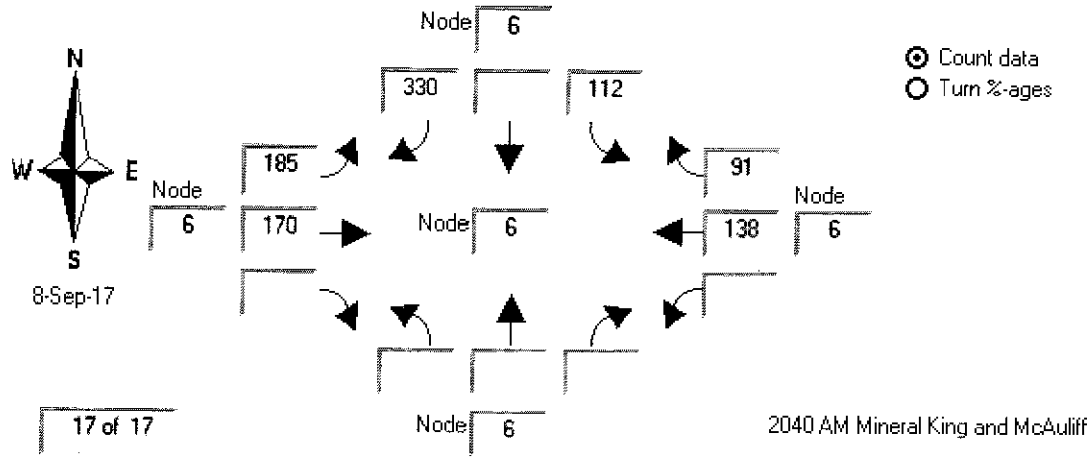
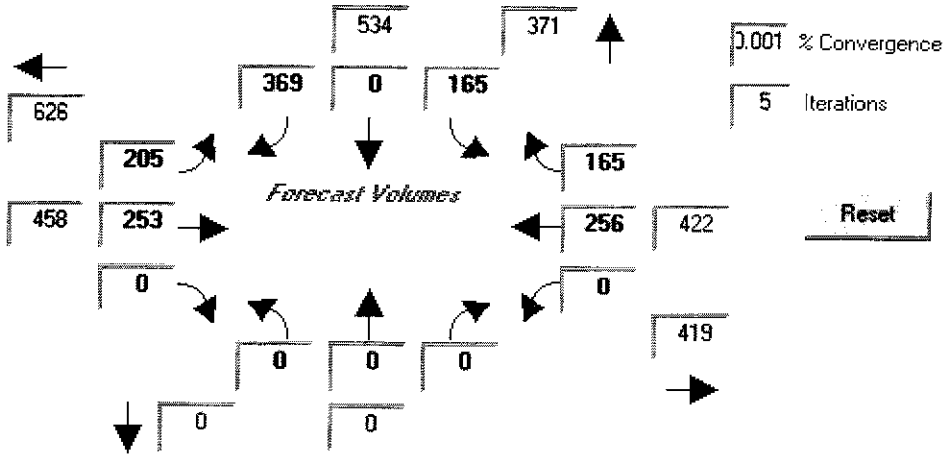
2040 AM Murray and McAuliff

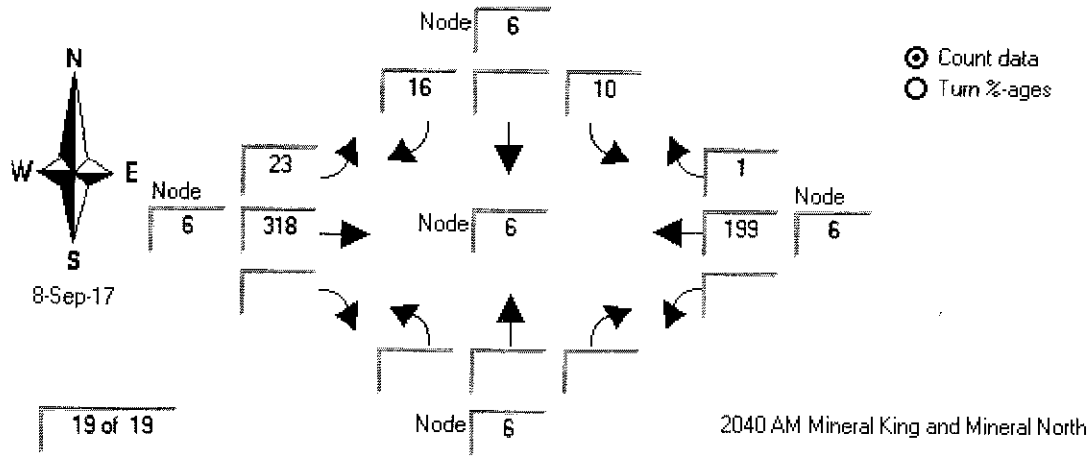




17 of 17

2040 AM Mineral King and McAuliff




N
W
E
S
8-Sep-17
Node 6
16
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23
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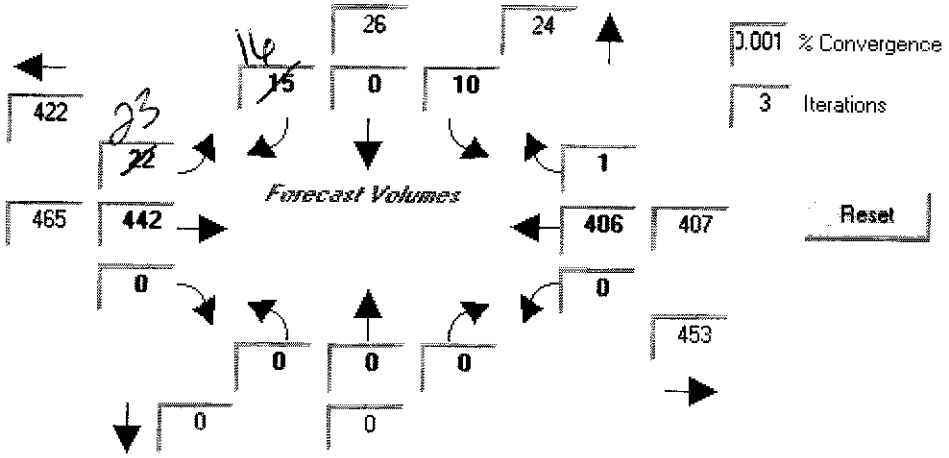
Node 6
318
Node 6
199
Node 6
Node 6
Count data
Turn %-ages
19 of 19
2040 AM Mineral King and Mineral North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24
15
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10
422
22
1
Forecast Volumes
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406
407
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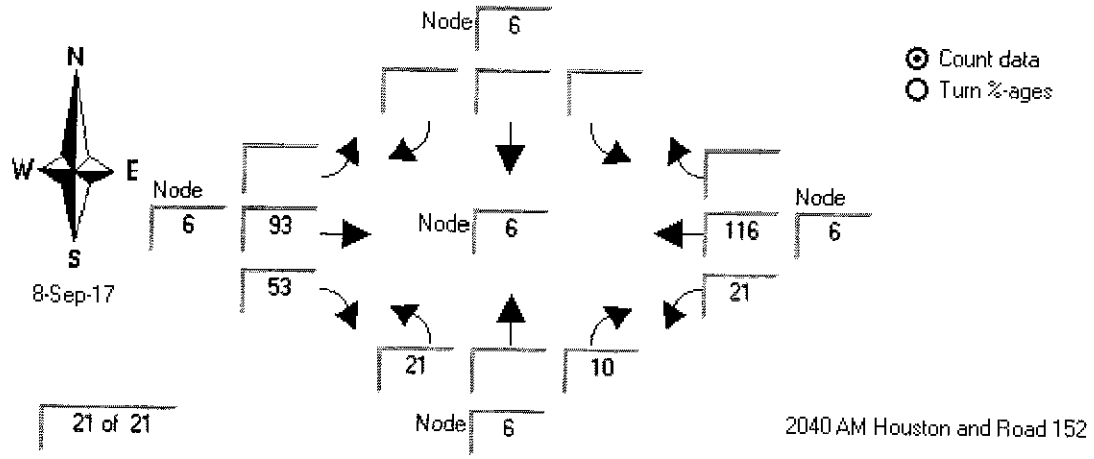
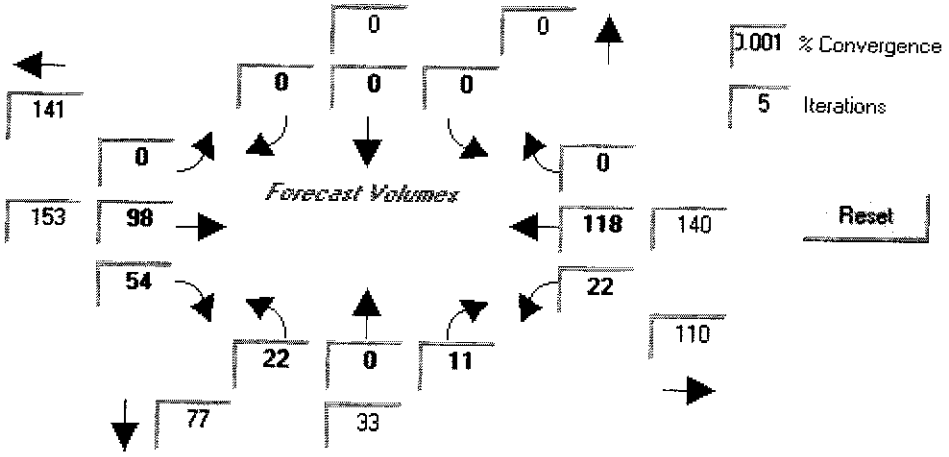
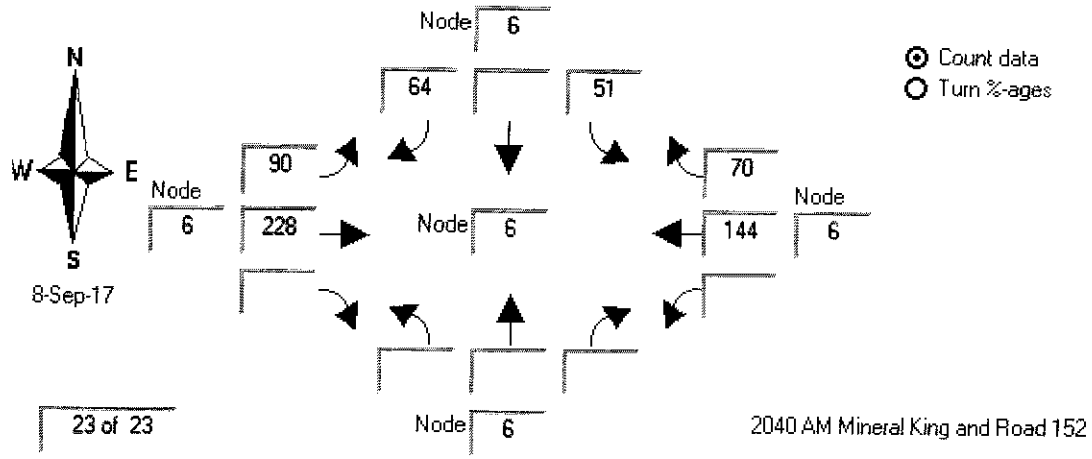
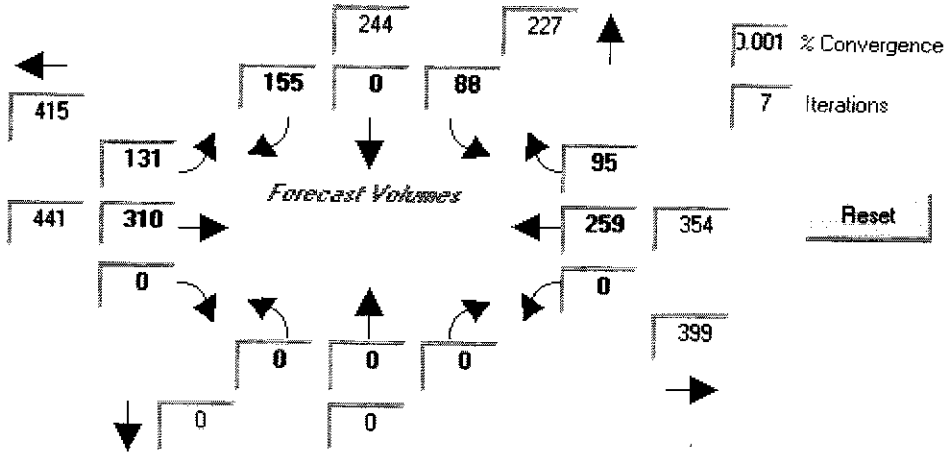
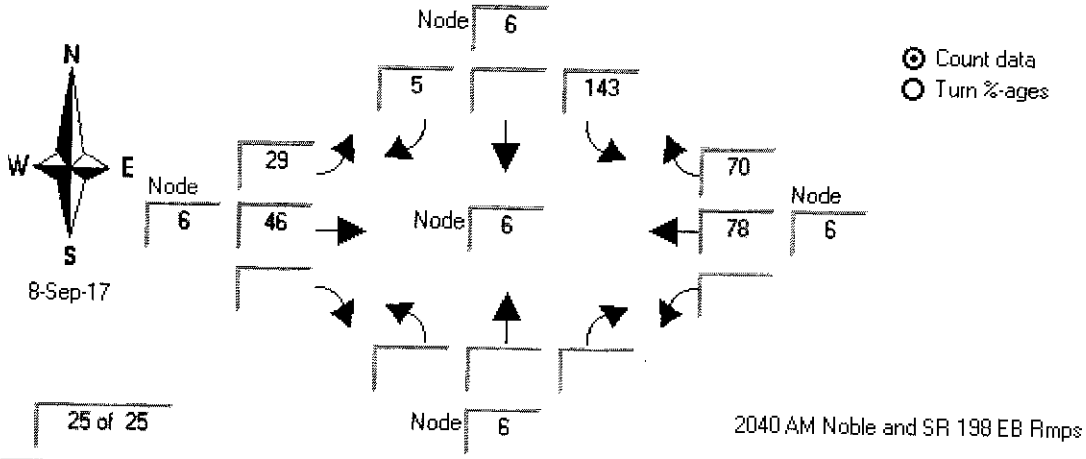
3 Iterations
Reset

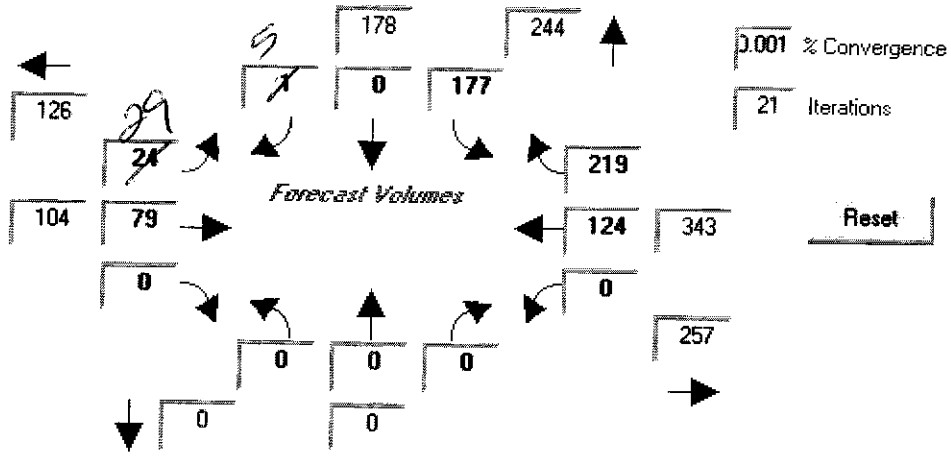

N
W
E
S
8-Sep-17
Node 6
Node 6
Node 6
Node 6
Node 6
93
53
21
21
10
116
21
Count data
Turn %-ages
21 of 21
2040 AM Houston and Road 152

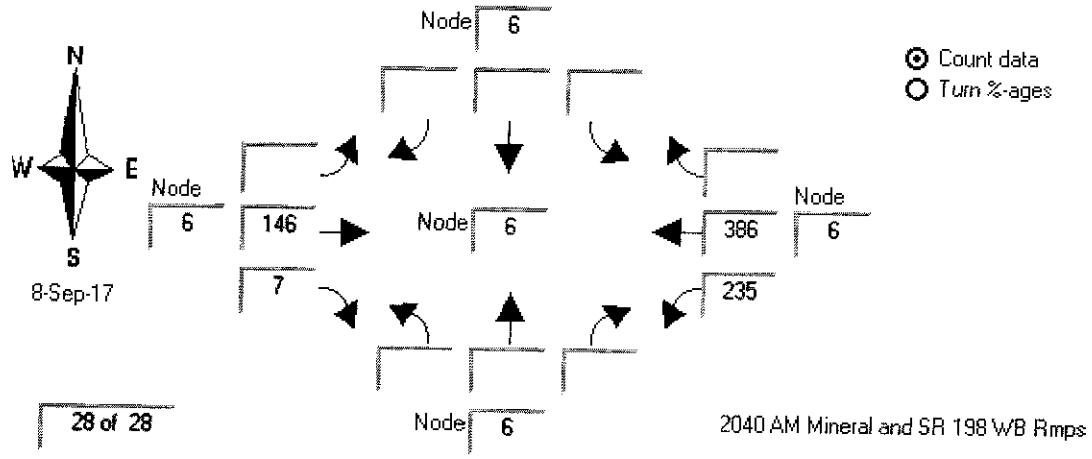

0
0
0
0
0
0
141
153
0
98
54
22
0
11
118
140
22
110
77
33
Forecast Volumes
0.001 % Convergence
5 Iterations
Reset

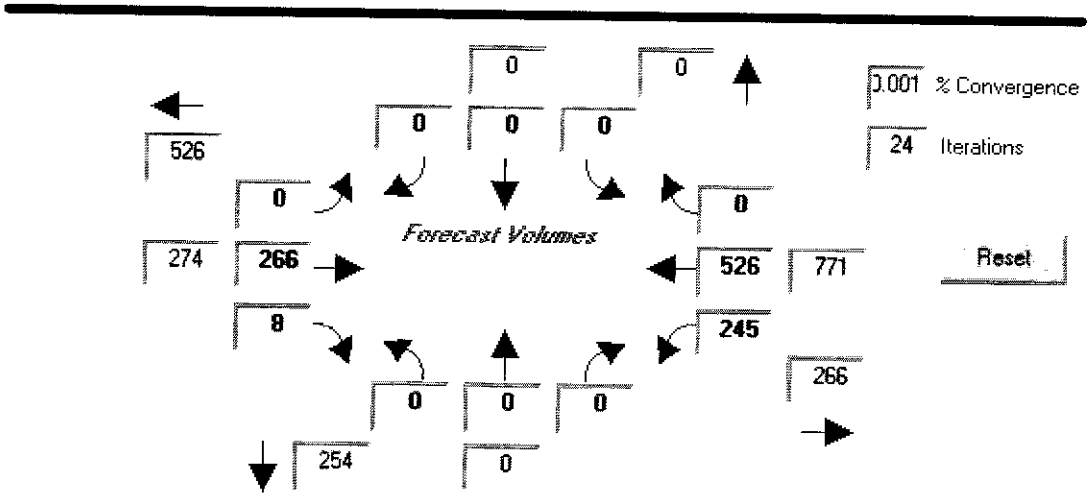

N
W
E
S
8-Sep-17
Node 6
64
51
90
70
Node 6
228
Node 6
144
Node 6
Node 6
Count data
Turn %-ages
23 of 23
2040 AM Mineral King and Road 152

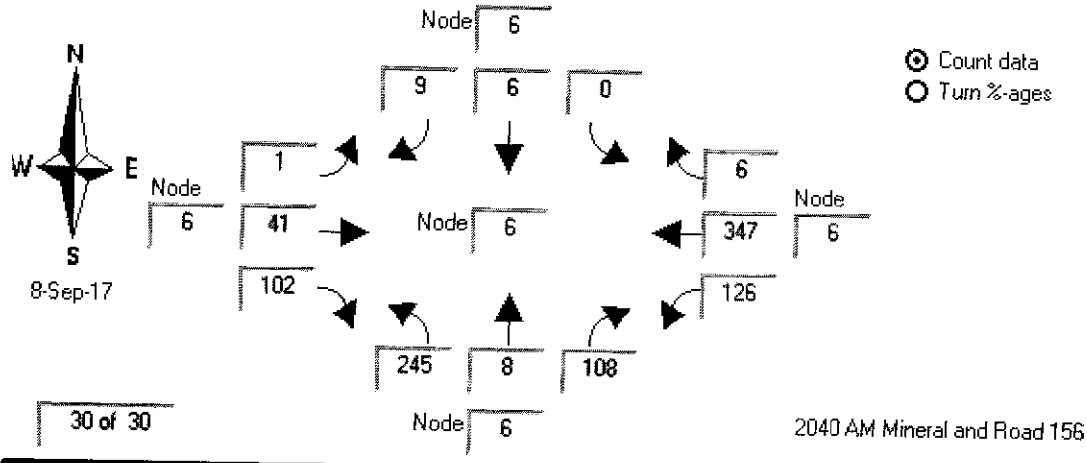

244
227
155
0
88
415
131
95
Forecast Volumes
441
310
259
354
Reset
0
0
399
0
0
0
0
0
0.001 % Convergence
7 Iterations

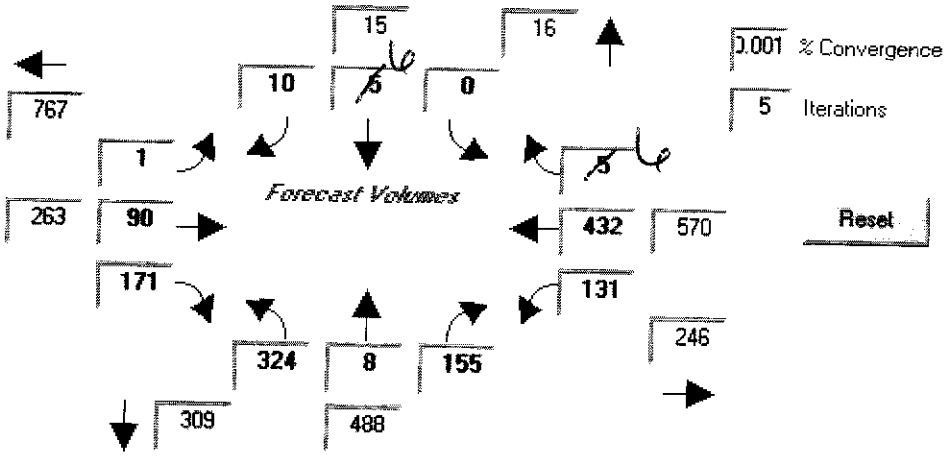

N
W
E
S
8-Sep-17
Node 6
5
143
29
70
Node 6
46
Node 6
78
Node 6
Node 6
Count data
Turn %-ages
25 of 25
2040 AM Noble and SR 198 EB Rmps

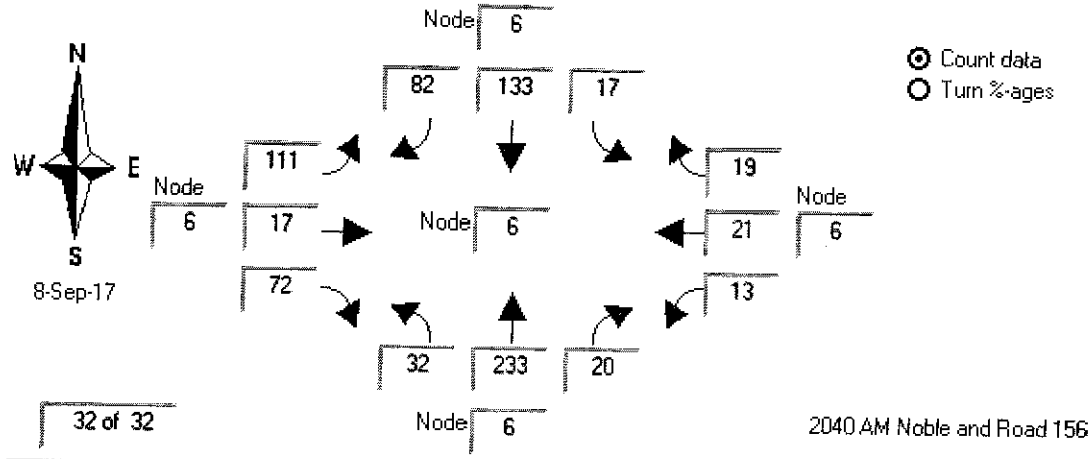

178
244
126
0
177
24
219
Forecast Volumes
104
79
124
343
0
0
257
0
0
0
0
0
0.001 % Convergence
21 Iterations
Reset

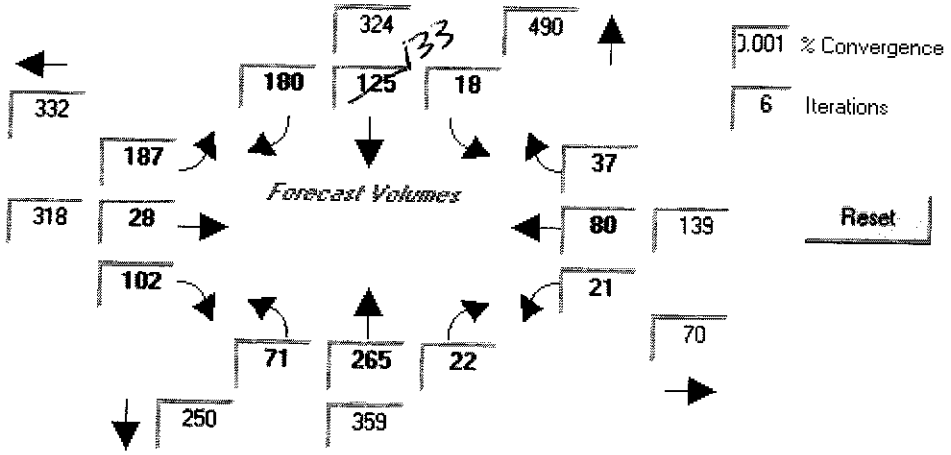

N
W
E
S
8-Sep-17
Node 6
Node 6
146
7
Node 6
Node 6
386
235
Node 6
Count data
Turn %-ages
28 of 28
2040 AM Mineral and SR 198 WB Rmps

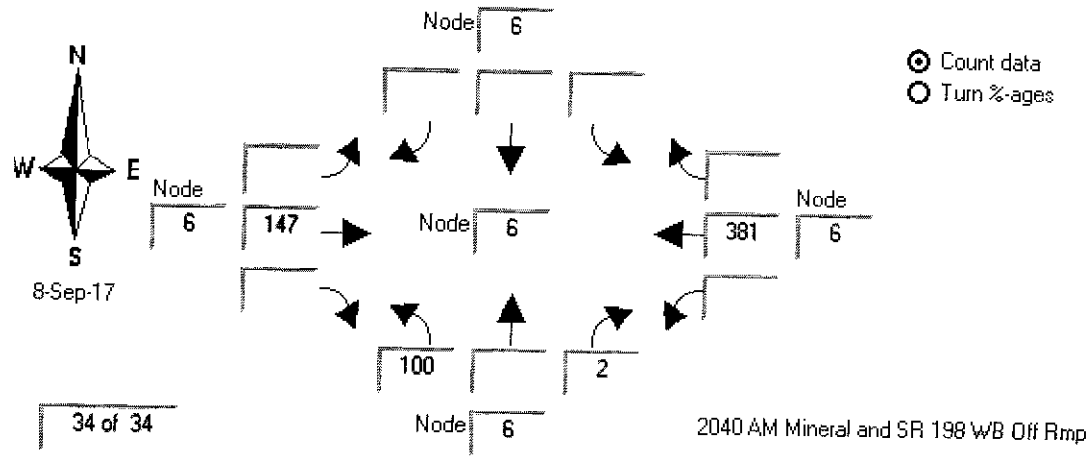

0
0
0
0
0
526
0
0
274
266
Forecast Volumes
526
771
8
245
266
0
0
0
254
0
0.001 % Convergence
24 Iterations
Reset

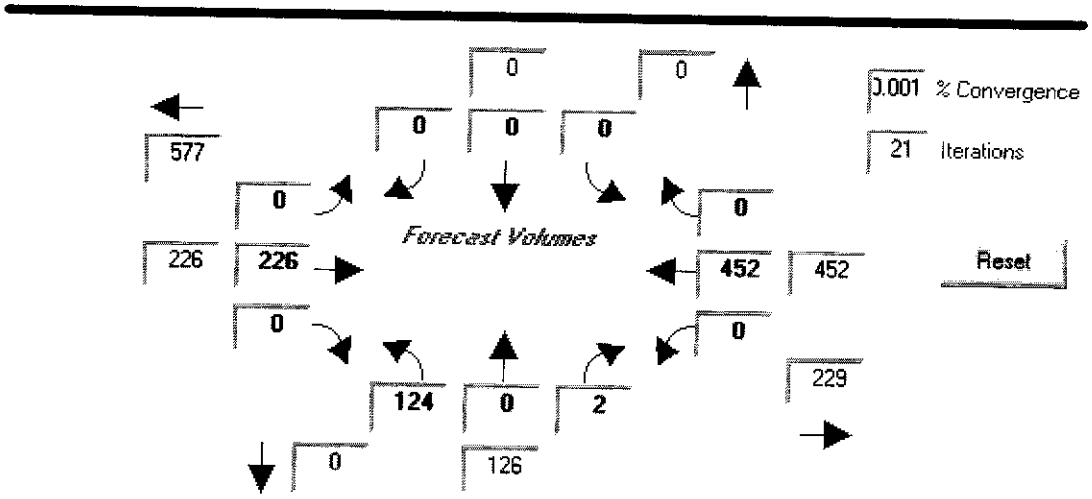

N
W
E
S
8-Sep-17
Node 6
9
6
0
1
6
Node 6
41
Node 6
347
Node 6
102
126
245
8
108
Node 6
Count data
Turn %-ages
30 of 30
2040 AM Mineral and Road 156

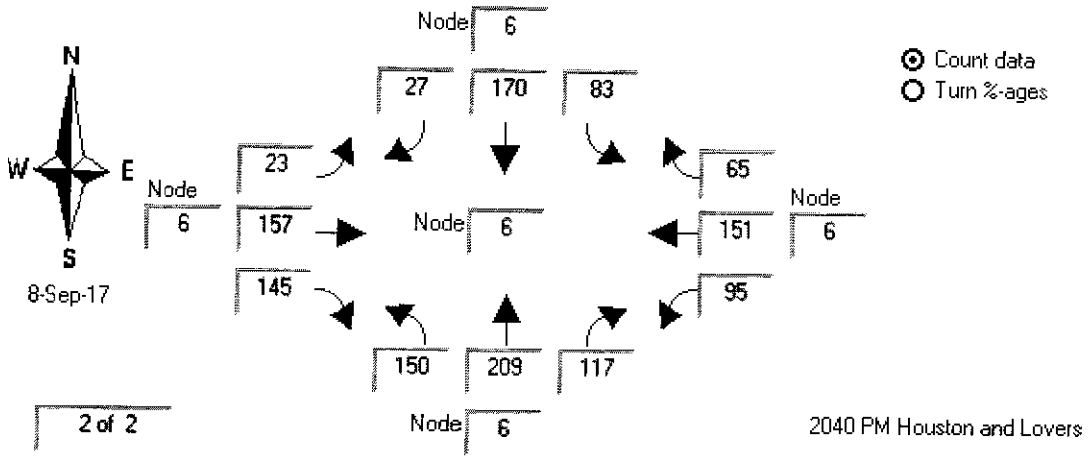

15
16
767
10
5
0
1
5
263
90
Forecast Volumes
432
570
171
131
324
8
155
246
309
488
0.001 % Convergence
5 Iterations
Reset


Node 6
82
133
17
111
19
Node 6
17
Node 6
21
Node 6
72
13
32
233
20
N
W
E
S
8-Sep-17
Count data
Turn %-ages
32 of 32
Node 6
2040 AM Noble and Road 156


324
490
133
180
125
18
332
187
37
Forecast Volumes
318
28
80
139
102
21
71
265
22
70
250
359
0.001 % Convergence
6 Iterations
Reset

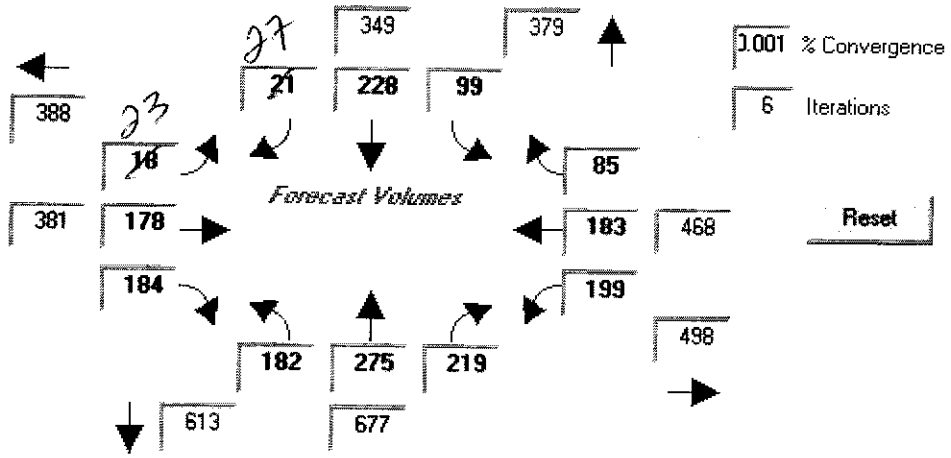

N
W
E
S
8-Sep-17
Node 6
Count data
Turn %-ages
Node 6
147
Node 6
381
Node 6
100
2
34 of 34
Node 6
2040 AM Mineral and SR 198 WB Off Rmp

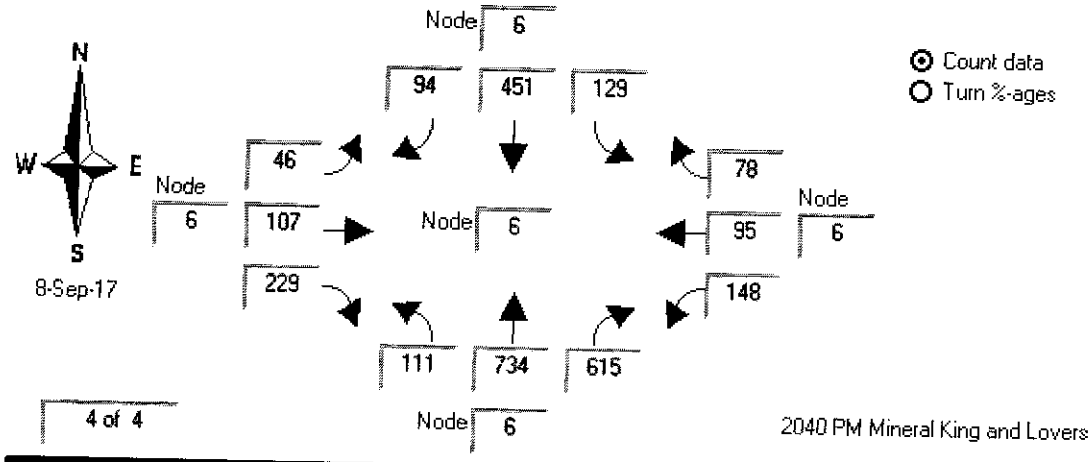

0
0
0.001 % Convergence
0
0
0
577
21 Iterations
0
0
Forecast Volumes
226
226
452
452
Reset
0
0
229
124
0
2
0
126

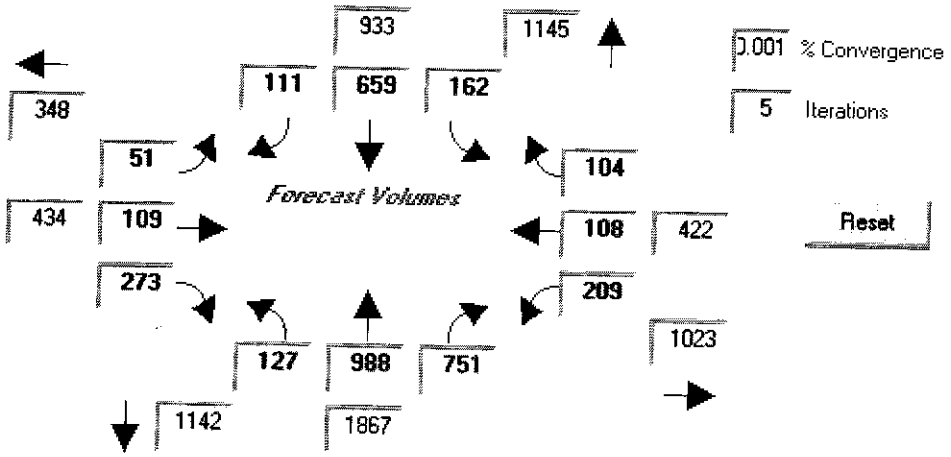


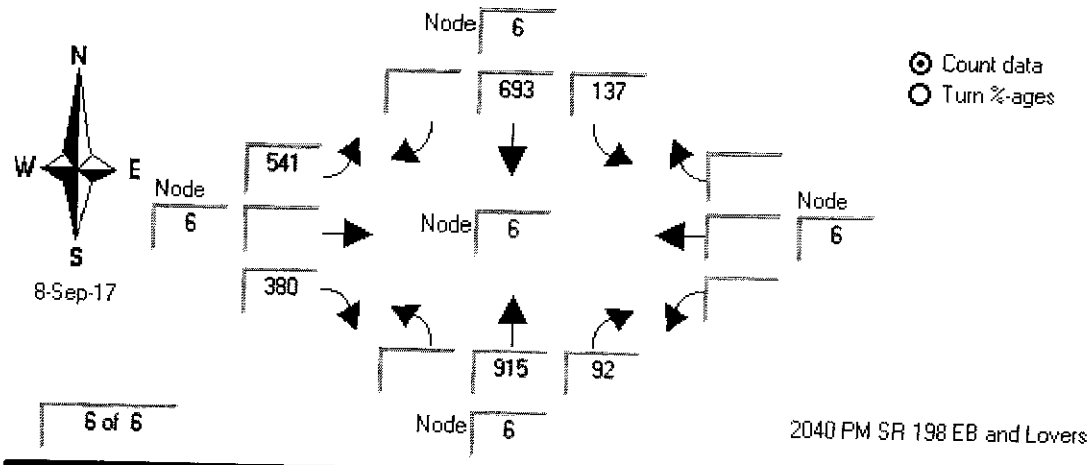
2 of 2

2040 PM Houston and Lovers



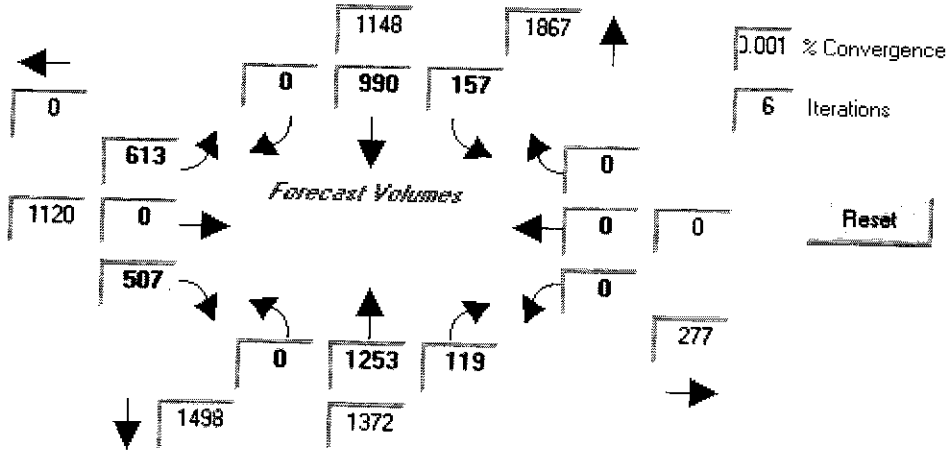

N
W
E
S
8-Sep-17
Node 6
94
451
129
46
78
Node 6
107
Node 6
95
Node 6
229
148
111
734
615
Node 6
Count data
Turn %-ages
4 of 4
2040 PM Mineral King and Lovers

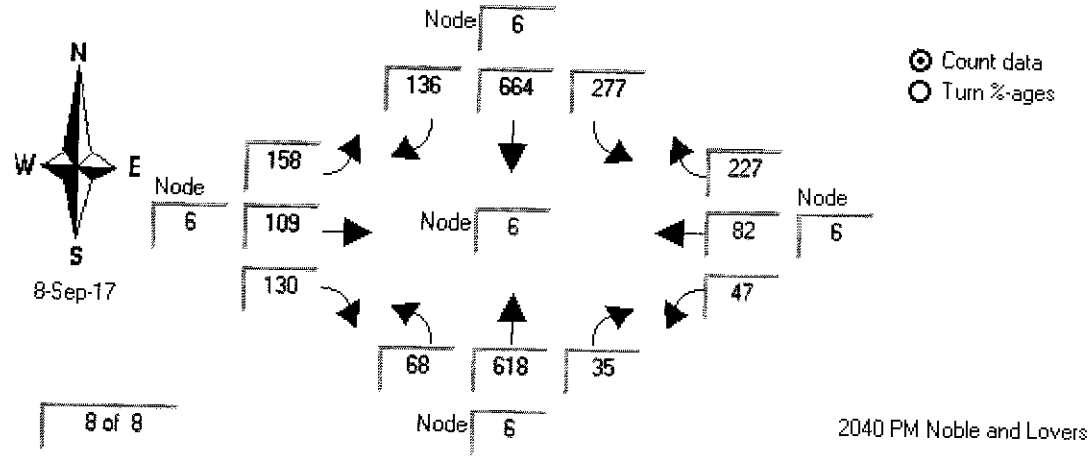

933
1145
111
659
162
348
51
104
Forecast Volumes
434
109
108
422
273
209
127
988
751
1023
1142
1867
0.001 % Convergence
5 Iterations
Reset



6 of 6

2040 PM SR 198 EB and Lovers





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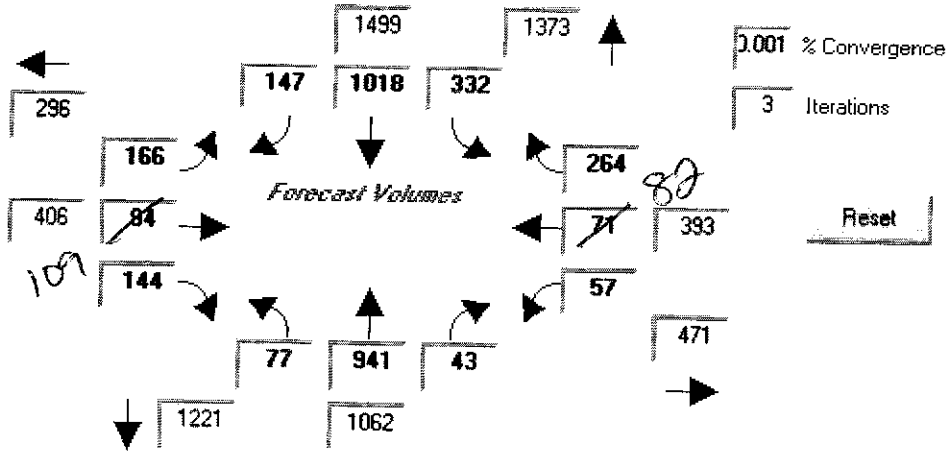
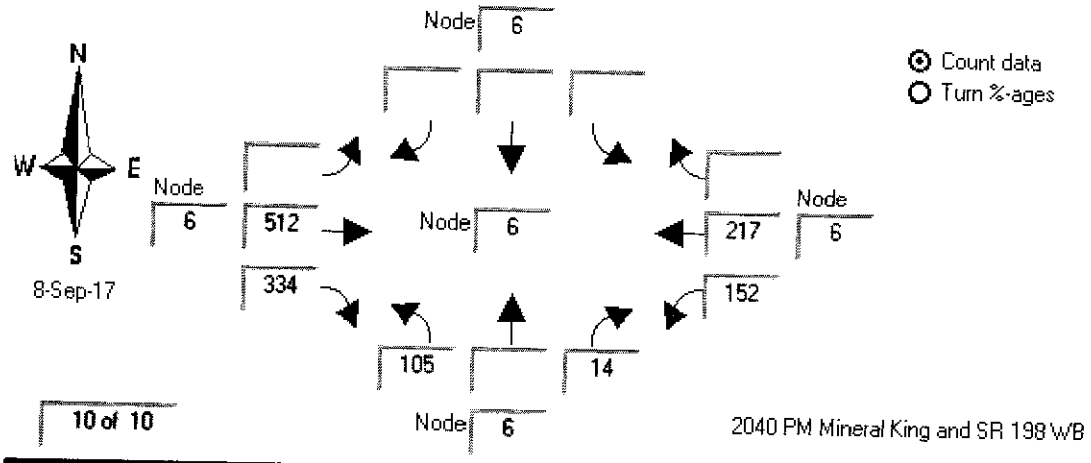
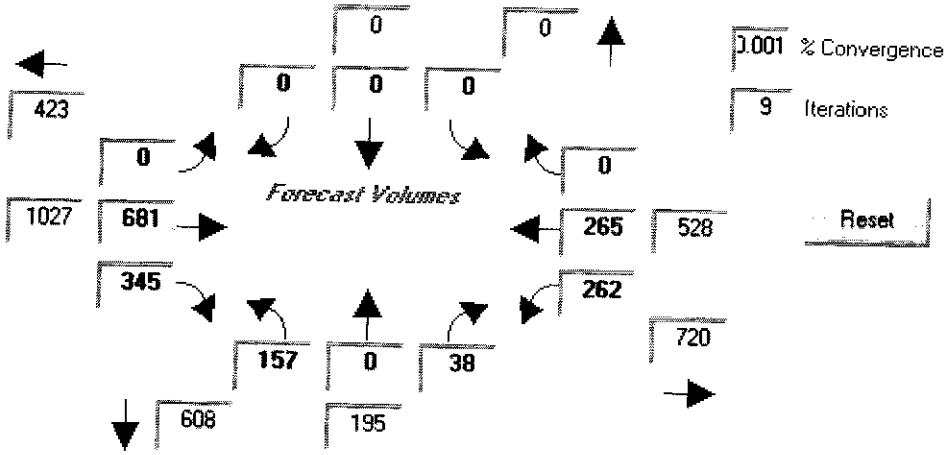
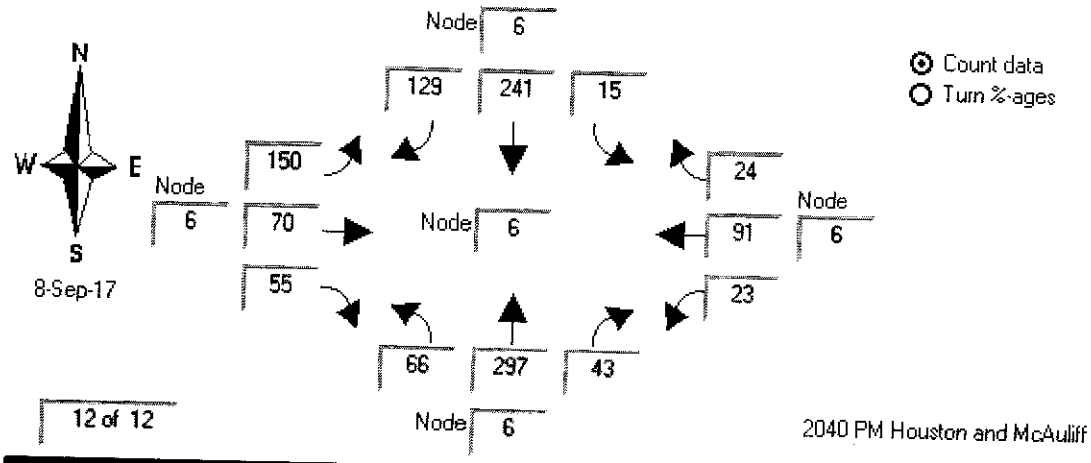
2040 PM Noble and Lovers




N
W
E
S
8-Sep-17
Node 6
Node 6
512
334
Node 6
105
14
Node 6
217
152
Node 6
Count data
Turn %-ages
10 of 10
2040 PM Mineral King and SR 198 WB


423
1027
0
0
0
0
0
0
0
681
345
157
0
38
608
195
265
262
528
720
Forecast Volumes
0.001 % Convergence
9 Iterations
Reset



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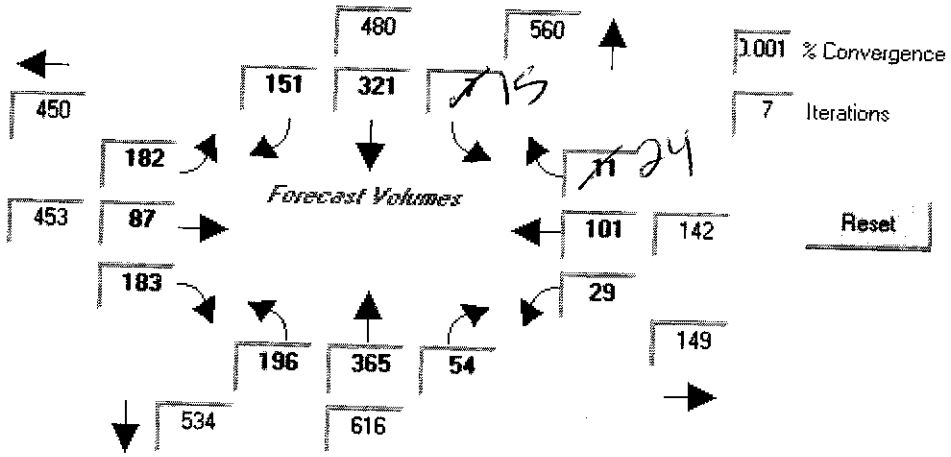
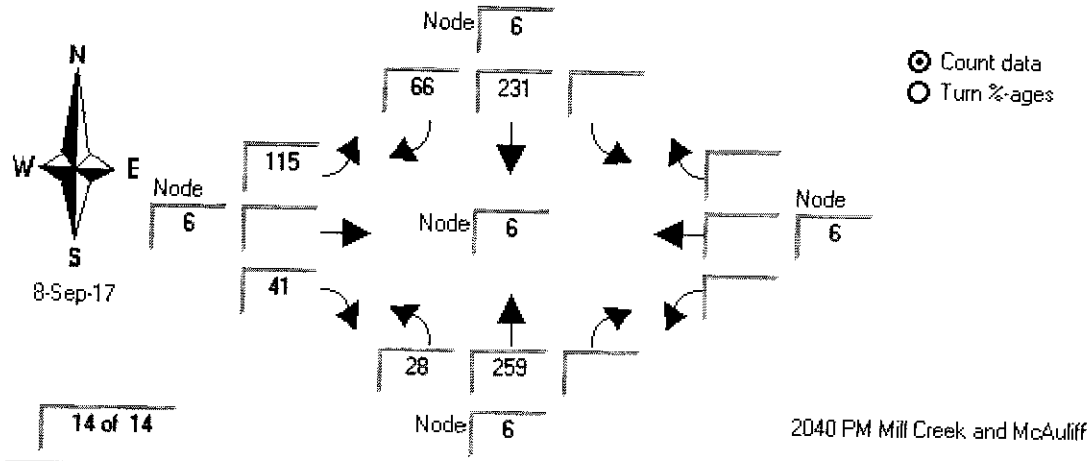
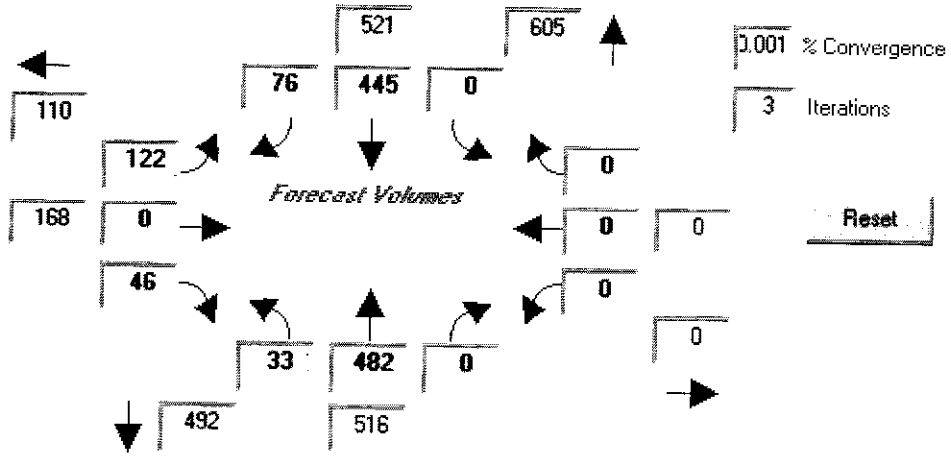
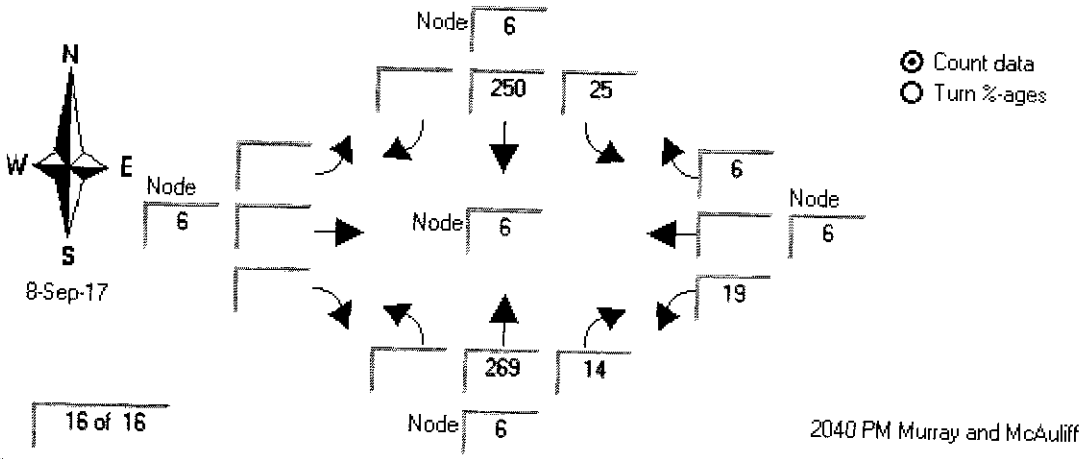
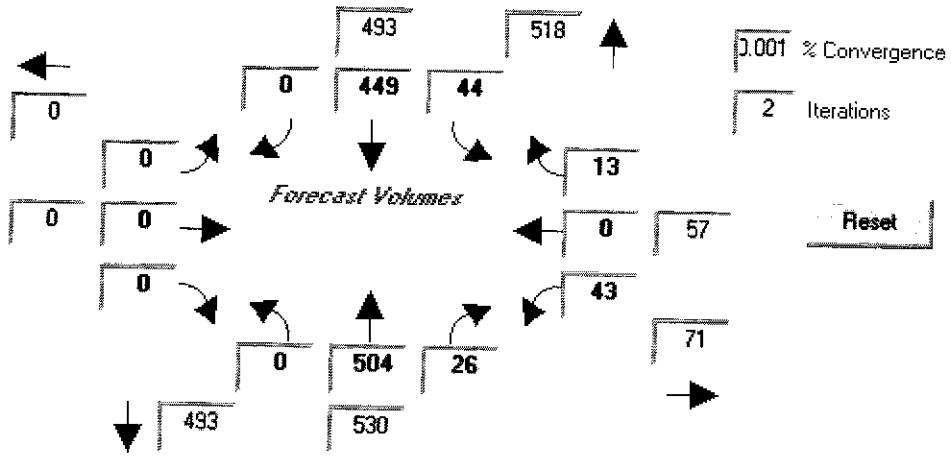
2040 PM Houston and McAuliff

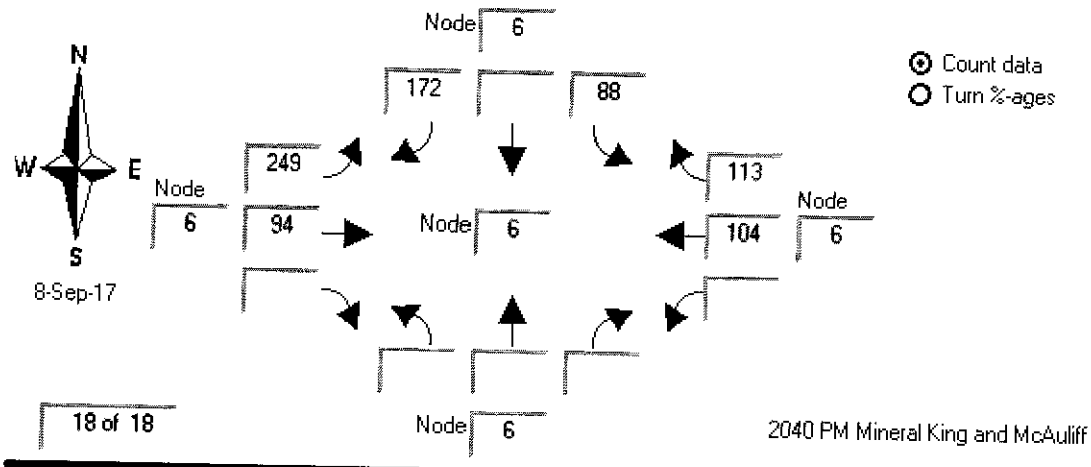



N
W
E
S
8-Sep-17
Node 6
66
231
115
Node 6
Node 6
Node 6
41
28
259
Node 6
Count data
Turn %-ages
14 of 14
2040 PM Mill Creek and McAuliff


521
605
76
445
0
110
122
0
168
0
0
0
46
0
33
482
0
492
516
0
0.001 % Convergence
3 Iterations
Forecast Volumes
Reset


N
W
E
S
8-Sep-17
Node 6
250
25
6
Node 6
Node 6
Node 6
19
269
14
Node 6
Count data
Turn %-ages
16 of 16
2040 PM Murray and McAuliff


493
518
0
0
449
44
0
13
Forecast Volumes
0
0
0
57
0
43
71
0
504
26
493
530
0.001 % Convergence
2 Iterations
Reset



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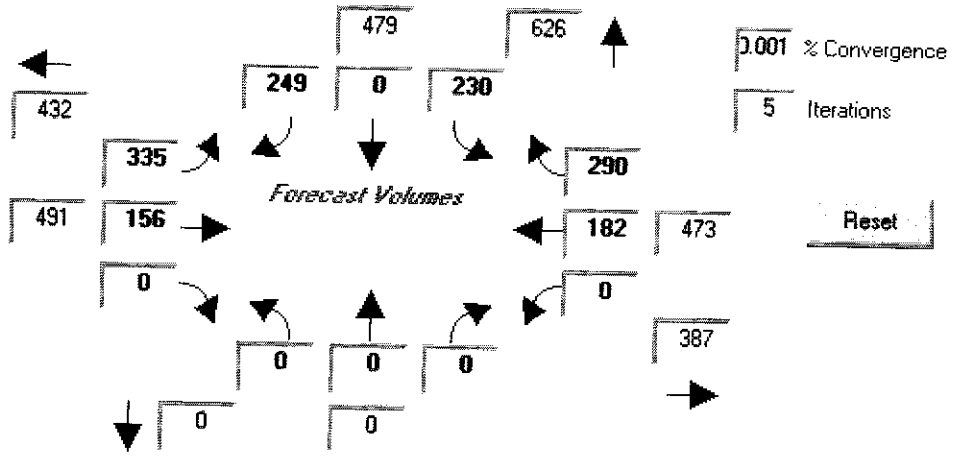
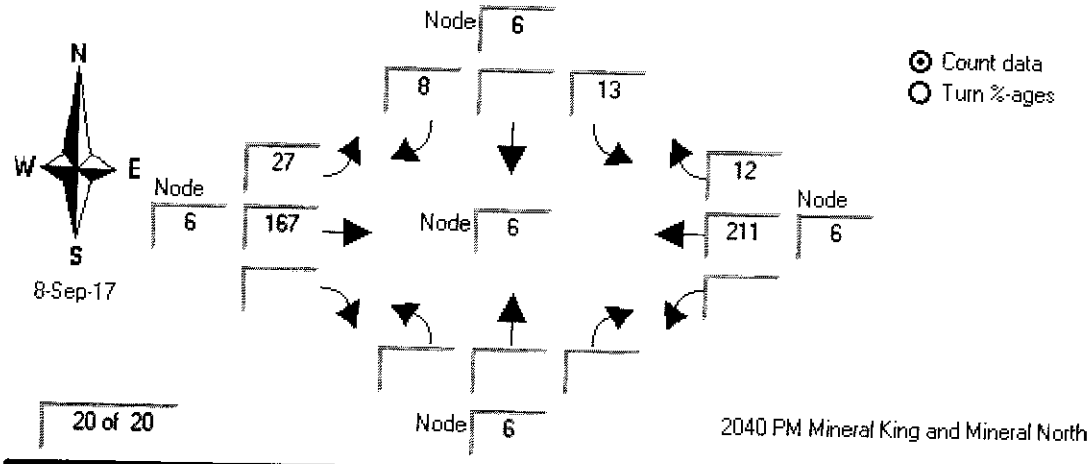
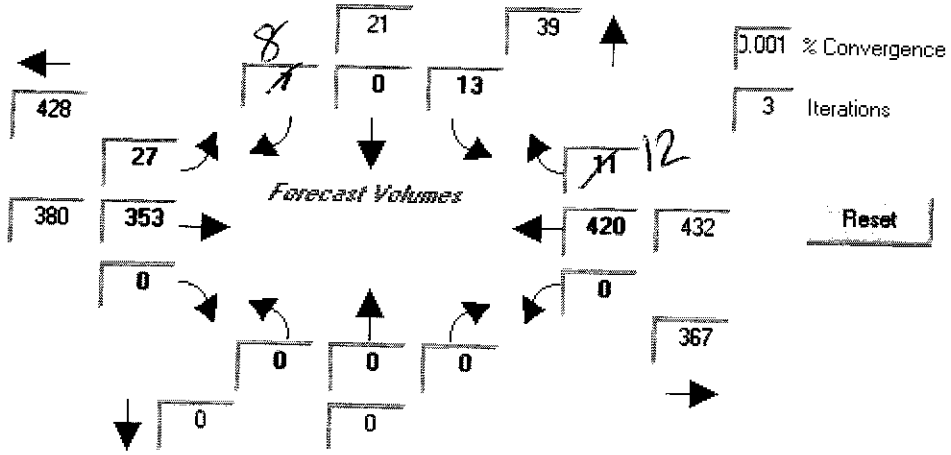
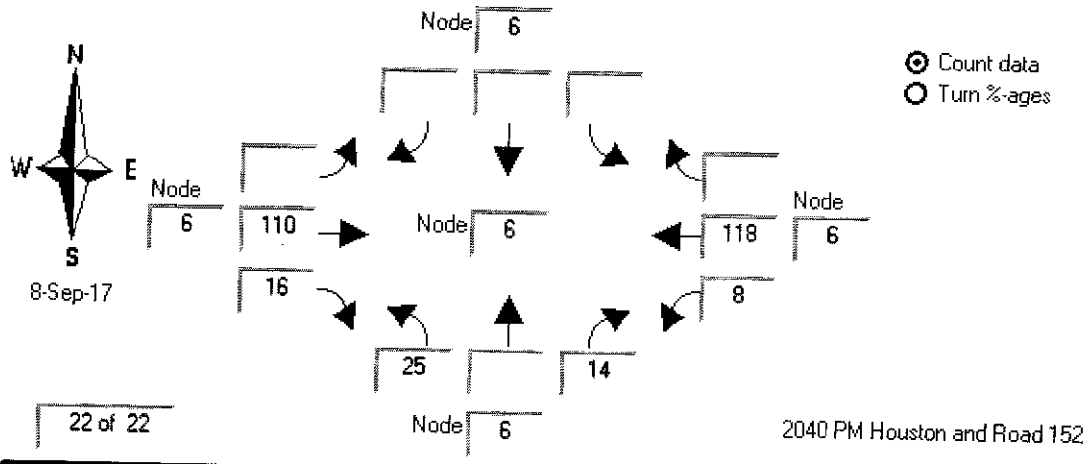
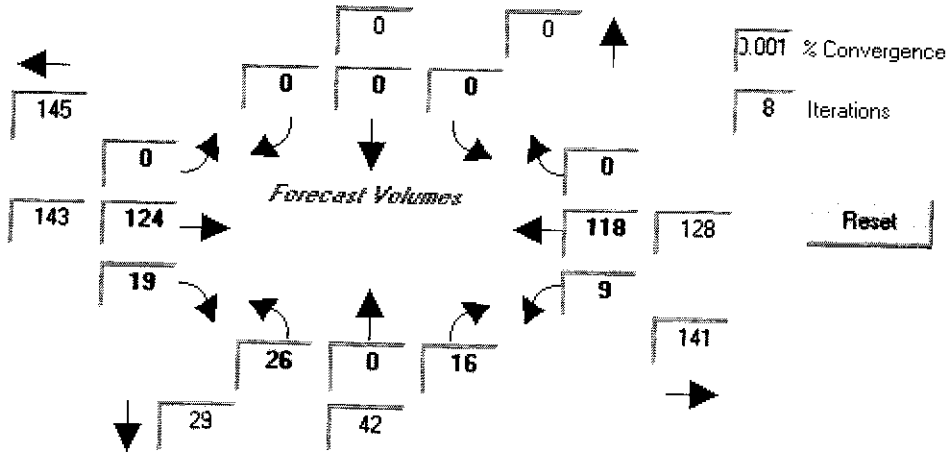
2040 PM Mineral King and McAuliff

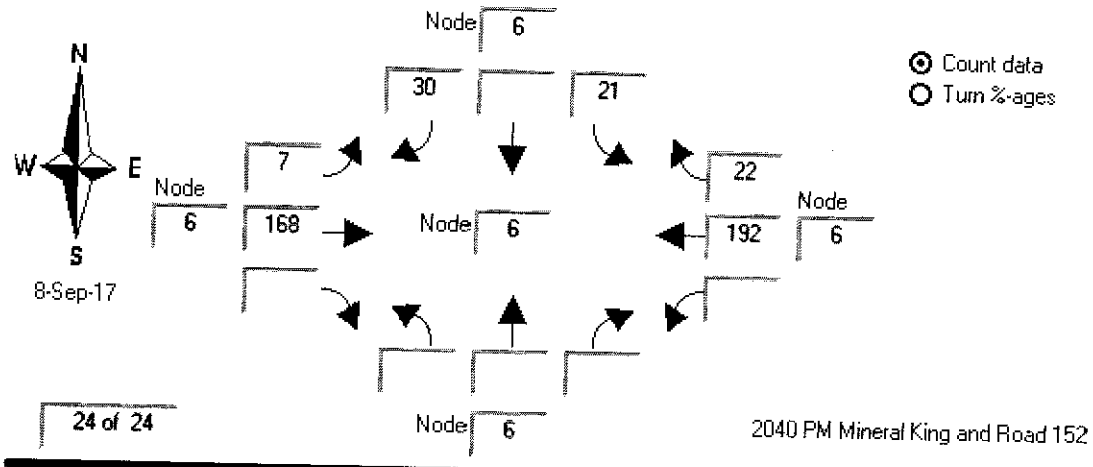


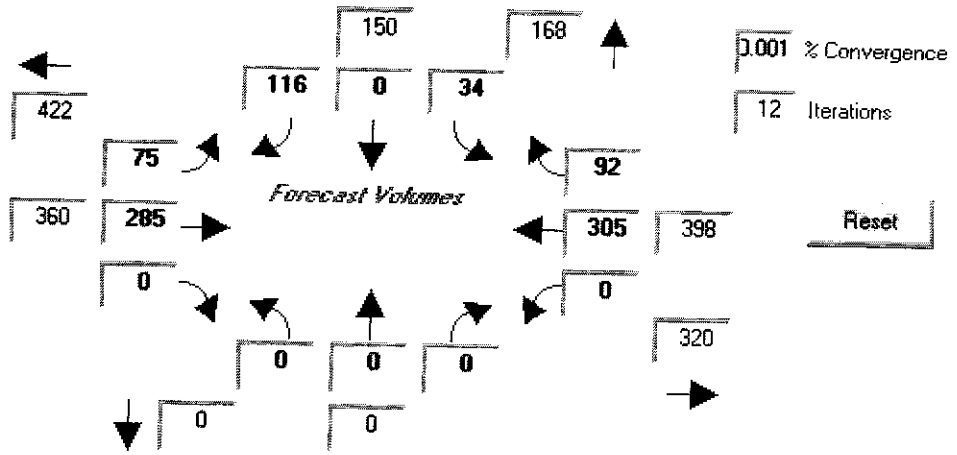

N
W
E
S
8-Sep-17
Node 6
8
13
27
12
Node 6
167
Node 6
211
Node 6
Node 6
Count data
Turn %-ages
20 of 20
2040 PM Mineral King and Mineral North

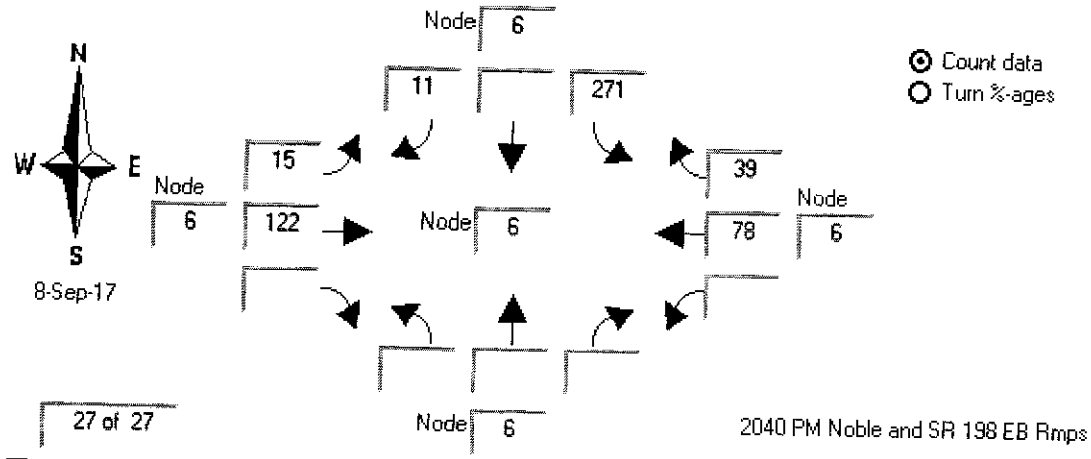

8
21
39
0
13
428
27
12
Forecast Volumes
380
353
420
432
0
0
0
0
0
367
0
0
0.001 % Convergence
3 Iterations
Reset

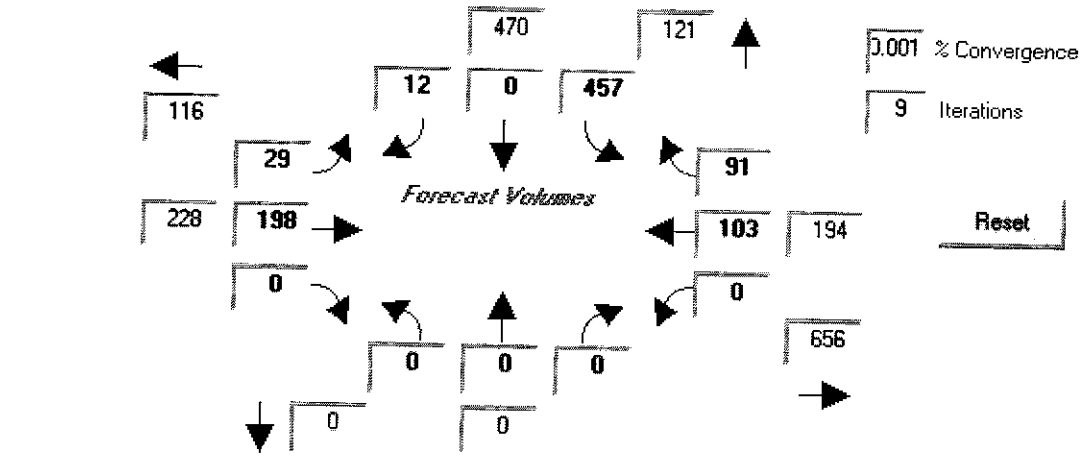

N
W
E
S
8-Sep-17
Node 6
Node 6
Node 6
Node 6
110
118
16
8
25
14
Count data
Turn %-ages
22 of 22
2040 PM Houston and Road 152

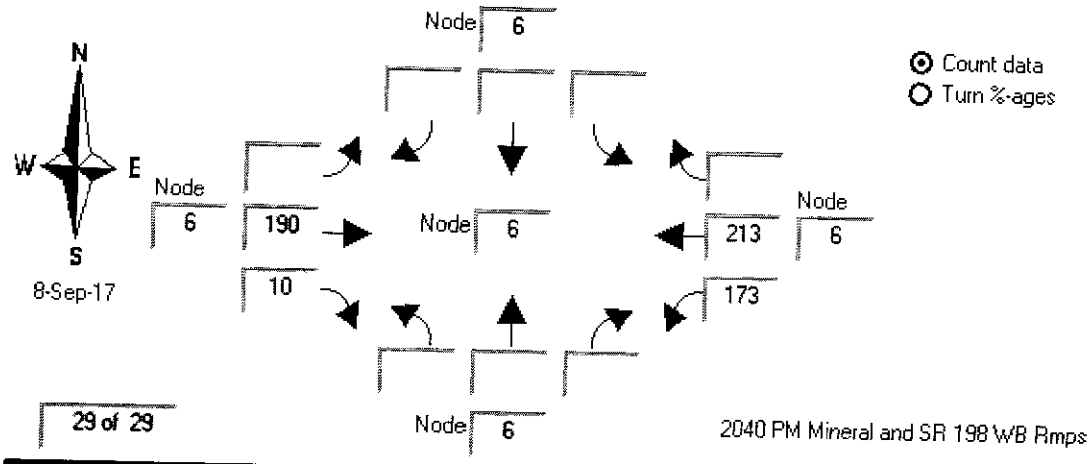

0
0
0
0
0
0
145
143
124
118
128
19
9
26
0
16
141
29
42
Forecast Volumes
0.001 % Convergence
8 Iterations
Reset

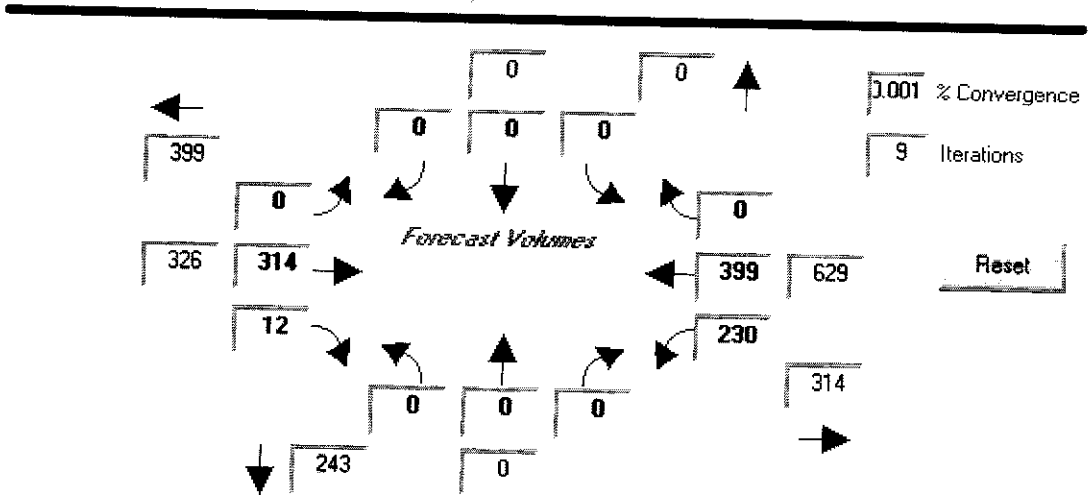

N
W
E
S
8-Sep-17
Node 6
30
21
7
22
Node 6
168
Node 6
192
Node 6
Node 6
Count data
Turn %-ages
24 of 24
2040 PM Mineral King and Road 152

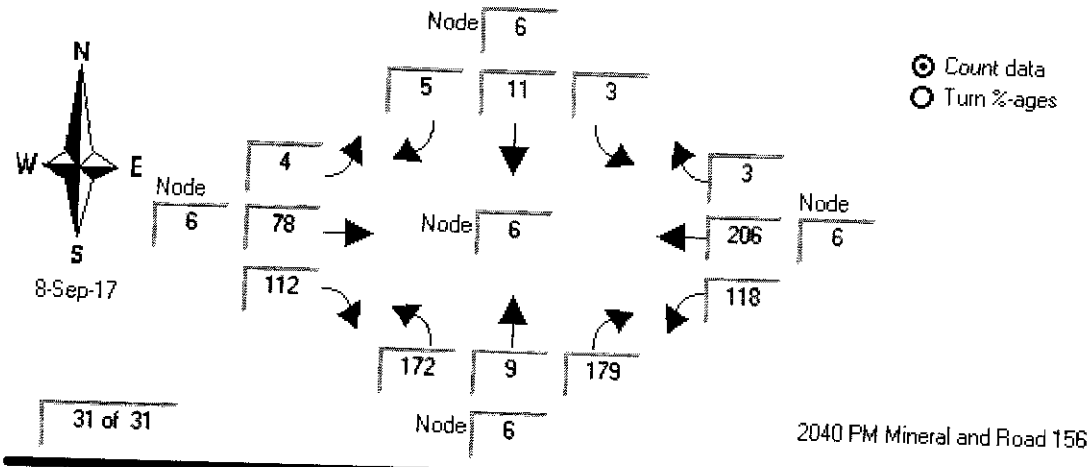

150
168
116
0
34
422
75
92
Forecast Volumes
360
285
305
398
0
0
320
0
0
0
0
0
0.001 % Convergence
12 Iterations
Reset


N
W
E
S
8-Sep-17
Node 6
11
271
15
39
Node 6
122
Node 6
78
Node 6
Node 6
Count data
Turn %-ages
27 of 27
2040 PM Noble and SR 198 EB Rmps


470
121
116
12
0
457
29
91
Forecast Volumes
228
198
103
194
0
0
656
0
0
0
0
0
0.001 % Convergence
9 Iterations
Reset

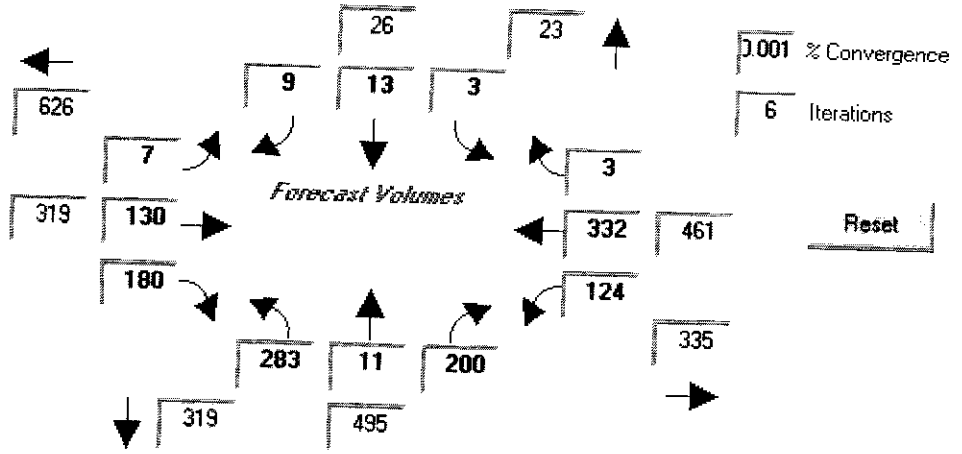

N
W
E
S
8-Sep-17
Node 6
Node 6
Node 6
Node 6
Node 6
190
10
213
173
Count data
Turn %-ages
29 of 29
2040 PM Mineral and SR 198 WB Rmps

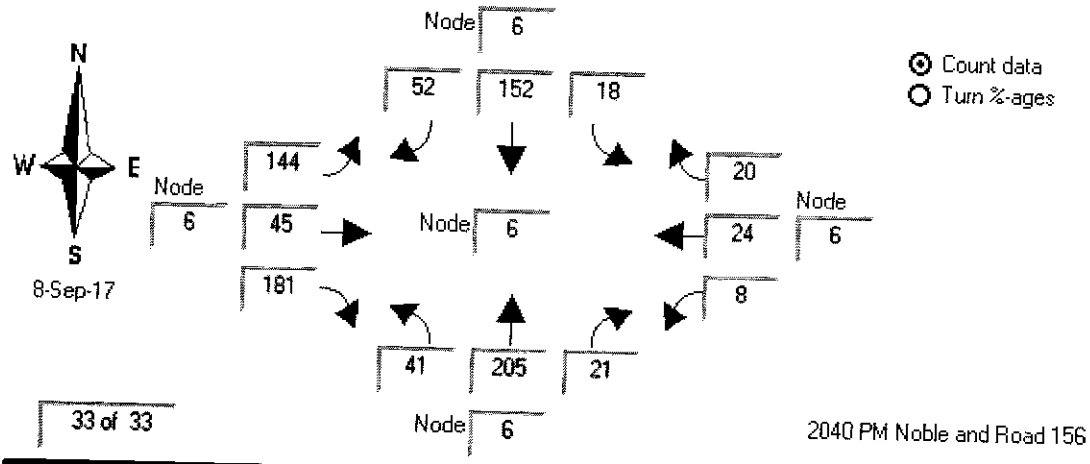

0
0
0
0
0
0
0
0
0
0
0
0
399
326
314
12
399
629
230
314
243
0
Forecast Volumes
0.001 % Convergence
9 Iterations
Reset

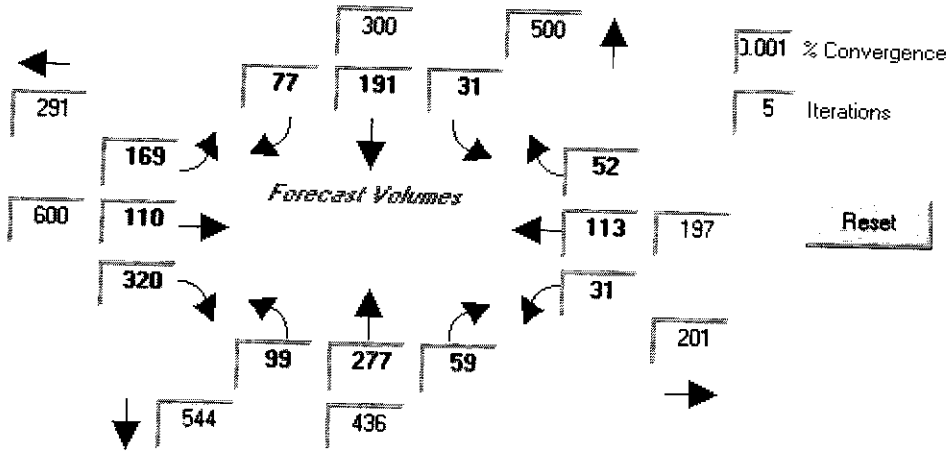


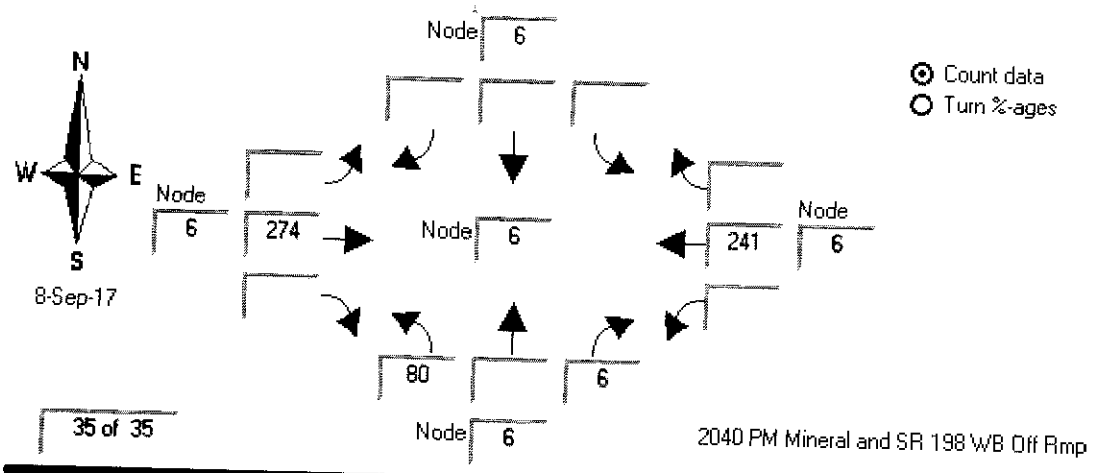
31 of 31

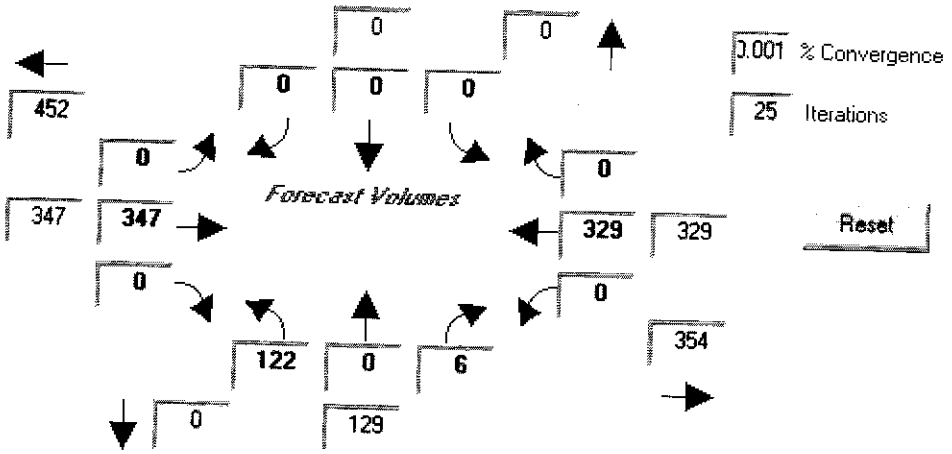
2040 PM Mineral and Road 156




N
W
E
S
8-Sep-17
Node 6
52
152
18
144
20
Node 6
45
Node 6
24
Node 6
181
8
41
205
21
Count data
Turn %-ages
33 of 33
Node 6
2040 PM Noble and Road 156


300
500
77
191
31
291
169
52
Forecast Volumes
600
110
113
197
320
31
99
277
59
201
544
436
0.001 % Convergence
5 Iterations
Reset


N
W
E
S
8-Sep-17
Node 6
Node 6
274
Node 6
241
Node 6
80
6
Node 6
Count data
Turn %-ages
35 of 35
2040 PM Mineral and SR 198 WB Off Rmp


0
0
0
0
0
0
452
0
347
347
Forecast Volumes
0
329
329
0
0
122
0
6
354
0
129
0.001 % Convergence
25 Iterations
Reset

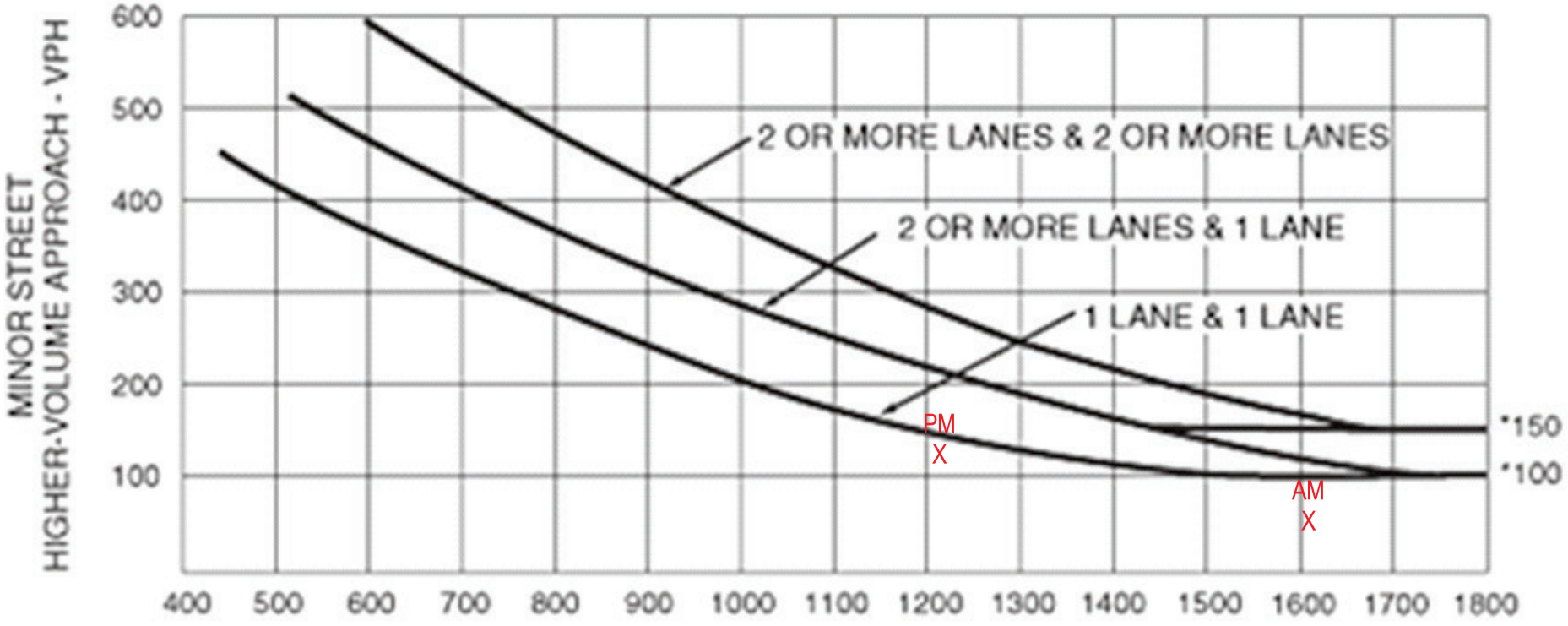
APPENDIX I

Signal Warrant Worksheets

Mineral King Avenue / SR 198 WB Off Ramp

Figure 4C-3. Warrant 3, Peak Hour

Existing Conditions

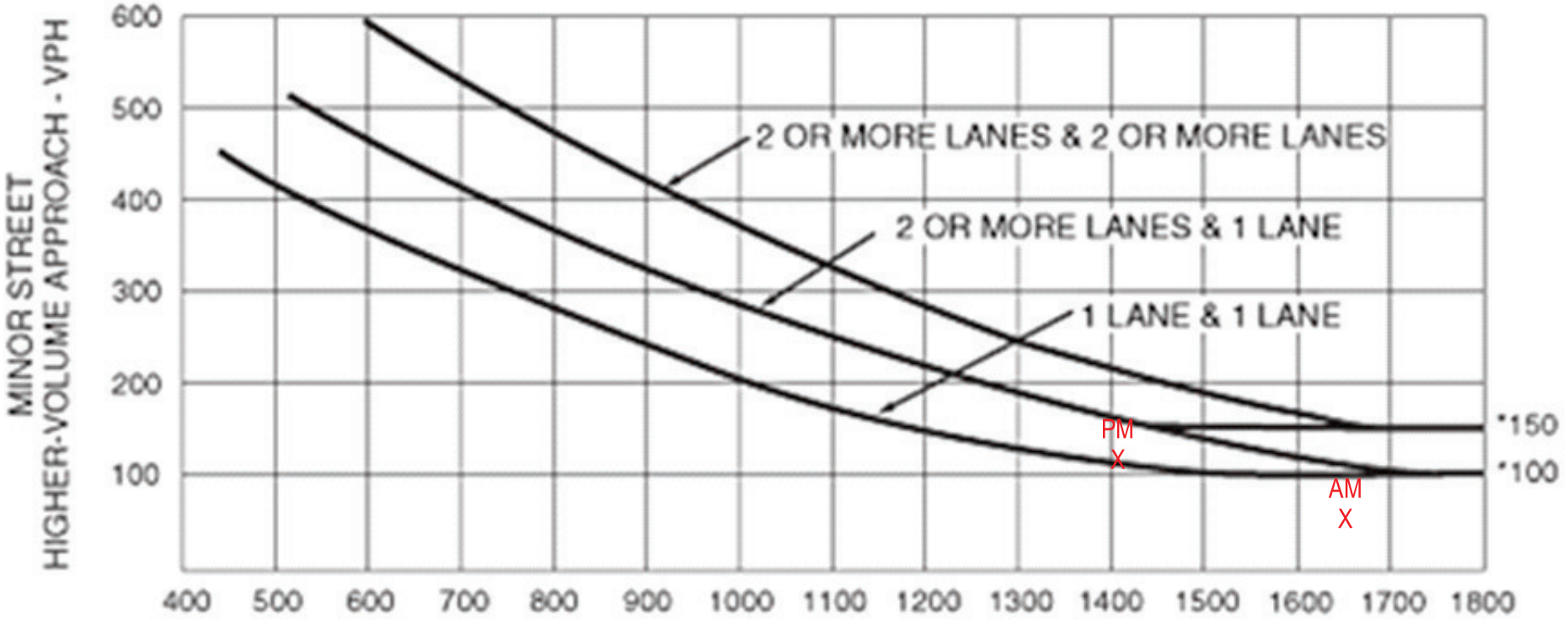


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Mineral King Avenue / SR 198 WB Off Ramp

Figure 4C-3. Warrant 3, Peak Hour

Existing Plus Project Conditions

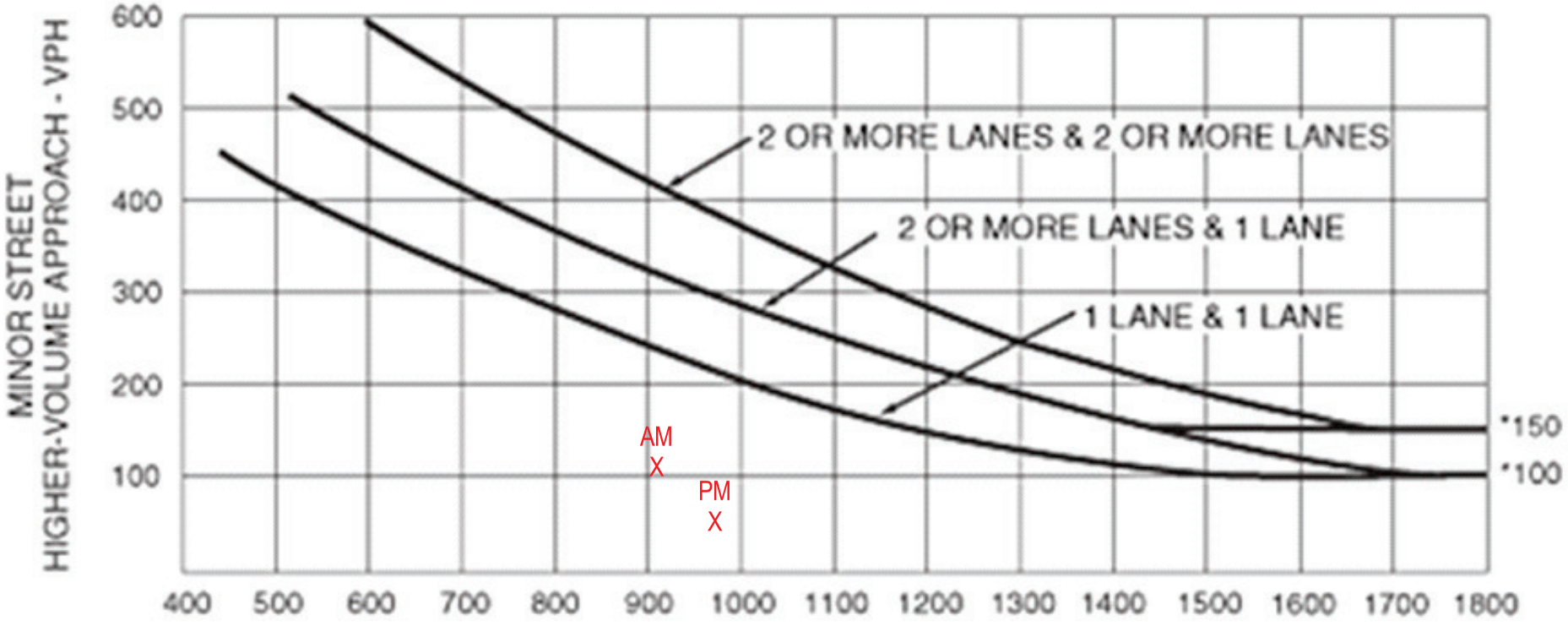


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Mineral King Avenue / Road 152

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions

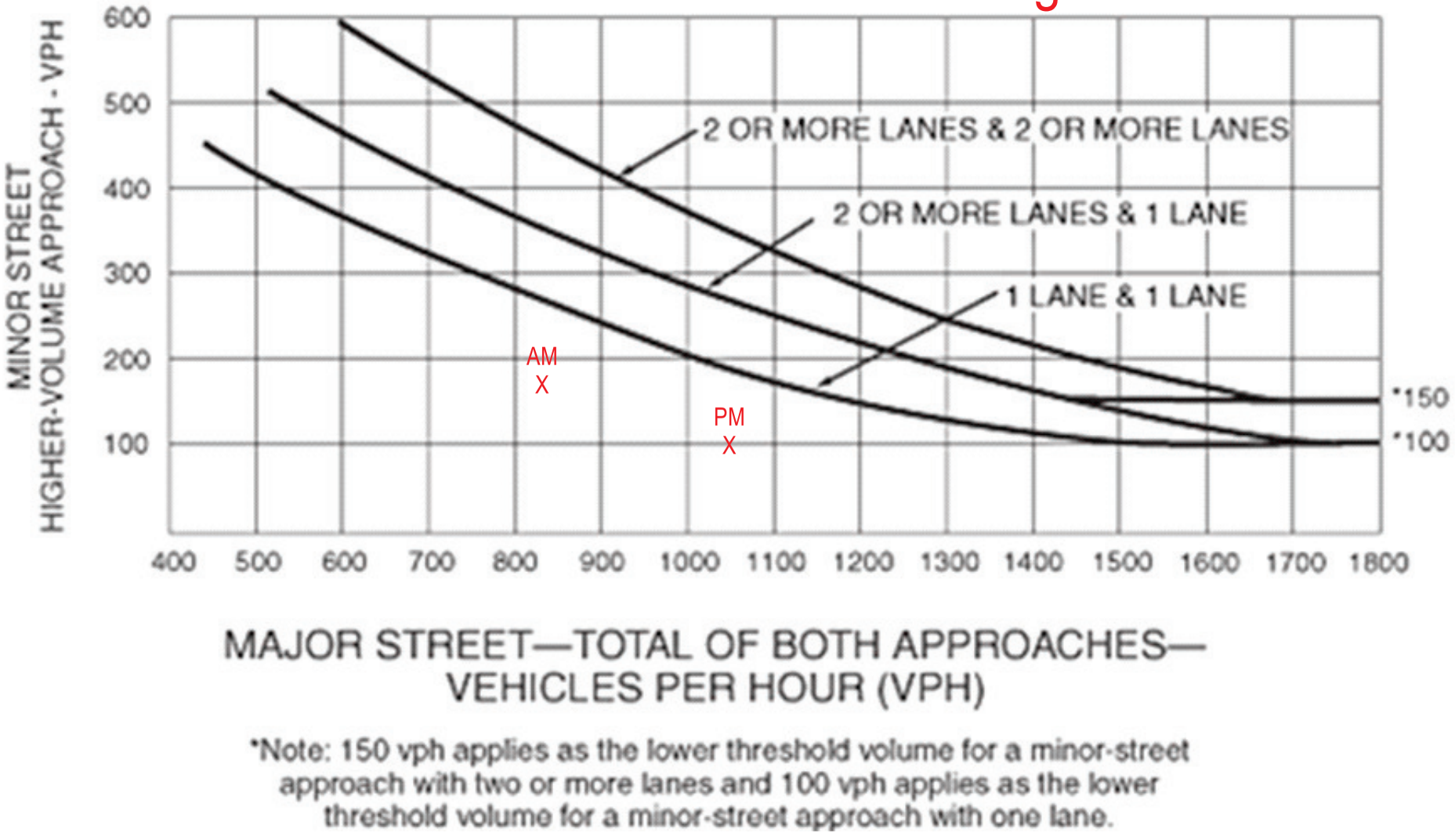


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Mineral King Avenue / Road 152

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions
With Tower Street Interchange

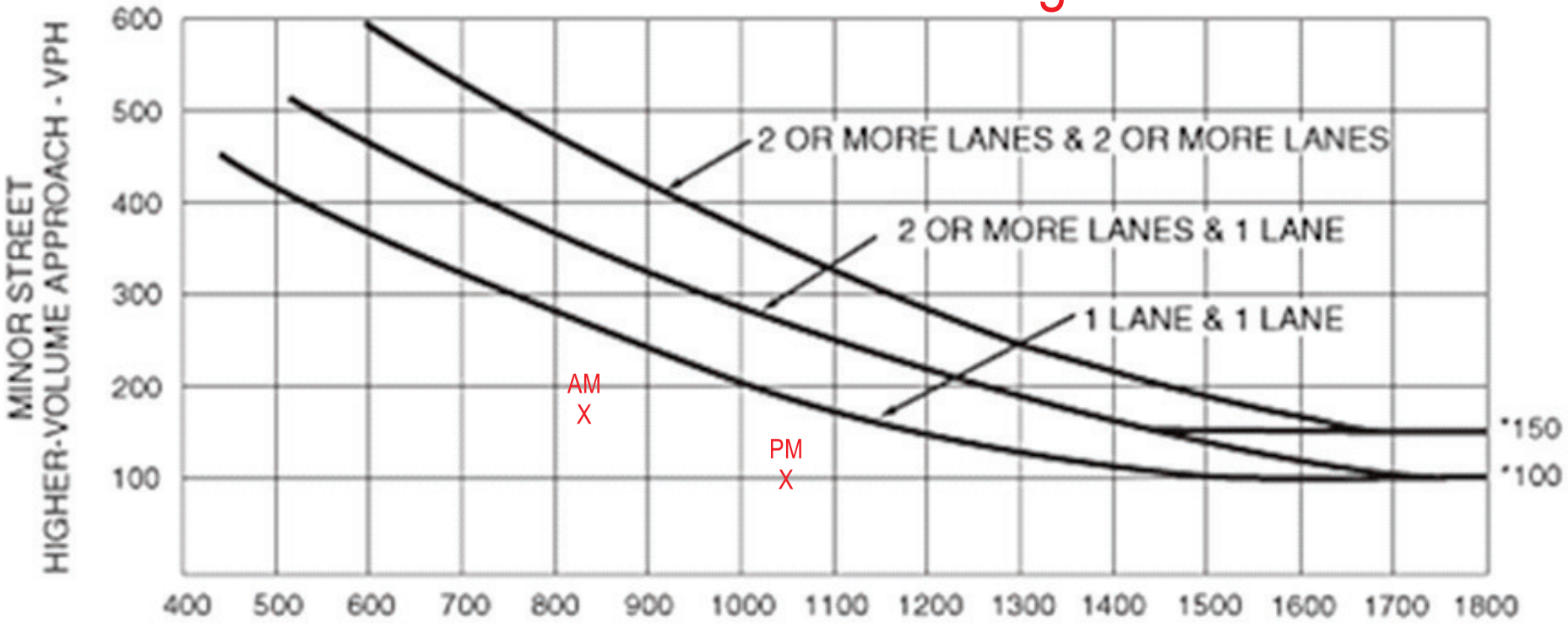


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Mineral King Avenue / Road 152

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions
With Tower Street Interchange - Alt 2

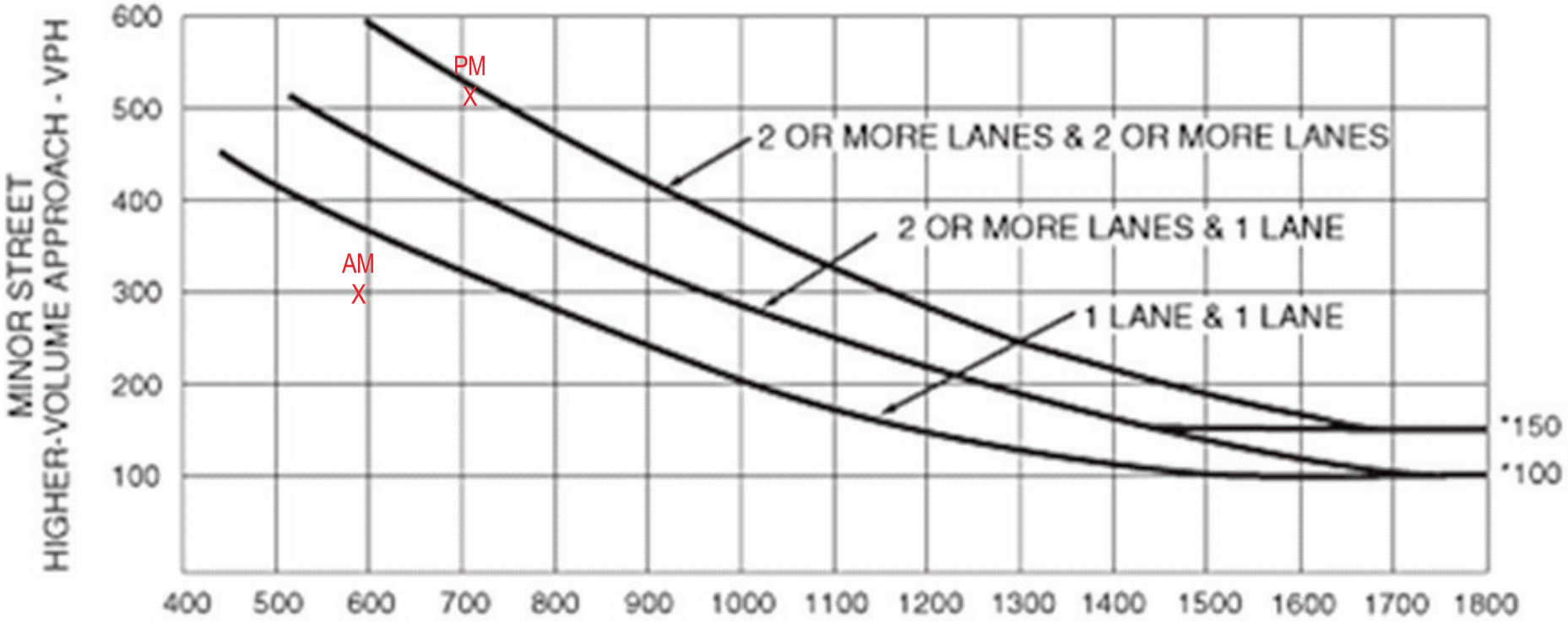


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Noble Ave / SR 198 EB Ramps

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions

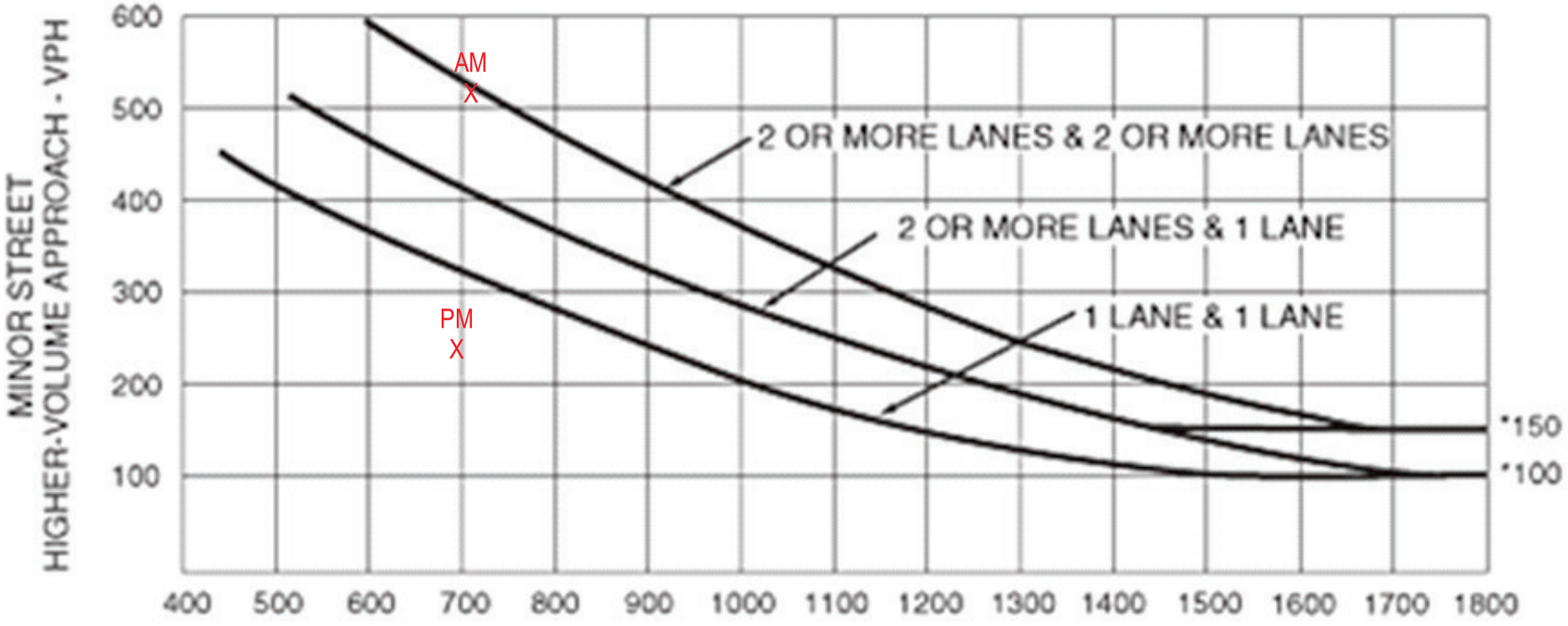


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Mineral King Ave / SR 198 WB Ramps

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions

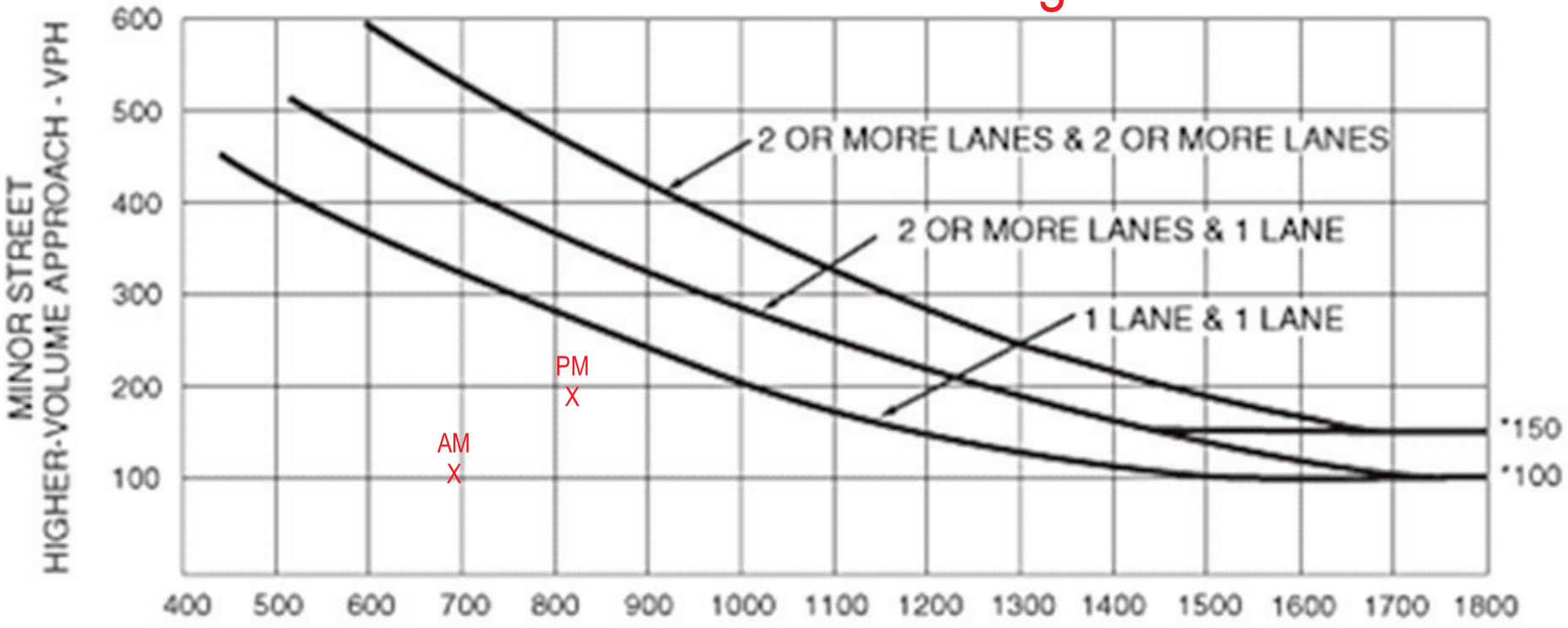


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

McAuliff Street / Murray Avenue

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions
With Tower Street Interchange - Alt 1

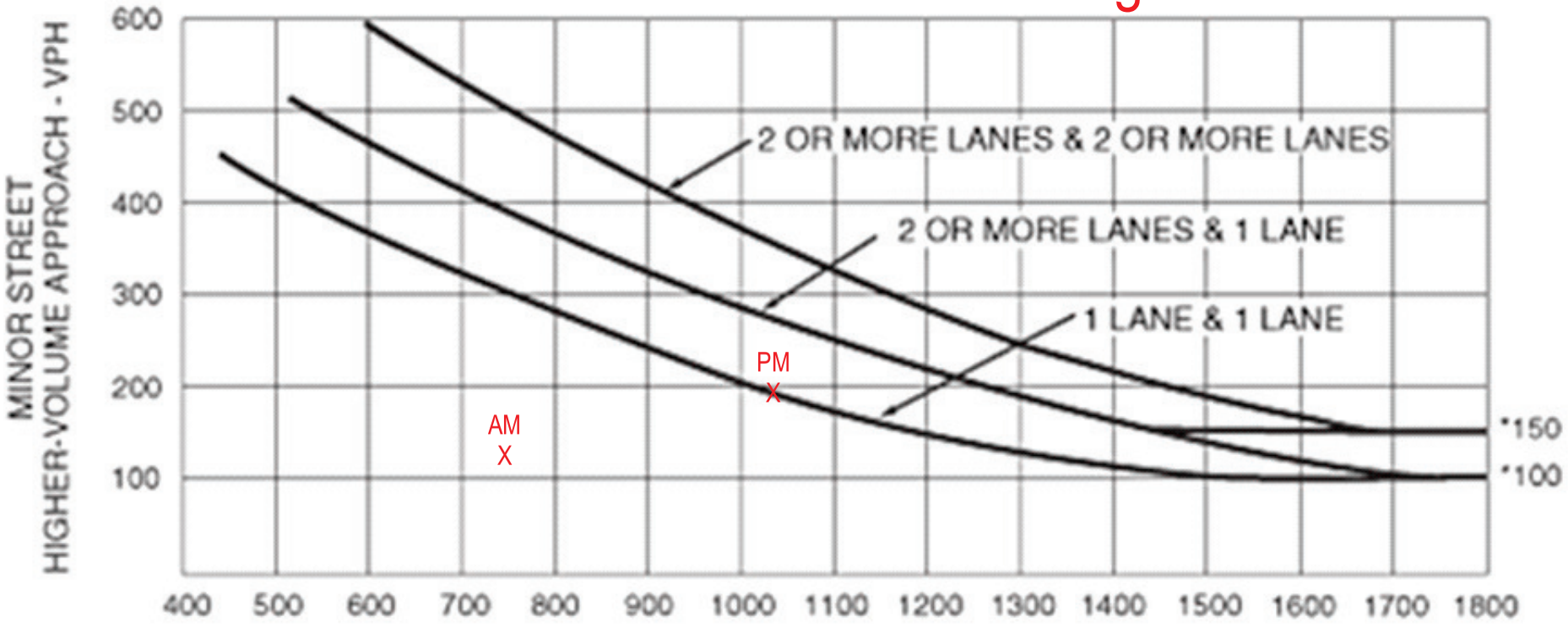


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Tower Street / Houston Avenue (SR 216)

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Without Project Conditions
With Tower Street Interchange

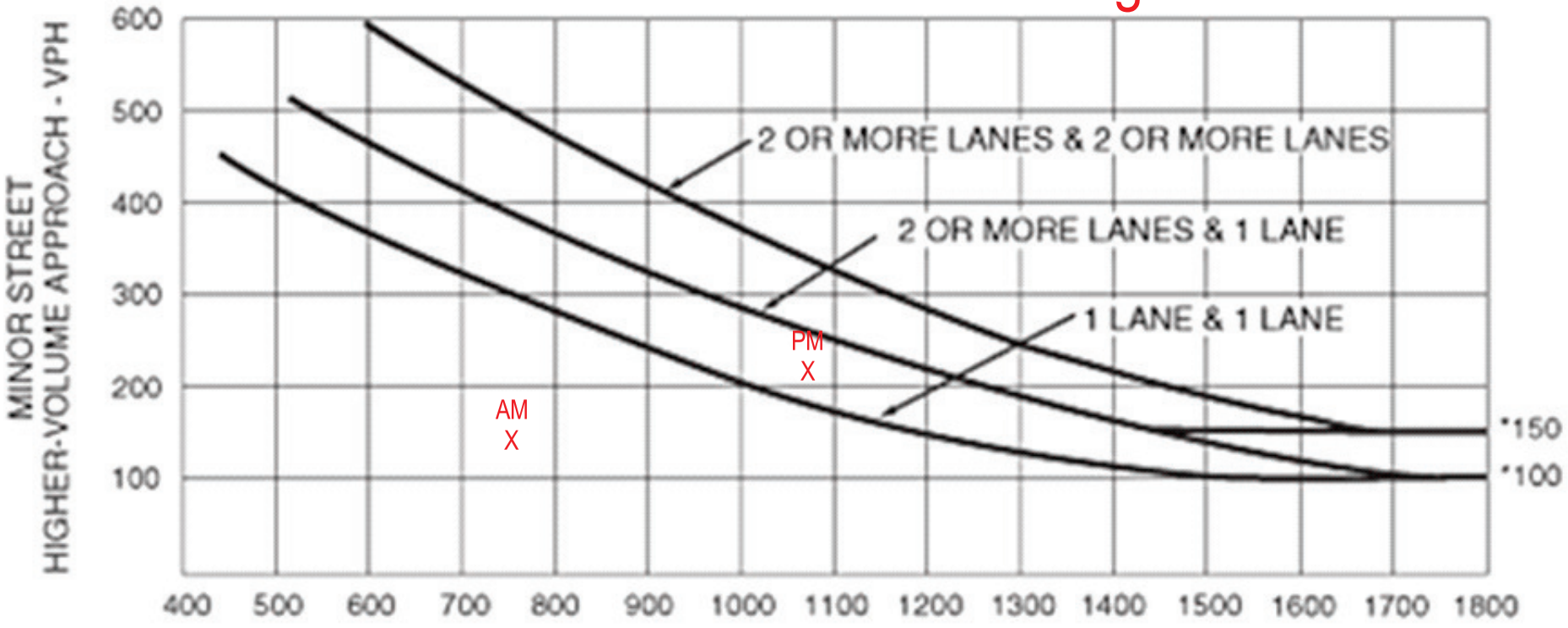


*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Tower Street / Houston Avenue (SR 216)

Figure 4C-3. Warrant 3, Peak Hour

Cumulative Year 2040 Plus Project Conditions
With Tower Street Interchange



*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

Appendix N. Vehicle Miles Traveled (VMT) Analysis

MEMORANDUM

TO: Dawn Marple, Provost & Pritchard

FROM: Erik Ruehr, VRPA Technologies, Inc.

DATE: August 25, 2022

RE: East Side Regional Park
Vehicle Miles Traveled (VMT) Analysis

This memorandum provides a vehicle miles traveled (VMT) analysis for the proposed East Side Regional Park and Groundwater Recharge project in the City of Visalia. The analysis was conducted to meet the requirements for transportation analysis under the California Environmental Quality Act (CEQA). The remainder of the memorandum includes sections describing background information, the project description, trip generation, and VMT analysis.

BACKGROUND INFORMATION

Per the requirements of Senate Bill 743 (SB 743), VMT is the new performance measure used in CEQA transportation analysis. VMT became the required performance measure on July 1, 2020 replacing the previous performance measure which was level of service (LOS). The VMT generated by land development projects is compared to various screening criteria and significance thresholds to determine whether the level of VMT would be considered to be significant.

PROJECT DESCRIPTION

The proposed City of Visalia East Side Regional Park and Groundwater Recharge Project includes a regional park with groundwater recharge-basins and storm-water layoff facilities with a net area of approximately 248 acres. Approximately 148 acres will be developed for park use and approximately 100 acres for recharge basin use. The project is bound by Houston Avenue (State Route 216) to the north, State Route (SR) 198 to the south, Road 152 to the east and the Tower Street (Road 148) alignment to the west.

The Parks and Recreation Department, Natural Resource Conservation Division and Community Development Department, have together acquired approximately 280 gross acres north of SR 198, between the Tower Street (Road 148) alignment and Road 152. The approximate 280-acre site will ultimately include a regional park, future freeway interchange improvements (not part of the project), Tower Street extension, and the development of groundwater recharge-basins and storm-water layoff facilities. The total area of potential effect (APE) by the Project covers approximately 286 acres that includes adjacent roadways and a portion of the interchange area. The site is in the optimal location for the development of both groundwater recharge and storm-water layoff basins since it is upstream of the City in terms of both groundwater and surface-water flow. Three waterways cross the Project site; Mill Creek, Packwood Creek, and the Oakes Ditch.

4630 W. Jennifer, Suite 105, Fresno, CA 93722 · Phone (559) 271-1200 · Fax (559) 271-1269
www.vrpatechnologies.com

It is anticipated that the Project will be developed in three (3) phases. Phase 1 of the Project includes development of the groundwater recharge basins and storm-water layoff facilities. Phase 2 of the Project will include the construction of Tower Street and Road 152 frontage as well as the construction of the Adult Softball Fields, Youth Baseball Fields, Soccer Fields, and Ancillary facilities (maintenance yard, cricket field, basketball court, children's play area, and picnic area) interior roadways and three entrances/exits. Phase 3 will include construction of the remainder of the proposed park amenities.

TRIP GENERATION

A Traffic Impact Study was previously completed for the project (City of Visalia East Side Regional Park & Groundwater Recharge Project EIR, Traffic Impact Study Report, City of Visalia/Provost & Pritchard/VRPA Technologies, March 2019). The project was determined to generate the following trips on a typical weekday at full buildout.

Daily Trips: 2,250

AM Peak Hour Trips: 80

PM Peak Hour Trips: 326

VMT ANALYSIS METHODOLOGY

The VMT analysis was conducted according to the City of Visalia's VMT Thresholds and Implementation Guidelines (City of Visalia 2021). The VMT analysis methodology can be described as follows:

- ✓ A check was made to determine whether the project was screened out of requiring a VMT analysis due to project size, type, or location resulting in the following conclusions.
    - With a daily trip generation of 2,250 trips, the project was above the minimum threshold of 1,000 daily trips at which a project could be considered for being screened out of a VMT analysis due to small project size.
    - The project did not fall into a project type that would be screened out (local-serving retail, affordable housing, institutional/government, or public service).
    - The project is not located in a Transit Priority Area/High Quality Transit Corridor.
- ✓ VMT analysis is conducted differently depending on the project type. Of the various project types defined in the City of Visalia's VMT Thresholds and Implementation Guidelines (Residential, Office, Mixed-Use, Retail, and Other), the project was considered

to most closely match the Retail category for VMT analysis purposes. In addition, the project was considered more closely match the category of Regional Retail rather than Local-Serving Retail for VMT analysis purposes.

- ✓ The VMT analysis of Regional Retail projects is conducted on the basis of Total VMT. If the implementation of the project would cause a net increase in VMT compared to the no build condition, it would be considered to have a significant VMT impact. If the project would result in no change in VMT or cause a net decrease in VMT compared to the no build condition, it would be considered to have a less than significant VMT impact.

- ✓ The best methodology for determining the project's net increase or decrease in VMT was considered to be the use of the Tulare County regional travel model maintained by the Tulare County Association of Governments (TCAG). The modeling process and results are described below.

VMT ANALYSIS MODEL RUN

The following process describes the use of the TCAG model to determine whether the project would cause a net increase or a net decrease in VMT:

- ✓ Two runs of the TCAG model were conducted, one with the project and one without the project.

- ✓ For the model run with the project, a new traffic analysis zone (TAZ) was created with a special generator and Home to Other attractions were added to the new TAZ to represent trips to and from the park. This is how other parks and golf courses are represented in the model.

- ✓ For both the model run without the project and the model run with the project, the model tracked the number of daily trips made in each link in the TCAG model network. The daily vehicle miles traveled on each link was calculated by multiplying the number of daily trips times the length of the link in miles.

- ✓ A summary of the model runs is included in Attachment A. A comparison of the two model runs indicated that the model run with the project resulted in 184 fewer daily vehicle miles traveled than the model run without the project.

- ✓ For the model run without the project, the results of the calculations are shown in Attachment B. There were a total of 13,674,488 vehicle miles traveled.

- ✓ For the model run with the project, the results of the calculations are shown in Attachment C. There were a total of 13,674,303 daily vehicle miles traveled.

- ✓ It should be noted that the summary shows a decrease of 184 vehicle miles traveled per day and subtraction of the results of the two model runs would indicate a decrease of 185. The difference of one vehicle mile traveled per day is due to rounding conventions. In the modeling process.

CONCLUSION

In summary, the project was analyzed using the VMT analysis methodology for regional retail projects. It was found to cause a net decrease in total VMT and has a less than significant impact. No mitigation measures are needed.

Please contact me if you have any questions. I can be reached by email at eruehr@vrpatechnologies.com or by phone at 858/361-7151.

ATTACHMENT A

RESULTS OF TCAG MODEL RUNS

RE: TCAG Model Runs for East Side Park VMT Analysis

From: Derek M Winning <DWinning@tularecag.ca.gov>
Date: 06/13/2022 12:54PM
To: Leslie Blair <Leslie.Blair@visalia.city>, "eruehr@vrpatechnologies.com" <eruehr@vrpatechnologies.com>
Cc: Rebecca Keenan <Rebecca.Keenan@visalia.city>, "dmarple@ppeng.com" <dmarple@ppeng.com>, "jolsen@ppeng.com" <jolsen@ppeng.com>, Roberto Brady <rbrady@tularecag.ca.gov>, Kasia A Poleszczuk <KPoleszczuk@tularecag.ca.gov>

East Side Park Model Results – SB 743

2021 TCAG Travel Demand Model	
Regional SB 743 VMT	
No Project	13,674,488
East Side Park	13,674,303
Net	(184)

Derek Winning
Senior Regional Planner
Tulare County Association of Governments
210 N Church St B, Visalia, CA 93291
559-355-5281 cell
DWinning@tularecag.ca.gov

Please note new email address

From: Leslie Blair <Leslie.Blair@visalia.city>
Sent: Friday, June 3, 2022 8:14 AM
To: Derek M Winning <DWinning@tularecag.ca.gov>; eruehr@vrpatechnologies.com
Cc: Rebecca Keenan <Rebecca.Keenan@visalia.city>; dmarple@ppeng.com; jolsen@ppeng.com; Roberto Brady <rbrady@tularecag.ca.gov>; Kasia A Poleszczuk <KPoleszczuk@tularecag.ca.gov>
Subject: RE: TCAG Model Runs for East Side Park VMT Analysis

Hi Derek and Erik,

Sorry for the delay in responding. I've been out of the office and just returning this week.

I am in agreement with the proposed model run as described below.

Regards,

ATTACHMENT B

NO PROJECT MODEL RUN

A NODE	B NODE	DISTANCE	DAILY VOLUME	VMT
28	26394	15.00000	166.20766	2493.1149
61	23431	24.00000	55.04591	1321.10184
62	25887	15.00000	396.71640	5950.746
63	21581	4.50000	4116.94043	18526.23194
64	20737	4.50000	62.67708	282.04686
65	20136	4.50000	24.64222	110.88999
66	19273	4.50000	1207.58105	5434.114725
67	19048	4.50000	261.86621	1178.397945
68	18540	4.50000	640.90936	2884.09212
69	3914	4.00000	1161.08936	4644.35744
70	17823	4.50000	123.78729	557.042805
71	12383	3.00000	1162.30200	3486.906
72	17086	4.50000	161.84496	728.30232
73	3755	2.00000	2569.02661	5138.05322
74	16164	35.00000	411.10275	14388.59625
75	16138	35.00000	18537.70313	648819.6096
76	15254	4.50000	186.84590	840.80655
77	13858	4.50000	245.72313	1105.754085
78	6102	10.00000	1182.49280	11824.928
79	4590	10.00000	53.26605	532.6605
80	3470	10.00000	243.60974	2436.0974
81	3044	25.00000	428.85297	10721.32425
82	3053	9.00000	46.41846	417.76614
83	3056	18.00000	685.16779	12333.02022
84	3064	17.00000	1660.43530	28227.4001
85	3083	2.00000	1090.77368	2181.54736
86	3092	2.00000	464.85117	929.70234
87	3201	2.00000	1860.21606	3720.43212
88	3582	14.00000	1598.78711	22383.01954
89	3575	14.00000	7270.12305	101781.7227
90	3008	21.00000	19751.10938	414773.297
91	3086	22.00000	571.57581	12574.66782
92	3310	21.00000	3455.83569	72572.54949
93	4757	2.00000	3995.12378	7990.24756
94	5577	2.00000	1677.65979	3355.31958
95	13219	6.00000	718.16412	4308.98472
96	3578	2.00000	64.94790	129.8958
97	3651	0.98854	2671.51074	2640.895227
101	3342	0.25331	8.21352	2.080566751
101	3415	0.22259	169.28914	37.68206967
102	3415	0.27959	36.72935	10.26915897
102	3478	0.24512	134.31195	32.92254518
103	3342	0.20740	7.89548	1.637522552
103	3407	0.21961	160.53377	35.25482123
104	3407	0.26912	8.37455	2.253758896
104	3478	0.21531	286.95407	61.78408081
111	12728	0.12273	1315.47815	161.4486333
112	13192	0.25698	557.72931	143.3252781
112	13651	0.24887	488.06476	121.4646768
112	13766	0.20140	287.18161	57.83837625
112	14086	0.23810	51.25053	12.20275119
113	14092	0.12255	758.59125	92.96535769
113	14279	0.23412	44.96541	10.52730179

113	14281	0.26611	30.37931	8.084238184
113	14476	0.13119	0.00000	0
114	14590	0.25150	166.94887	41.98764081
114	14593	0.25017	207.71419	51.96385891
115	15074	0.28528	17.69839	5.048996699
115	15185	0.25022	14.72168	3.68365877
116	12831	0.35843	9.51859	3.411748214
116	13187	0.32386	52.36204	16.95797027
116	14124	0.58413	36.01553	21.03775154
117	13932	0.08859	76.65115	6.790525379
117	14118	0.04530	351.69455	15.93176312
118	14130	0.24934	548.77789	136.8322791
118	14471	0.10031	11.16976	1.120438626
118	14590	0.15804	41.28293	6.524354257
119	15185	0.13291	10.13853	1.347512022
120	14119	0.20101	79.39387	15.95896181
120	14409	0.15587	9.64001	1.502588359
121	15411	0.14781	17.64508	2.608119275
131	4719	0.53313	50.36650	26.85189215
131	5161	0.22047	6.49181	1.431249351
131	5237	0.30968	59.85242	18.53509743
131	5541	0.47786	0.00000	0
132	4466	0.12894	9.17586	1.183135388
132	4503	0.27438	0.00000	0
132	4529	0.11287	778.86383	87.91036049
132	13861	0.23292	0.00000	0
133	4529	0.12815	259.88931	33.30481508
133	4574	0.24875	0.00000	0
133	4583	0.25225	13.82402	3.487109045
133	4723	0.12178	330.60843	40.26149461
134	4723	0.18915	771.59674	145.9475234
134	4860	0.24823	563.19397	139.8016392
134	4870	0.25038	83.93188	21.01486411
134	4982	0.18916	58.28603	11.02538543
135	4982	0.33171	57.48981	19.06994488
135	5237	0.25259	137.19847	34.65496154
135	5254	0.24923	884.77057	220.5113692
135	5540	0.30143	1070.34985	322.6355553
136	5540	0.24975	51.91866	12.96668534
136	5744	0.23099	190.53943	44.01270294
136	5918	0.26638	87.45697	23.29678767
137	4125	0.25196	900.72485	226.9466332
137	4223	0.23663	336.09167	79.52937187
137	4309	0.27257	32.18201	8.771850466
137	4336	0.23041	100.14498	23.07440484
138	4524	0.13567	188.09528	25.51888664
139	4524	0.13188	29.14668	3.843864158
139	4582	0.12488	265.65039	33.1744207
139	4583	0.12451	14.35573	1.787431942
139	4702	0.11801	465.97861	54.99013577
140	4159	0.25238	35.07161	8.851372932
140	4217	0.12043	269.25290	32.42612675
141	4702	0.19135	475.71954	91.02893398
141	4860	0.12756	175.39513	22.37340278

141	4861	0.12342	501.69513	61.91921294
141	4988	0.18920	7.68989	1.454927188
142	4988	0.17044	30.71845	5.235652618
142	5170	0.12575	291.46945	36.65228334
142	5184	0.12658	33.67577	4.262678967
143	4992	0.19032	167.87314	31.949616
143	5170	0.12586	91.41633	11.50565929
143	5203	0.13453	284.41150	38.2618791
144	5382	0.12502	79.59125	9.950498075
144	5392	0.11930	2.50776	0.299175768
144	5571	0.14886	444.02917	66.09818225
145	5365	0.14274	191.39679	27.3199778
145	5392	0.12835	2.47013	0.317041186
145	5548	0.12651	215.04247	27.20502288
146	5475	0.05592	95.51256	5.341062355
146	5562	0.05600	18.31223	1.02548488
147	5571	0.10749	86.49924	9.297803308
147	5637	0.11414	46.42953	5.299466554
148	5548	0.10567	348.50226	36.82623381
148	5634	0.12745	104.34383	13.29862113
149	5774	0.23840	41.95084	10.00108026
149	5780	0.25754	124.22539	31.99300694
149	5906	0.15026	61.30018	9.210965047
150	4217	0.24838	187.87360	46.66404477
150	4330	0.24713	539.39832	133.3015068
150	4336	0.25314	965.64313	244.4429019
150	4447	0.23539	257.74756	60.67119815
151	4447	0.24051	752.90863	181.0820546
151	4522	0.23038	1766.31506	406.9236635
151	4537	0.26913	2427.66772	653.3582135
152	4559	0.10953	168.36588	18.44111484
152	4709	0.10653	196.07088	20.88743085
153	4709	0.20076	352.85294	70.83875623
153	4766	0.15783	146.14058	23.06536774
153	4872	0.07853	232.88460	18.28842764
153	4920	0.18017	630.52374	113.6014622
154	4872	0.12992	24.98257	3.245735494
154	4895	0.14558	269.68646	39.26095485
154	4995	0.13502	248.69418	33.57868818
154	5025	0.11447	212.03125	24.27121719
155	5025	0.07050	2.38800	0.168354
155	5094	0.04215	90.88753	3.83090939
155	5176	0.05559	41.53652	2.309015147
156	5176	0.25833	680.61542	175.8233814
156	5337	0.13898	134.50812	18.69393852
156	5365	0.14068	357.99973	50.36340202
156	5549	0.21721	336.41223	73.07210048
157	5549	0.10664	130.12103	13.87610664
157	5634	0.13747	198.46198	27.28256839
157	5646	0.11133	1.97486	0.219861164
158	5911	0.13246	964.98846	127.8223714
159	4710	0.08735	81.80627	7.145777685
159	4772	0.04150	74.13380	3.0765527
159	4814	0.03956	198.03584	7.83429783

159	4816	0.08621	2.92291	0.251984071
160	4995	0.06653	118.51324	7.884685857
160	4998	0.06359	57.07246	3.629237731
160	5035	0.03758	10.00572	0.376014958
161	5107	0.09171	286.59982	26.28406949
161	5199	0.12697	1134.21021	144.0106704
161	5223	0.09506	375.73135	35.71702213
161	5250	0.10234	240.00922	24.56254357
162	5250	0.16430	176.47571	28.99495915
162	5388	0.10941	174.10165	19.04846153
162	5389	0.10760	16.11531	1.734007356
162	5535	0.15062	76.42974	11.51184744
163	5535	0.12319	268.02750	33.01830773
163	5645	0.12340	35.04135	4.32410259
163	5646	0.13069	39.52382	5.165368036
164	6123	0.25774	28.08184	7.237813442
164	6138	0.25520	64.09220	16.35632944
164	6463	0.26159	30.18995	7.897389021
165	4211	0.11877	20.29519	2.410459716
165	4261	0.24977	0.00000	0
165	4266	0.25212	0.00000	0
165	4326	0.12674	50.03219	6.341079761
166	4326	0.42057	76.14824	32.0256653
166	4506	0.26833	9.25529	2.483471966
166	4522	0.23889	50.53132	12.07142703
166	4735	0.32569	55.53477	18.08711924
167	4885	0.09971	58.03316	5.786486384
167	4913	0.07914	7.46949	0.591135439
167	4969	0.06009	25.83831	1.552624048
168	4877	0.15953	124.36356	19.83971873
168	4920	0.09308	420.91635	39.17889386
168	4975	0.09138	35.64473	3.257215427
168	4998	0.07765	204.64378	15.89058952
169	5143	0.24307	645.79291	156.9728826
169	5335	0.13713	318.88754	43.72904836
169	5529	0.26075	128.88232	33.60606494
170	5534	0.50695	6.69236	3.392691902
170	5908	0.24726	249.76230	61.7562263
170	5926	0.24790	256.72021	63.64094006
170	6460	0.50450	0.00000	0
171	4744	0.13228	173.38623	22.9355305
171	4815	0.12210	214.98576	26.2497613
171	4830	0.12623	324.82361	41.00248429
171	4950	0.18302	29.73633	5.442343117
172	4950	0.11248	2.60819	0.293369211
172	5016	0.09526	44.64698	4.253071315
172	5019	0.09248	99.87997	9.236899626
172	5142	0.08377	33.79464	2.830976993
173	5142	0.11094	117.47215	13.03236032
173	5234	0.09534	39.50077	3.766003412
174	5393	0.15007	230.45322	34.58411473
174	5543	0.19679	65.84336	12.95731481
175	4322	0.37973	94.74497	35.97750746
175	4502	0.49604	63.83173	31.66309135

175	4506	0.50360	76.97177	38.76298337
175	4734	0.36854	32.40889	11.94397232
176	4746	0.27645	149.80278	41.41297853
176	4951	0.14447	289.56787	41.83387018
176	5145	0.22994	126.75457	29.14594583
177	4538	0.13554	4.14923	0.562386634
177	4540	0.11847	78.38792	9.286616882
178	4734	0.28994	19.01163	5.512232002
178	4940	0.50679	12.82299	6.498563102
178	5132	0.21608	16.43755	3.551825804
179	5145	0.15768	207.82680	32.77012982
179	5234	0.12607	421.54025	53.14357932
180	5132	0.31051	66.06120	20.51266321
180	5332	0.38204	13.74375	5.25066225
180	5531	0.23216	74.38091	17.26827207
181	5545	0.50595	0.62925	0.318369038
181	5803	0.61323	37.47521	22.98092303
181	5908	0.39015	105.98924	41.35170199
181	6462	0.50647	19.34446	9.797388656
182	4129	0.28147	65.37474	18.40102807
182	4223	0.26531	166.64238	44.21188984
183	4443	0.19649	519.89832	102.1548209
184	4216	0.07923	29.89436	2.368530143
185	5689	0.04380	21.95420	0.96159396
186	4449	0.10496	143.33199	15.04412567
186	4501	0.12808	236.71024	30.31784754
187	4525	0.13240	0.00000	0
187	4579	0.12136	268.45911	32.58019759
187	4582	0.12825	11.21838	1.438757235
187	4707	0.11772	42.68078	5.024381422
188	4707	0.20052	104.12936	20.88001927
188	4861	0.11615	10.56282	1.226871543
188	4863	0.13328	377.64923	50.33308937
188	4992	0.18033	35.76041	6.448674735
189	4735	0.17886	27.78447	4.969530304
189	4808	0.09535	176.51779	16.83097128
189	4877	0.10442	5.68451	0.593576534
189	4885	0.09669	80.94206	7.826287781
190	4969	0.15251	0.59763	0.091144551
190	4975	0.08132	116.31902	9.459062706
190	5124	0.08430	77.45045	6.529072935
190	5143	0.11252	96.63726	10.8736245
191	5393	0.11249	38.83253	4.3682713
191	5552	0.08033	45.24503	3.63453326
192	3839	0.45279	1236.70850	559.9692417
192	3840	0.55424	8.49515	4.708351936
226	21814	0.23785	263.02139	62.55963761
227	22021	0.25304	38.02200	9.62108688
227	22244	0.25426	6.94076	1.764757638
228	21814	0.15944	241.17311	38.45264066
236	14950	0.25174	641.60547	161.517761
236	15162	0.28798	71.53459	20.60053123
236	15310	0.34444	13.95103	4.805292773
237	15310	0.49637	5.97081	2.96373096

237	15868	0.49345	87.28946	43.07298404
238	13935	0.20655	43.48074	8.980946847
238	14313	0.36024	477.42569	171.9878306
238	14479	0.28550	267.59344	76.39792712
239	15004	0.14016	253.08473	35.47235576
239	15162	0.12598	8.54692	1.076740982
239	15169	0.10383	61.79542	6.416218459
239	15291	0.09629	38.74782	3.731027588
240	15291	0.17343	296.81870	51.47726714
240	15587	0.15806	53.27965	8.421381479
240	15590	0.13563	39.49825	5.357147648
241	13921	0.38681	53.85113	20.8301556
241	14479	0.24283	499.29907	121.2447932
242	15109	0.07305	129.08289	9.429505115
243	15284	0.32895	4.75373	1.563739484
243	15577	0.14780	157.75029	23.31549286
243	15581	0.14945	757.56989	113.2188201
244	14550	0.27735	85.89793	23.82379089
245	15277	0.25396	1.35536	0.344207226
245	15558	0.24785	350.51709	86.87566076
246	15052	0.09414	752.69086	70.85831756
246	15177	0.14411	104.47402	15.05575102
247	14845	0.03906	220.57471	8.615648173
248	15289	0.32388	0.00000	0
248	15581	0.14367	813.60382	116.8904608
248	15590	0.14863	1053.95935	156.6499782
249	15109	0.06944	177.28740	12.31083706
249	15177	0.11864	4.88616	0.579694022
249	15216	0.13312	3.23406	0.430518067
249	15284	0.07945	45.24018	3.594332301
250	15167	0.04740	173.21075	8.21018955
250	15216	0.09706	20.27934	1.96831274
250	15233	0.14727	0.00000	0
250	15276	0.05603	4.23201	0.23711952
251	14936	0.21937	199.05304	43.66626538
251	14937	0.03254	71.28258	2.319535153
251	15046	0.24759	6.03676	1.494641408
252	15030	0.07652	113.67849	8.698678055
253	15276	0.34742	2.16226	0.751212369
253	15558	0.16279	371.20654	60.42871265
253	15577	0.16275	241.68823	39.33475943
266	23644	0.41174	784.42145	322.9776878
266	23879	0.15447	64.44152	9.954281594
266	24055	0.51515	56.67400	29.1956111
267	23962	0.09367	321.46252	30.11139425
267	23970	0.09047	359.39746	32.51468821
268	24156	0.11342	121.60476	13.79241188
269	24129	0.14314	134.68727	19.27913583
270	24129	0.10899	22.03532	2.401629527
270	24132	0.06691	99.90644	6.6847399
271	24173	0.12578	105.16151	13.22721473
271	24195	0.07004	203.55635	14.25708675
272	24228	0.43269	0.00000	0
272	24297	0.12655	65.20655	8.251888903

272	24312	0.14093	59.28432	8.354939218
273	24234	0.24536	1.26955	0.311496788
273	24312	0.35000	147.32047	51.5621645
273	24320	0.30300	3.32871	1.00859913
274	24320	0.21219	3.31727	0.703891521
274	24364	0.24986	571.61188	142.8229443
274	24367	0.24705	542.77032	134.0914076
274	24444	0.24465	0.00000	0
275	24581	0.18438	290.14313	53.49659031
276	24750	0.71403	490.22385	350.0345356
276	24874	0.30207	114.67648	34.64032431
277	24178	0.08493	6.32165	0.536897735
278	23873	0.03667	9.21405	0.337879214
278	23892	0.02967	31.99490	0.949288683
279	24149	0.10953	387.14484	42.40397433
279	24179	0.14051	10.05450	1.412757795
279	24234	0.14239	1.25834	0.179175033
280	24251	0.05647	53.03754	2.995029884
291	18085	0.24261	2101.08960	509.7453479
291	18179	0.32805	288.45108	94.62637679
292	18201	0.12988	125.57519	16.30970568
292	18300	0.24312	17.92718	4.358456002
293	18401	0.16514	549.39136	90.72648919
294	18173	0.17805	404.68277	72.0537672
294	18307	0.14191	161.10985	22.86309881
294	18400	0.16717	6.64713	1.111200722
295	18413	0.25596	90.58205	23.18538152
295	18513	0.15280	39.84478	6.088282384
296	18513	0.24918	134.39003	33.48730768
296	18675	0.31328	609.08716	190.8148255
296	18682	0.31051	2.69973	0.838293162
296	18812	0.25200	774.08533	195.0695032
297	18532	0.07450	0.04215	0.003140175
297	18614	0.18405	160.00986	29.44981473
297	18639	0.09142	0.00000	0
297	18646	0.07502	116.98394	8.776135179
297	18650	0.18113	125.01165	22.64336016
298	18634	0.07386	391.97394	28.95119521
298	18650	0.04706	323.54364	15.2259637
298	18663	0.04397	230.87019	10.15136225
298	18679	0.07768	8.84451	0.687041537
299	18646	0.09159	5.74635	0.526308197
299	18675	0.14304	33.93953	4.854710371
299	18694	0.15299	263.52521	40.31672188
299	18702	0.06790	271.22058	18.41587738
300	18679	0.07585	92.58511	7.022580594
300	18694	0.05301	144.38803	7.65400947
300	18709	0.03902	102.66387	4.005944207
300	18724	0.07508	0.00000	0
301	18702	0.08718	2.12156	0.184957601
301	18714	0.11139	11.52333	1.283583729
301	18741	0.12000	72.84837	8.7418044
301	18796	0.07730	65.56208	5.067948784
302	18798	0.14357	302.11087	43.37405761

302	18912	0.14015	25.68714	3.600052671
303	18925	0.45384	7.05822	3.203302565
303	19099	0.14097	0.23568	0.03322381
303	19103	0.13789	90.89791	12.53391281
303	19197	0.38360	92.66228	35.54525061
304	17964	0.40978	0.93416	0.382800085
304	18074	0.18856	85.94569	16.20591931
304	18085	0.18716	358.53531	67.10346862
304	18169	0.34296	10.77304	3.694721798
305	18169	0.20397	39.76883	8.111648255
305	18307	0.15128	257.21729	38.91183163
305	18312	0.11702	3.96293	0.463742069
305	18395	0.14633	50.03941	7.322266865
306	18171	0.16812	671.95288	112.9687182
306	18305	0.11582	193.90157	22.45767984
306	18312	0.12509	93.31406	11.67265577
306	18391	0.18197	102.96617	18.73675395
307	18456	0.06519	26.59112	1.733475113
307	18507	0.09403	150.81697	14.18131969
307	18592	0.09161	33.17309	3.038986775
307	18619	0.07608	0.63771	0.048516977
308	18451	0.11636	32.13420	3.739135512
308	18592	0.09119	176.06012	16.05492234
308	18617	0.08627	37.64976	3.248044795
308	18647	0.09670	0.29771	0.028788557
309	18652	0.07693	89.55405	6.889393067
309	18663	0.08994	447.85983	40.28051311
309	18688	0.09205	4.59574	0.423037867
309	18695	0.07398	147.85637	10.93841425
310	18680	0.08276	71.19051	5.891726608
310	18688	0.15195	87.90276	13.35682438
310	18725	0.15083	28.77767	4.340535966
310	18730	0.07681	3.28983	0.252691842
311	18695	0.07608	91.35316	6.950148413
311	18709	0.09139	16.46472	1.504710761
311	18729	0.08800	106.66904	9.38687552
311	18748	0.07714	145.58961	11.23078252
312	18779	0.16364	157.04550	25.69892562
312	18898	0.21167	389.39478	82.42319308
312	18914	0.29094	20.57985	5.987501559
313	19103	0.27088	158.31342	42.88393921
313	19108	0.25791	32.13828	8.288783795
313	19190	0.27372	65.18079	17.84128584
314	17956	0.39279	197.01122	77.3840371
314	18074	0.33727	105.82416	35.69131444
314	18160	0.35843	163.40059	58.56767347
315	18160	0.22077	156.62297	34.57765309
315	18305	0.21332	673.36359	143.641921
315	18327	0.29145	0.46700	0.13610715
315	18466	0.28297	313.13580	88.60803733
316	18466	0.12905	177.61209	22.92084021
316	18617	0.24308	1.21925	0.29637529
316	18618	0.26073	0.00000	0
316	18667	0.12301	106.32508	13.07904809

317	18769	0.13270	303.70670	40.30187909
317	18900	0.18778	17.46234	3.279078205
317	18914	0.19152	190.32050	36.45018216
318	19032	0.25651	10.06109	2.580770196
318	19108	0.21016	43.97437	9.241653599
318	19183	0.28452	21.92884	6.239193557
319	18400	0.10616	241.97377	25.68793542
319	18463	0.13761	122.27083	16.82568892
320	18489	0.04005	7.85065	0.314418533
321	18728	0.04961	41.92525	2.079911653
321	18741	0.07536	28.74800	2.16644928
321	18787	0.03514	3.97750	0.13976935
322	18748	0.02377	5.36189	0.127452125
322	18784	0.02182	3.75355	0.081902461
323	18791	0.10308	1369.62341	141.1807811
323	18898	0.14374	486.20535	69.88715701
323	18925	0.09271	7.04710	0.653336641
324	18395	0.07579	19.83330	1.503165807
324	18422	0.12791	0.28718	0.036733194
324	18426	0.13686	178.93954	24.48966544
324	18458	0.07898	96.13440	7.592694912
325	18393	0.07127	10.48339	0.747151205
325	18421	0.05126	13.72588	0.703588609
325	18422	0.05010	46.61421	2.335371921
325	18453	0.07351	10.88490	0.800148999
326	18392	0.07430	78.92242	5.863935806
326	18420	0.07027	17.01000	1.1952927
326	18421	0.06310	0.07689	0.004851759
326	18451	0.07031	42.10866	2.960659885
327	18462	0.03185	16.06602	0.511702737
327	18507	0.07281	7.98548	0.581422799
327	18525	0.04099	4.37134	0.179181227
328	18548	0.04049	165.21274	6.689463843
328	18634	0.04614	48.61695	2.243186073
329	18619	0.04258	61.88840	2.635208072
329	18652	0.04305	23.15844	0.996970842
330	18647	0.05312	25.80368	1.370691482
330	18680	0.04276	10.83288	0.463213949
331	18718	0.05409	393.93051	21.30770129
331	18729	0.08031	332.95676	26.7397574
331	18779	0.04618	28.46833	1.314667479
332	18974	0.24979	46.82308	11.69593715
332	18977	0.24945	76.84502	19.16899024
333	18667	0.12803	113.90033	14.58265925
333	18725	0.25964	95.04840	24.67836658
333	18769	0.12819	59.67105	7.6492319
376	17245	0.05663	310.01047	17.55589292
377	17405	0.19468	189.31175	36.85521149
378	17395	0.24574	106.26823	26.11435484
378	17514	0.19600	193.64024	37.95348704
378	17548	0.21902	45.51779	9.969306366
379	16839	0.29113	139.66841	40.6616642
379	17000	0.27328	361.32266	98.74225652
380	17229	0.11829	4.56657	0.540179565

380	17289	0.22824	598.77295	136.6639381
380	17294	0.22803	210.68825	48.04324165
381	17548	0.15866	1221.70642	193.8359406
382	16833	0.24432	193.01105	47.15645974
382	16951	0.25578	125.83651	32.18646253
383	17261	0.14916	534.29901	79.69604033
383	17263	0.12460	104.15293	12.97745508
383	17365	0.18843	140.43251	26.46169786
384	17379	0.22079	288.84402	63.77387118
384	17487	0.11645	359.99591	41.92152372
385	17365	0.28101	787.40955	221.2699576
385	17519	0.13339	677.19501	90.33104238
385	17522	0.14151	23.02950	3.258904545
386	17660	0.04529	194.41347	8.804986056
386	17688	0.03980	41.20237	1.639854326
387	17689	0.14093	103.87716	14.63940816
388	16812	0.41338	17.82915	7.370214027
388	16951	0.56836	97.09702	55.18606229
388	17347	0.63274	11.22041	7.099602223
389	17274	0.12984	523.81116	68.01164101
389	17295	0.12129	2.75276	0.33388226
389	17359	0.13950	274.63449	38.31151136
390	17359	0.08415	14.67008	1.234487232
390	17447	0.08035	134.84492	10.83478932
391	17354	0.17443	78.59515	13.70935201
391	17477	0.27506	312.91580	86.07061995
392	17578	0.23049	45.54459	10.49757255
393	17347	0.28413	52.56141	14.93427342
394	16811	0.50084	362.83331	181.721435
394	17348	0.50112	209.52423	104.9967821
395	17273	0.12997	804.19806	104.5216219
395	17405	0.19967	120.55073	24.07036426
396	16856	0.37909	41.26572	15.64342179
396	16983	0.25795	188.39384	48.59619103
397	17239	0.11832	1.61519	0.191109281
397	17289	0.21096	352.96991	74.46253221
398	17145	0.20743	649.31250	134.6868919
398	17239	0.18488	1.57815	0.291768372
399	17229	0.13082	457.50607	59.85094408
400	17263	0.11427	207.74611	23.73914799
400	17372	0.18568	706.66370	131.2133158
401	17490	0.20518	325.53018	66.79228233
401	17522	0.14415	202.25642	29.15526294
402	17184	0.17736	148.11316	26.26935006
403	17048	0.13063	342.15829	44.69613742
404	17262	0.12481	350.22812	43.71197166
405	17354	0.05273	170.74782	9.003532549
406	17524	0.09046	325.34677	29.43086881
407	17372	0.10138	344.30905	34.90605149
407	17443	0.11142	71.97824	8.019815501
407	17445	0.08838	3.85122	0.340370824
408	17386	0.18395	193.15880	35.53156126
408	17487	0.11673	90.91489	10.61249511
451	4045	0.24815	292.86154	72.67359115

452	3975	0.11732	106.41403	12.484494
452	4041	0.34360	4.98240	1.71195264
453	4075	0.21130	0.00000	0
453	4098	0.12687	234.15442	29.70717127
453	4131	0.18198	346.54102	63.06353482
453	4194	0.21873	68.21327	14.92028855
454	3942	0.05922	753.75781	44.63753751
455	4094	0.17677	260.25055	46.00448972
455	4124	0.45682	470.67252	215.0126206
455	6333	0.34786	465.37012	161.8836499
456	4122	0.08212	349.96768	28.73934588
456	4190	0.17108	63.90442	10.93276817
457	4190	0.24563	3.39109	0.832953437
457	4301	0.24623	163.30763	40.21123773
457	4403	0.25065	408.82828	102.4728084
458	3888	0.19247	104.96115	20.20187254
459	3964	0.10110	708.67944	71.64749138
460	3995	0.04061	233.05608	9.464407409
471	16772	0.24749	39.32802	9.73329167
472	16866	0.25017	22.61006	5.65635871
472	16977	0.24373	135.75366	33.08723955
473	6090	0.24172	0.00000	0
473	17247	0.22648	542.15405	122.7870492
474	16772	0.15769	0.10146	0.015999227
474	16787	0.12594	70.74794	8.909995564
474	16859	0.21505	14.99522	3.224722061
475	16859	0.22050	0.86094	0.18983727
475	16973	0.10780	385.58023	41.56554879
475	16977	0.12415	81.27373	10.09013358
475	17018	0.16072	2.32230	0.373240056
476	16854	0.25729	54.72712	14.0807407
476	16969	0.12630	321.93497	40.66038671
476	17013	0.12573	21.40354	2.691067084
477	17092	0.25528	63.03565	16.09174073
477	17247	0.24762	57.78286	14.30819179
477	17248	0.25242	255.13284	64.40063147
478	16786	0.27030	5.98938	1.618929414
478	16844	0.25369	52.15376	13.23088737
479	16844	0.13158	344.67795	45.35272466
479	16921	0.22175	0.00000	0
479	16922	0.21783	0.00000	0
479	16966	0.12659	111.97201	14.17453675
480	16966	0.13232	244.41350	32.34079432
480	17008	0.21919	32.78579	7.18631731
480	17016	0.21865	0.00000	0
480	17116	0.13115	542.69727	71.17474696
481	17248	0.21830	27.85967	6.081765961
482	16834	0.26206	153.55104	40.23958554
482	16961	0.27770	64.26645	17.84679317
482	16979	0.28259	210.50481	59.48655426
482	17098	0.26332	2.01067	0.529449624
483	17104	0.24023	162.40459	39.01445466
484	17018	0.06170	2.38428	0.147110076
484	17030	0.12898	45.04566	5.809989227

484	17033	0.13099	37.31998	4.88854418
484	17102	0.06602	147.48486	9.736950457
485	17013	0.06967	71.41245	4.975305392
485	17030	0.11559	15.41454	1.781766679
485	17036	0.12541	396.61478	49.73945956
485	17087	0.05760	0.00000	0
486	16786	0.13086	55.80849	7.303099001
486	16787	0.12154	6.76674	0.82242958
486	16854	0.24950	0.37416	0.09335292
501	20821	1.34909	182.84984	246.6808906
501	22864	1.31264	462.80145	607.4916953
502	22423	0.60160	274.38110	165.0676698
511	20000	0.14573	294.97513	42.98672569
511	20236	0.21209	38.33979	8.131486061
512	20309	0.41173	111.41138	45.87140749
512	20470	0.41484	22.49015	9.329813826
513	19163	0.19589	86.39642	16.92419471
513	19266	0.46477	0.58020	0.269659554
513	19271	0.47458	52.92004	25.11479258
513	19324	0.24561	41.45080	10.18073099
514	19675	0.29197	334.04327	97.53061354
514	20003	0.29902	328.87952	98.34155407
515	20404	0.16024	42.37566	6.790275758
515	20470	0.13725	21.97934	3.016664415
515	20597	0.22290	4.18858	0.933634482
516	20605	0.25793	2108.36792	543.8113376
516	21014	0.48907	0.51180	0.250306026
516	21027	0.42465	2.64282	1.122273513
517	19325	0.15789	446.40738	70.48326123
517	19505	0.13062	127.54929	16.66048826
518	19505	0.27462	193.19633	53.05557614
518	19689	0.25062	181.43645	45.4716031
519	19917	0.26477	418.19327	110.7250321
519	20008	0.18044	111.76712	20.16725913
520	20009	0.26214	17.28300	4.53056562
520	20196	0.23505	854.59741	200.8731212
520	20233	0.27704	288.02887	79.79551814
520	20331	0.24080	142.62207	34.34339446
521	20331	0.26277	1396.19873	366.8791403
521	20475	0.25177	36.59266	9.212934008
521	20605	0.24356	96.30987	23.45723194
522	19174	0.23728	20.34756	4.828069037
522	19271	0.24532	140.74483	34.5275217
522	19292	0.27241	5.07306	1.381952275
522	19463	0.38419	200.84567	77.16289796
523	19427	0.26313	114.53883	30.13860234
523	19595	0.05912	192.74646	11.39517072
523	19620	0.06975	47.45587	3.310046933
523	19693	0.15646	0.00000	0
524	19692	0.14876	5.38036	0.800382354
524	19826	0.12200	8.23425	1.0045785
524	19829	0.12079	2.54343	0.30722091
525	19917	0.13428	245.96620	33.02834134
525	19976	0.11049	232.91142	25.7343828

526	20048	0.11919	0.99845	0.119005256
526	20156	0.18407	128.94141	23.73424534
526	20167	0.14416	148.90665	21.46638266
527	20258	0.14169	409.67944	58.04747985
527	20293	0.13262	354.27600	46.98408312
527	20334	0.15313	49.72167	7.613879327
528	20337	0.24875	0.00000	0
528	20476	0.12417	331.29019	41.13630289
528	20477	0.12348	468.18408	57.8113702
529	20617	0.33921	94.69151	32.12030711
529	20850	0.27768	52.57835	14.59995623
529	21027	0.28597	2.21265	0.632751521
530	19697	0.14251	273.30695	38.94897344
530	19826	0.12827	0.13948	0.0178911
530	19862	0.14611	9.43760	1.378927736
530	19906	0.16186	65.84298	10.65734474
531	19949	0.12416	228.65053	28.3892498
531	20083	0.09943	36.94744	3.673683959
531	20140	0.11494	7.00461	0.805109873
531	30024	0.07437	68.79697	5.116430659
532	20140	0.21869	955.82953	209.0303599
532	20258	0.14336	110.57378	15.8518571
532	20297	0.13083	104.55580	13.67903531
533	19292	0.32880	281.54858	92.5731731
533	19705	0.60320	176.50911	106.4702952
534	19615	0.09201	836.08154	76.9278625
534	19636	0.13945	0.00000	0
534	19695	0.06670	528.96490	35.28195883
535	19699	0.26217	104.21918	27.32314242
535	19885	0.14035	202.20500	28.37947175
535	20033	0.26568	82.00449	21.7869529
536	19988	0.12732	212.85875	27.10117605
536	20083	0.09448	154.99272	14.64371219
536	20086	0.10347	237.92488	24.61808733
536	20194	0.11080	40.09671	4.442715468
537	20086	0.12932	13.40711	1.733807465
537	20176	0.13582	63.11707	8.572560447
537	20259	0.12134	22.09068	2.680483111
538	20228	0.15361	778.68073	119.6131469
538	20297	0.23173	91.61430	21.22978174
538	20306	0.27802	58.69451	16.31824767
538	20340	0.13735	18.39108	2.526014838
539	20340	0.26336	17.93921	4.724470346
539	20476	0.25054	138.12108	34.60485538
539	20485	0.26249	385.64273	101.2273602
539	20625	0.24530	42.84528	10.50994718
540	20625	0.26339	37.91721	9.987013942
540	20850	0.24361	15.93672	3.882344359
541	19885	0.31610	21.46757	6.785898877
541	19897	0.20419	0.00000	0
541	20038	0.16324	36.68734	5.988841382
542	20045	0.20382	46.43776	9.464944243
542	20176	0.47429	64.37029	30.53018484
542	20307	0.21656	5.17294	1.120251886

543	20268	0.11733	87.21979	10.23349796
543	20306	0.23960	12.83313	3.074817948
543	20307	0.31588	7.93931	2.507869243
543	20342	0.11792	0.39372	0.046427462
544	20342	0.26348	0.71207	0.187616204
544	20485	0.24658	51.39265	12.67239964
544	20489	0.75387	31.95435	24.08942583
544	20638	0.24558	6.15041	1.510417688
545	19976	0.05315	97.47393	5.18073938
545	20048	0.08056	109.01382	8.782153339
546	20334	0.25687	15.25767	3.919237693
546	20475	0.11550	621.99896	71.84087988
546	20477	0.12492	542.16974	67.72784392
546	20613	0.25196	25.38595	6.396243962
547	19824	0.15921	41.43795	6.59733602
547	19862	0.12447	494.17334	61.50975563
547	19949	0.16740	327.59100	54.8387334
548	20309	0.13545	35.33180	4.78569231
548	20404	0.18863	27.59381	5.20502038
549	19495	0.15877	65.03838	10.32614359
550	19511	0.11995	114.42553	13.72534232
550	19620	0.10318	102.57577	10.58376795
550	19690	0.21125	23.20860	4.90281675
551	19488	0.21334	725.29980	154.7354593
551	19595	0.12836	11.25880	1.445179568
551	19697	0.14711	341.23303	50.19879104
552	20638	0.26122	97.45335	25.45676409
601	3798	0.50608	618.69513	313.1092314
601	3847	0.25864	605.29791	156.5542514
611	12378	0.25102	151.54694	38.04131288
611	12736	0.49379	132.37198	65.36396
611	13161	0.25511	39.84257	10.16423803
612	13160	0.25340	272.09811	68.94966107
612	13649	0.25374	0.00000	0
612	13654	0.37026	80.16531	29.68200768
612	14059	0.23474	0.00000	0
612	14072	0.24642	432.48904	106.5739492
613	14075	0.19486	411.60144	80.2046566
613	14453	0.19493	52.54491	10.24257931
613	14481	0.21240	6.31147	1.340556228
614	13171	0.12856	40.63710	5.224305576
614	13407	0.18877	536.16614	101.2120822
614	13412	0.18376	0.00000	0
614	13655	0.12498	71.99088	8.997420182
615	13655	0.12114	155.08310	18.78676673
615	13814	0.19899	546.19067	108.6864814
615	13826	0.17478	0.00000	0
615	14076	0.12896	1040.18311	134.1420139
616	14076	0.12854	906.14081	116.4753397
616	14277	0.19287	86.62956	16.70824324
616	14278	0.18113	9.24194	1.673992592
616	14456	0.11557	3.22202	0.372368851
617	14456	0.13331	19.53955	2.604817411
617	14596	0.18646	117.57930	21.92383628

618	15092	0.25247	141.24019	35.65891077
618	15399	0.23734	27.16913	6.448321314
619	15682	0.28815	233.85980	67.38670137
619	15934	0.26638	28.29961	7.538450112
620	16081	0.24859	106.54919	26.48706314
621	12735	0.11635	0.00000	0
621	12893	0.12829	0.00000	0
621	12895	0.12676	103.84829	13.16380924
621	13172	0.12901	66.49559	8.578596066
622	13172	0.09937	168.12100	16.70618377
622	13348	0.21200	72.26395	15.3199574
622	13407	0.16798	98.83912	16.60299538
622	13546	0.09319	187.75749	17.49712049
623	13546	0.09015	207.23172	18.68193956
623	13666	0.19186	54.11678	10.38284541
623	13702	0.18634	119.49042	22.26584486
623	13819	0.09725	307.37921	29.89262817
624	13819	0.06243	10.83695	0.676550789
624	13938	0.17733	307.65567	54.55657996
624	13960	0.20196	261.49310	52.81114648
624	14108	0.08083	142.31575	11.50338207
625	14108	0.13324	322.44067	42.96199487
625	14275	0.13399	16.65590	2.231724041
625	14277	0.11741	343.01151	40.27298139
625	14460	0.11857	0.00000	0
626	14109	0.11781	363.59900	42.83559819
626	14275	0.06894	14.67783	1.0118896
626	14285	0.05657	2.55242	0.144390399
626	14466	0.12951	0.00000	0
627	14464	0.13602	67.54741	9.187798708
627	14596	0.24792	60.81808	15.07801839
628	15401	0.41028	26.09690	10.70703613
628	15927	0.23377	2.13955	0.500162604
628	16302	0.59606	4.06713	2.424253508
629	12380	0.11507	416.80124	47.96131869
629	12539	0.01199	0.00000	0
629	12549	0.16637	0.35702	0.059397417
629	12815	0.20138	2.94615	0.593295687
630	13179	0.19027	96.23096	18.30986476
630	13545	0.15348	440.76208	67.64816404
631	13822	0.06510	0.00000	0
631	13938	0.19153	19.59158	3.752375317
631	13987	0.18241	0.00000	0
631	14111	0.06644	35.89125	2.38461465
632	13186	0.13345	104.01093	13.88025861
632	13425	0.14224	395.86554	56.30791441
632	13763	0.20769	0.00000	0
633	14111	0.14422	185.79979	26.79604571
633	14285	0.18814	2.51673	0.473497582
633	14304	0.18893	0.15490	0.029265257
633	14468	0.10631	0.00000	0
634	14100	0.12740	12.60339	1.605671886
634	14281	0.12190	28.18747	3.436052593
634	14304	0.13047	0.15154	0.019771424

634	14474	0.12355	0.00000	0
635	14593	0.27848	36.15506	10.06846111
636	15074	0.25183	19.60680	4.937580444
636	15402	0.25214	3.57143	0.90050036
637	12374	0.13572	25.89553	3.514541332
637	12549	0.21863	0.35548	0.077718592
637	12564	0.15933	7.84296	1.249618817
638	12815	0.10465	2.93687	0.307343446
638	13179	0.09864	241.96593	23.86751934
639	13176	0.12506	11.35452	1.419996271
640	15092	0.25078	43.08453	10.80473843
640	15401	0.24930	32.91718	8.206252974
641	13919	0.12441	94.99561	11.81840384
676	12212	0.32037	56.40813	18.07147261
676	12802	0.34801	210.84631	73.37662434
676	13142	0.28389	477.87152	135.6629458
677	13022	0.50580	415.02191	209.9180821
677	13361	0.50284	239.47519	120.4177045
677	13941	0.58014	82.26965	47.72791475
678	13441	0.23686	1266.55762	299.9968379
678	13941	0.21864	145.71413	31.85893738
678	13990	0.28917	98.17648	28.38969272
679	14913	0.22670	1050.19934	238.0801904
680	14913	0.25868	49.57072	12.82295385
680	14942	0.25473	97.19915	24.75953948
681	12269	0.40162	8.77080	3.522528696
681	12802	0.63671	94.93347	60.44508968
681	13061	1.37130	4.78767	6.565331871
682	13618	0.46734	267.35672	124.9464895
683	14942	0.50817	240.36490	122.1462312
684	12258	0.19892	202.27890	40.23731879
696	18184	0.53237	199.79359	106.3641135
696	18246	0.47104	1060.20911	499.4008992
696	18582	0.50847	369.88324	188.074531
697	18565	0.38041	86.95690	33.07927433
697	18736	0.28992	109.16512	31.64915159
701	21382	0.24558	22.97724	5.642750599
701	21452	0.26368	39.06882	10.30166646
701	21596	0.21524	111.93494	24.09287649
702	21596	0.28292	95.24966	26.94803381
702	21800	0.25488	100.42500	25.596324
702	21848	0.24738	243.34531	60.19876279
703	22175	0.16443	81.79050	13.44881192
704	22411	0.09549	145.86237	13.92839771
705	23213	0.24568	253.43721	62.26445375
706	20794	0.24409	88.90488	21.70079216
706	20959	0.40620	12.32934	5.008177908
706	20962	0.34118	140.39417	47.89968292
706	21190	0.27314	283.72012	77.49531358
707	21159	0.25567	0.00000	0
707	21374	0.12472	7.36408	0.918448058
707	21381	0.12254	124.19025	15.21827324
707	21674	0.25556	763.52173	195.1256133
708	21630	0.25291	352.35938	89.1152108

708	21838	0.28077	6.89038	1.934611993
708	21848	0.21431	4.66145	0.99899535
708	22066	0.23783	973.47711	231.5220611
709	21674	0.23963	15.05512	3.607658406
709	21838	0.13590	6.84087	0.929674233
709	21847	0.10896	432.85056	47.16339702
709	22078	0.24315	255.94379	62.23273254
710	22066	0.13162	41.36652	5.444661362
710	22175	0.19892	73.54479	14.62952963
710	22206	0.29390	159.49338	46.87510438
711	22078	0.13599	139.39574	18.95642668
711	22206	0.12229	424.17712	51.87262
711	22209	0.12123	155.12677	18.80601833
712	22410	0.21468	821.38696	176.3353526
712	22521	0.29645	3.68842	1.093432109
712	22605	0.16223	199.00900	32.28523007
713	22521	0.05611	100.71019	5.650848761
713	22542	0.18866	356.73981	67.30253255
714	22802	0.07110	14.14286	1.005557346
714	22811	0.11745	48.35953	5.679826799
715	22802	0.28597	441.00079	126.1129959
715	22812	0.19543	152.68243	29.83872729
716	23045	0.32225	2.11145	0.680414763
716	23054	0.29168	131.51268	38.3596185
716	23228	0.22833	193.72293	44.23275661
717	23228	0.24466	223.14688	54.59511566
717	23432	0.29774	4.59620	1.368472588
717	23586	0.25994	40.00209	10.39814327
718	24094	0.93090	251.98720	234.5748845
719	20543	0.25148	276.47073	69.52685918
719	20788	0.24957	1863.03699	464.9581416
720	20788	0.24525	108.95813	26.72198138
720	20957	0.24683	507.34772	125.2286377
720	20959	0.25352	32.90287	8.341535602
720	21182	0.25525	8.96336	2.28789764
721	21182	0.25550	287.95313	73.57202472
721	21381	0.25052	23.51198	5.89022123
721	21666	0.24931	1595.82166	397.8542981
722	21666	0.24483	1956.93213	479.1156934
722	21847	0.25091	68.29182	17.13510056
722	22096	0.24715	5385.16797	1330.944264
723	22096	0.14369	70.79331	10.17229071
723	22209	0.24994	91.09775	22.76897164
723	22217	0.24494	901.76904	220.8793087
724	22413	0.24394	1370.96436	334.433046
724	22439	0.24278	119.09529	28.91395451
724	22562	0.12872	615.53180	79.2312533
725	22557	0.18139	468.59918	84.99920526
725	22689	0.14514	210.31203	30.52468803
726	22570	0.24423	26.93728	6.578891894
726	22733	0.09677	509.06934	49.26264003
726	22884	0.24513	10.03680	2.460320784
727	22869	0.07955	75.56709	6.01136201
728	22884	0.16074	247.06198	39.71274267

728	23002	0.13694	223.07364	30.54770426
728	23010	0.10172	128.20723	13.04123944
729	23010	0.13445	441.29242	59.33176587
729	23045	0.21893	2.15044	0.470795829
729	23225	0.16615	19.68736	3.271054864
730	23233	0.11287	7.50465	0.847049846
730	23347	0.10390	335.18326	34.82554071
731	23485	0.13705	635.12616	87.04404023
731	23597	0.19801	9.65736	1.912253854
732	23597	0.25556	948.52850	242.4059435
732	23723	0.19132	4.63591	0.886942301
733	20543	0.22255	113.17949	25.1880955
733	20781	0.25219	729.48566	183.9689886
734	20781	0.24571	10.58658	2.601228572
734	20947	0.27512	749.58667	206.2262847
734	20957	0.22429	598.68658	134.279413
735	21373	0.26988	92.78812	25.04165783
735	21387	0.23270	1036.44336	241.1803699
735	21672	0.25939	712.30536	184.7648873
736	21672	0.24434	983.39331	240.2823214
736	21846	0.25217	0.00000	0
736	21851	0.24250	2186.44653	530.2132835
736	22101	0.25078	1072.58850	268.983744
737	22101	0.12765	650.39697	83.02317322
737	22217	0.24642	796.80927	196.3497403
737	22218	0.25149	582.59082	146.5157653
738	22364	0.11181	1071.78198	119.8359432
738	22574	0.10454	551.17017	57.61932957
738	30075	0.13295	0.00000	0
739	22436	0.14601	143.86794	21.00615792
739	22567	0.12439	275.31412	34.24632339
740	22574	0.13601	589.08691	80.12171063
740	22652	0.14008	54.08942	7.576845954
740	22729	0.11589	287.60083	33.33006019
741	22567	0.12618	73.75454	9.306347857
741	22643	0.13269	164.75732	21.86164879
741	22727	0.12742	17.55819	2.23726457
742	22729	0.14256	98.45361	14.03554664
742	22801	0.13255	410.66248	54.43331172
743	22727	0.13946	153.85049	21.45598934
743	22809	0.11951	357.82352	42.76348888
744	23002	0.12751	977.39862	124.628098
744	23139	0.22917	550.51703	126.1619878
745	23014	0.12855	669.51459	86.06610054
745	23161	0.24276	68.60680	16.65498677
746	23230	0.14041	243.08652	34.13177827
746	23347	0.11491	270.07303	31.03409188
747	23314	0.09186	309.69107	28.44822169
747	23386	0.11720	678.77203	79.55208192
748	23601	0.11633	35.84455	4.169796502
749	23523	0.12175	186.97493	22.76419773
749	23606	0.11910	6.47123	0.770723493
750	23601	0.24676	73.95931	18.25019934
750	23723	0.13146	80.26089	10.5510966

750	23849	0.27385	26.81969	7.344572107
751	23606	0.23793	89.67694	21.33683433
751	23726	0.12158	219.55858	26.69393216
751	23854	0.25227	1.55165	0.391434746
752	23849	0.25124	166.87488	41.92564485
752	23930	0.19539	105.43017	20.60000092
752	23967	0.34840	17.38314	6.056285976
753	20624	0.27795	337.94604	93.93210182
753	20778	0.24965	261.41992	65.26348303
754	20778	0.24852	432.54059	107.4949874
754	20947	0.25226	1010.09613	254.8068498
754	20955	0.25045	678.42303	169.9110479
754	21160	0.25134	18.23558	4.583330677
755	21160	0.26700	18.25638	4.87445346
755	21376	0.25145	212.53915	53.44296927
755	21387	0.24959	63.00244	15.724779
755	21648	0.23399	986.08234	230.7334067
756	21648	0.26869	30.14494	8.099643929
756	21843	0.25191	1086.36865	273.6671266
756	21851	0.25484	1065.98523	271.655676
756	22102	0.23622	16.54133	3.907392973
757	22120	0.10488	16.43243	1.723433258
757	22201	0.25814	361.26831	93.25780154
757	22218	0.25239	335.61801	84.70662954
758	22436	0.14124	189.19070	26.72129447
758	22468	0.12444	94.25545	11.7291482
758	22564	0.07117	218.87241	15.57714942
759	22362	0.11045	263.56784	29.11106793
759	22468	0.08312	285.92188	23.76582667
760	22564	0.12509	125.27798	15.67102252
760	22636	0.12918	5.61179	0.724931032
760	22643	0.12465	334.51123	41.69682482
760	22716	0.12309	182.29095	22.43819304
761	22558	0.12210	148.55365	18.13840067
761	22635	0.11997	493.94385	59.25844368
761	22636	0.12825	5.68904	0.72961938
761	22712	0.12657	117.48581	14.87017897
762	22716	0.14991	5.93518	0.889742834
762	22808	0.12390	407.29276	50.46357296
762	22809	0.12848	410.63010	52.75775525
763	22712	0.13412	404.70657	54.27924517
763	22784	0.11948	1206.87329	144.1972207
763	22808	0.13076	300.58896	39.30501241
763	22922	0.12549	818.63629	102.730668
764	23014	0.11986	445.85504	53.44018509
764	23028	0.13037	393.84232	51.34522326
765	22922	0.19668	473.10083	93.04947124
765	23028	0.14249	112.19823	15.98712579
765	23033	0.15429	207.53249	32.02018788
766	23123	0.05318	0.00000	0
766	23142	0.11726	59.43153	6.968941208
766	23148	0.11859	51.49331	6.106591633
766	23176	0.03583	142.02040	5.088590932
767	23118	0.04541	121.74237	5.528321022

767	23142	0.14845	55.12901	8.183901535
768	23176	0.05375	344.50995	18.51740981
768	23247	0.12069	39.38218	4.753035304
768	23253	0.11516	0.00000	0
768	23325	0.06717	563.38696	37.8427021
769	23170	0.05729	2330.08228	133.4904138
769	23247	0.15298	37.98129	5.810377744
769	23262	0.15955	1336.19971	213.1906637
769	23315	0.06464	2183.89502	141.1669741
770	23325	0.07943	771.90930	61.3127557
770	23354	0.12661	655.97852	83.05344042
770	23386	0.12383	95.46041	11.82086257
770	23476	0.13581	280.13821	38.0455703
771	23315	0.03654	114.39198	4.179882949
771	23344	0.15643	682.49615	106.7628727
771	23350	0.02164	471.37057	10.20045913
771	30076	0.14297	845.18323	120.8358464
772	23476	0.10953	11.05235	1.210563896
772	23514	0.12046	184.82660	22.26421224
772	23523	0.13000	286.79303	37.2830939
772	23617	0.11020	158.76590	17.49600218
773	23350	0.19299	82.50805	15.92322857
773	23489	0.14576	8.50132	1.239152403
773	23499	0.15354	123.67786	18.98949862
773	23627	0.19499	11.38171	2.219319633
774	23617	0.23651	1.32123	0.312484107
774	23726	0.13072	144.04755	18.82989574
774	23727	0.12027	189.16562	22.75094912
775	23642	0.25815	412.89026	106.5876206
775	23727	0.27711	330.58780	91.60918526
775	23867	0.30679	145.60899	44.67138204
776	23964	0.12712	261.26999	33.21264113
776	24090	0.13392	0.00000	0
777	23877	0.17359	742.36536	128.8672028
777	23926	0.35565	4.92982	1.753290483
777	23987	0.15189	48.99016	7.441115402
778	24128	0.12603	24.64750	3.106324425
778	24146	0.13448	1.85601	0.249596225
779	24125	0.12157	26.03254	3.164775888
779	24147	0.13635	0.24083	0.032837171
780	24273	0.22200	1896.44495	421.0107789
781	20630	0.23433	104.08674	24.39064578
781	20764	0.24775	40.82700	10.11488925
782	20764	0.27843	726.09406	202.1663691
782	20944	0.07168	366.94409	26.30255237
782	21167	0.24940	1066.24329	265.9210765
783	21167	0.25802	78.33153	20.21110137
783	21376	0.25297	894.27075	226.2236716
784	21644	0.20679	262.25092	54.23086775
784	21842	0.18202	493.48083	89.82338068
784	22001	0.24974	0.00000	0
785	21638	0.39104	171.81883	67.18803528
785	22201	0.55976	1017.70514	569.6706292
786	22432	0.15496	394.66687	61.15757818

786	22550	0.13564	76.98205	10.44184526
787	22550	0.24650	2679.61279	660.5245527
787	22715	0.19015	3.72548	0.708400022
787	22718	0.19279	183.72079	35.4195311
787	22920	0.25933	918.26953	238.1348372
788	22715	0.12457	88.09508	10.97400412
788	22900	0.22754	138.70329	31.56054661
789	22920	0.20049	258.32159	51.79089558
789	23026	0.14354	290.22241	41.65852473
789	23033	0.12757	1046.55115	133.5085302
790	22900	0.30335	185.74066	56.34442921
790	23026	0.16925	430.20679	72.81249921
790	23290	0.24587	232.16992	57.08361823
791	23303	0.11474	356.04718	40.85285343
791	23390	0.13818	247.65384	34.22080761
791	23395	0.13442	66.19778	8.898305588
791	23450	0.07560	0.11838	0.008949528
792	23488	0.14830	262.32056	38.90213905
792	23525	0.16276	1331.45532	216.7076679
792	23652	0.13574	634.46259	86.12195197
793	23294	0.18980	93.74209	17.79224868
793	23442	0.08688	4.16282	0.361665802
793	23447	0.09034	294.99353	26.6497155
793	23550	0.19653	76.10214	14.95635357
794	23289	0.18313	512.45154	93.84525052
794	23442	0.08934	127.74846	11.41304742
795	23650	0.22509	754.11407	169.743536
795	23733	0.12894	65.18990	8.405585706
795	23868	0.24035	81.42091	19.56951572
796	30194	0.27918	66.55267	18.58017441
797	22535	0.14584	476.27542	69.46000725
798	22538	0.20980	0.00000	0
798	22696	0.14874	768.27161	114.2727193
799	22696	0.12618	1016.16547	128.219759
800	23104	0.10268	221.63681	22.75766765
800	23264	0.17658	123.60892	21.82686309
801	23001	0.12213	1456.62683	177.8978347
802	23264	0.25387	530.25452	134.615715
802	23634	0.25285	149.48242	37.7966299
803	23634	0.20865	640.32233	133.6032542
804	23957	0.18623	1323.88940	246.547923
805	24265	0.09918	103.07012	10.2224945
806	22093	0.29776	523.63727	155.9182335
807	21618	0.38319	566.23608	216.9760035
808	22534	0.12073	171.61385	20.71894011
809	22526	0.11794	271.06033	31.96885532
810	22534	0.44040	107.55003	47.36503321
810	22698	0.27776	0.00000	0
810	22894	0.07275	795.01678	57.83747075
811	22530	0.27180	31.18842	8.477012556
811	22707	0.15351	0.00000	0
811	22892	0.23479	168.16217	39.48279589
812	22894	0.09694	1161.01123	112.5484286
813	23057	0.41193	131.28094	54.07855761

813	23098	0.32763	111.61740	36.56920876
813	23280	0.26582	443.31064	117.8408343
814	23278	0.23791	924.64270	219.9817448
814	23629	0.25480	140.00337	35.67285868
815	23280	0.21524	1237.56042	266.3725048
815	23618	0.26037	349.63092	91.03340264
816	23629	0.18702	82.42982	15.41602494
816	23705	0.24718	15.07477	3.726181649
817	23958	0.25234	497.64792	125.5764761
817	24043	0.33116	65.81485	21.79524573
818	24155	0.08097	7.12406	0.576835138
818	24249	0.34989	11.06990	3.873247311
819	24267	0.52079	37.60246	19.58298514
819	24455	0.57526	4.29928	2.473203813
820	23261	0.25198	135.80199	34.21938544
820	23457	0.12038	59.26720	7.134585536
820	23614	0.23501	38.45496	9.03730015
821	23613	0.18802	98.49472	18.51897725
821	23701	0.26025	20.43762	5.318890605
821	23705	0.23626	443.58231	104.8007566
822	23980	0.25244	6.12323	1.545748181
822	23982	0.18178	146.24664	26.58471422
823	24161	0.26035	136.82001	35.6210896
823	24252	0.18384	853.40210	156.8894421
824	13581	0.46916	713.98462	334.9730243
824	20431	0.71540	46.02276	32.9246825
824	21583	0.76245	17.06092	13.00809845
825	21583	0.40063	17.16250	6.875812375
825	21913	0.50135	239.36076	120.003517
825	21931	0.49704	1402.20837	696.9536482
826	21374	0.25886	98.25698	25.43480184
826	21382	0.23874	249.44727	59.55304124
826	21630	0.25856	450.34088	116.4401379
827	22879	0.06062	177.13936	10.738188
828	23862	0.12934	178.77092	23.12223079
828	23964	0.11933	12.23369	1.459846228
829	23972	0.17759	22.54113	4.003079277
830	21633	0.23377	437.57831	102.2926815
831	23112	0.04900	42.46888	2.08097512
831	23137	0.14461	12.74797	1.843483942
831	23140	0.12382	0.00000	0
831	23163	0.03925	45.18110	1.773358175
832	23163	0.05781	144.96663	8.38052088
832	23258	0.14189	63.65945	9.032639361
832	23262	0.12797	10.93159	1.398915572
832	23303	0.05399	41.86591	2.260340481
833	23450	0.06433	7.89609	0.50795547
833	23488	0.09724	5.47972	0.532847973
834	21952	0.15310	105.94451	16.22010448
835	21867	0.21008	63.26867	13.29148219
835	22062	0.16919	29.40514	4.975055637
836	22125	0.24315	6.84469	1.664286374
837	22125	0.09136	29.30999	2.677760686
837	22202	0.31188	58.55519	18.26219266

838	22569	0.18809	42.90913	8.070778262
839	20406	0.50341	134.72711	67.82297445
840	21109	0.32911	148.82698	48.98044739
901	25394	2.38538	1384.70496	3303.047517
901	25943	1.78310	272.73389	486.3117993
902	25440	0.48590	702.70837	341.445997
903	25936	0.54573	288.98004	157.7050772
904	25169	3.55119	2104.17114	7472.311511
911	20705	0.36885	594.00677	219.0993971
911	21005	0.28533	68.09023	19.42818533
911	21116	0.31824	65.92645	20.98043345
912	21089	0.15236	535.98114	81.66208649
912	21329	0.30884	32.67741	10.0920913
913	21389	0.30256	779.92175	235.9731247
913	21727	0.29831	31.96145	9.53442015
914	20945	0.22252	1166.54736	259.5801185
915	21185	0.26531	81.18669	21.53964072
915	21392	0.32901	80.89133	26.61405648
916	21264	0.16279	405.20972	65.96409032
916	21423	0.16188	23.37865	3.784535862
917	21727	0.21807	190.92320	41.63462222
918	21923	0.29897	121.54637	36.33871824
919	21432	0.25561	22.14552	5.660616367
920	21631	0.23762	129.19034	30.69820859
921	21432	0.07874	14.75382	1.161715787
922	21347	0.10825	108.43591	11.73818726
936	21582	0.25531	171.69604	43.83571597
936	21794	0.63752	26.27558	16.75120776
936	22022	0.23362	56.20143	13.12977808
937	22042	0.24572	290.62454	71.41226197
937	22270	0.33401	246.90453	82.46858207
938	22667	0.08832	175.03506	15.4590965
939	21570	0.27744	532.35413	147.6963298
939	21794	0.43735	212.27486	92.83841002
939	22054	0.25060	332.41263	83.30260508
940	22054	0.25151	1429.24170	359.46858
940	22270	0.44176	104.30164	46.07629249
941	22844	0.40825	461.31461	188.3316895
951	24987	0.46380	140.85559	65.32882264
951	25002	1.22448	562.08582	688.2628449
952	24909	1.38737	774.55518	1074.59462
952	25277	1.50287	226.57306	340.5098547
953	25529	0.74457	402.71164	299.8470058
954	24933	0.35366	1004.79333	355.3552091
955	25002	1.82793	487.58505	891.2713404
955	25124	0.77199	660.03198	509.5380882
956	25788	1.49664	710.54156	1063.42492
966	10483	0.42094	30.73830	12.93898
967	10573	0.65203	0.51458	0.335521597
967	12087	0.61382	121.21039	74.40136159
968	10651	0.57687	48.72775	28.10957714
968	11169	0.07016	1515.24622	106.3096748
969	11771	0.11320	1158.22583	131.111164
969	11836	0.28980	487.97263	141.4144682

969	12087	0.40870	178.59682	72.99252033
976	3426	0.23285	332.97028	77.5321297
976	3496	0.17948	3.42904	0.615444099
976	3521	0.25035	108.10351	27.06371373
977	3452	0.17704	202.21283	35.79975942
977	3496	0.24669	66.87300	16.49690037
1001	6557	0.19060	33.40642	6.367263652
1001	6892	0.28352	32.52411	9.221235667
1002	5085	0.50353	0.00000	0
1002	5513	0.24971	7.41653	1.851981706
1002	5514	0.24906	23.64498	5.889018719
1002	5883	0.49818	0.06842	0.034085476
1003	5883	0.26265	2.84671	0.747688382
1003	6114	0.25093	37.46285	9.400552951
1003	6141	0.24993	124.20760	31.04320547
1003	6396	0.23508	0.00089	0.000209221
1004	6670	0.14075	66.37661	9.342507858
1004	6892	0.20797	272.95923	56.76733106
1004	7262	0.17716	15.47543	2.741627179
1005	6842	0.31832	600.86725	191.268063
1006	7756	0.09475	710.52112	67.32187612
1007	7272	0.14160	285.68893	40.45355249
1007	7756	0.13552	337.88123	45.78966429
1008	8524	0.22130	1030.10168	227.9615018
1009	8800	0.06419	0.96876	0.062184704
1009	9081	0.12353	0.57784	0.071380575
1010	9347	0.21798	446.50177	97.32845582
1010	9614	0.14611	187.74585	27.43154614
1011	10108	0.10790	383.30789	41.35892133
1011	10191	0.10589	422.91901	44.78289397
1012	10739	0.12962	279.67749	36.25179625
1012	11066	0.21225	0.40011	0.084923348
1013	12211	0.21532	0.61685	0.132820142
1013	12315	0.27879	203.78430	56.813025
1013	13013	0.47243	40.29807	19.03801721
1013	29943	0.47109	50.15831	23.62907826
1014	5091	0.48700	0.00000	0
1014	5448	0.25804	24.90798	6.427255159
1014	5513	0.24780	141.49825	35.06326635
1014	5886	0.51358	199.33670	102.3753424
1015	5886	0.25048	72.11756	18.06400643
1015	6104	0.24906	142.13628	35.4004619
1015	6114	0.25084	645.44397	161.9031654
1015	6403	0.24838	779.93585	193.7204664
1016	6403	0.13022	19.93480	2.595909656
1016	6619	0.23446	95.99487	22.50695722
1017	7033	0.14901	252.10281	37.56583972
1018	7534	0.14311	39.28064	5.62145239
1018	7723	0.13034	423.97440	55.2608233
1019	7723	0.12370	46.39383	5.738916771
1019	7869	0.14272	145.41190	20.75318637
1020	8340	0.16313	1390.28577	226.7973177
1021	8540	0.12991	1086.00867	141.0833863
1022	8623	0.15570	705.78906	109.8913566

1022	8866	0.19753	3473.65015	686.1501141
1022	9105	0.18628	464.31549	86.49268948
1023	8540	0.12481	124.62755	15.55476452
1023	9093	0.12077	416.34766	50.2823069
1024	9465	0.20027	168.29640	33.70472003
1024	9748	0.16406	136.90462	22.46057196
1024	10105	0.18297	102.71531	18.79382027
1025	9583	0.12170	749.42688	91.2052513
1025	9748	0.08631	52.23894	4.508742911
1025	10136	0.16005	433.78906	69.42793905
1026	10301	0.24878	254.11978	63.21991887
1026	10586	0.16478	76.84152	12.66194567
1027	11510	0.35701	88.04588	31.43325962
1027	12211	0.27299	0.60403	0.16489415
1027	12413	0.29763	215.96240	64.27688911
1028	5095	0.41644	11.34240	4.723429056
1028	5437	0.25537	291.87302	74.53561312
1028	5448	0.25581	803.12610	205.4476876
1029	5723	0.25321	310.02396	78.50116691
1029	5737	0.25608	802.30475	205.4542004
1029	5877	0.23872	6.36409	1.519235565
1030	5877	0.24789	164.83049	40.85983017
1030	6056	0.25819	7.62795	1.969460411
1030	6104	0.25598	532.64868	136.3474091
1030	6428	0.26390	213.84695	56.43421011
1031	6428	0.17033	243.72845	41.51426689
1031	6619	0.27331	760.92944	207.9696252
1031	6811	0.25202	4.34525	1.095089905
1032	6978	0.12229	0.00000	0
1032	7033	0.20189	447.58542	90.36302044
1033	7404	0.26138	127.32370	33.27986871
1033	7534	0.26141	138.31795	36.15769531
1033	7720	0.13746	594.73602	81.75241331
1034	7732	0.19651	606.79114	119.2405269
1034	8026	0.12522	1473.02515	184.4522093
1034	8139	0.14358	0.00000	0
1034	8328	0.20271	99.97327	20.26558156
1035	7703	0.18318	546.01563	100.0191431
1035	7720	0.23012	210.14810	48.35928077
1035	8292	0.21842	1878.71497	410.3489237
1036	8328	0.09682	1710.82617	165.6421898
1037	8294	0.18844	91.81377	17.30138682
1037	8296	0.22619	29.18986	6.602454433
1037	8836	0.17242	415.47827	71.63676331
1038	8866	0.12271	524.54401	64.36679547
1038	9095	0.08025	0.00000	0
1039	9583	0.26678	2363.96875	630.6595831
1040	9583	0.20612	542.36133	111.7915173
1040	9630	0.19591	294.76096	57.74661967
1040	10129	0.13741	469.01907	64.44791041
1041	10129	0.11903	261.60709	31.13909192
1041	10499	0.16399	25.60445	4.198873756
1041	10500	0.17091	87.07745	14.88240698
1042	29954	0.10593	1487.00989	157.5189576

1043	11472	0.13432	77.65038	10.42999904
1044	5099	0.40128	4.23830	1.700745024
1044	5437	0.24938	72.41010	18.05763074
1044	5525	0.28083	66.43195	18.65608452
1045	5723	0.25486	48.68148	12.40696199
1045	5746	0.25480	40.35045	10.28129466
1045	5859	0.20475	1505.59705	308.270996
1046	5859	0.16513	787.75275	130.0816116
1046	6056	0.28795	175.92268	50.65693571
1046	6276	0.34976	828.73950	289.8599275
1047	6505	0.20612	2838.37231	585.0453005
1048	6542	0.18951	3.12920	0.593014692
1048	6811	0.20847	29.06999	6.060220815
1048	6865	0.19776	690.09454	136.4730962
1049	7099	0.12080	370.08701	44.70651081
1049	7404	0.16434	16.86865	2.772193941
1049	7474	0.17974	1038.44519	186.6501385
1049	7700	0.16629	522.76233	86.93014786
1050	7700	0.12905	146.50186	18.90606503
1050	7905	0.14570	231.49159	33.72832466
1051	8193	0.12838	747.03735	95.90465499
1051	8289	0.07853	573.90143	45.0684793
1052	8290	0.22277	61.13963	13.62007538
1052	8805	0.11862	611.27185	72.50906685
1052	9083	0.19812	312.05630	61.82459416
1053	9563	0.15024	621.33020	93.34864925
1054	9563	0.12370	219.48904	27.15079425
1054	10122	0.14742	281.48950	41.49718209
1055	10122	0.20961	220.93480	46.31014343
1055	10499	0.11453	466.14813	53.38794533
1056	5103	0.24114	0.14903	0.035937094
1056	5307	0.25041	15.19767	3.805648545
1056	5331	0.25067	8.94444	2.242102775
1057	5746	0.13620	15.84971	2.158730502
1057	5772	0.18734	97.57246	18.27922466
1057	5855	0.13869	139.15944	19.30002273
1058	5855	0.23053	211.74994	48.81471367
1058	6057	0.15966	277.49884	44.30546479
1058	6062	0.16097	320.75885	51.63255208
1059	6426	0.20606	23.38421	4.818550313
1059	6509	0.16035	180.53572	28.9489027
1059	6630	0.11064	227.81895	25.20588863
1060	6630	0.18824	90.32121	17.00206457
1060	6865	0.17868	529.89008	94.68075949
1060	6973	0.18495	3.96657	0.733617122
1060	7369	0.20885	338.34906	70.66420118
1061	6686	0.18869	37.68225	7.110263753
1061	6973	0.09225	3.92630	0.362201175
1061	7016	0.08973	146.69664	13.16308951
1061	7450	0.21545	250.47496	53.96483013
1062	7335	0.11365	208.61357	23.70893223
1062	7474	0.09244	359.71469	33.25202594
1062	7757	0.14272	271.73752	38.78237885
1063	7382	0.13914	381.53629	53.08695939

1063	7586	0.09053	798.70129	72.30642778
1063	7773	0.11404	380.79355	43.42569644
1064	7450	0.10953	5.32959	0.583749993
1064	7576	0.09725	329.13574	32.00845072
1064	7586	0.09167	677.74213	62.12862106
1064	7812	0.11530	25.31725	2.919078925
1065	7757	0.07689	297.93289	22.90805991
1065	7802	0.18550	420.22485	77.95170968
1065	7904	0.18091	580.07318	104.941039
1065	7956	0.07380	14.85090	1.09599642
1066	8285	0.20488	102.03120	20.90415226
1066	8669	0.18595	282.56915	52.54373344
1066	9071	0.16857	308.10782	51.93773522
1067	8041	0.30493	543.42096	165.7053533
1067	8669	0.12375	2195.51147	271.6945444
1067	9060	0.22759	519.28107	118.1831787
1068	9070	0.05198	246.32979	12.80422248
1068	9197	0.07791	347.81845	27.09853544
1069	9065	0.07311	263.61432	19.27284294
1069	9198	0.09054	411.84125	37.28810678
1070	9877	0.19559	388.33356	75.954161
1070	10104	0.17237	179.39813	30.92285567
1071	10112	0.28804	1150.73572	331.4579168
1071	10695	0.25010	534.27301	133.6216798
1072	11477	0.14408	147.59795	21.26591264
1072	11750	0.23600	213.55345	50.3986142
1073	12180	0.10664	97.65363	10.4137831
1074	5156	0.49972	0.00000	0
1074	5518	0.23713	288.71436	68.46283619
1074	5584	0.26136	49.27843	12.87941046
1074	5881	0.47773	656.72491	313.7371913
1075	5881	0.24121	925.80621	223.3137159
1075	6053	0.24561	1111.38220	272.9665821
1075	6086	0.25397	785.63013	199.5264841
1076	6500	0.26233	642.13910	168.4523501
1076	6647	0.25670	309.51987	79.45375063
1076	6790	0.17596	10.24121	1.802043312
1077	6790	0.15557	172.56268	26.84557613
1077	7016	0.27686	537.11725	148.7062818
1077	7387	0.31979	279.29016	89.31420027
1078	7462	0.28941	53.17643	15.38979061
1078	7663	0.08837	113.22365	10.00557395
1079	7606	0.13753	338.95926	46.61706703
1079	7834	0.12693	167.04420	21.20292031
1079	7895	0.14641	534.31219	78.22864774
1079	8097	0.18319	786.84100	144.1414028
1080	7735	0.11836	117.66816	13.92720342
1080	7895	0.17462	131.75977	23.00789104
1080	7995	0.20299	205.39383	41.69289355
1081	8097	0.25706	191.75336	49.29211872
1081	8430	0.21912	33.73865	7.392812988
1081	9063	0.27345	583.69153	159.6104489
1082	8128	0.11464	98.38233	11.27855031
1082	8274	0.09353	80.98431	7.574462514

1083	8753	0.09131	52.19703	4.766110809
1083	9047	0.14394	176.59795	25.41950892
1084	8131	0.10925	82.65361	9.029906893
1084	8269	0.11446	138.49257	15.85185956
1085	9064	0.14413	569.46069	82.07636925
1086	9061	0.09338	471.01294	43.98318834
1087	9876	0.34467	1144.01819	394.3087495
1087	10092	0.17475	453.63260	79.27229685
1088	10101	0.25119	82.36903	20.69027665
1088	10696	0.12727	314.39896	40.01355564
1088	11449	0.27517	20.04117	5.514728749
1089	10091	0.25076	1179.75427	295.8351807
1089	10672	0.16755	474.61639	79.52197614
1090	5858	0.22687	259.73886	58.92695517
1090	6053	0.08828	349.87390	30.88686789
1090	6062	0.09308	342.32803	31.86389303
1090	6110	0.04136	0.00000	0
1090	6290	0.22799	4.34020	0.989522198
1091	9058	0.06808	900.61066	61.31357373
1092	9676	0.20882	791.61938	165.3059589
1092	10078	0.18132	370.24988	67.13370824
1093	10078	0.24939	828.34741	206.5815606
1093	10638	0.21216	275.37772	58.42413708
1093	10672	0.17128	8.15520	1.396822656
1094	11800	0.52911	2674.56860	1415.140992
1094	12400	0.37444	50.89885	19.05856539
1094	13000	0.43760	929.68579	406.8305017
1095	5118	0.48896	1.15931	0.566856218
1095	5518	0.35402	23.65516	8.374399743
1095	5892	0.50313	6.37270	3.206296551
1096	5150	0.49910	1.60153	0.799323623
1096	5578	0.25218	16.29757	4.109921203
1096	5891	0.48877	41.60334	20.33446449
1097	5891	0.34536	8.45549	2.920188026
1097	6086	0.49796	31.58023	15.72569133
1098	6875	0.49731	2222.40161	1105.222545
1098	7383	0.24389	2.95166	0.719880357
1099	7383	0.06454	2.99452	0.193266321
1099	7447	0.57199	95.21481	54.46191917
1099	7705	0.14090	36.91947	5.201953323
1100	7651	0.47496	132.18228	62.78129571
1100	7908	0.06654	881.14929	58.63167376
1101	7849	0.09487	517.46857	49.09224324
1101	7995	0.23149	685.09711	158.59313
1102	7886	0.52483	43.72467	22.94801856
1102	8422	0.28880	368.91373	106.5422852
1102	9030	0.25808	1086.41931	280.3830955
1103	7936	0.29298	1479.74304	433.5351159
1103	9022	0.29160	3532.73486	1030.145485
1104	8004	0.25970	125.23342	32.52311917
1104	8423	0.19640	4.66232	0.915679648
1104	9020	0.29395	323.81656	95.18587781
1105	9029	0.08116	765.73737	62.14724495
1106	9676	0.23088	926.71893	213.9608666

1106	9994	0.17636	48.35148	8.527267013
1107	9994	0.13636	911.18860	124.2496775
1107	10361	0.25091	294.59320	73.91637981
1108	10812	0.25166	519.63861	130.7722526
1109	9782	0.14811	676.83887	100.246605
1110	9782	0.40623	382.47421	155.3724983
1110	9813	0.26512	1117.63049	296.3061955
1111	11476	0.28320	446.15775	126.3518748
1112	5578	0.54646	46.77013	25.55800524
1112	6375	0.77247	15.96599	12.3332483
1113	7597	0.41484	652.11859	270.5248759
1113	7769	0.33989	34.00323	11.55735784
1113	7941	0.20462	116.52707	23.84376906
1114	8192	0.06543	916.44153	59.96276931
1115	8192	0.26583	357.03134	94.90964111
1115	8338	0.41428	239.68069	99.29491625
1115	8423	0.46221	702.53107	324.7168859
1116	9663	0.16202	476.70822	77.2362658
1117	9592	0.40696	414.51981	168.6929819
1118	8326	0.11324	106.82126	12.09643948
1118	8500	0.21420	914.52271	195.8907645
1118	8708	0.18021	245.98192	44.3284018
1119	8935	0.14872	94.23672	14.014885
1120	8500	0.12958	193.76027	25.10745579
1120	8610	0.37186	3.61640	1.344794504
1121	9008	0.16703	42.99694	7.181778888
1121	9476	0.32948	379.84659	125.1518545
1122	9087	0.10439	0.79654	0.083150811
1122	9247	0.08240	0.86216	0.071041984
1123	9462	0.10697	143.07739	15.30498841
1123	9892	0.21183	147.67955	31.28295908
1123	9893	0.12994	53.07619	6.896720129
1124	11064	0.07937	3.42876	0.272140681
1124	11482	0.11521	0.99090	0.114161589
1125	10385	0.10763	202.94742	21.84323081
1126	10138	0.18237	182.45715	33.27471045
1126	10287	0.15877	204.72954	32.50490907
1126	10739	0.18292	0.70205	0.128418986
1127	9303	0.06233	107.56995	6.704834984
1127	9307	0.13400	148.06033	19.84008422
1128	9105	0.13663	861.74585	117.7403355
1128	9583	0.17874	3006.06079	537.3033056
1129	10191	0.11705	80.69547	9.445404764
1129	10586	0.16480	155.16608	25.57136998
1130	11066	0.14460	20.43918	2.955505428
1130	11488	0.15474	156.65909	24.24142759
1131	7956	0.10674	137.35075	14.66081906
1131	8124	0.20196	11.16353	2.254586519
1131	8183	0.16872	472.75049	79.76246267
1131	8285	0.10763	509.57675	54.8457456
1132	7050	0.04592	38.14849	1.751778661
1132	7256	0.07247	214.03049	15.51078961
1133	6396	0.07704	0.00089	6.85656E-05
1134	5655	0.18389	255.01022	46.89382936

1134	5759	0.14141	575.02637	81.31447898
1135	6290	0.13671	4.22152	0.577123999
1135	6509	0.09055	197.97067	17.92624417
1135	6518	0.09277	23.37183	2.168204669
1135	6686	0.11420	88.55425	10.11289535
1136	7493	0.24444	9.74735	2.382642234
1137	8519	0.13107	12.65855	1.659156149
1137	9087	0.12724	21.94316	2.792047678
1138	8527	0.06771	35.12961	2.378625893
1138	8693	0.11930	3.38035	0.403275755
1139	8869	0.16263	208.46007	33.90186118
1139	9084	0.10763	151.41010	16.29626906
1140	8280	0.22810	38.58815	8.801957015
1140	8805	0.03905	123.73987	4.832041924
1141	11414	0.08874	157.48752	13.97544252
1141	11599	0.19551	0.00000	0
1141	11800	0.10130	17.74242	1.797307146
1142	11449	0.24202	1113.44836	269.4767721
1142	11811	0.30759	480.09995	147.6739436
1142	11812	0.32649	7.39997	2.416016205
1142	12388	0.31199	146.80971	45.80316142
1143	11375	0.49508	809.32172	400.6789971
1143	12295	0.24500	0.00000	0
1143	12400	0.24893	119.98518	29.86791086
1144	10410	0.32056	1044.74329	334.902909
1144	11476	0.35928	44.65187	16.04252385
1145	7812	0.07402	327.50430	24.24186829
1145	7904	0.09396	12.35525	1.16089929
1145	8041	0.07833	959.77625	75.17927366
1146	7250	0.50173	0.04845	0.024308819
1146	8085	0.50484	23.97212	12.10208506
1146	8137	0.49842	40.36921	20.12082165
1146	9076	0.50319	50.12526	25.22252958
1147	9076	0.50138	0.26265	0.131687457
1147	10083	0.50340	327.75064	164.9896722
1147	11459	0.49520	0.00000	0
1147	30200	0.49705	231.62056	115.1269993
1148	11453	0.44714	273.87097	122.4586655
1148	12055	0.50775	2.43400	1.2358635
1148	12302	0.50588	0.69506	0.351616953
1148	12958	0.51484	29.02490	14.94317952
1149	7264	0.28571	1320.15515	377.1815279
1149	7779	0.45293	465.35138	210.7716005
1150	11470	0.51254	89.84293	46.04809534
1150	30200	0.33214	141.50171	46.99837796
1151	9088	0.50136	333.53958	167.2234038
1151	10657	0.33997	379.18210	128.9105385
1152	11499	0.46941	180.87383	84.90398454
1152	12302	0.50557	0.68458	0.346103111
1152	12315	0.51621	11.79463	6.088505952
1152	13030	0.47777	0.08971	0.042860747
1153	12405	0.23268	359.46997	83.64147262
1153	13002	0.19968	1.48302	0.296129434
1154	12696	0.18035	64.80207	11.68705332

1154	12997	0.18892	30.61522	5.783827362
1155	9663	0.53066	44.43570	23.58024856
1156	7355	0.50331	0.00000	0
1156	7769	0.86394	94.79617	81.89820311
1156	8326	0.36750	252.75792	92.8885356
1201	4519	0.49883	5.09143	2.539758027
1201	4520	0.50107	0.04340	0.021746438
1201	4646	0.25208	15.29687	3.85603499
1202	11266	0.39338	0.02298	0.009039872
1202	12195	0.20378	402.83795	82.09031745
1203	6337	0.24433	0.00000	0
1203	6721	0.23501	0.01205	0.002831871
1203	6732	0.26354	17.25457	4.547269378
1203	7151	0.25185	23.15384	5.831294604
1204	8416	0.16520	206.03578	34.03711086
1204	8955	0.17182	405.35138	69.64747411
1205	9456	0.15985	92.01492	14.70858496
1205	9689	0.13372	629.32629	84.1535115
1205	10182	0.28443	3.58696	1.020239033
1206	11293	0.23809	1.23932	0.295069699
1206	11867	0.11382	54.61169	6.215902556
1206	11918	0.17573	8.81993	1.549926299
1206	12191	0.23771	94.02620	22.350968
1207	12192	0.23924	0.00046	0.00011005
1207	12580	0.12641	3.29130	0.416053233
1207	12938	0.25047	0.21283	0.05330753
1208	12930	0.12616	911.05432	114.938613
1208	13166	0.13125	3049.29150	400.2195094
1209	4427	0.24911	74.80735	18.63525896
1209	4518	0.25763	0.00000	0
1209	4521	0.23681	42.71468	10.11526337
1209	4635	0.23936	676.18530	161.8517134
1210	4635	0.25274	156.80078	39.62982914
1210	4889	0.25148	129.57176	32.5847062
1210	4938	0.26175	296.24030	77.54089853
1210	5056	0.25063	81.22306	20.35693553
1211	5056	0.50739	5.38929	2.734471853
1211	5481	0.14562	1166.93433	169.9289771
1211	5486	0.23157	280.56125	64.96956866
1211	5806	0.49062	5.60210	2.748502302
1212	5806	0.26284	154.20712	40.53179942
1212	6081	0.21305	3.91510	0.834112055
1212	6083	0.16398	92.82128	15.22083349
1212	6334	0.24436	210.43210	51.42118796
1213	6334	0.27828	2.15891	0.600781475
1213	6694	0.21968	251.03676	55.14775544
1213	6732	0.22131	180.20387	39.88091847
1213	7109	0.22486	510.12073	114.7057473
1214	7153	0.24423	63.94457	15.61718233
1214	7656	0.25237	68.94583	17.39985912
1214	7669	0.25303	513.39453	129.9042179
1214	8042	0.25325	0.71789	0.181805643
1215	8042	0.25095	59.28189	14.8767903
1215	8416	0.25921	55.26347	14.32484406

1215	8577	0.25106	144.46788	36.27010595
1215	8956	0.25176	1.00127	0.252079735
1216	8956	0.25139	531.67651	133.6581578
1216	9472	0.25880	20.20820	5.22988216
1216	9478	0.24035	190.36681	45.75466278
1216	10079	0.26844	151.43156	40.65028797
1217	10079	0.21862	627.67316	137.2219062
1217	10568	0.22827	5.80537	1.32519181
1217	10827	0.28425	152.08411	43.22990827
1217	11282	0.25965	568.23340	147.5418023
1218	11867	0.17520	217.25146	38.06245579
1218	12197	0.23496	230.25620	54.10099675
1219	11282	0.24810	39.32330	9.75611073
1219	12196	0.23008	214.79744	49.420595
1219	19287	0.19160	214.71468	41.13933269
1220	12197	0.25449	300.47885	76.46886254
1220	12590	0.24959	1283.98596	320.4700558
1220	12597	0.23760	3.23578	0.768821328
1220	12932	0.23745	305.72107	72.59346807
1221	12932	0.11787	229.78455	27.08470491
1221	13398	0.11331	41.75017	4.730711763
1222	13969	0.05867	0.00000	0
1222	14055	0.04936	0.00000	0
1222	14148	0.08203	71.11711	5.833736533
1223	14544	0.22822	484.87515	110.6582067
1224	14823	0.08214	110.26479	9.057149851
1225	4403	0.25143	9.28724	2.335090753
1225	4521	0.24421	47.88589	11.6942132
1225	4642	0.25049	495.26016	124.0577175
1226	4642	0.25284	526.56873	133.1376377
1226	4938	0.22404	20.05044	4.492100578
1226	5059	0.24726	472.57532	116.8489736
1227	5069	0.49280	54.34260	26.78003328
1227	5480	0.19645	1198.10217	235.3671713
1227	5481	0.14347	510.85699	73.29265236
1227	5823	0.50419	14.32571	7.222879725
1228	5062	0.49863	0.00000	0
1228	5480	0.13508	248.25302	33.53401794
1228	5494	0.15129	608.50739	92.06108303
1228	5820	0.50035	2.10754	1.054507639
1229	5823	0.19699	583.87225	115.0169945
1229	6081	0.17839	4.06296	0.724791434
1229	6262	0.24273	261.26788	63.41755251
1230	6769	0.18320	167.07088	30.60738522
1230	7103	0.24969	330.12531	82.42898865
1231	7124	0.23673	382.95053	90.65587897
1232	5820	0.25032	559.52075	140.0592341
1233	7135	0.24587	457.62576	112.5164456
1233	7669	0.22010	137.54593	30.27385919
1233	7793	0.35885	513.79712	184.3760965
1233	8046	0.25235	27.60385	6.965831548
1234	8046	0.24904	273.67108	68.15504576
1234	8406	0.27718	1.56577	0.434000129
1234	8576	0.22502	285.11359	64.15626002

1234	8971	0.25908	1560.70178	404.3466172
1235	8253	0.06412	94.19028	6.039480754
1236	14610	0.38151	28.27600	10.78757676
1236	15152	0.19591	0.11434	0.022400349
1236	16176	1.16321	4.00967	4.664088241
1237	8971	0.24716	2004.05835	495.3230618
1237	9472	0.25587	406.80682	104.089661
1237	9543	0.25070	501.12976	125.6332308
1237	10009	0.24661	400.66779	98.80868369
1238	10009	0.25080	27.32809	6.853884972
1238	10568	0.25151	256.12384	64.417707
1238	10645	0.24770	973.63800	241.1701326
1238	11264	0.24397	7.68768	1.87556329
1239	11264	0.25189	107.39162	27.05087516
1239	11835	0.26280	694.67377	182.5602668
1239	12207	0.23601	379.52289	89.57119727
1239	19287	0.23842	335.03345	79.87867515
1240	13449	0.12789	108.15347	13.83174728
1240	13670	0.27781	412.85800	114.696081
1241	13443	0.14037	1057.58240	148.4528415
1241	13684	0.13716	0.00000	0
1242	14335	0.15966	425.64148	67.9579187
1242	29959	0.10666	115.87282	12.35899498
1243	14335	0.13106	168.86777	22.13180994
1243	14543	0.13094	64.25034	8.41293952
1243	14621	0.12147	95.88453	11.64709386
1244	14620	0.12098	64.54790	7.809004942
1244	14822	0.08252	0.79465	0.065574518
1244	14951	0.12951	8.85317	1.146574047
1245	14211	0.18711	432.51837	80.92851221
1245	14333	0.13050	16.17030	2.11022415
1246	14333	0.11830	4.24009	0.501602647
1246	14521	0.15749	844.11072	132.9389973
1246	14628	0.12684	129.65205	16.44506602
1247	14628	0.13911	182.32214	25.3628329
1247	14782	0.09670	15.04420	1.45477414
1247	14796	0.13194	1118.22461	147.538555
1248	14944	0.15942	249.23721	39.73339602
1248	15082	0.10162	44.05817	4.477191235
1248	15168	0.20968	67.55114	14.16412304
1249	15378	0.19256	0.00000	0
1249	15391	0.18174	108.10601	19.64718626
1249	15555	0.17414	11.95286	2.08147104
1250	15793	0.25726	459.66724	118.2539942
1250	16022	0.21300	3137.65088	668.3196374
1250	16167	0.24750	290.52585	71.90514788
1251	16167	0.25059	577.67523	144.7596359
1252	4031	0.26864	542.86823	145.8361213
1253	4124	0.50293	3.53320	1.776952276
1253	4244	0.11517	275.77704	31.7612417
1254	4331	0.15726	112.21622	17.64712276
1254	4365	0.49972	0.00000	0
1254	4408	0.17561	1094.38831	192.1855311
1255	4414	0.27025	136.31506	36.83914497

1255	4563	0.26452	364.85074	96.51031774
1255	4641	0.26311	1137.23413	299.2176719
1256	4620	0.24928	1269.88342	316.5565389
1256	4626	0.33243	0.00000	0
1257	4641	0.24821	164.38809	40.80276782
1257	4878	0.19930	1179.27844	235.0301931
1257	5049	0.24870	341.60272	84.95659646
1257	29953	0.32635	0.00000	0
1258	4853	0.14588	786.01007	114.663149
1258	5060	0.16793	111.62218	18.74471269
1259	5049	0.25063	194.34811	48.70946681
1259	5287	0.22702	0.00000	0
1259	5489	0.25193	301.11282	75.85935274
1259	29952	0.28405	0.00000	0
1260	5060	0.24793	742.95099	184.199839
1260	5284	0.23392	0.00000	0
1260	5487	0.24822	174.86041	43.40385097
1261	5489	0.26428	170.55995	45.07558359
1261	5713	0.36389	0.00000	0
1261	5838	0.28010	1021.36981	286.0856838
1261	29951	0.14511	308.53784	44.77192596
1262	5487	0.25058	69.35464	17.37888569
1262	5826	0.25396	789.21472	200.4289703
1263	5838	0.22217	1292.78857	287.2188366
1263	6116	0.28957	1616.65613	468.1351156
1263	6143	0.24010	759.71747	182.4081645
1264	6701	0.27777	233.67798	64.9087325
1264	6728	0.22610	266.33264	60.2178099
1264	7122	0.27049	521.43994	141.0442894
1265	5826	0.50243	1201.90320	603.8722248
1265	6372	0.23713	0.00000	0
1265	7158	0.49572	2244.90283	1112.843231
1266	7187	0.35272	20.72043	7.30851007
1266	7792	0.22232	404.92343	90.02257696
1266	7829	0.21108	2225.17529	469.6900002
1266	8431	0.40021	788.97742	315.7566533
1267	8452	0.11209	372.88055	41.79618085
1267	8824	0.22279	0.00000	0
1267	8969	0.14009	807.63049	113.1409553
1268	7203	0.16800	1839.47424	309.0316723
1268	7506	0.23558	365.82779	86.18171077
1268	7670	0.23513	0.00000	0
1269	7829	0.24270	93.75441	22.75419531
1269	8022	0.11453	1.84540	0.211353662
1269	8033	0.24702	325.37161	80.3732951
1270	8022	0.16026	1.83324	0.293795042
1270	8227	0.21561	237.73308	51.25762938
1270	8460	0.13288	479.22363	63.67923595
1271	8460	0.14443	37.32402	5.390708209
1271	8739	0.21477	44.20866	9.494693908
1271	8981	0.11883	366.49832	43.55099537
1272	8962	0.52072	1221.94995	636.293778
1272	9996	0.16611	1143.23657	189.9030266
1272	10016	0.15964	627.16052	100.1199054

1272	11269	0.47330	6.99338	3.309966754
1273	11269	0.11895	100.26370	11.92636712
1273	11633	0.23925	0.00000	0
1273	11691	0.23522	394.60422	92.81880463
1273	11841	0.12018	72.67505	8.734087509
1274	11841	0.19902	124.77337	24.8323961
1274	12142	0.28462	759.79004	216.2514412
1274	12206	0.26619	244.20264	65.00430074
1274	12540	0.24646	98.58444	24.29712108
1275	12540	0.18512	1188.30164	219.9783996
1275	12790	0.31962	359.41354	114.8757557
1275	12823	0.23864	504.16678	120.3143604
1275	13200	0.21835	143.98184	31.43843476
1276	12996	0.09260	0.00000	0
1276	13005	0.12266	0.00000	0
1276	13200	0.09109	286.30127	26.07918268
1276	13268	0.05910	123.08232	7.274165112
1276	13338	0.15476	0.00000	0
1277	13200	0.16213	9.94619	1.612575785
1277	13233	0.10756	62.43921	6.715961428
1277	13339	0.06304	383.94220	24.20371629
1278	13626	0.16486	177.62032	29.28248596
1278	13722	0.08861	94.10664	8.33878937
1278	13869	0.11089	79.72751	8.840983584
1279	13626	0.10711	162.98267	17.45707378
1279	13676	0.12082	496.30399	59.96344807
1279	13871	0.10531	293.78790	30.93880375
1280	13869	0.14229	204.81284	29.142819
1280	14211	0.17103	122.62234	20.97209881
1280	14305	0.14343	104.26515	14.95475046
1281	13871	0.13109	258.29388	33.85974473
1281	14020	0.06304	0.00000	0
1281	14167	0.10705	0.31465	0.033683283
1281	14309	0.12850	143.42249	18.42978997
1282	14309	0.12415	554.19684	68.80353769
1282	14522	0.10900	260.09399	28.35024491
1282	14629	0.13183	114.18356	15.05281871
1283	14630	0.11316	645.88470	73.08831265
1283	14796	0.12572	218.26018	27.43966983
1283	14924	0.11298	109.31429	12.35032848
1284	12245	0.11628	206.63120	24.02707594
1284	12464	0.25130	2.73656	0.687697528
1284	12473	0.24262	238.86267	57.952861
1284	12648	0.13918	201.35510	28.02460282
1285	13250	0.25307	147.43962	37.31254463
1285	13318	0.24891	337.65707	84.04622129
1285	13493	0.08806	480.27042	42.29261319
1286	14925	0.19416	6.31897	1.226891215
1286	15168	0.24861	287.84744	71.56175206
1286	15205	0.25220	864.41760	218.0061187
1287	15629	0.27682	202.31157	56.00388881
1287	15692	0.23734	119.84841	28.44482163
1287	15807	0.18430	206.31662	38.02415307
1288	15828	0.25746	453.77936	116.830034

1288	16022	0.13100	187.35980	24.5441338
1289	16070	0.13342	576.55731	76.9242763
1289	16238	0.31249	47.49994	14.84325625
1289	29937	0.22058	154.34506	34.04543333
1290	16543	0.27111	0.00000	0
1290	16645	0.55338	3.87216	2.142775901
1290	16654	0.59671	0.12700	0.07578217
1290	16696	0.23629	0.42064	0.099393026
1291	8978	0.29401	595.19971	174.9946667
1291	9584	0.26894	616.51947	165.8067463
1291	9999	0.37002	935.92255	346.310062
1292	8990	0.22090	283.19562	62.55791246
1292	9420	0.08083	1348.75513	109.0198772
1292	9863	0.19195	605.36230	116.1992935
1293	10855	0.26099	659.55377	172.1369384
1293	11761	0.32724	212.40608	69.50776562
1294	10599	0.11949	3647.04883	435.7858647
1295	11277	0.09738	66.07316	6.434204321
1295	11546	0.10118	655.87701	66.36163587
1295	11700	0.08690	204.36995	17.75974866
1296	12092	0.06846	49.71114	3.403224644
1296	12223	0.07562	44.77415	3.385821223
1297	11814	0.10351	36.93783	3.823434783
1297	11843	0.08149	79.82500	6.50493925
1298	13482	0.12281	439.63474	53.99154242
1298	13683	0.20407	0.00000	0
1298	13690	0.23309	321.36548	74.90707973
1298	13786	0.06600	200.95906	13.26329796
1299	12215	0.11330	219.05043	24.81841372
1299	12422	0.10692	351.92026	37.6273142
1299	12452	0.08345	647.78558	54.05770665
1299	12520	0.07238	496.43829	35.93220343
1300	12223	0.11748	73.00817	8.576999812
1300	12436	0.09926	1533.23560	152.1889657
1300	12450	0.08678	152.08823	13.1982166
1300	12626	0.13330	1049.50806	139.8994244
1301	12520	0.21225	287.69061	61.06233197
1301	12823	0.08977	441.18384	39.60507332
1302	12782	0.03148	166.64713	5.246051652
1302	12786	0.03153	674.96442	21.28162816
1303	12624	0.12631	207.18109	26.16904348
1303	12787	0.06068	679.13123	41.20968304
1303	12794	0.06690	708.13873	47.37448104
1304	13233	0.06275	884.00800	55.471502
1304	13239	0.03034	0.00000	0
1305	13236	0.02664	0.00000	0
1305	13240	0.03474	106.49313	3.699571336
1305	13346	0.06273	520.26270	32.63607917
1306	13237	0.03026	8.32400	0.25188424
1306	13240	0.02906	180.54572	5.246658623
1306	13350	0.06225	1208.29358	75.21627536
1307	13223	0.03478	33.26287	1.156882619
1307	13237	0.03328	630.19464	20.97287762
1307	13347	0.05668	1996.91016	113.1848679

1308	13221	0.06037	2157.69116	130.2598153
1308	13223	0.06665	833.08447	55.52507993
1308	13353	0.06740	1335.48425	90.01163845
1309	13353	0.03388	5.22458	0.17700877
1309	13408	0.05609	153.13469	8.589324762
1309	13468	0.02924	48.45806	1.416913674
1310	13458	0.12608	224.34312	28.28518057
1310	13646	0.03291	0.00000	0
1310	13676	0.06275	41.18188	2.58416297
1310	13775	0.06192	109.52628	6.781867258
1311	13463	0.12560	95.40317	11.98263815
1311	13677	0.03194	266.11026	8.499561704
1311	13780	0.06282	189.22891	11.88736013
1312	13467	0.12603	612.30225	77.16845257
1312	13677	0.03032	85.72304	2.599122573
1312	13680	0.03180	439.18375	13.96604325
1313	13680	0.03125	4.34096	0.135655
1313	13681	0.03204	834.09900	26.72453196
1313	13777	0.06164	362.33856	22.33454884
1314	13468	0.12543	301.88089	37.86492003
1314	13681	0.06489	6.70952	0.435380753
1314	13700	0.06056	885.30682	53.61418102
1314	13781	0.06218	625.42847	38.88914226
1315	13874	0.13993	30.08158	4.209315489
1315	14166	0.10475	109.02411	11.42027552
1315	14167	0.08505	17.75869	1.510376585
1315	14314	0.11975	0.23010	0.027554475
1316	13888	0.12854	204.21602	26.24992721
1316	14166	0.02539	0.15140	0.003844046
1316	14168	0.03531	93.46515	3.300254447
1316	14344	0.13394	38.75841	5.191301435
1317	13880	0.12640	57.20026	7.230112864
1317	14151	0.06475	181.24852	11.73584167
1317	14171	0.06114	31.26531	1.911561053
1317	14329	0.13454	99.31683	13.36208631
1318	14314	0.12993	79.19141	10.2893399
1318	14522	0.13489	2.13630	0.288165507
1318	14529	0.10980	182.85106	20.07704639
1318	14638	0.12427	182.38589	22.66509455
1319	14329	0.12748	1.26168	0.160838966
1319	14512	0.06190	101.20118	6.264353042
1319	14515	0.06836	302.56522	20.68335844
1319	14655	0.12712	235.61244	29.95105337
1320	14638	0.12761	681.70062	86.99181612
1320	14825	0.15113	106.55373	16.10346521
1320	14842	0.15356	788.45233	121.0747398
1320	14960	0.12381	5.15156	0.637814644
1321	14683	0.11470	288.19104	33.05551229
1321	14842	0.09989	14.40314	1.438729655
1321	14862	0.10305	1205.28308	124.2044214
1321	14964	0.12496	114.13832	14.26272447
1322	14963	0.10038	350.55927	35.18913952
1322	15171	0.06979	163.76985	11.42949783
1323	14960	0.18742	316.66083	59.34857276

1323	15205	0.15236	180.82491	27.55048329
1323	15242	0.15988	177.39958	28.36264485
1324	14964	0.24038	948.45142	227.9887523
1324	15242	0.07617	332.10980	25.29680347
1324	15368	0.13867	4.36028	0.604640028
1324	15511	0.21005	672.87006	141.3363561
1325	15601	0.08038	0.01065	0.000856047
1326	15511	0.16276	115.85933	18.85726455
1326	15684	0.12191	291.59241	35.5480307
1326	15819	0.13327	278.40201	37.10263587
1327	29936	0.34051	99.11801	33.75067359
1328	16067	0.21215	1267.50769	268.9017564
1328	16391	0.28801	115.58952	33.29093766
1329	4025	0.87397	427.34100	373.4832138
1329	4402	0.95951	372.08945	357.0235482
1330	4881	0.29792	2061.38672	614.1283316
1331	4862	0.30211	32.39922	9.788128354
1331	30198	0.19979	299.12234	59.76165231
1332	5827	0.35344	22.95786	8.114226038
1333	5827	0.25166	81.53611	20.51937744
1333	6075	0.22088	0.00000	0
1333	6339	0.25356	24.60845	6.239718582
1334	6339	0.12620	0.14424	0.018203088
1334	6538	0.24292	220.34915	53.52721552
1335	6971	0.23163	395.16321	91.53165433
1335	7171	0.11747	1911.45630	224.5387716
1336	7646	0.09886	552.28156	54.59855502
1336	7649	0.13973	0.00000	0
1336	8067	0.23293	851.08295	198.2427515
1337	7623	0.13463	501.34332	67.49585117
1337	7646	0.11338	171.61636	19.4578629
1337	8072	0.26112	0.00000	0
1337	29946	0.24750	625.42407	154.7924573
1338	8076	0.11270	564.39252	63.607037
1338	8173	0.05245	0.00000	0
1338	8247	0.24302	1038.41174	252.3548211
1338	8276	0.23535	1255.99744	295.5989975
1338	8433	0.13678	18.53487	2.535199519
1339	8433	0.12609	53.02316	6.685690244
1339	8727	0.23243	0.00000	0
1339	8773	0.24310	98.24150	23.88250865
1339	8987	0.12422	893.26605	110.9615087
1340	8997	0.15659	1704.47827	266.9042523
1340	9316	0.03990	393.56268	15.70315093
1340	9735	0.19909	323.88406	64.48207751
1341	8989	0.14340	355.35242	50.95753703
1341	9252	0.15944	146.33897	23.33228538
1341	9548	0.12051	241.11992	29.05736156
1342	9735	0.22956	151.16550	34.70155218
1342	10604	0.16615	177.97435	29.57043825
1343	9548	0.30672	172.65474	52.95666185
1343	10121	0.15618	121.05458	18.9063043
1343	10606	0.17356	362.54630	62.92353583
1344	10607	0.16200	332.22882	53.82106884

1344	11307	0.08510	2360.86011	200.9091954
1345	10605	0.14422	56.50015	8.148451633
1345	11183	0.13601	95.52720	12.99265447
1345	11318	0.12195	170.85312	20.83553798
1346	11348	0.23253	901.17670	209.5506181
1346	11842	0.18479	903.98596	167.0475655
1346	11866	0.25029	949.76221	237.7159835
1346	12240	0.24997	10.07307	2.517965308
1347	12240	0.12623	283.74753	35.81745071
1347	12455	0.21718	0.00000	0
1347	12464	0.22547	396.46054	89.38995795
1347	12629	0.12438	400.18634	49.77517697
1348	12629	0.14098	1157.52197	163.1874473
1348	12783	0.21092	764.32336	161.2110831
1348	12824	0.22522	483.95819	108.9970636
1349	13250	0.22123	139.68481	30.90247052
1349	13265	0.21697	323.92004	70.28093108
1349	13364	0.06489	36.94855	2.39759141
1350	13906	0.15419	526.52802	81.1853554
1350	14180	0.22590	275.68182	62.27652314
1350	14186	0.20798	363.87512	75.67874746
1350	14341	0.10464	110.82855	11.59709947
1351	14341	0.16876	252.62747	42.63341184
1351	14545	0.24407	0.00000	0
1351	14705	0.14657	227.56720	33.3545245
1352	14819	0.09574	15.88098	1.520445025
1352	14861	0.15541	4278.30664	664.8916349
1352	14904	0.21442	2165.65869	464.3605363
1353	15175	0.20935	294.21207	61.59329685
1353	15308	0.12672	133.30931	16.89295576
1354	15308	0.25478	602.11670	153.4072928
1354	15589	0.19235	1309.02295	251.7905644
1354	15608	0.28391	17.48534	4.964262879
1354	15831	0.25363	162.54628	41.226613
1355	15879	0.24285	2521.70898	612.3970258
1355	16024	0.23743	10.98666	2.608562684
1355	16037	0.24170	29.34989	7.093868413
1355	16203	0.25437	172.68483	43.92584021
1356	16203	0.23658	831.35876	196.6828554
1356	16408	0.24122	185.71104	44.79721707
1356	16419	0.26755	7.85712	2.102172456
1356	16596	0.33419	0.00000	0
1357	5653	0.27548	9.70365	2.673161502
1357	5832	0.29097	37.35505	10.8691989
1358	5832	0.25104	158.52235	39.79545074
1358	6103	0.25060	62.66641	15.70420235
1358	6391	0.26711	0.90760	0.242429036
1359	6391	0.16944	0.88579	0.150088258
1359	6538	0.24902	440.57919	109.7130299
1359	6603	0.26655	299.30505	79.77976108
1360	6918	0.25209	160.93660	40.57050749
1360	6971	0.24813	599.64050	148.7887973
1360	7175	0.12288	221.75325	27.24903936
1361	7218	0.25325	470.55045	119.1669015

1361	7623	0.25100	650.99469	163.3996672
1361	7679	0.25004	709.52936	177.4107212
1361	8070	0.24865	5.24996	1.305402554
1362	8070	0.12616	5.18059	0.653583234
1362	8247	0.25002	375.07608	93.77652152
1362	8266	0.24993	238.36028	59.57338478
1362	8449	0.12446	1.05831	0.131717263
1363	8449	0.12618	1.04785	0.132217713
1363	8770	0.25063	27.93663	7.001757577
1363	8773	0.24962	52.97105	13.2226335
1363	8995	0.12323	506.04248	62.35961481
1364	8995	0.18879	146.59805	27.67624586
1364	9252	0.27064	494.09137	133.7208884
1364	9509	0.24583	8.94438	2.198796935
1364	9778	0.18131	210.45105	38.15687988
1365	9778	0.18200	295.75156	53.82678392
1365	10121	0.15045	613.47894	92.29790652
1365	10619	0.23395	54.62424	12.77934095
1366	10292	0.12062	134.00636	16.16384714
1366	10539	0.10316	61.05365	6.298294534
1367	10631	0.10708	90.17239	9.655659521
1367	10856	0.23073	181.49718	41.87684434
1367	10963	0.26930	400.82861	107.9431447
1368	11183	0.23739	2172.03149	515.6185554
1368	11334	0.05424	1222.41284	66.30367244
1369	11646	0.24061	329.45465	79.27008334
1369	11647	0.25810	707.79419	182.6816804
1369	29939	0.08988	828.41821	74.45822871
1370	11866	0.24560	707.17493	173.6821628
1370	11903	0.25668	957.43317	245.7539461
1370	12245	0.22825	793.57471	181.1334276
1371	12648	0.16741	567.41620	94.99114604
1371	12824	0.25110	259.90247	65.26151022
1371	12848	0.24822	66.90331	16.60673961
1372	13493	0.13209	4.29878	0.56782585
1372	13690	0.24939	444.43533	110.8377269
1372	13720	0.09377	0.00000	0
1372	13721	0.24821	245.32275	60.89155978
1372	13933	0.12276	4.74375	0.58234275
1373	13933	0.24558	478.46216	117.5007373
1373	14357	0.28700	263.27856	75.56094672
1373	14359	0.21451	424.06339	90.96583779
1374	14972	0.13898	512.53534	71.23216155
1375	14972	0.12771	342.72821	43.7698197
1375	15142	0.29103	0.00000	0
1375	15170	0.22352	206.66254	46.19321094
1375	15306	0.13720	87.56204	12.01351189
1376	15306	0.22476	300.34750	67.5061041
1376	15597	0.29314	91.32373	26.77063821
1376	15608	0.22410	779.58820	174.7057156
1376	29935	0.27309	0.00000	0
1377	15857	0.24566	769.12720	188.943788
1377	16037	0.24970	29.08164	7.261685508
1377	16045	0.25035	596.10669	149.2353098

1377	16210	0.25104	20.17043	5.063584747
1378	16210	0.22755	615.36102	140.0254001
1378	16358	0.24669	522.28467	128.8424052
1378	16419	0.22812	7.67262	1.750278074
1378	16567	0.27886	0.00000	0
1379	5096	0.62096	0.00000	0
1379	5612	0.38698	41.11448	15.91048147
1379	5653	0.62220	54.77945	34.08377379
1379	5843	0.37602	16.23950	6.10637679
1380	5835	0.25244	218.24982	55.09498456
1380	6042	0.25324	0.34695	0.087861618
1380	6103	0.25267	224.55496	56.73830174
1380	6351	0.25252	88.69958	22.39841794
1381	6351	0.25213	4.16347	1.049735691
1381	6752	0.24778	217.13225	53.80102891
1381	6757	0.24627	435.08624	107.1486883
1381	7193	0.28253	617.54883	174.4760709
1382	7245	0.30769	1010.56335	310.9402372
1382	7679	0.26299	32.96478	8.669407492
1382	7688	0.25224	980.98627	247.4439767
1382	8084	0.19383	2628.36450	509.455891
1383	8084	0.13399	13.85840	1.856887016
1383	8265	0.24567	71.31497	17.51994868
1383	8266	0.25663	428.65204	110.004973
1383	8467	0.12040	200.79124	24.1752653
1384	8467	0.13373	29.52983	3.949024166
1384	8721	0.26355	44.78153	11.80217223
1384	8770	0.23949	796.68170	190.7973003
1384	9023	0.13162	452.35498	59.53896247
1385	9023	0.25274	416.00397	105.1408434
1385	9509	0.24135	1342.59949	324.0363869
1385	9518	0.25787	95.14001	24.53375438
1385	10042	0.24781	361.10477	89.48537305
1386	10042	0.15570	244.46680	38.06348076
1386	10354	0.25127	350.79523	88.14431744
1386	10418	0.25030	320.21402	80.14956921
1387	10964	0.13091	3833.82959	501.8866316
1387	11342	0.15781	1773.03149	279.8020994
1388	11052	0.09982	2320.89014	231.6712538
1388	11347	0.10335	0.00000	0
1389	11398	0.22150	1114.91248	246.9531143
1389	11804	0.25175	213.53845	53.75830479
1389	11903	0.24988	2152.40234	537.8422967
1390	12069	0.25016	307.49207	76.92221623
1390	12089	0.24834	147.07014	36.52339857
1390	12263	0.11487	26.72271	3.069637698
1391	12256	0.12572	109.43576	13.75826375
1391	12473	0.12216	282.99377	34.57051894
1392	12280	0.24108	219.79996	52.98937436
1392	12661	0.11859	412.67084	48.93863492
1393	13208	0.16831	1072.25146	180.4706432
1393	13501	0.16501	134.13052	22.13287711
1394	13218	0.14780	140.13274	20.71161897
1394	13523	0.16249	141.27328	22.95549527

1395	13501	0.15883	180.74519	28.70775853
1395	13721	0.17644	524.38281	92.522103
1396	13955	0.18583	360.83661	67.05426724
1396	14359	0.14961	120.03285	17.95811469
1397	13957	0.11908	137.50121	16.37364409
1397	14265	0.16272	33.75653	5.492862562
1398	14265	0.12501	60.39709	7.550240221
1398	14530	0.10992	20.68920	2.274156864
1399	14815	0.20627	197.43059	40.7240078
1399	14970	0.12189	82.83418	10.0966582
1400	14998	0.12277	411.55890	50.52708615
1400	15170	0.23755	70.82317	16.82404403
1400	15331	0.13192	141.88908	18.71800743
1401	15331	0.25212	1334.28564	336.4000956
1401	15597	0.23064	318.95038	73.56271564
1401	15849	0.24040	207.71132	49.93380133
1402	15894	0.24721	150.46825	37.19725608
1402	16042	0.23836	0.42239	0.10068088
1402	16045	0.24694	21.71743	5.362902164
1402	16206	0.24842	0.56009	0.139137558
1403	16206	0.23199	0.56050	0.130030395
1403	16358	0.23915	426.83786	102.0782742
1403	16405	0.23952	0.05604	0.013422701
1403	16555	0.26543	132.50133	35.16982802
1404	5843	0.25436	38.02161	9.67117672
1404	6042	0.23058	0.33909	0.078187372
1404	6096	0.27654	45.10826	12.47423822
1404	6363	0.25256	0.34416	0.08692105
1405	6363	0.25187	0.34201	0.086142059
1405	6746	0.30543	328.90543	100.4575855
1405	6757	0.20457	456.46259	93.37855204
1405	7201	0.24749	0.00000	0
1406	7233	0.25032	7.20085	1.802516772
1406	7688	0.24735	1473.97803	364.5884657
1406	8090	0.24683	488.20193	120.5028824
1406	30188	0.24490	614.89221	150.5871022
1407	8090	0.12048	129.58177	15.61201165
1407	8265	0.27037	1.17293	0.317125084
1407	8481	0.13696	426.38422	58.39758277
1407	30190	0.22116	128.65546	28.45344153
1408	8481	0.12655	2.60928	0.330204384
1408	8721	0.25088	83.29601	20.89730299
1408	9038	0.12742	612.28778	78.01770893
1408	30186	0.23774	43.68629	10.38597858
1409	9038	0.24996	11.34017	2.834588893
1409	9518	0.24630	1465.83582	361.0353625
1409	10054	0.24930	555.89441	138.5844764
1409	30184	0.24992	579.90674	144.9302925
1410	10054	0.14455	330.52063	47.77675707
1410	10354	0.23261	544.46326	126.6475989
1410	30182	0.26403	0.00000	0
1411	10897	0.24348	254.58308	61.98588832
1411	11052	0.26083	1361.24841	355.0544228
1411	11364	0.18120	663.72931	120.267751

1412	11420	0.19115	3051.14136	583.225671
1412	11776	0.19257	703.52905	135.4785892
1413	12297	0.29942	771.59918	231.0322265
1413	13041	0.27014	377.38052	101.9455737
1414	12045	0.29940	532.41809	159.4059761
1414	13051	0.38316	242.48936	92.91222318
1415	13048	0.11731	136.62253	16.02718899
1415	13218	0.22415	321.67987	72.10454286
1415	13539	0.13494	57.07983	7.70235226
1415	30131	0.29177	0.00000	0
1416	13539	0.12071	538.01282	64.9435275
1416	13730	0.29360	2.18035	0.64015076
1417	13965	0.18583	197.57768	36.71586027
1417	14245	0.29939	127.00990	38.02549396
1418	14530	0.35978	401.29288	144.3771524
1418	14549	0.31785	348.33911	110.7195861
1418	14784	0.19734	181.20740	35.75946832
1419	14795	0.18910	5.31994	1.006000654
1419	14898	0.28359	318.80734	90.41057355
1419	15158	0.33425	662.49042	221.4374229
1419	15264	0.20544	116.04449	23.84018003
1420	15264	0.24972	8.40544	2.099006477
1420	15501	0.32167	620.15698	199.4858958
1420	15560	0.19125	476.32803	91.09773574
1420	15814	0.26265	168.89079	44.35916599
1421	15867	0.26476	242.15141	64.11200731
1421	16036	0.22713	155.32173	35.27822453
1421	16042	0.28013	0.42084	0.117889909
1421	16202	0.23485	0.03898	0.009154453
1422	5844	0.25220	0.02520	0.00635544
1422	6096	0.24835	11.07216	2.749770936
1422	6099	0.25089	1.08099	0.271209581
1422	6366	0.25063	0.02050	0.005137915
1423	6366	0.25216	0.04568	0.011518669
1423	6746	0.24994	364.78943	91.17547013
1423	6754	0.24936	0.08170	0.020372712
1423	7241	0.26485	42.25990	11.19253452
1424	7241	0.26536	300.44397	79.72581188
1424	7693	0.24138	197.30212	47.62478573
1424	8096	0.24727	6.78726	1.67828578
1424	30189	0.24577	619.42334	152.2356743
1425	8096	0.12042	6.98757	0.841443179
1425	8483	0.14966	918.29108	137.431443
1425	30191	0.25025	0.00000	0
1426	9052	0.27277	652.66943	178.0286404
1426	9486	0.27000	578.60504	156.2233608
1426	10071	0.22761	1069.02478	243.3207302
1426	30185	0.23349	0.00000	0
1427	10071	0.17832	366.16391	65.29434843
1427	10406	0.17891	129.14970	23.10617283
1427	30183	0.12617	356.02896	44.92017388
1428	10896	0.17722	290.92728	51.55813256
1428	11039	0.09675	285.20297	27.59338735
1428	11374	0.12736	539.17084	68.66879818

1429	10116	0.24759	1034.20935	256.059893
1429	10617	0.06150	1418.90234	87.26249391
1429	10678	0.14762	1766.19653	260.7259318
1429	11382	0.23371	0.00000	0
1430	11427	0.19891	549.02386	109.206336
1430	11775	0.10262	1946.99817	199.8009522
1430	11925	0.17783	77.13778	13.71741142
1430	12277	0.28320	15.86106	4.491852192
1431	11431	0.15120	2174.64014	328.8055892
1431	11825	0.11709	1370.44910	160.4658851
1431	11925	0.15378	1216.15845	187.0208464
1431	12219	0.30947	23.72388	7.341829144
1432	12277	0.33675	15.22883	5.128308503
1432	12738	0.11018	439.40274	48.41339389
1432	12750	0.14791	339.07928	50.1532163
1433	12219	0.31587	300.97903	95.07024621
1433	12738	0.14050	2.56991	0.361072355
1433	12998	0.18557	146.31653	27.15195847
1434	13043	0.12592	280.01959	35.26006677
1434	13533	0.12231	180.36542	22.06049452
1435	12998	0.16899	0.28335	0.047883317
1435	13326	0.07070	116.40046	8.229512522
1436	13530	0.17867	260.58865	46.5593741
1436	13664	0.24711	0.13784	0.034061642
1436	13730	0.21234	2.16236	0.459155522
1436	30124	0.10295	334.81631	34.46933911
1437	14324	0.20908	37.85071	7.913826447
1437	14327	0.23524	0.09951	0.023408732
1437	14653	0.25343	0.10361	0.026257882
1437	30124	0.23731	142.78320	33.88388119
1438	14653	0.24737	0.10389	0.025699269
1438	14945	0.22941	0.00267	0.000612525
1438	14965	0.21828	108.91913	23.7748677
1438	15269	0.24607	0.06210	0.015280947
1439	15269	0.24242	0.06261	0.015177916
1439	15560	0.22604	71.79292	16.22807164
1439	15783	0.24654	12.24713	3.01940743
1440	15783	0.25536	120.55260	30.78431194
1440	16011	0.24701	1.41544	0.349627834
1440	16036	0.20442	708.43842	144.8189818
1440	16178	0.25246	0.00000	0
1441	8094	0.12135	0.00497	0.00060311
1441	8263	0.23348	17.68138	4.128248602
1441	8277	0.27118	6.12541	1.661088684
1441	8486	0.13000	0.00107	0.0001391
1442	9055	0.24465	2.80933	0.687302585
1442	9486	0.26740	97.84715	26.16432791
1442	9544	0.25125	29.76498	7.478451225
1442	10048	0.24420	0.00000	0
1443	10074	0.19338	0.00000	0
1443	10617	0.19987	481.20682	96.17880711
1443	11391	0.31293	140.98532	44.11853619
1444	10070	0.23351	0.00000	0
1444	10630	0.14445	731.33563	105.6414318

1444	11399	0.26366	0.00000	0
1445	11440	0.22655	154.64200	35.0341451
1445	11825	0.16406	433.66336	71.14681084
1446	11920	0.14802	188.03099	27.83234714
1446	12201	0.24462	0.09996	0.024452215
1446	29945	0.22448	441.33371	99.07059122
1447	12826	0.18421	0.00000	0
1447	13515	0.33250	0.00045	0.000149625
1448	12201	0.24762	0.09634	0.023855711
1448	12576	0.12815	16.55205	2.121145208
1449	13515	0.10371	0.00045	4.66695E-05
1449	13664	0.20905	0.13645	0.028524873
1449	19378	0.24730	0.18336	0.045344928
1449	30052	0.14050	30.92833	4.345430365
1450	14315	0.23102	12.30252	2.84212817
1450	14327	0.20266	0.10024	0.020314638
1450	14640	0.25600	0.00211	0.00054016
1450	30052	0.24080	70.42028	16.95720342
1451	10630	0.30406	1115.01233	339.0306491
1451	11436	0.26183	538.26917	140.9350168
1452	11456	0.27932	0.00000	0
1452	11920	0.32840	142.61836	46.83586942
1453	11468	0.37068	559.35352	207.3411628
1453	12055	0.30456	393.39569	119.8125913
1454	12207	0.21057	453.59506	95.51351178
1454	12528	0.23241	968.53033	225.096134
1454	12590	0.28880	352.55728	101.8185425
1454	12952	0.27694	791.93506	219.3184955
1455	16071	0.05338	112.08290	5.982985202
1456	16391	0.14782	831.85962	122.965489
1457	16238	0.25183	369.61423	93.07995154
1457	16477	0.27404	24.65635	6.756826154
1458	12947	0.12925	894.66260	115.6351411
1458	13229	0.28935	4.09801	1.185759194
1458	13253	0.23645	43.20839	10.21662382
1458	13449	0.11941	156.32460	18.66672049
1459	13398	0.13768	284.47818	39.16695582
1460	13253	0.06315	84.75610	5.352347715
1460	13443	0.10922	5.32999	0.582141508
1461	14781	0.09974	238.61487	23.79944713
1462	14951	0.10479	44.28890	4.641033831
1462	15140	0.10707	211.17429	22.61043123
1463	15686	0.03975	37.96060	1.50893385
1464	11249	0.24582	27.18464	6.682528205
1464	11818	0.08942	10.64367	0.951756971
1464	11918	0.13123	41.47953	5.443358722
1464	12192	0.23950	0.00046	0.00011017
1465	8955	0.26769	1114.20288	298.2609689
1465	9418	0.19228	126.24649	24.2746751
1465	9834	0.22203	15.96537	3.544791101
1465	10175	0.28641	764.99670	219.1027048
1466	10175	0.24112	365.02515	88.01486417
1466	10583	0.16441	158.79700	26.10781477
1466	10708	0.13393	0.00000	0

1466	17246	0.19959	388.83771	77.60811854
1467	10182	0.22631	3.56574	0.806962619
1467	10581	0.14634	903.93036	132.2811689
1467	10584	0.18657	50.78989	9.475869777
1467	14197	0.22561	92.16894	20.79423455
1468	12191	0.24210	103.51159	25.06015594
1468	12580	0.11784	41.32395	4.869614268
1468	12597	0.10846	76.84797	8.334930826
1468	12930	0.24567	7.97363	1.958881682
1469	13229	0.07764	196.92847	15.28952641
1469	13268	0.08437	1.46697	0.123768259
1469	13452	0.13984	336.03641	46.99133157
1470	13452	0.12657	180.26062	22.81558667
1470	13609	0.11921	0.68819	0.08203913
1470	13670	0.08477	116.50697	9.876295847
1471	13396	0.06577	171.87973	11.30452984
1471	13397	0.05474	3.38255	0.185160787
1471	13549	0.04896	65.69715	3.216532464
1471	13564	0.05968	0.36659	0.021878091
1472	13364	0.05798	0.46765	0.027114347
1472	13416	0.17526	60.22334	10.55474257
1472	13482	0.06628	116.81108	7.742238382
1473	13786	0.05357	197.98862	10.60625037
1473	13830	0.14649	560.55243	82.11532547
1473	13906	0.09860	86.43388	8.522380568
1474	4894	0.24671	0.00000	0
1474	4923	0.26021	9.43952	2.456257499
1474	5050	0.24167	0.00000	0
1475	4670	0.32504	2.24647	0.730192609
1475	4889	0.24951	40.94582	10.21639155
1475	4894	0.24699	0.00000	0
1475	5055	0.24363	0.00000	0
1476	7168	0.15902	1775.51672	282.3426688
1477	16202	0.24718	0.03854	0.009526317
1477	16405	0.24906	0.05521	0.013750603
1477	16421	0.26105	7.58177	1.979221059
1477	16541	0.24261	15.60361	3.785591822
1478	16178	0.24706	0.00000	0
1478	16416	0.22861	0.00000	0
1478	16421	0.21198	1.94869	0.413083306
1478	16533	0.24690	0.31694	0.078252486
1479	8498	0.16449	167.34027	27.52580101
1479	8732	0.23492	930.91327	218.6901454
1479	9052	0.15788	2236.08032	353.0323609
1479	30187	0.25173	136.96324	34.47775641
1480	8486	0.17363	0.00106	0.000184048
1480	9055	0.08349	10.19890	0.851506161
1481	8419	0.11604	0.00000	0
1481	8726	0.09303	105.62244	9.826055593
1482	8390	0.11226	1.84759	0.207410453
1482	8558	0.06140	0.00000	0
1483	7151	0.16938	6.39277	1.082807383
1483	7652	0.25147	0.00000	0
1483	7656	0.27213	0.21731	0.05913657

1483	8052	0.32910	0.00000	0
1484	8949	0.26069	0.75598	0.197076426
1484	9456	0.19191	9.37919	1.799960353
1484	9525	0.18496	0.00000	0
1484	10187	0.29781	0.00033	9.82773E-05
1485	10187	0.21117	0.00033	6.96861E-05
1485	10584	0.17029	18.49343	3.149246195
1485	10618	0.20094	0.00000	0
1485	11266	0.23268	0.02286	0.005319065
1487	12938	0.26355	115.47560	30.43359438
1487	13440	0.20342	0.00000	0
1488	11957	0.09970	144.81195	14.43775142
1488	12094	0.09795	0.34976	0.034258992
1488	12142	0.11085	104.54970	11.58933425
1488	12215	0.09116	110.60564	10.08281014
1489	12092	0.03279	154.15433	5.054720481
1489	12094	0.03178	19.40145	0.616578081
1490	12450	0.03183	187.89349	5.980649787
1490	12452	0.03162	22.11368	0.699234562
1491	12782	0.02603	516.23663	13.43763948
1492	13892	0.12765	129.61560	16.54543134
1492	14346	0.13478	77.56006	10.45354489
1493	14326	0.11928	415.46350	49.55648628
1493	14521	0.12592	79.98845	10.07214562
1493	14630	0.12841	168.17303	21.59509878
1494	14629	0.11318	235.40309	26.64292173
1494	14825	0.13044	38.84009	5.06630134
1494	14935	0.11891	0.00000	0
1495	15555	0.14722	0.52015	0.076576483
1495	15689	0.16915	80.81929	13.6705829
1495	15692	0.17956	202.09528	36.28822848
1495	15793	0.10988	426.71484	46.88742662
1496	15433	0.29669	0.06576	0.019510334
1496	15460	0.20763	2.34693	0.487293076
1497	15601	0.07558	0.01033	0.000780741
1497	15629	0.06546	80.82049	5.290509275
1498	16171	0.10683	9.94928	1.062881582
1498	16297	0.08204	96.70786	7.933912834
1499	30121	0.13500	2.12093	0.28632555
1500	12949	0.31433	120.45762	37.86344369
1500	13494	0.18666	56.77840	10.59825614
1501	14349	0.54493	33.36625	18.18227061
1501	14606	0.29538	105.84654	31.26495099
1502	14606	0.39956	363.51450	145.2458536
1502	15152	0.36477	0.11591	0.042280491
1502	15564	0.36141	1.01693	0.367528671
1503	15564	0.26337	1.01280	0.266741136
1503	16016	0.80378	136.01561	109.326627
1504	16539	0.26414	657.70520	173.7262515
1505	16733	0.18368	152.32463	27.97898804
1506	16829	0.70620	203.36926	143.6193714
1506	16940	0.81404	576.30927	469.1387982
1506	17041	0.54159	9.09037	4.923253488
1507	16696	0.39910	48.09759	19.19574817

1507	16846	0.61922	414.49579	256.6640831
1507	16959	0.36544	56.15959	20.52296057
1508	16563	0.51352	0.00000	0
1508	16694	0.50998	239.07159	121.9217295
1508	16714	0.46979	322.23523	151.3828887
1508	16855	0.49030	263.22745	129.0604187
1509	7235	0.50220	2.29296	1.151524512
1509	8085	0.49900	40.08167	20.00075333
1509	8098	0.50091	50.83422	25.46336914
1509	9039	0.49728	7.16166	3.561350285
1510	9039	0.33956	14.60532	4.959382459
1510	9544	0.34852	36.39178	12.68326317
1511	9059	0.48250	115.91391	55.92846158
1511	10083	0.32449	103.73164	33.65987986
1511	11438	0.51849	0.00000	0
1512	12591	0.37924	38.98404	14.78430733
1512	12940	0.33627	17.59336	5.916119167
1513	12945	0.61643	287.06766	176.9571177
1513	14286	1.00532	86.53298	86.99333545
1513	19378	0.98974	0.18886	0.186922296
1576	19076	0.41195	43.47712	17.91039958
1576	19189	0.61336	128.81898	79.01240957
1576	19326	0.43986	34.58096	15.21078107
1577	19236	0.51962	8.37712	4.352919094
1577	19326	0.47942	43.98946	21.08942691
1578	20397	1.01063	42.00606	42.45258442
1578	21114	0.37632	97.78182	36.7972545
1578	22856	1.98898	3.20196	6.368634401
1579	19107	0.40186	32.01911	12.86719954
1579	19189	0.47245	43.50380	20.55337031
1579	19226	0.52663	138.97905	73.1905371
1580	19407	0.47488	86.96245	41.29672826
1580	19410	0.52073	389.23877	202.6883047
1580	19533	0.13858	171.12119	23.71397451
1581	19532	0.18458	347.16470	64.07966033
1581	19646	0.15443	1036.86951	160.1237584
1581	19764	0.19638	534.71729	105.0077814
1582	19526	0.18224	382.87415	69.7749851
1582	19645	0.11811	105.75056	12.49019864
1582	19646	0.13223	86.51101	11.43935085
1582	19763	0.19409	66.41773	12.89101722
1583	19764	0.24475	529.13928	129.5068388
1583	19923	0.12203	99.39867	12.1296197
1583	19925	0.12849	8.56050	1.099938645
1583	20124	0.25796	11.69162	3.015970295
1584	19763	0.26148	819.05371	214.1661641
1584	19923	0.13010	365.06989	47.49559269
1584	19944	0.12243	122.70535	15.022816
1584	20120	0.24130	106.86530	25.78659689
1585	20124	0.29137	681.35370	198.5260276
1585	20300	0.13419	39.45084	5.29390822
1585	20397	0.21057	3.46294	0.729191276
1586	19229	0.28627	244.44014	69.97587888
1586	19300	0.13693	275.55496	37.73174067

1586	19333	0.14885	36.22548	5.392162698
1587	19222	0.20717	132.45375	27.44044339
1587	19333	0.50151	65.92886	33.06398258
1588	19539	0.29288	139.94955	40.9884242
1588	19751	0.37452	135.58565	50.77953764
1589	19752	0.47481	402.64297	191.1789086
1589	20108	0.44909	0.03805	0.017087875
1589	20114	0.42275	96.30326	40.71220317
1590	20108	0.06107	0.03822	0.002334095
1591	19780	0.51935	85.87092	44.5970623
1591	19794	0.72772	86.29852	62.80115897
1592	18870	0.54722	13.44484	7.357285345
1592	19065	0.54790	106.39291	58.29267539
1592	19073	0.45121	0.00000	0
1592	19228	0.53515	64.68980	34.61874647
1593	19777	0.23848	362.30646	86.40284458
1593	19920	0.12646	67.52937	8.53976413
1594	20120	0.25437	80.40044	20.45145992
1594	20288	0.11877	199.60959	23.707631
1594	20300	0.13657	8.54343	1.166776235
1594	20393	0.24689	0.00000	0
1595	19920	0.13416	99.48479	13.34687943
1595	19925	0.11689	397.45654	46.45869496
1596	19536	0.18377	258.01083	47.41465023
1596	19638	0.20637	690.01929	142.3992809
1596	19777	0.19439	33.44815	6.501985879
1626	16748	0.91490	135.07350	123.5787452
1626	17024	0.42227	117.16625	49.47579239
1627	17529	0.12022	940.43396	113.0589707
1628	16745	0.93584	82.76009	77.45020263
1628	17024	0.52239	253.71764	132.539558
1629	17985	0.54104	59.16771	32.01209782
1629	18578	1.15582	135.65578	156.7936636
1630	18591	0.43180	488.07355	210.7501589
1651	4213	0.53430	90.05602	48.11693149
1651	4464	0.43009	0.00000	0
1651	4538	0.38700	98.69397	38.19456639
1651	4753	0.46103	8.81509	4.064020943
1652	4756	0.51513	312.88507	161.1764861
1652	5018	0.25846	13.65790	3.530020834
1652	5161	0.27864	374.10852	104.241598
1652	5555	0.49075	5.15220	2.52844215
1653	5544	0.51356	7.67920	3.943729952
1653	5899	0.50032	0.15271	0.076403867
1653	5919	0.50741	91.82762	46.59425266
1653	6466	0.50228	4.89305	2.457681154
1654	5918	0.24893	25.50838	6.349801033
1654	6128	0.24451	2.31123	0.565118847
1654	6481	0.27115	6.56902	1.781189773
1655	5906	0.25824	52.32919	13.51349003
1655	6138	0.24411	0.21888	0.053430797
1655	6471	0.25569	18.40145	4.705066751
1656	20388	0.21020	9.97790	2.09735458
1656	20471	0.26461	9.51418	2.51754717

1656	20520	0.26738	1.58665	0.424238477
1657	20522	0.40327	81.84972	33.00753658
1657	20823	0.23942	8.79897	2.106649397
1657	20908	0.28111	1.20551	0.338880916
1658	19775	0.53074	53.12907	28.19772261
1658	20117	0.33693	77.94746	26.2628377
1659	20659	0.14857	19.97281	2.967360382
1660	16959	0.59458	233.72144	138.9660938
1660	17322	0.79132	44.72235	35.38969
1660	17622	0.67962	61.54350	41.82619347
1661	16850	0.31256	449.36176	140.4525117
1661	17000	0.26856	112.63954	30.25047486
1662	17618	0.74794	104.14074	77.89102508
1662	17780	0.50598	20.24923	10.2457054
1662	17914	0.76618	8.03732	6.158033838
1663	17780	0.48599	99.37354	48.2945467
1663	17782	0.50819	87.78521	44.61156587
1663	17889	0.67007	15.64103	10.48058497
1664	17782	0.46712	52.15222	24.36134501
1665	17889	0.24476	119.39246	29.22249851
1665	17965	0.50629	46.25655	23.4192287
1665	17973	0.48889	2.64757	1.294370497
1666	18100	0.24387	75.25185	18.35166866
1666	18201	0.25236	36.61035	9.238987926
1667	18812	0.54206	38.98246	21.13083227
1667	19038	0.33923	100.57719	34.11880016
1667	19099	0.38945	0.23573	0.091805049
1667	19202	0.47091	32.50314	15.30605366
1668	18764	0.50706	118.70387	60.18998432
1668	19000	0.75659	0.68640	0.519323376
1668	19032	0.34776	2.12275	0.73820754
1668	19179	0.50864	54.32776	27.63327185
1669	18666	0.20493	39.03343	7.99912081
1669	18764	0.25687	9.60817	2.468050628
1670	18158	0.24709	2.81291	0.695041932
1670	18327	0.18824	21.23331	3.996958274
1671	17877	0.48146	63.95319	30.79090286
1671	17954	0.61835	8.95065	5.534634428
1671	18154	0.57987	44.29426	25.68491255
1672	19675	0.34310	111.14436	38.13362992
1672	20007	0.41738	72.88862	30.42225222
1673	19377	0.13748	17.08877	2.3493641
1673	19495	0.15883	4.43956	0.705135315
1674	20598	0.24056	0.08791	0.02114763
1674	20840	0.19215	39.33346	7.557924339
1675	21543	0.12930	104.09081	13.45894173
1676	21452	0.20837	5.43747	1.133005624
1676	21566	0.10732	66.94981	7.185053609
1677	21566	0.23662	1.35724	0.321150129
1677	21800	0.20052	167.90417	33.66814417
1678	24441	0.69623	208.95604	145.4814637
1678	24581	0.67084	27.75898	18.62183414
1679	24455	0.45480	56.11880	25.52283024
1679	24634	0.33865	10.46796	3.544974654

1680	24634	0.11842	72.85114	8.627031999
1681	22519	0.36738	1348.40283	495.3762317
1681	22748	0.68678	140.63614	96.58608823
1681	22890	0.58467	976.51099	570.9366805
1681	23101	0.48937	14.75943	7.222822259
1682	4045	0.48808	3.40775	1.66325462
1682	4169	0.49463	65.63939	32.46721148
1682	4186	0.51269	494.40363	253.4757971
1683	5484	0.26078	0.00000	0
1683	5696	0.25052	0.00000	0
1683	5702	0.24625	11.99432	2.9536013
1683	5807	0.23987	67.07383	16.0889996
1684	6329	0.25194	0.00000	0
1684	6721	0.26022	0.01203	0.003130447
1684	6750	0.23858	11.11051	2.650745476
1684	7152	0.25083	25.53843	6.405804397
1685	7152	0.25699	145.94992	37.50766994
1685	7644	0.25603	61.29518	15.69340494
1685	7652	0.24444	0.00000	0
1685	8059	0.24399	0.94494	0.230555911
1686	3889	0.14996	326.28766	48.93009749
1687	4194	0.24570	173.67395	42.67168952
1687	4301	0.25000	268.57010	67.142525
1687	4427	0.25740	9.71276	2.500064424
1687	29908	0.24763	75.44227	18.68176932
1688	3823	0.43801	12.53575	5.490783858
1688	3841	0.56484	62.49836	35.30157366
1688	3881	0.50223	0.00000	0
1689	5849	0.26168	7.57809	1.983034591
1689	6099	0.25409	5.10885	1.298107697
1689	6101	0.24762	4.35844	1.079236913
1689	6364	0.23737	0.02620	0.006219094
1690	6364	0.25227	0.00137	0.00034561
1690	6754	0.25092	7.49849	1.881521111
1690	6784	0.25077	2.25937	0.566582215
1690	7232	0.24962	0.23838	0.059504416
1691	7232	0.25091	0.00508	0.001274623
1691	7693	0.25877	34.46148	8.91759718
1691	7697	0.25080	12.63929	3.169933932
1691	8094	0.24772	0.00491	0.001216305
1692	14640	0.25649	0.00211	0.000541194
1692	14945	0.22333	0.00267	0.000596291
1692	15262	0.23951	0.00356	0.000852656
1693	15262	0.25864	0.00356	0.000920758
1693	15549	0.25371	38.08452	9.662423569
1693	15774	0.23706	92.12394	21.83890122
1694	8059	0.23955	0.96544	0.231271152
1694	8390	0.25007	313.88522	78.49327697
1694	8949	0.25381	128.29866	32.56348289
1695	5050	0.26033	0.00000	0
1695	5282	0.25100	0.00000	0
1695	5285	0.24515	9.43952	2.314098328
1695	5484	0.23782	0.00000	0
1696	5055	0.25713	0.00000	0

1696	5273	0.25056	9.43952	2.365166131
1696	5282	0.25130	0.00000	0
1696	5482	0.23939	0.00000	0
1697	5482	0.25598	0.00000	0
1697	5679	0.26461	5.67702	1.502196262
1697	5696	0.23685	0.00000	0
1697	5809	0.24609	3.60949	0.888259394
1698	5807	0.27283	8.91932	2.433458076
1698	6089	0.23332	0.60213	0.140488972
1698	6118	0.26678	0.00000	0
1698	6329	0.22495	0.00000	0
1699	5809	0.26411	0.42510	0.112273161
1699	6083	0.26313	8.86141	2.331702813
1699	6118	0.23576	0.00000	0
1699	6337	0.23931	0.00000	0
1700	16163	0.25790	0.00000	0
1700	16415	0.25518	2.29128	0.58468883
1700	16416	0.29985	0.00000	0
1700	16538	0.24717	0.00000	0
1701	15774	0.24831	110.32252	27.39418494
1701	16011	0.30655	1.44653	0.443433772
1701	16013	0.24219	46.49232	11.25997498
1701	16163	0.25930	0.00000	0
1702	23431	6.80987	476.45438	3244.592389
1703	14144	1.79300	995.54486	1785.011934
1704	17970	4.47126	8.77797	39.24858614
1705	20916	1.89639	74.74613	141.7478135
1706	23554	3.51952	587.50964	2067.751928
1707	23136	7.22935	1.16060	8.39038361
1708	14071	0.58616	222.67493	130.523137
1709	14071	0.90580	125.05160	113.2717393
1710	16709	2.77630	155.93362	432.9185092
1711	17970	2.21049	27.41275	60.59560975
1712	18092	1.50321	63.71193	95.7724103
1712	19478	2.12134	12.24106	25.96745022
1713	23406	2.03896	131.91840	268.9763409
1714	3753	0.55539	109.19553	60.64610541
1714	3839	0.78226	1165.15674	911.4555114
1715	6481	1.21593	349.92343	425.4823962
1715	8402	0.34051	374.67474	127.5804957
1716	8688	0.25320	243.92548	61.76193154
1717	8688	0.18749	438.67297	82.24679515
1718	13159	0.46278	138.68005	64.17835354
1718	14066	0.48579	111.65489	54.24082901
1719	11977	0.50615	516.76740	261.5618195
1719	12378	0.36326	79.78165	28.98148218
1720	14066	0.51580	89.30090	46.06140422
1720	14768	0.61617	142.01295	87.5041194
1721	15704	0.75757	289.06714	218.9885932
1722	16300	0.82479	110.82594	91.40812705
1722	16709	0.86582	8.78313	7.604609617
1723	16790	0.26394	40.28193	10.6320126
1724	17708	0.62660	164.63753	103.1618763
1725	3310	0.95199	235.05203	223.767182

1725	3331	1.10189	347.95883	383.4123552
1726	3646	0.82894	542.83319	449.9761445
1726	3753	0.83714	848.27533	710.1252098
1727	3527	0.54631	104.66914	57.18179787
1727	3641	0.84650	905.68793	766.6648327
1728	3641	0.50523	20.49280	10.35357734
1728	3683	0.49366	86.03773	42.47338579
1728	3751	0.50203	109.92394	55.1851156
1729	3751	0.54695	59.59469	32.5953157
1729	3837	0.53472	50.94648	27.24210179
1729	3840	0.45685	8.23352	3.761483612
1730	4059	0.48474	126.09945	61.12544739
1730	4066	0.51086	74.99821	38.31358556
1730	4322	0.70549	111.33365	78.54477674
1731	6464	0.76144	393.56488	299.6760422
1731	8177	0.55433	124.81887	69.19084421
1731	8688	0.72697	92.54934	67.2805937
1732	11549	0.53684	52.64821	28.26366506
1732	11721	0.48099	20.99641	10.09906325
1732	12380	0.37671	92.19801	34.73191235
1733	11341	0.49987	26.38584	13.18948984
1733	11721	0.50897	39.11427	19.90799
1734	15402	0.50458	103.36726	52.15705205
1734	16310	0.50389	23.15145	11.66578414
1735	16053	0.22537	29.25976	6.594272111
1735	16061	0.26566	39.28719	10.4370349
1735	16307	0.30151	12.29712	3.707704651
1736	16302	0.91044	32.02133	29.15349969
1736	16709	0.27133	32.36390	8.781296987
1737	18116	0.51622	65.35638	33.73827048
1738	16306	0.42855	49.62444	21.26655376
1738	16307	0.41745	36.98888	15.44100796
1739	16790	0.36525	41.15929	15.03343067
1740	19216	1.01703	3.69987	3.762878786
1740	19802	1.12939	77.98856	88.07949978
1740	20041	1.20736	394.31271	476.0773935
1741	17451	0.55114	125.20033	69.00290988
1742	17761	2.18581	336.43222	735.3769108
1742	19136	2.18170	0.04744	0.103499848
1743	19136	1.70011	0.04745	0.08067022
1744	3111	1.18757	614.21863	729.4276184
1745	3155	0.62607	627.15668	392.6439826
1746	3329	1.04651	544.58130	569.9097763
1746	3331	0.95439	331.71997	316.5902222
1746	3635	1.75113	71.64155	125.4536675
1747	3635	0.51751	705.95160	365.3370125
1747	3683	1.06717	154.03925	164.3860664
1747	3703	0.93100	4.47613	4.16727703
1747	3745	0.49910	842.41217	420.447914
1748	3747	0.51196	207.15388	106.0545004
1748	3837	0.51132	118.96033	60.82679594
1748	3848	1.49257	33.21021	49.56856314
1749	4053	1.11963	178.02817	199.32568
1749	4059	0.88195	75.20462	66.32671461

1749	4327	0.75324	370.90640	279.3815367
1750	6450	0.66425	1103.08838	732.7264564
1750	7538	1.08505	382.56464	415.1017626
1750	7864	0.92413	292.76147	270.5496573
1751	8561	0.25470	97.14819	24.74364399
1752	12682	0.99500	30.72040	30.566798
1752	12831	1.00065	234.09554	234.2477021
1752	14131	0.74334	240.00713	178.4069
1753	15411	0.77686	283.06155	219.8991957
1753	15418	1.22837	330.40842	405.8637909
1753	16313	1.08392	29.04626	31.48382214
1754	16313	1.38763	154.74666	214.7311078
1754	16916	1.43305	168.73763	241.8094607
1755	22785	2.63406	52.36440	137.9309715
1756	22785	2.44082	22.32573	54.4930883
1757	3388	1.36740	1299.83044	1777.388144
1757	3607	1.73525	70.72414	122.7240639
1758	3329	1.21063	76.21298	92.26571998
1758	3632	0.99701	198.03302	197.4409013
1759	3590	1.12539	0.00000	0
1759	3703	1.46248	18.26165	26.70729789
1759	3706	0.59191	81.07256	47.98765899
1759	3843	0.88388	35.97721	31.79953637
1760	3843	1.17758	69.61482	81.97701974
1760	4053	1.22893	141.98439	174.4888764
1760	4140	0.85526	108.56485	92.85117361
1760	4767	1.30271	18.28854	23.82466394
1761	4767	1.78246	6.56133	11.69530827
1761	6160	0.94874	513.18280	486.8770497
1761	6174	1.07352	557.17242	598.1357363
1762	12417	1.09991	48.35170	53.18251835
1762	12682	0.91541	49.29821	45.12807442
1762	13263	0.53114	156.06488	82.89230036
1763	15969	0.83454	0.00000	0
1763	16325	0.81376	586.10193	476.9463066
1764	16663	0.99764	131.72594	131.4150668
1764	16911	0.51592	2.72713	1.40698091
1765	16788	0.27654	115.16921	31.84889333
1765	16913	0.31953	180.42085	57.6498742
1766	16913	0.25243	85.93475	21.69250894
1766	17004	0.20870	9.11328	1.901941536
1767	6048	0.60582	98.04829	59.39961505
1767	17856	0.72517	98.01395	71.07677612
1768	4012	1.10164	122.35225	134.7881327
1768	4688	1.22914	493.14743	606.1472321
1769	10081	1.74057	565.18933	983.7515921
1769	10139	1.44462	213.61794	308.5967485
1770	10139	0.99833	193.44518	193.1221265
1770	12322	0.74731	281.09824	210.0675257
1771	10561	0.42502	1062.88293	451.7465029
1772	14753	0.25484	191.98624	48.9257734
1772	15224	1.00616	80.75327	81.25071014
1773	16648	0.98662	249.60469	246.2649792
1773	16903	0.99280	1.67253	1.660487784

1774	16911	1.75406	2.72305	4.776393083
1774	17750	0.50977	392.29080	199.9780811
1775	16903	1.23362	1.65665	2.043676573
1775	17748	0.90519	152.21823	137.7864196
1776	19076	1.26733	381.39899	483.358382
1776	19085	1.29046	96.81386	124.9344138
1777	19085	0.36026	41.40180	14.91541247
1777	19238	0.60655	16.92103	10.26345075
1778	4680	0.90873	151.23898	137.4353983
1778	5301	0.99108	738.82806	732.2377137
1779	10081	0.76694	84.42850	64.75159379
1779	12322	0.79698	29.97160	23.88676577
1779	13098	0.78499	102.58726	80.52997323
1780	11695	0.67196	88.76884	59.64910973
1780	13054	0.76515	117.25773	89.71975211
1780	29907	0.73301	15.23279	11.1657874
1781	13098	0.24944	126.69074	31.60173819
1781	13583	1.00766	5.59147	5.63430066
1782	13054	0.31192	12.15890	3.792604088
1782	13579	0.61896	71.26669	44.11123044
1783	14449	1.00515	34.99399	35.17420905
1783	14731	0.25726	136.06699	35.00459385
1784	14396	0.58068	48.45362	28.13604806
1784	14696	0.24332	8.53581	2.076933289
1785	14731	2.12568	837.51086	1780.280085
1785	16648	1.15694	75.32819	87.15019614
1785	16881	0.88961	743.83887	661.7264971
1786	14696	0.88767	134.08963	119.0273419
1786	16219	0.83930	152.86604	128.3004674
1787	16881	0.99293	595.04657	590.8395908
1787	17743	1.08095	176.30304	190.5747711
1788	17743	1.45785	43.48565	63.39555485
1788	17942	0.97918	325.42917	318.6537347
1789	3785	0.78028	146.75858	114.5127848
1790	4157	0.49425	11.24377	5.557233323
1790	4169	0.51444	59.49225	30.60519309
1790	4659	1.10065	0.02037	0.022420241
1791	4691	0.73693	0.02054	0.015136542
1791	5051	0.55546	28.45055	15.8031425
1791	5301	0.50475	6.23848	3.14887278
1792	6327	0.49804	25.09786	12.49973819
1792	6331	0.50355	127.98644	64.44757186
1793	8056	0.38348	95.81290	36.74233089
1793	8941	0.50684	12.63018	6.401480431
1794	8319	0.35061	1.59299	0.558518224
1794	8941	0.35415	6.49379	2.299775729
1795	8941	0.97360	287.60004	280.0073989
1795	11695	0.50046	78.54374	39.30800012
1795	12966	0.99783	191.36205	190.9467944
1796	12966	0.25814	649.02637	167.5396672
1796	13374	0.06803	0.00000	0
1796	13494	0.51059	142.84373	72.9345801
1796	13579	0.50000	60.64540	30.3227
1797	14349	0.50634	87.48535	44.29733212

1797	14396	0.50080	24.37427	12.20663442
1798	14657	0.64051	799.85541	512.3153887
1798	15463	0.46159	270.54834	124.8824083
1798	15570	0.55131	259.11133	142.8506673
1799	16545	0.55535	19.61464	10.89299032
1799	16834	0.50958	9.32342	4.751028364
1800	17416	0.54895	179.17229	98.3566286
1800	17741	0.45994	70.63914	32.48976605
1800	17744	0.70516	7.40711	5.223197688
1801	17521	0.48994	17.92406	8.781713956
1801	17630	0.23872	29.31694	6.998539917
1802	17607	1.59691	443.49817	708.2266627
1803	18835	0.53220	81.21367	43.22191517
1804	18835	0.49368	40.60316	20.04496803
1804	19065	0.48465	28.66557	13.8927685
1805	20381	0.14654	10.99920	1.611822768
1805	20519	0.14043	1.06730	0.149880939
1806	20821	1.05173	177.38963	186.5659956
1806	21921	0.70639	86.59492	61.16978554
1807	22856	1.03214	4.86766	5.024106592
1807	23482	0.52500	40.74268	21.389907
1808	3834	1.17855	184.71544	217.6963818
1809	3710	0.21471	240.69469	51.67955689
1810	3830	0.28795	24.25623	6.984581429
1811	17041	0.68107	143.45776	97.7047766
1811	17626	0.55452	16.61790	9.214957908
1812	17322	0.37828	42.66913	16.1408785
1812	17624	0.44969	14.36218	6.458528724
1813	17626	0.39336	78.95304	31.05696781
1814	17624	1.04947	219.80301	230.6766649
1814	17833	0.51333	1.80787	0.928033907
1815	18844	0.96388	911.05426	878.1469801
1816	18854	1.10040	508.46469	559.5145449
1817	18844	1.01779	269.92084	274.7227317
1818	19800	0.15516	30.94604	4.801587566
1819	19800	0.48856	86.78745	42.40087657
1819	20117	0.47267	40.44091	19.11520493
1820	19807	0.18496	109.57884	20.26770225
1821	22423	1.21023	146.86092	177.7354912
1822	22864	1.76902	321.83160	569.326537
1822	24042	1.84090	102.90033	189.4292175
1823	3651	0.29438	13.05293	3.842521533
1823	3660	0.30866	33.44783	10.32400721
1824	3823	0.28766	1.50813	0.433828676
1824	3825	0.26713	2.97296	0.794166805
1824	3888	0.39170	159.06868	62.30720196
1825	3649	0.52134	119.32182	62.20723764
1825	3651	0.50541	15.44413	7.805617743
1826	17622	0.88089	211.67181	186.4595807
1826	17833	0.50960	1.85044	0.942984224
1827	18884	0.49981	281.99667	140.9447556
1828	18884	0.61995	316.68100	196.326386
1828	19216	0.56276	3.66456	2.062267786
1829	21243	0.78735	494.09122	389.0227221

1830	21340	1.79842	555.13855	998.3722711
1831	24521	5.01448	61.92832	310.5383221
1831	24659	2.80873	474.91006	1333.894133
1832	3716	1.02446	16.38618	16.78698596
1832	3841	1.15706	515.36084	596.3034135
1833	16548	0.50603	0.47345	0.239579904
1833	16692	0.49100	86.34932	42.39751612
1833	16694	0.50401	69.10542	34.82982273
1833	16839	0.51256	74.60295	38.23848805
1834	17914	0.57896	145.48698	84.23114194
1834	17973	0.60264	16.40492	9.886260989
1834	18100	0.52154	46.43321	24.21677634
1835	18682	0.34461	44.79203	15.43578146
1835	18825	0.38304	87.12885	33.3738347
1836	18825	0.50495	87.04410	43.9529183
1836	19038	0.50093	0.40986	0.20531117
1836	19053	0.50253	8.69253	4.368257101
1836	19206	0.49905	13.82383	6.898782362
1837	19205	0.35726	310.63159	110.9762418
1837	19335	0.95306	20.61634	19.648609
1837	19673	0.95741	3.65276	3.497188952
1838	19673	1.02258	3.55835	3.638697543
1838	20041	0.89731	455.98328	409.158357
1839	21068	2.19651	46.13097	101.3271369
1839	30203	1.36557	3.17513	4.335862274
1840	3691	1.19662	24.94290	29.847173
1840	3716	1.19285	9.03368	10.77582519
1840	4024	1.16417	656.13513	763.8528343
1841	4024	1.24130	4.50333	5.589983529
1841	4402	1.11213	430.85983	479.1721427
1841	4425	1.43017	37.24536	53.26719651
1842	5339	0.33070	27.21952	9.001495264
1842	5612	0.44410	27.10380	12.03679758
1842	5848	0.38653	13.53253	5.230728821
1843	7235	0.61521	264.82062	162.9202936
1844	6666	0.48584	36.39191	17.68064555
1844	6749	0.51574	0.33445	0.172489243
1844	7250	0.30158	2.35447	0.710061063
1845	14605	0.70762	29.25014	20.69798407
1845	15267	0.46828	105.69350	49.49415218
1845	15780	0.51178	11.37165	5.819783037
1846	14622	0.51130	111.52885	57.02470101
1846	15328	0.52302	0.41432	0.216697646
1846	15802	0.48821	217.60678	106.2378061
1847	15780	1.53526	106.49871	163.5032095
1847	16540	0.78653	355.81888	279.8622237
1847	16812	0.62520	219.63910	137.3183653
1848	15802	0.99166	231.73438	229.8017153
1848	16560	0.49116	3.28468	1.613303429
1848	16817	1.02251	86.65173	88.60226044
1849	16817	0.52131	141.89355	73.97052655
1849	17026	0.26118	0.00000	0
1849	17370	0.50344	47.69343	24.0107804
1850	17862	0.29356	69.99847	20.54875085

1850	17884	0.30154	141.36899	42.62840524
1851	17348	0.98088	156.64844	153.6533218
1851	17877	0.98529	37.84422	37.28753152
1852	17370	0.96631	137.50403	132.8715192
1852	17878	1.10089	29.99898	33.02557709
1853	17884	0.14127	90.17397	12.73887674
1853	17939	0.25551	0.00000	0
1853	17964	0.12805	32.95028	4.219283354
1854	17881	0.12426	39.24395	4.876453227
1854	17956	0.13123	15.44878	2.027343399
1855	17876	0.56602	20.15838	11.41004625
1855	17878	0.70148	59.43890	41.69519957
1855	30201	0.62410	33.70633	21.03612055
1856	18448	0.52509	32.13245	16.87242817
1856	18758	0.47924	82.75691	39.66042155
1856	30201	0.52230	90.22579	47.12493012
1857	18758	0.49265	98.45510	48.50390502
1857	18998	0.45388	86.59181	39.30229072
1857	19000	0.56636	0.68089	0.38562886
1857	19166	0.51691	17.28395	8.934246595
1858	19179	0.35575	85.14561	30.29055076
1858	19183	0.36970	196.44601	72.6260899
1859	19805	0.73116	60.57973	44.29347539
1859	21068	1.60350	1.63824	2.62691784
1860	19175	0.49777	52.65288	26.20902408
1860	19687	0.62451	0.40544	0.253201334
1861	19166	0.37107	100.34180	37.23383173
1861	19321	0.35347	47.51698	16.79582692
1862	19687	0.47750	75.76108	36.1759157
1862	20035	0.62888	55.51083	34.90965077
1863	20035	0.41540	19.81745	8.23216873
1864	20051	0.81510	157.61278	128.470177
1865	25983	4.83764	310.75629	1503.327059
1866	3201	1.49684	382.87057	573.095984
1866	3578	3.21307	345.68100	1110.697251
1867	3619	1.47511	64.64606	95.36004957
1867	3689	2.08444	522.82849	1089.804618
1867	4021	2.26847	558.84937	1267.73303
1868	4019	1.23776	5.16901	6.397993818
1868	4425	0.98651	117.95977	116.3684927
1868	5086	0.97157	132.89395	129.115775
1869	5510	0.83132	3.09851	2.575853333
1869	5514	0.67819	5.72002	3.879260364
1869	5867	0.41195	238.99930	98.45576164
1870	13030	0.31251	0.09010	0.028157151
1870	13535	0.50490	18.91275	9.549047475
1870	13917	0.62841	15.16629	9.530648299
1871	13926	0.60338	8.31677	5.018172683
1871	14286	0.55683	16.83886	9.376382414
1871	14654	0.27749	0.03352	0.009301465
1872	14654	0.48639	0.03302	0.016060598
1872	15328	0.53123	0.41559	0.220773876
1872	15812	0.50628	78.85449	39.9224512
1873	15801	0.85587	5.01380	4.291161006

1873	16560	1.15325	3.29419	3.799024618
1873	16703	0.71920	495.27902	356.2046712
1874	16703	0.88643	50.77769	45.01086775
1874	16830	1.10721	116.69204	129.2025936
1874	17396	0.73748	74.43021	54.89079127
1875	17566	1.37521	481.32962	661.9293067
1875	17863	1.63424	228.40004	373.2604814
1875	17876	1.34493	2.10734	2.834224786
1875	18146	1.18521	161.38861	191.2793945
1876	4016	1.04159	55.30193	57.60193727
1876	4467	0.76376	206.92741	158.0428787
1876	5095	1.00051	621.56165	621.8786464
1877	13013	0.23581	5.47210	1.290375901
1877	13535	0.20370	8.00075	1.629752775
1878	13927	0.73927	697.15015	515.3821914
1878	14623	0.53080	528.90210	280.7412347
1878	15801	0.92581	5.10325	4.724639883
1879	13002	1.26357	1.50645	1.903505027
1879	15899	0.74539	1.39972	1.043337291
1879	30051	0.54472	332.46390	181.0997356
1880	15899	0.74156	1.37520	1.019793312
1880	16556	0.50975	221.95869	113.1434422
1880	16722	0.75965	0.74622	0.566866023
1881	16722	0.95164	0.74259	0.706678348
1881	17038	0.50288	112.73474	56.69204605
1881	17567	1.07511	50.43132	54.21921645
1882	18751	0.70878	131.75179	93.38303372
1882	18998	0.75087	14.90771	11.19375221
1882	30077	0.51112	128.90172	65.88424713
1883	18746	0.51990	121.71260	63.27838074
1883	19002	0.71950	50.05737	36.01627772
1883	19154	0.53482	55.46802	29.66540646
1884	19157	0.22064	82.02682	18.09839756
1884	19266	0.41472	59.65323	24.73938755
1885	19683	0.83956	42.13340	35.3735173
1885	30077	0.51814	78.28491	40.56254327
1886	20014	0.49990	55.85470	27.92176453
1886	20029	0.39087	55.72884	21.78273169
1887	20029	0.44567	216.01450	96.27118222
1888	20014	0.58124	117.37115	68.22080723
1888	20609	0.55577	7.14748	3.97235496
1889	21380	1.95655	242.59865	474.6563887
1890	21014	0.78040	5.70154	4.449481816
1890	21027	0.14161	39.79054	5.634738369
1890	21380	0.54803	0.86507	0.474084312
1891	23856	2.52237	109.94423	277.3200274
1892	21380	0.79664	133.07735	106.0147401
1893	3258	0.68372	133.26453	91.11562445
1893	3336	0.61933	258.88913	160.3378049
1894	3357	1.30038	48.87539	63.55657965
1894	3603	1.00634	454.90942	457.7935457
1895	3603	0.27556	79.64288	21.94639201
1895	3619	0.39335	183.80359	72.29914213
1896	4009	1.05206	0.00000	0

1896	4460	1.23893	229.29918	284.0856331
1896	5151	1.06063	151.80745	161.0115357
1897	3336	1.63716	329.72803	539.8175416
1897	3629	2.54749	163.56775	416.6872074
1898	13006	0.50162	136.95456	68.69914639
1898	13497	0.56317	335.23880	188.796435
1898	14000	0.50068	21.25521	10.64205854
1898	14658	0.49582	82.21744	40.7650511
1899	14658	0.50676	88.52451	44.86068069
1899	15890	0.50536	137.60571	69.54042161
1899	30051	0.50818	189.43111	96.26510148
1900	15890	0.74310	36.88847	27.41182206
1900	16418	0.49524	84.50941	41.85244021
1900	16556	0.49959	240.31857	120.0607544
1900	16718	0.74852	0.00000	0
1901	16723	0.70224	128.66998	90.35720676
1901	17038	0.89310	61.02559	54.50195443
1902	15065	2.81622	209.49513	589.984375
1902	15910	1.06539	1915.43750	2040.687958
1903	17579	1.72689	199.08133	343.791558
1903	17701	1.28668	72.03081	92.68060261
1904	17999	0.49934	76.52651	38.2127475
1904	18157	0.49308	0.26353	0.129941372
1905	18157	0.51060	0.26161	0.133578066
1905	18457	0.50052	46.05613	23.05201419
1905	18773	0.49522	53.93664	26.71050286
1906	18190	0.45519	135.78757	61.80914399
1906	18531	0.95187	79.15638	75.34658343
1906	18783	0.52081	69.38459	36.13618832
1907	18760	0.47963	62.42195	29.93943988
1907	18991	0.27089	64.41011	17.4480547
1907	19002	0.23235	20.07457	4.66432634
1907	19174	0.53758	1.55581	0.83637234
1908	18783	1.29190	145.11179	187.4699215
1908	19705	1.26635	113.01898	143.1215853
1908	19987	1.17403	148.38901	174.2131494
1909	20350	0.50699	23.68753	12.00934083
1909	20503	0.26935	22.56608	6.078173648
1910	20503	0.34289	101.90981	34.94385475
1910	20650	0.34302	101.84396	34.93451516
1911	21971	0.24910	128.53798	32.01881082
1912	21971	0.49924	106.82107	53.32935099
1912	22457	0.70136	92.92198	65.17175989
1913	23151	0.26657	58.73018	15.65570408
1914	23151	0.50204	99.93542	50.17157826
1914	23162	0.50003	62.98182	31.49279945
1915	23553	0.40246	49.67595	19.99258284
1915	23710	0.66698	13.50149	9.0052238
1915	23799	0.29966	66.14891	19.82218237
1916	23799	0.96712	35.01788	33.86649211
1916	23808	0.78952	78.42504	61.91813758
1917	24705	0.39850	56.04272	22.33302392
1917	24886	2.71660	15.03696	40.84940554
1918	26108	1.45725	71.33181	103.9482801

1919	26394	2.88098	47.34185	136.390923
1920	3123	0.38668	1.84808	0.714615574
1920	3171	0.58355	97.50369	56.8982783
1921	3171	0.46993	32.97038	15.49377067
1921	3253	0.58614	55.92176	32.77798041
1922	3212	0.54426	42.99065	23.39809117
1922	3296	0.71747	156.74246	112.4580128
1922	3307	1.13652	229.05737	260.3282822
1923	3064	2.47040	116.95483	288.925212
1923	3208	1.94940	196.42912	382.9189265
1923	3629	2.79889	837.81360	2344.948107
1924	5029	1.41256	35.06941	49.53764579
1924	6309	1.53388	460.22614	705.9316716
1925	5029	1.37685	506.15085	696.8937978
1925	6330	1.63281	168.39543	274.9577421
1926	6314	1.07137	91.33665	97.85534671
1926	8813	0.69158	529.13373	365.938305
1927	10337	0.91304	0.00000	0
1927	12296	1.00548	283.20114	284.7530822
1927	12318	1.00968	92.89129	93.79047769
1927	14019	0.97642	117.71346	114.9377766
1928	12296	0.30759	90.69866	27.89800083
1929	10038	0.92575	384.50195	355.9526802
1929	12318	0.94460	3.65768	3.455044528
1929	14016	1.16982	87.03938	101.8204075
1930	14017	1.49247	140.90457	210.2958436
1930	15918	0.68572	42.81719	29.36060353
1930	15928	0.82456	203.69920	167.9622124
1930	16751	1.55029	86.25919	133.7267597
1931	16735	1.74652	387.21408	676.277135
1931	17615	1.02433	85.62904	87.71239454
1931	17757	1.26697	126.09326	159.7563776
1932	16751	2.41723	296.88181	717.6316176
1932	17757	1.19463	116.81026	139.5450409
1932	18612	2.69803	176.75854	476.8998437
1933	18238	0.51344	35.00360	17.97224838
1933	18531	0.91401	129.27786	118.1612568
1933	18597	1.08252	35.52187	38.45313471
1933	18837	0.51997	204.26804	106.2132528
1934	18881	0.24607	277.92685	68.38945998
1934	18967	0.25208	181.03604	45.63556496
1935	18837	0.76083	85.64580	65.16189401
1935	19130	0.78692	2.66123	2.094175112
1935	19204	0.73665	98.83908	72.80980828
1936	18612	0.97256	345.80374	336.3148854
1936	18982	2.53072	255.75531	647.2450781
1936	19130	1.99647	2.70578	5.402008597
1936	19397	0.99209	10.09094	10.01112066
1937	20172	0.39197	47.63097	18.66991131
1938	19415	1.09678	15.96076	17.50544235
1938	20172	0.94877	37.04616	35.14828522
1938	20794	0.96897	228.62247	221.5283148
1939	20746	0.69442	47.60619	33.05869046
1939	20796	0.56328	142.20399	80.10066349

1940	19397	1.23826	10.15049	12.56894575
1940	20104	1.25235	196.16011	245.6611138
1940	20700	1.00595	280.98880	282.6606834
1941	1941	0.00000	0.00000	0
1941	1941	0.00000	0.00000	0
1941	20075	0.81231	328.83868	267.1189482
1941	20104	0.70255	77.04591	54.12860407
1941	20524	0.91707	411.36218	377.2479144
1942	20497	0.52709	31.41645	16.55929663
1942	20848	0.29525	29.60094	8.739677535
1943	20704	0.35689	35.56859	12.69407409
1944	20700	0.39418	139.56976	55.015608
1945	20728	0.39405	105.00195	41.3760184
1946	20746	0.27854	35.60799	9.918249535
1946	20969	0.24278	109.56647	26.60054759
1947	20758	0.26811	0.00000	0
1947	20962	0.24302	71.39594	17.35064134
1947	20969	0.25573	21.58919	5.521003559
1948	21631	0.23537	186.93279	43.99837078
1949	30202	0.45682	7.33602	3.351240656
1950	21952	0.16396	34.80624	5.70683111
1951	21867	0.22148	26.92604	5.963579339
1952	23186	0.25457	135.13893	34.40231741
1952	23842	0.76987	61.40331	47.27256627
1953	22483	0.79913	131.83348	105.3520889
1953	22569	0.78699	199.30496	156.8510105
1954	20848	0.16936	28.79986	4.87754429
1954	20961	0.40185	0.68482	0.275194917
1955	21705	0.62254	106.22232	66.12764309
1955	21923	0.95159	147.67519	140.5262341
1956	22457	0.75180	77.81968	58.50483542
1956	22483	0.74313	124.78732	92.73320111
1957	23162	0.83518	105.36508	87.99880751
1957	23199	0.71484	104.27971	74.5433079
1957	23809	0.80551	99.97655	80.53211079
1958	23842	1.29791	373.42346	484.670043
1958	24327	1.54358	1.07636	1.661447769
1958	24577	1.50711	59.30689	89.38200699
1959	24886	1.58974	363.54199	577.9372432
1960	25155	0.59732	151.55455	90.52656381
1961	25169	0.74425	130.58423	97.18731318
1962	25083	1.99649	498.08636	994.4244369
1962	25462	2.13422	110.66063	236.1741298
1963	24874	1.01832	129.68092	132.0566745
1963	24977	1.01797	47.88917	48.74973838
1964	3280	1.51063	81.52815	123.1588692
1964	3428	1.45514	597.33667	869.208482
1964	3664	1.95326	194.45609	379.8233024
1965	3731	0.91639	243.29652	222.954498
1966	5461	1.60633	55.28238	88.80174547
1966	6326	0.79368	1244.58557	987.8026752
1967	5461	1.44971	55.61375	80.62380951
1967	5463	1.54499	216.64629	334.7163516
1967	6311	0.89868	1574.93506	1415.36264

1968	15922	1.45993	881.70654	1287.229829
1968	16745	2.06981	291.09213	602.5054016
1969	15334	1.13464	1390.44006	1577.64891
1969	15342	0.89619	100.29943	89.88734617
1969	16727	2.10667	7.56647	15.94005535
1970	16739	1.24426	0.00000	0
1970	17244	0.47216	197.42412	93.2157725
1970	29906	0.52957	329.90720	174.7089559
1971	16727	2.39026	7.47975	17.87854724
1971	17710	1.04443	241.92957	252.6785008
1971	17723	0.94806	67.21950	63.72811917
1972	17985	0.46551	101.87682	47.42467848
1972	18593	1.11896	26.53549	29.69215189
1973	17972	0.70688	159.56163	112.790925
1973	18583	1.25231	369.93628	463.2749028
1974	18583	0.89995	51.30060	46.16797497
1974	18982	0.48548	83.50612	40.54055114
1974	19067	0.52198	79.63046	41.56550751
1974	19456	1.11349	2.72174	3.030630273
1975	18037	1.01340	30.70006	31.1114408
1975	18184	1.05693	212.42062	224.5137259
1975	18543	0.93795	34.32183	32.19216045
1976	18582	0.38334	118.08404	45.26633589
1976	18736	0.52583	56.87402	29.90606594
1976	18739	0.48170	99.48768	47.92321546
1977	19061	0.67280	29.10228	19.58001398
1977	19067	0.61458	102.76299	63.15607839
1977	19421	0.59898	263.78632	158.00273
1978	18543	1.06203	53.84812	57.18831888
1978	19061	1.04661	2.31064	2.41833893
1978	19127	0.96356	20.25210	19.51411348
1978	19416	0.95966	93.61053	89.83428122
1979	19456	0.43177	2.65021	1.144281172
1979	19660	0.44722	396.55643	177.3479666
1980	19421	0.52296	18.67390	9.765702744
1980	19801	0.50206	33.37405	16.75577554
1981	20406	0.43299	47.96555	20.76860349
1981	20759	0.58556	56.32411	32.98114585
1982	20756	0.37222	1.80090	0.670330998
1982	20944	0.38063	6.80894	2.591686832
1982	21109	0.27352	9.26933	2.535347142
1983	19416	0.51715	35.83915	18.53421642
1983	19801	0.99217	67.22565	66.69927316
1984	22741	0.60594	59.14750	35.83983615
1984	23239	0.61066	301.00595	183.8122934
1984	23587	0.61364	116.70181	71.61289869
1985	23101	0.30599	14.46126	4.425000947
1985	23239	0.56971	49.65746	28.29035154
1985	23457	0.71649	188.57826	135.1144375
1985	23600	0.36977	13.85323	5.122508857
1986	23600	0.25350	87.59888	22.20631608
1986	23863	0.55868	1.13906	0.636370041
1987	23971	0.50614	22.37496	11.32486225
1987	23980	0.49431	106.58837	52.68769717

1988	24080	0.20172	16.27280	3.282549216
1989	24316	1.20671	172.95450	208.7059247
1990	3053	2.19501	0.31343	0.687981984
1990	3448	2.51139	22.98480	57.72379687
1990	3494	2.07426	419.63208	870.4260383
1991	3665	3.45865	65.09325	225.1347691
1991	4173	1.59929	851.75250	1362.199256
1991	6282	2.90705	348.89459	1014.254018
1992	6281	1.53695	74.25835	114.131371
1992	9957	1.11238	326.08997	362.7359608
1992	9987	2.04295	426.86700	872.0679377
1993	12589	0.39666	147.09140	58.34527472
1993	13044	0.19114	18.84907	3.60281124
1994	15340	1.07842	337.06870	363.5016275
1994	15873	1.65569	146.32722	242.2725149
1994	16220	1.40813	192.87761	271.596749
1994	16711	1.14653	76.95182	88.22757018
1995	17827	1.52969	183.50739	280.7094194
1995	17864	1.56827	400.83005	628.6097425
1995	18546	1.53554	593.83398	911.8558296
1996	19413	1.81454	147.49260	267.6312224
1996	20422	1.43103	111.77473	159.9529919
1996	22286	2.06770	447.25024	924.7793212
1997	20451	0.51111	455.00656	232.5584029
1998	22580	1.05399	356.12045	375.3473931
1998	23582	1.01219	103.48206	104.7435063
1999	23582	0.79220	12.31526	9.756148972
1999	23971	0.75954	166.99994	126.8431344
2000	24217	0.70960	12.45742	8.839785232
2000	24316	0.49956	54.67871	27.31529637
2001	22022	0.45560	31.42105	14.31543038
2001	22502	0.33073	48.10748	15.91058686
2002	23185	0.67245	334.30811	224.8054886
2002	23201	0.45350	548.59650	248.7885128
2002	23818	1.00704	32.34652	32.5742395
2003	3448	2.82768	22.64525	64.03352052
2003	3702	2.01887	374.62589	756.3209705
2003	4008	2.66007	17.40297	46.29311841
2004	3467	2.85272	6.95077	19.82860059
2004	3702	2.53039	850.81708	2152.899031
2004	4597	2.65474	136.66556	362.8115288
2004	5386	3.13859	67.37594	211.4654515
2005	4008	3.99776	17.49873	69.95572284
2005	7980	1.71721	787.78717	1352.796006
2006	12278	1.01472	139.76784	141.8252226
2007	12255	0.55748	16.29290	9.082965892
2007	13061	0.35456	14.42373	5.114077709
2007	13433	0.66627	69.54649	46.33673989
2007	14062	0.50770	163.12231	82.81719679
2008	12251	0.69597	27.20376	18.93300085
2008	13433	1.04936	1.79832	1.887085075
2008	13948	0.99294	6.94872	6.899662037
2008	14727	1.16302	175.84889	204.515776
2009	5386	2.54464	68.07811	173.2342818

2009	7951	1.86164	3.66912	6.830580557
2009	7980	3.23049	86.02422	277.9003825
2009	13898	2.69177	620.45856	1670.131738
2010	13899	0.58776	18.20645	10.70102305
2010	14663	0.58211	16.71026	9.727209449
2010	14792	0.42004	7.45740	3.132406296
2010	15251	0.40800	346.70776	141.4567661
2011	14229	0.30549	428.32025	130.8475532
2011	14555	0.25200	16.85508	4.24748016
2011	14773	0.27839	177.10643	49.30465905
2011	15314	0.55218	0.00000	0
2012	14485	0.76691	92.05456	70.59756261
2012	15329	0.34603	58.55470	20.26168284
2013	15313	1.74274	415.22717	723.6329982
2013	16698	2.66431	119.03754	317.1529082
2013	16712	2.36361	185.91986	439.4420403
2013	17796	3.26295	24.04796	78.46729108
2014	15329	0.52721	52.62975	27.7469305
2015	16025	0.50402	36.10214	18.1962006
2016	15271	0.57352	48.05279	27.55923612
2016	16182	0.51352	11.92528	6.123869786
2017	16001	0.51006	241.05887	122.9544872
2017	16014	0.50551	40.04197	20.24161625
2017	16190	0.36595	0.00000	0
2018	16159	0.17856	855.87744	152.8254757
2019	17056	1.03497	1167.51062	1208.338466
2019	17584	2.06909	0.00000	0
2019	17612	1.89912	181.54489	344.7755315
2019	17811	0.97554	1049.01465	1023.355752
2020	17796	1.01183	363.18185	367.4782913
2020	17892	2.71900	211.51323	575.1044724
2020	18240	2.38306	690.39307	1645.248109
2020	18503	1.01016	158.52541	160.1360282
2021	19383	1.79767	146.94781	264.1636696
2021	20439	2.46558	90.63721	223.4732922
2021	20451	2.53572	137.51126	348.6900522
2021	21573	1.60757	570.06085	916.4127206
2022	18514	1.05973	680.53961	721.1882409
2022	19018	2.11261	0.00000	0
2022	19091	1.85719	211.01517	391.8952636
2022	19372	0.95526	773.26563	738.6697257
2023	19332	0.37332	29.26101	10.92372025
2023	19567	0.43349	1682.24780	729.2375988
2024	19825	0.84228	319.69009	269.268569
2024	20136	0.45901	0.76493	0.351110519
2025	22027	1.61652	379.28098	613.1152898
2025	23660	1.24193	267.60947	332.3522291
2026	21999	1.08146	513.88770	555.748992
2027	21554	3.83366	136.26196	522.3820256
2027	24166	3.53666	848.03967	2999.227979
2028	24166	2.41895	289.72971	700.841682
2028	24207	2.92490	622.57520	1820.970202
2028	24707	1.53660	0.21428	0.329262648
2029	24707	2.12058	0.21428	0.454397882

2030	25340	2.00000	354.73102	709.46204
2031	25963	1.56221	64.48190	100.734269
2031	26523	2.66824	25.83032	68.92149304
2032	24974	0.54739	32.07483	17.55744119
2032	30074	1.38164	0.00000	0
2033	25449	1.63902	16.70157	27.37420726
2033	25462	3.90132	59.33206	231.4733523
2034	25449	1.30290	29.90869	38.9680322
2035	26153	2.59088	29.55466	76.5725775
2035	26558	1.12562	0.00000	0
2036	26718	2.05361	1400.49377	2876.068011
2037	26638	2.88593	114.55334	330.5929205
2038	26177	4.69520	622.55725	2923.0308
2039	26177	5.86867	1149.78784	6747.725403
2039	26394	4.33198	591.71478	2563.296593
2040	25748	1.66333	692.21918	1151.388929
2041	21970	0.65326	0.00000	0
2041	24093	0.62905	0.00000	0
2042	22132	0.63315	0.00000	0
2042	22506	0.54026	0.00000	0
2043	23254	0.24056	0.00000	0
2043	23394	0.35197	0.00000	0
2043	30203	0.30627	0.00000	0
2044	24259	0.37508	0.00000	0
2044	24570	0.45642	0.00000	0
2044	24803	0.55517	0.00000	0
2045	24175	0.39563	0.00000	0
2045	24313	0.48173	0.00000	0
2045	24570	0.69015	0.00000	0
2046	24313	0.71250	0.00000	0
2047	23254	0.08948	0.00000	0
2047	23403	0.10059	0.00000	0
2047	24259	0.08840	0.00000	0
2048	24144	0.33474	0.00000	0
2049	24139	0.62294	0.00000	0
2050	24521	1.24970	0.00000	0
2051	24570	0.60870	0.00000	0
2052	24962	0.78850	0.00000	0
3008	3014	0.12917	19751.10938	2551.250799
3014	3019	0.01820	19751.10938	359.4701907
3019	3026	0.20820	19751.10938	4112.180973
3026	3028	0.04714	19751.10938	931.0672962
3027	90	21.00000	20058.59375	421230.4688
3028	3046	0.26456	19751.10938	5225.353498
3029	3027	0.02850	20058.59375	571.6699219
3042	3043	25.00000	0.00000	0
3043	3042	25.00000	0.00000	0
3043	3044	0.01246	0.00000	0
3044	81	25.00000	447.34506	11183.6265
3044	3043	0.01246	0.00000	0
3044	3049	0.10492	428.85297	44.99525361
3046	3052	0.07751	19751.10938	1530.908488
3049	3044	0.10492	447.34506	46.9354437
3049	3077	0.07967	428.85297	34.16671612

3052	3151	1.23083	19751.10938	24310.25796
3053	82	9.00000	44.59611	401.36499
3053	1990	2.19501	0.31101	0.68267006
3053	3135	0.97755	46.10745	45.07233775
3056	83	18.00000	677.17767	12189.19806
3056	3120	0.78815	685.16779	540.0149937
3064	84	17.00000	1679.59607	28553.13319
3064	1923	2.47040	117.33311	289.8597149
3064	3073	0.17388	1758.30066	305.7333188
3073	3075	0.03187	1758.30066	56.03704203
3074	3064	0.13174	1777.83972	234.2126047
3075	3078	0.03658	1758.30066	64.31863814
3076	3074	0.04005	1777.83972	71.20248079
3077	3049	0.07967	447.34506	35.63998093
3077	3117	0.62053	428.85297	266.1161335
3078	3081	0.07839	1758.30066	137.8331887
3080	3076	0.03643	1777.83972	64.766701
3081	3084	0.09152	1758.30066	160.9196764
3083	85	2.00000	1058.66895	2117.3379
3083	3085	0.02215	1090.77368	24.16063701
3084	3080	0.20021	1777.83972	355.9412903
3084	3087	0.03044	1758.30066	53.52267209
3085	3083	0.02215	1058.66895	23.44951724
3085	3102	0.50305	1090.77368	548.7136997
3086	91	22.00000	625.89709	13769.73598
3086	3103	0.39403	571.57581	225.2180164
3087	3084	0.03044	1777.83972	54.11744108
3087	3090	0.15941	1758.30066	280.2907082
3090	3087	0.15941	1777.83972	283.4054298
3090	3121	1.17227	1758.30066	2061.203115
3092	86	2.00000	449.37216	898.74432
3092	3105	0.10011	464.85117	46.53625063
3102	3085	0.50305	1058.66895	532.5634153
3102	3123	0.40258	1090.77368	439.1236681
3103	3086	0.39403	625.89709	246.6222304
3103	3155	0.49531	571.57581	283.1072145
3105	3092	0.10011	449.37216	44.98664694
3105	3134	0.42617	464.85117	198.1056231
3111	1744	1.18757	616.66010	732.327035
3111	3114	0.02614	614.21863	16.05567499
3114	3111	0.02614	616.66010	16.11949501
3114	3118	0.04876	614.21863	29.9493004
3117	3077	0.62053	447.34506	277.5910301
3117	3233	1.00093	428.85297	429.2518033
3118	3114	0.04876	616.66010	30.06834648
3118	3119	0.06431	614.21863	39.5004001
3119	3118	0.06431	616.66010	39.65741103
3119	3124	0.27021	614.21863	165.968016
3120	3056	0.78815	677.17767	533.7175806
3120	3121	0.02128	685.16779	14.58037057
3121	3090	1.17227	1777.83972	2084.108169
3121	3120	0.02128	677.17767	14.41034082
3121	3152	0.20212	1774.84082	358.7308265
3121	3190	1.17452	680.19214	798.8992723

3123	1920	0.38668	1.85776	0.718358637
3123	3102	0.40258	1058.66895	426.1989459
3123	3160	0.23725	1088.91589	258.3452949
3124	3119	0.27021	616.66010	166.6277256
3124	3166	0.37770	614.21863	231.9903766
3134	3105	0.42617	449.37216	191.5089334
3134	3162	0.07383	464.85117	34.31996188
3135	3053	0.97755	44.28268	43.28853383
3135	3225	0.62798	46.10745	28.95455645
3151	3166	0.17107	638.65131	109.2540796
3151	3167	0.16125	19112.45703	3081.883696
3152	3121	0.20212	1603.34595	324.0682834
3152	3285	0.99884	1774.84082	1772.782005
3155	1745	0.62607	628.35229	393.3925182
3155	3103	0.49531	625.89709	310.0130876
3155	3210	0.50032	1174.93115	587.841553
3160	3123	0.23725	1056.82080	250.7307348
3160	3161	0.01036	0.00000	0
3160	3165	0.11598	1088.91589	126.2924649
3161	3160	0.01036	0.00000	0
3162	3134	0.07383	449.37216	33.17714657
3162	3171	0.13294	464.85117	61.79731454
3163	3029	1.58942	20058.59375	31881.53008
3165	3160	0.11598	1056.82080	122.5700764
3165	3177	0.13915	1088.91589	151.5226461
3166	3124	0.37770	616.66010	232.9125198
3166	3172	0.05848	836.99170	48.94727462
3166	3180	0.14742	938.42346	138.3423865
3167	3169	0.01257	19112.45703	240.2435849
3168	3163	0.14912	19398.83008	2892.753542
3169	3180	0.14092	19112.45703	2693.327445
3170	3168	0.01126	19398.83008	218.4308267
3171	1920	0.58355	97.77541	57.05684051
3171	1921	0.46993	75.28207	35.37730316
3171	3162	0.13294	449.37216	59.73953495
3171	3191	0.29210	586.88306	171.4285418
3172	3163	0.15690	659.76331	103.5168633
3172	3166	0.05848	1139.20532	66.62072711
3172	3176	0.02960	1364.77820	40.39743472
3176	3172	0.02960	1375.97913	40.72898225
3176	3185	0.19456	1364.77820	265.5312466
3177	3165	0.13915	1056.82080	147.0566143
3177	3184	0.12567	1088.91589	136.8440599
3180	3182	0.03292	20050.88086	660.0749979
3181	3170	0.13608	19398.83008	2639.792797
3182	3373	2.32957	20050.88086	46709.93053
3183	3172	0.18054	950.77594	171.6530882
3183	3181	0.03770	19398.83008	731.335894
3184	3177	0.12567	1056.82080	132.8106699
3184	3192	0.19329	1088.91589	210.4765524
3185	3176	0.19456	1375.97913	267.7104995
3185	3187	0.05144	1364.77820	70.20419061
3186	3190	0.05432	0.00000	0
3187	3185	0.05144	1375.97913	70.78036645

3187	3211	0.13529	1364.77820	184.6408427
3190	3121	1.17452	863.23596	1013.8879
3190	3186	0.05432	0.00000	0
3190	3280	1.14821	680.19214	781.0034171
3191	3171	0.29210	613.98749	179.3457458
3191	3192	0.00999	215.66823	2.154525618
3191	3197	0.02304	371.21484	8.552789914
3192	3184	0.19329	1056.82080	204.2728924
3192	3191	0.00999	586.29327	5.857069767
3192	3197	0.02172	1166.86121	25.34422548
3192	3199	0.03161	640.33575	20.24101306
3197	3191	0.02304	27.69418	0.638073907
3197	3192	0.02172	123.20472	2.676006518
3197	3207	0.05429	1538.07605	83.50214875
3199	3192	0.03161	2022.52222	63.93192737
3199	3202	0.03871	640.33575	24.78739688
3201	87	2.00000	1869.61548	3739.23096
3201	1866	1.49684	378.08780	565.9369426
3201	3358	0.99740	2222.69409	2216.915085
3202	3199	0.03871	2022.52222	78.29183514
3202	3215	0.04103	640.33575	26.27297582
3207	3197	0.05429	150.89891	8.192301824
3207	3222	0.03301	1538.07605	50.77189041
3208	1923	1.94940	109.79275	214.0299869
3208	3212	0.70540	2027.58276	1430.256879
3208	3287	0.49727	534.23828	265.6606695
3210	3155	0.50032	1230.44800	615.6177434
3210	3257	0.29499	1174.93115	346.5929399
3211	3187	0.13529	1375.97913	186.1562165
3211	3304	0.58685	1364.77820	800.9200867
3212	1922	0.54426	44.35599	24.14119112
3212	3208	0.70540	644.03107	454.2995168
3212	3215	0.19024	2022.52222	384.7646271
3215	3202	0.04103	2022.52222	82.98408669
3215	3212	0.19024	640.33575	121.8174731
3222	3207	0.03301	150.89891	4.981173019
3222	3228	0.08729	1538.07605	134.2586584
3225	3135	0.62798	44.28268	27.80863739
3225	3383	0.96019	46.10745	44.27191242
3228	3222	0.08729	150.89891	13.17196585
3228	3239	0.10678	1538.07605	164.2357606
3233	3117	1.00093	447.34506	447.7610909
3233	3317	0.50159	428.85297	215.1083612
3239	3228	0.10678	150.89891	16.11298561
3239	3240	0.00999	1538.07605	15.36537974
3240	3239	0.00999	150.89891	1.507480111
3240	3243	0.03649	1538.07605	56.12439506
3243	3240	0.03649	150.89891	5.506301226
3243	3252	0.08809	1538.07605	135.4891192
3250	3251	0.00758	1593.99780	12.08250332
3250	3253	0.40018	165.23141	66.12230565
3251	3250	0.00758	165.23141	1.252454088
3251	3258	0.09846	1593.99780	156.9450234
3252	3243	0.08809	150.89891	13.29268498

3252	3254	0.07241	1538.07605	111.3720868
3253	1921	0.58614	14.33251	8.400857411
3253	3250	0.40018	1593.99780	637.8860396
3253	3254	0.03764	150.89891	5.679834972
3254	3252	0.07241	150.89891	10.92659007
3254	3253	0.03764	1538.07605	57.89318252
3257	3210	0.29499	1230.44800	362.9698555
3257	3268	0.12858	1174.93115	151.0726473
3258	1893	0.68372	353.04233	241.3821019
3258	3251	0.09846	165.23141	16.26868463
3258	3264	0.07213	1271.82703	91.73688367
3264	3258	0.07213	62.83846	4.53253812
3264	3307	0.23045	1271.82703	293.0925391
3268	3257	0.12858	1230.44800	158.2110038
3268	3294	0.08794	1174.93115	103.3234453
3280	1964	1.51063	80.74418	121.9745806
3280	3190	1.14821	863.23596	991.1761616
3280	3281	0.01292	761.72028	9.841426018
3281	3280	0.01292	943.98016	12.19622367
3281	3347	0.93962	761.72028	715.7276095
3285	3152	0.99884	1603.34595	1601.486069
3285	3428	0.72226	1774.84082	1281.896531
3287	3208	0.49727	1831.15369	910.5777954
3287	3296	0.02300	534.23828	12.28748044
3294	3268	0.08794	1230.44800	108.2055971
3294	3298	0.01447	1174.93115	17.00125374
3296	1922	0.71747	345.11862	247.6122563
3296	3287	0.02300	1831.15369	42.11653487
3296	3365	0.48099	690.98077	332.3548406
3298	3294	0.01447	1230.44800	17.80458256
3298	3316	0.12635	1174.93115	148.4525508
3304	3211	0.58685	1375.97913	807.4933524
3304	3324	0.16424	1364.77820	224.1511716
3307	1922	1.13652	34.16364	38.82766013
3307	3264	0.23045	62.83846	14.48112311
3307	3328	0.19397	1470.01282	285.1383867
3310	92	21.00000	3655.57275	76767.02775
3310	1725	0.95199	235.88330	224.5585428
3310	3434	0.63200	3664.30249	2315.839174
3316	3298	0.12635	1230.44800	155.4671048
3316	3331	0.16881	1174.93115	198.3401274
3317	3233	0.50159	447.34506	224.3838086
3317	3342	0.27436	428.85297	117.6601008
3324	3304	0.16424	1375.97913	225.9908123
3324	3329	0.05491	1364.77820	74.93997096
3328	3307	0.19397	66.13052	12.82733696
3328	3330	0.00895	1470.01282	13.15661474
3329	1746	1.04651	541.67120	566.8643275
3329	1758	1.21063	86.01892	104.1370851
3329	3324	0.05491	1375.97913	75.55501403
3329	3366	0.19618	749.03918	146.9465063
3330	3328	0.00895	66.13052	0.591868154
3330	3340	0.12875	1470.01282	189.2641506
3331	1725	1.10189	348.15027	383.623301

3331	1746	0.95439	332.21335	317.0610991
3331	3316	0.16881	1230.44800	207.7119269
3331	3379	0.20486	1704.16626	349.1155
3336	1893	0.61933	34.93361	21.63543268
3336	1897	1.63716	68.10538	111.4994039
3336	3337	0.40168	1938.33582	778.5907322
3336	3338	0.09135	66.13052	6.041023002
3337	3336	0.40168	48.87539	19.63226666
3337	3348	0.99812	1938.33582	1934.691749
3338	3336	0.09135	1470.01282	134.2856711
3338	3341	0.53711	66.13052	35.5193636
3340	3330	0.12875	66.13052	8.51430445
3340	3341	0.07665	1470.01282	112.6764827
3341	3338	0.53711	1470.01282	789.5585858
3341	3340	0.07665	66.13052	5.068904358
3342	101	0.25331	8.37581	2.121676431
3342	103	0.20740	8.04659	1.668862766
3342	3317	0.27436	447.34506	122.7335907
3342	3353	0.01795	418.14877	7.505770422
3347	3281	0.93962	943.98016	886.9826379
3347	3385	0.21053	761.72028	160.3649705
3348	3337	0.99812	48.87539	48.78350427
3348	3357	0.59687	1938.33582	1156.934501
3351	3352	0.07998	1888.41296	151.0352685
3351	3356	0.40664	0.00000	0
3352	3351	0.07998	0.00000	0
3352	3362	0.04125	1888.41296	77.8970346
3353	3342	0.01795	436.95422	7.843328249
3353	3375	0.07013	418.14877	29.32477324
3356	3351	0.40664	1888.41296	767.9042461
3356	3357	0.42169	0.00000	0
3357	1894	1.30038	49.92294	64.91879272
3357	3348	0.59687	48.87539	29.17225403
3357	3356	0.42169	1888.41296	796.3248611
3358	3201	0.99740	2227.31079	2221.519782
3358	3488	0.49953	2222.69409	1110.302379
3362	3555	0.90092	1888.41296	1701.309004
3365	3296	0.48099	2176.27222	1046.765175
3365	3547	0.75027	690.98077	518.4221423
3366	3329	0.19618	767.13599	150.4967385
3366	3393	0.08351	749.03918	62.55226192
3369	3183	2.30572	20349.60547	46920.49232
3373	3399	0.38190	20050.88086	7657.4314
3375	3353	0.07013	436.95422	30.64359945
3375	3389	0.05218	418.14877	21.81900282
3379	3331	0.20486	1760.36804	360.6289967
3379	3440	0.26547	1704.16626	452.405017
3383	3225	0.96019	44.28268	42.51978651
3383	3385	0.01962	46.10745	0.904628169
3385	3347	0.21053	943.98016	198.7361431
3385	3383	0.01962	44.28268	0.868826182
3385	3494	0.82478	1058.64380	873.1482334
3385	3664	1.76311	474.43274	836.4771082
3387	3369	0.12889	161.30042	20.79001113

3387	3395	0.02089	0.00000	0
3387	3426	0.29966	0.00000	0
3388	1757	1.36740	1285.60938	1757.942266
3388	3390	0.47317	1318.76318	623.9991739
3388	3514	0.49376	35.33042	17.44474818
3389	3375	0.05218	436.95422	22.8002712
3389	3396	0.01851	418.14877	7.739933733
3390	3388	0.47317	1320.93982	625.0290946
3390	3404	0.08174	1318.76318	107.7957023
3393	3366	0.08351	767.13599	64.06352652
3393	3499	0.42146	749.03918	315.6900528
3395	3387	0.02089	140.22554	2.929311531
3395	3400	0.01672	0.00000	0
3396	3389	0.01851	436.95422	8.088022612
3396	3413	0.06957	418.14877	29.09060993
3399	3404	0.20643	262.17593	54.12097723
3399	3416	0.19398	19788.70508	3838.613011
3400	3395	0.01672	140.22554	2.344571029
3400	3403	0.03845	0.00000	0
3402	3369	0.40957	20188.30469	8268.523952
3403	3400	0.03845	140.22554	5.391672013
3403	3515	0.42000	0.00000	0
3404	3390	0.08174	1320.93982	107.9736209
3404	3427	0.05952	611.10852	36.37317911
3404	3432	0.15351	10050.84766	1542.905624
3405	3406	0.49644	242.44380	120.3588001
3405	3408	0.19654	236.59024	46.49944577
3406	3405	0.49644	236.59024	117.4528587
3406	3411	0.49715	242.44380	120.5309352
3407	103	0.21961	164.99010	36.23347586
3407	104	0.26912	8.34701	2.246347331
3407	3410	0.02292	242.44380	5.556811896
3407	3412	0.07846	385.01981	30.20865429
3408	3405	0.19654	242.44380	47.64990445
3408	3409	0.05461	236.59024	12.92019301
3409	3408	0.05461	242.44380	13.23985592
3409	3410	0.02124	236.59024	5.025176698
3410	3407	0.02292	236.59024	5.422648301
3410	3409	0.02124	242.44380	5.149506312
3411	3406	0.49715	236.59024	117.6208378
3411	3418	0.50345	242.44380	122.0583311
3412	3407	0.07846	395.30215	31.01540669
3412	3413	0.12698	385.01981	48.88981547
3413	3396	0.06957	436.95422	30.39890509
3413	3412	0.12698	395.30215	50.19546701
3413	3414	0.12551	310.20193	38.93344423
3413	3429	0.06957	881.31293	61.31294054
3414	3413	0.12551	308.75742	38.75214378
3414	3415	0.12135	310.20193	37.64300421
3415	101	0.22259	173.99895	38.73042628
3415	102	0.27959	38.31812	10.71336317
3415	3414	0.12135	308.75742	37.46771292
3415	3417	0.25237	258.31839	65.19181208
3416	3420	0.01448	19788.70508	286.5404496

3417	3415	0.25237	263.17245	66.41683121
3417	3419	0.49918	258.31839	128.9473739
3418	3411	0.50345	236.59024	119.1113563
3418	3467	0.24045	242.44380	58.29561171
3419	3417	0.49918	263.17245	131.3704236
3419	3422	0.24614	258.31839	63.58248851
3420	3432	0.14406	19788.70508	2850.760854
3421	3422	0.27441	263.17245	72.217152
3421	3423	0.22132	258.31839	57.17102607
3422	3419	0.24614	263.17245	64.77726684
3422	3421	0.27441	258.31839	70.8851494
3423	3421	0.22132	263.17245	58.24532663
3423	3480	0.51558	258.31839	133.1837955
3424	3402	0.19812	20071.14258	3976.494768
3425	3424	0.01623	20071.14258	325.7546441
3426	976	0.23285	336.05460	78.25031361
3426	3387	0.29966	21.07487	6.315295544
3426	3437	0.17837	311.89542	55.63278607
3427	3402	0.20495	117.16239	24.01243183
3427	3404	0.05952	10401.95703	619.1244824
3427	3437	0.07618	9528.04883	725.8467599
3428	1964	1.45514	587.32910	854.6460666
3428	3285	0.72226	1603.34595	1158.032646
3428	3493	0.25140	2279.66382	573.1074843
3429	3413	0.06957	911.84528	63.43707613
3429	3443	0.06789	881.31293	59.83233482
3432	3438	0.03954	29839.55273	1179.855915
3434	3310	0.63200	3864.87085	2442.598377
3434	3513	0.29877	3664.30249	1094.783655
3435	3425	0.13167	20071.14258	2642.767344
3437	3426	0.17837	336.05460	59.942059
3437	3427	0.07618	9569.96582	729.0399962
3437	3446	0.04234	9162.83887	387.9545978
3437	3452	0.21739	29.15590	6.338201101
3438	3506	0.41096	29839.55273	12262.86259
3439	3427	0.18291	9866.09375	1804.607208
3439	3435	0.04230	20071.14258	849.0093311
3440	3379	0.26547	1760.36804	467.3249036
3440	3504	0.23598	1704.16626	402.149154
3443	3429	0.06789	911.84528	61.90517606
3443	3454	0.07294	881.31293	64.28296511
3446	3437	0.04234	9055.85840	383.4250447
3446	3449	0.04724	9162.83887	432.8525082
3448	1990	2.51139	22.64525	56.8710544
3448	2003	2.82768	22.98480	64.99365926
3449	3446	0.04724	9055.85840	427.7987508
3449	3472	0.07570	9162.83887	693.6269025
3452	977	0.17704	206.19839	36.50536297
3452	3437	0.21739	202.21283	43.95904711
3452	3491	0.20380	0.00000	0
3454	3443	0.07294	911.84528	66.50999472
3454	3466	0.03648	881.31293	32.15029569
3459	3460	0.01448	243.60974	3.527469035
3459	3470	0.47401	249.39458	118.2155249

3460	3459	0.01448	249.39458	3.611233518
3460	3469	0.74327	243.60974	181.0678114
3466	3454	0.03648	911.84528	33.26411581
3466	3478	0.01459	881.31293	12.85835565
3467	2004	2.85272	7.01951	20.02469657
3467	3418	0.24045	236.59024	56.88812321
3467	3475	1.13942	249.39458	284.1651723
3469	3460	0.74327	249.39458	185.3675095
3469	3477	1.51065	243.60974	368.0090537
3470	80	10.00000	249.39458	2493.9458
3470	3459	0.47401	243.60974	115.4734529
3472	3449	0.07570	9055.85840	685.5284809
3472	3496	0.07634	9162.83887	699.4911193
3473	3474	0.01586	243.60974	3.863650476
3473	3477	0.22341	249.39458	55.71724312
3474	3473	0.01586	249.39458	3.955398039
3474	3475	0.61432	243.60974	149.6543355
3475	3467	1.13942	243.60974	277.57381
3475	3474	0.61432	249.39458	153.2080784
3477	3469	1.51065	249.39458	376.7479223
3477	3473	0.22341	243.60974	54.42485201
3478	102	0.24512	137.30400	33.65595648
3478	104	0.21531	293.22354	63.1339604
3478	3466	0.01459	911.84528	13.30382264
3478	3507	0.10997	1199.47852	131.9066528
3480	3423	0.51558	263.17245	135.6864518
3480	3483	2.05530	258.31839	530.921787
3482	3483	1.00803	263.17245	265.2857248
3482	3486	1.50788	258.31839	389.5131339
3483	3480	2.05530	263.17245	540.8983365
3483	3482	1.00803	258.31839	260.3926867
3486	3482	1.50788	263.17245	396.8324739
3486	3489	0.49442	258.31839	127.7177784
3488	3358	0.49953	2227.31079	1112.608559
3488	3567	0.49786	2222.69409	1106.59048
3489	3486	0.49442	263.17245	130.1177227
3489	3522	0.13391	258.31839	34.5914156
3491	3452	0.20380	177.04250	36.0812615
3493	3428	0.25140	2098.16113	527.4777081
3493	3731	2.01434	2279.66382	4592.018019
3494	1990	2.07426	413.55374	857.8179807
3494	3385	0.82478	1235.94775	1019.384985
3494	3530	0.34337	835.44263	286.8659359
3495	3491	0.03266	177.04250	5.78220805
3496	976	0.17948	3.42523	0.61476028
3496	977	0.24669	67.33144	16.60999293
3496	3472	0.07634	9055.85840	691.3242303
3496	3512	0.07438	9226.28613	686.2511623
3499	3393	0.42146	767.13599	323.3171343
3499	3523	0.08411	749.03918	63.00168543
3504	3440	0.23598	1760.36804	415.4116501
3504	3527	0.10908	1704.16626	185.8904556
3506	3700	3.22133	29839.55273	96123.0464
3507	3478	0.10997	1239.27246	136.2827924

3507	3537	0.12961	1199.47852	155.464411
3510	3439	0.41691	29937.23633	12481.1332
3510	3495	0.13566	177.04250	24.01758555
3512	3496	0.07438	9119.76074	678.3278038
3512	3524	0.07814	9226.28613	720.9419982
3513	3434	0.29877	3864.87085	1154.707464
3513	3550	0.24981	3664.30249	915.379405
3514	3388	0.49376	18.93269	9.348205014
3514	3592	1.14140	35.33042	40.32614139
3515	3403	0.42000	140.22554	58.8947268
3515	3521	0.02688	0.00000	0
3521	976	0.25035	109.57893	27.43308513
3521	3515	0.02688	140.22554	3.769262515
3521	3576	0.41331	108.10351	44.68026172
3522	3489	0.13391	263.17245	35.24142278
3522	3525	0.03138	258.31839	8.106031078
3523	3499	0.08411	767.13599	64.52380812
3523	3632	0.90806	749.03918	680.1725178
3524	3512	0.07814	9119.76074	712.6181042
3524	3544	0.07585	9226.28613	699.813803
3525	3522	0.03138	263.17245	8.258351481
3525	3530	0.02522	258.31839	6.514789796
3527	1727	0.54631	103.76588	56.6883379
3527	3504	0.10908	1760.36804	192.0209458
3527	3640	0.89214	1600.40039	1427.781204
3530	3494	0.34337	1006.66821	345.6596633
3530	3525	0.02522	263.17245	6.637209189
3530	3552	0.29817	602.27051	179.578998
3537	3507	0.12961	1239.27246	160.6221035
3537	3596	0.49766	1199.47852	596.9324803
3544	3524	0.07585	9119.76074	691.7338521
3544	3545	0.01581	9226.28613	145.8675837
3545	3544	0.01581	9119.76074	144.1834173
3545	3553	0.14264	9226.28613	1316.037454
3547	3365	0.75027	2176.27222	1632.791758
3547	3629	0.74733	690.98077	516.3906588
3550	3513	0.24981	3864.87085	965.483387
3550	3586	0.24813	3664.30249	909.2233768
3552	3530	0.29817	778.35022	232.0806851
3552	3565	0.28194	602.27051	169.8041476
3553	3545	0.14264	9119.76074	1300.842672
3553	3554	0.02436	9226.28613	224.7523301
3554	3553	0.02436	9119.76074	222.1573716
3554	3557	0.08778	9226.28613	809.8833965
3555	3362	0.90092	0.00000	0
3555	3560	0.05415	1888.41296	102.2575618
3557	3554	0.08778	9119.76074	800.5325978
3557	3576	0.08173	9226.28613	754.0643654
3560	3555	0.05415	0.00000	0
3560	3601	0.26215	1888.41296	495.0474575
3565	3552	0.28194	778.35022	219.448061
3565	3665	1.74198	602.27051	1049.143183
3567	3488	0.49786	2227.31079	1108.88895
3567	3568	0.00615	2222.69409	13.66956865

3568	3567	0.00615	2227.31079	13.69796136
3568	3613	0.49394	2222.69409	1097.877519
3572	3575	0.00783	0.00000	0
3575	89	14.00000	7407.41406	103703.7968
3575	3572	0.00783	0.00000	0
3575	3622	0.49153	7270.12305	3573.483583
3576	3521	0.41331	249.80449	103.2466938
3576	3557	0.08173	9119.76074	745.3580453
3576	3589	0.08079	9334.38965	754.1253398
3578	96	2.00000	62.80472	125.60944
3578	1866	3.21307	337.91080	1085.731054
3578	3633	0.49859	405.17255	202.0149817
3582	88	14.00000	1607.67603	22507.46442
3582	3639	0.49654	1598.78711	793.8617516
3586	3550	0.24813	3864.87085	958.990404
3586	3646	0.49515	3664.30249	1814.379378
3589	3576	0.08079	9369.56445	756.9671119
3589	3590	0.61376	8563.58887	5255.988305
3589	3600	0.10083	770.80078	77.71984265
3590	1759	1.12539	0.00000	0
3590	3589	0.61376	8580.23730	5266.206445
3590	3591	0.39291	8563.58887	3364.719703
3591	3590	0.39291	8580.23730	3371.261038
3591	3645	1.17138	8563.58887	10031.21673
3592	3514	1.14140	18.93269	21.60977237
3592	3604	0.57590	35.33042	20.34678888
3596	3537	0.49766	1239.27246	616.7363324
3596	3657	0.50215	1199.47852	602.3181388
3600	3589	0.10083	789.32788	79.58793014
3600	3705	0.89452	770.80078	689.4967137
3601	3560	0.26215	0.00000	0
3601	3603	0.12004	1888.41296	226.6850917
3603	1894	1.00634	448.87161	451.717456
3603	1895	0.27556	80.66615	22.22836429
3603	3601	0.12004	0.00000	0
3603	3610	0.12756	2399.67383	306.1023938
3604	3592	0.57590	18.93269	10.90333617
3604	3607	0.11018	35.33042	3.892705676
3607	1757	1.73525	66.47515	115.351004
3607	3604	0.11018	18.93269	2.086003784
3607	3652	0.45851	106.05456	48.62707631
3610	3603	0.12756	506.24634	64.57678313
3610	3675	0.50693	2399.67383	1216.466655
3613	3568	0.49394	2227.31079	1100.157892
3613	3619	0.02224	2222.69409	49.43271656
3619	1867	1.47511	64.92905	95.77749095
3619	1895	0.39335	188.50481	74.14836701
3619	3613	0.02224	2227.31079	49.53539197
3619	3726	0.98364	2285.17871	2247.793186
3622	3575	0.49153	7407.41406	3640.966233
3622	3649	0.07788	7270.12305	566.1971831
3629	1897	2.54749	420.16257	1070.359945
3629	1923	2.79889	911.65210	2551.613946
3629	3547	0.74733	2176.27222	1626.393518

3629	3738	1.00519	1640.06030	1648.572213
3632	1758	0.99701	187.73116	187.1698438
3632	3523	0.90806	767.13599	696.6055071
3632	3635	0.85161	4525.39648	3853.872896
3632	3645	0.03953	4511.94971	178.357372
3633	3578	0.49859	395.25919	197.0722795
3633	3691	0.49914	405.17255	202.2378266
3635	1746	1.75113	71.96856	126.0263045
3635	1747	0.51751	698.95691	361.7171905
3635	3632	0.85161	4325.73779	3683.841559
3635	3636	0.13558	3823.98853	518.4563649
3636	3635	0.13558	3617.66235	490.4826614
3636	3638	0.01153	3823.98853	44.09058775
3638	3636	0.01153	3617.66235	41.7116469
3638	3640	0.99919	3823.98853	3820.891099
3639	3582	0.49654	1607.67603	798.2754559
3639	3693	0.49061	1598.78711	784.380944
3640	3527	0.89214	1655.69897	1477.115279
3640	3638	0.99919	3617.66235	3614.732043
3640	3642	0.48962	2988.33716	1463.14964
3640	3683	0.46207	1287.91333	595.1061124
3641	1727	0.84650	907.13531	767.8900399
3641	1728	0.50523	20.68949	10.45295103
3641	3642	0.00997	3119.57617	31.10217441
3641	3643	0.49889	2844.49146	1419.088344
3642	3640	0.48962	3119.57617	1527.406884
3642	3641	0.00997	2988.33716	29.79372149
3643	3641	0.49889	2977.37476	1485.382494
3643	3644	0.24959	2844.49146	709.9566235
3644	3643	0.24959	2977.37476	743.1229663
3644	3646	0.75183	2844.49146	2138.574014
3645	3591	1.17138	8580.23730	10050.71837
3645	3632	0.03953	4719.40332	186.5580132
3645	3703	0.51424	4933.13477	2536.815224
3646	1726	0.82894	539.90240	447.5466955
3646	3586	0.49515	3864.87085	1913.690801
3646	3644	0.75183	2977.37476	2238.479666
3646	3661	0.14577	2084.94775	303.9228335
3649	1825	0.52134	119.53192	62.31677117
3649	3622	0.07788	7407.41406	576.889407
3649	3678	0.41979	7376.10254	3096.414085
3651	97	0.98854	2685.06250	2654.291684
3651	1823	0.29438	3.76029	1.10695417
3651	1825	0.50541	15.54927	7.858756551
3651	3680	0.35526	2698.23999	958.5767388
3652	3607	0.45851	85.40784	39.16034872
3652	3697	0.86492	106.05456	91.72871004
3657	3596	0.50215	1239.27246	622.3006658
3657	3668	0.25528	1199.47852	306.2028766
3660	1823	0.30866	42.32752	13.06481232
3660	3662	0.06647	33.44783	2.22327726
3661	3646	0.14577	2415.46899	352.1029147
3661	3676	0.28430	2084.94775	592.7506453
3662	3660	0.06647	42.32752	2.813510254

3662	3681	0.25210	33.44783	8.432197943
3664	1964	1.95326	193.05484	377.0862968
3664	3385	1.76311	477.56390	841.9976877
3664	3727	0.64915	668.88879	434.209158
3665	1991	3.45865	64.61249	223.4719885
3665	3565	1.74198	778.35022	1355.870516
3665	3714	1.16535	600.33081	699.5955094
3668	3657	0.25528	1239.27246	316.3614736
3668	3674	0.02974	1199.47852	35.67249118
3674	3668	0.02974	1239.27246	36.85596296
3674	3694	0.08248	1199.47852	98.93298833
3675	3610	0.50693	506.24634	256.6314571
3675	3725	0.50600	2399.67383	1214.234958
3676	3661	0.28430	2415.46899	686.7178339
3676	3699	0.07288	2084.94775	151.950992
3678	3649	0.41979	7513.60352	3154.135622
3678	3734	0.50772	7376.10254	3744.994782
3680	3651	0.35526	2702.60425	960.1271859
3680	3707	0.18575	2698.23999	501.1980781
3681	3662	0.25210	42.32752	10.67076779
3681	3709	0.18629	33.44783	6.230996251
3683	1728	0.49366	86.31924	42.61235602
3683	1747	1.06717	151.34807	161.5141199
3683	3640	0.46207	1005.64636	464.6790136
3683	3750	0.53924	1072.47351	578.3206155
3689	1867	2.08444	519.39063	1082.638605
3689	3691	0.49642	397.61389	197.3834873
3689	3884	1.49756	891.41235	1334.943479
3691	1840	1.19662	25.07673	30.00731665
3691	3633	0.49914	395.25919	197.2896721
3691	3689	0.49642	407.39343	202.2382465
3693	3639	0.49061	1607.67603	788.7419371
3693	3716	0.40651	1598.78711	649.9229481
3694	3674	0.08248	1239.27246	102.2151925
3694	3702	0.02594	1199.47852	31.11447281
3697	3652	0.86492	85.40784	73.87094897
3697	3711	0.50801	106.05456	53.87677703
3699	3676	0.07288	2415.46899	176.03938
3699	3759	0.49794	2084.94775	1038.178883
3700	3935	3.75822	29839.55273	112143.6039
3702	2003	2.01887	374.06216	755.182873
3702	2004	2.53039	845.02802	2138.250452
3702	3694	0.02594	1239.27246	32.14672761
3702	3713	0.43440	1822.51074	791.6986655
3703	1747	0.93100	4.45002	4.14296862
3703	1759	1.46248	19.22497	28.11613413
3703	3645	0.51424	5157.23633	2652.05721
3703	3744	0.45899	4930.67871	2263.132221
3704	3510	3.21924	30114.27930	96945.09249
3705	3600	0.89452	789.32788	706.0695752
3705	3706	0.08312	770.80078	64.06896083
3706	1759	0.59191	79.68131	47.1641642
3706	3705	0.08312	789.32788	65.60893339
3706	3810	0.79799	705.04504	562.6188915

3707	3680	0.18575	2702.60425	502.0087394
3707	3735	0.31796	2698.23999	857.9323872
3709	3681	0.18629	42.32752	7.885193701
3709	3710	0.10008	33.44783	3.347458826
3710	1809	0.21471	245.89444	52.79599521
3710	3709	0.10008	42.32752	4.236138202
3710	3825	0.71758	273.43698	196.2129081
3711	3697	0.50801	85.40784	43.3880368
3711	3777	0.84319	106.05456	89.42414445
3713	3702	0.43440	1855.95190	806.2255054
3713	3715	0.01066	1822.51074	19.42796449
3714	3665	1.16535	775.92969	904.2296642
3714	3761	0.13959	10.10709	1.410848693
3714	3782	0.59032	599.73083	354.0331036
3715	3713	0.01066	1855.95190	19.78444725
3715	3721	0.01797	1822.51074	32.750518
3716	1832	1.02446	18.90538	19.36780559
3716	1840	1.19285	9.16854	10.93669294
3716	3693	0.40651	1607.67603	653.536383
3716	3743	0.09247	1600.76294	148.0225491
3721	3715	0.01797	1855.95190	33.35145564
3721	3742	0.08079	1822.51074	147.2406427
3725	3675	0.50600	506.24634	256.160648
3725	3814	0.50767	2399.67383	1218.242413
3726	3619	0.98364	2294.77954	2257.236947
3726	3815	0.50738	2285.17871	1159.453974
3727	3664	0.64915	670.61871	435.3321356
3727	3873	0.99323	668.88879	664.3604129
3731	1965	0.91639	240.51588	220.4063473
3731	3493	2.01434	2098.16113	4226.409891
3731	3883	1.01250	2462.93115	2493.717789
3734	3678	0.50772	7513.60352	3814.806779
3734	3819	0.49491	7376.10254	3650.506908
3735	3707	0.31796	2702.60425	859.3200473
3735	3823	0.49923	2698.23999	1347.04235
3738	3629	1.00519	3455.78516	3473.720685
3738	3896	1.00190	1640.06030	1643.176415
3742	3721	0.08079	1855.95190	149.942354
3742	3812	0.44321	1822.51074	807.7549851
3743	3716	0.09247	1612.30591	149.0899275
3743	3836	0.49449	1600.76294	791.5612662
3744	3703	0.45899	5155.71777	2366.422899
3744	3745	0.92825	4516.37598	4192.326003
3744	3798	0.37512	1183.23889	443.8565724
3745	1747	0.49910	826.65253	412.5822777
3745	3744	0.92825	4537.54639	4211.977437
3745	3746	0.06668	4965.24854	331.0827726
3746	3745	0.06668	4970.65967	331.4435868
3746	3747	0.55071	4965.24854	2734.412023
3747	1748	0.51196	214.84142	109.9902134
3747	3746	0.55071	4970.65967	2737.391987
3747	3748	0.07259	4879.12305	354.1755422
3748	3747	0.07259	4892.22168	355.1263718
3748	3749	0.06619	4879.12305	322.9491547

3749	3748	0.06619	4892.22168	323.816153
3749	3750	0.31027	4879.12305	1513.845509
3750	3683	0.53924	787.79688	424.8115896
3750	3749	0.31027	4892.22168	1517.909621
3750	3751	0.49221	5038.44629	2479.973648
3750	3837	0.50824	842.47852	428.181283
3751	1728	0.50203	109.19089	54.81710251
3751	1729	0.54695	59.95977	32.7949962
3751	3750	0.49221	4766.87158	2346.30186
3751	3752	0.50688	5072.91895	2571.361157
3752	3751	0.50688	4800.97607	2433.51875
3752	3759	1.00045	3296.09351	3297.576752
3752	3911	1.01329	1831.01563	1855.349828
3753	1714	0.55539	110.86876	61.57540062
3753	1726	0.83714	837.66125	701.2397388
3753	3754	0.10229	2592.33594	265.1700433
3753	3757	0.15560	3258.20996	506.9774698
3754	3753	0.10229	2569.02661	262.7857319
3754	3758	0.25166	2592.33594	652.3872627
3755	73	2.00000	2592.33594	5184.67188
3755	3758	0.49782	2569.02661	1278.912827
3757	3753	0.15560	3272.57837	509.2131944
3757	3759	0.74052	3258.20996	2412.76964
3758	3754	0.25166	2569.02661	646.5212367
3758	3755	0.49782	2592.33594	1290.516678
3759	3699	0.49794	2415.46899	1202.758629
3759	3752	1.00045	3129.37598	3130.784199
3759	3757	0.74052	3272.57837	2423.409735
3759	3839	0.50716	4488.05811	2276.163551
3761	3714	0.13959	8.63918	1.205943136
3761	3865	0.89082	10.10709	9.003597914
3777	3711	0.84319	85.40784	72.01503661
3777	3784	0.08198	106.05456	8.694352829
3782	3714	0.59032	776.79767	458.5592006
3782	3862	1.41274	599.73083	847.2637328
3784	3777	0.08198	85.40784	7.001734723
3784	3785	0.03662	106.05456	3.883717987
3785	1789	0.78028	145.28271	113.361193
3785	3784	0.03662	85.40784	3.127635101
3785	3835	1.06851	129.64311	138.5249595
3785	4123	1.53343	139.22997	213.4994129
3798	601	0.50608	628.80603	318.2261557
3798	3744	0.37512	1387.10693	520.3315516
3798	3848	0.19897	1208.32776	240.4209744
3810	3706	0.79799	722.18091	576.2931444
3810	3842	0.10749	705.04504	75.78529135
3812	3742	0.44321	1855.95190	822.5764416
3812	3860	0.46958	1822.51074	855.8145933
3814	3725	0.50767	506.24634	257.0060794
3814	4011	1.00399	2399.67383	2409.248529
3815	3726	0.50738	2294.77954	1164.325243
3815	4013	1.00412	2285.17871	2294.593646
3819	3734	0.49491	7513.60352	3718.557518
3819	3841	0.07406	7376.10254	546.2741541

3823	1688	0.43801	12.59832	5.518190143
3823	1824	0.28766	1.57011	0.451657843
3823	3735	0.49923	2702.60425	1349.22112
3823	3886	0.50816	2707.95923	1376.076562
3825	1824	0.26713	1.85462	0.495424641
3825	3710	0.71758	287.51642	206.3160327
3825	3826	0.53022	292.92932	155.3169841
3825	3855	0.35609	552.74396	196.8265967
3826	3825	0.53022	289.57809	153.5400949
3826	3830	0.53662	292.92932	157.1917317
3830	1810	0.28795	24.09843	6.939142919
3830	3826	0.53662	289.57809	155.3933947
3830	3834	0.37393	272.84708	102.0257086
3834	1808	1.17855	183.95480	216.7999295
3834	3830	0.37393	269.33804	100.7135733
3834	3835	0.06575	133.91277	8.804764628
3835	3785	1.06851	133.91277	143.0871339
3835	3834	0.06575	129.64311	8.524034483
3836	3743	0.49449	1612.30591	797.2691494
3836	3893	0.49227	1600.76294	788.0075725
3837	1729	0.53472	50.63948	27.07794275
3837	1748	0.51132	120.78564	61.76011344
3837	3750	0.50824	842.47522	428.1796058
3837	3905	0.49855	1008.04260	502.5596382
3839	192	0.45279	1207.80029	546.8798933
3839	1714	0.78226	1162.18213	909.128593
3839	3759	0.50716	4666.22949	2366.524948
3839	3853	0.25339	5295.82031	1341.907908
3840	192	0.55424	8.23352	4.563346125
3840	1729	0.45685	8.49515	3.881009278
3841	1688	0.56484	63.24103	35.72106339
3841	1832	1.15706	508.97858	588.9187558
3841	3819	0.07406	7513.60352	556.4574767
3841	3882	0.43422	7887.20703	3424.783037
3842	3810	0.10749	722.18091	77.62722602
3842	3843	0.72964	690.35736	503.7123442
3842	3849	0.10932	303.13708	33.13894559
3843	1759	0.88388	35.41129	31.29933101
3843	1760	1.17758	58.99908	69.47613663
3843	3842	0.72964	685.18146	499.9358005
3843	3844	0.27608	698.41577	192.8186258
3844	3843	0.27608	682.05823	188.3026361
3844	3845	0.25097	698.41577	175.2814058
3845	3844	0.25097	682.05823	171.176154
3845	3846	0.09860	698.41577	68.86379492
3846	3845	0.09860	682.05823	67.25094148
3846	3847	0.13858	698.41577	96.78645741
3847	601	0.25864	621.10962	160.6437921
3847	3846	0.13858	682.05823	94.51962951
3847	3848	0.53574	77.30611	41.41597537
3848	1748	1.49257	32.10091	47.91285524
3848	3798	0.19897	1422.30676	282.996376
3848	3847	0.53574	76.76033	41.12357919
3848	3899	0.42926	1210.19495	519.4882842

3849	3842	0.10932	325.44885	35.57806828
3849	4012	0.80449	303.13708	243.8707495
3853	3839	0.25339	5442.10938	1378.976096
3853	3870	0.14688	5295.82031	777.8500871
3855	3825	0.35609	569.05627	202.6352472
3855	3857	0.06446	497.86426	32.0923302
3855	3892	0.14979	54.87971	8.220431761
3857	3855	0.06446	510.82257	32.92762286
3857	3889	0.08901	497.86426	44.31489778
3860	3812	0.46958	1855.95190	871.5178932
3860	3861	0.01999	0.00000	0
3860	4299	1.29887	1822.51074	2367.204525
3861	3860	0.01999	0.00000	0
3861	3863	0.00829	0.00000	0
3862	3782	1.41274	776.79767	1097.41314
3862	3991	0.93551	599.73083	561.0541888
3863	3861	0.00829	0.00000	0
3865	3761	0.89082	8.63918	7.695954328
3865	4601	2.00571	10.10709	20.27189148
3870	3853	0.14688	5442.10938	799.3370257
3870	3914	0.10627	5295.82031	562.7868243
3873	3727	0.99323	670.61871	666.0786213
3873	3898	0.05714	668.88879	38.22030546
3881	1688	0.50223	0.00000	0
3881	3882	0.51842	2139.80542	1109.317926
3881	3886	0.48342	1825.52295	882.4943045
3882	3841	0.43422	8019.06836	3482.039863
3882	3881	0.51842	1825.52295	946.3876077
3882	4032	0.50047	6376.04297	3191.018225
3883	3731	1.01250	2278.64795	2307.131049
3883	4183	0.98428	2462.93115	2424.213872
3884	3689	1.49756	878.19501	1315.149719
3884	4023	0.48970	891.41235	436.5246278
3886	3823	0.50816	2712.44824	1378.357698
3886	3881	0.48342	2139.80542	1034.424736
3886	3888	0.21468	2085.48413	447.711733
3886	3964	0.28538	2300.48975	656.5137649
3888	458	0.19247	107.53716	20.69767719
3888	1824	0.39170	163.29633	63.96317246
3888	3886	0.21468	3235.23438	694.5401167
3888	3890	0.02802	2178.19385	61.03299168
3889	1686	0.14996	324.49051	48.66059688
3889	3857	0.08901	510.82257	45.46831696
3889	3892	0.03647	3289.37036	119.963337
3889	3915	0.06091	2911.33936	177.3296804
3890	3888	0.02802	3334.74756	93.43962663
3890	3891	0.07515	2178.19385	163.6912678
3891	3890	0.07515	3334.74756	250.6062791
3891	3892	0.18340	2178.19385	399.4807521
3892	3855	0.14979	58.23372	8.722828919
3892	3889	0.03647	2131.61255	77.7399097
3892	3891	0.18340	3334.74756	611.5927025
3892	3924	0.09426	31.57927	2.97666199
3893	3836	0.49227	1612.30591	793.6898303

3893	4030	0.48891	1600.76294	782.629009
3896	3738	1.00190	3455.78516	3462.351152
3896	4180	0.97134	1640.06030	1593.056172
3898	3873	0.05714	670.61871	38.31915309
3898	4173	0.94730	668.88879	633.6383508
3899	3848	0.42926	1422.51892	610.6304716
3899	4053	0.49943	1210.19495	604.4076639
3905	3837	0.49855	1009.55762	503.3149515
3905	4059	0.49425	1008.04260	498.2250551
3911	3752	1.01329	1725.79053	1748.726286
3911	3968	0.24542	1831.01563	449.3678559
3914	69	4.00000	1198.14185	4792.5674
3914	3870	0.10627	5442.10938	578.3329638
3914	3939	0.07622	5433.06250	414.1080238
3915	3889	0.06091	4080.25830	248.5285331
3915	3921	0.01755	2911.33936	51.09400577
3921	3915	0.01755	4080.25830	71.60853317
3921	3922	0.01750	2911.33936	50.9484388
3922	3921	0.01750	4080.25830	71.40452025
3922	3949	0.07136	1136.16333	81.07661523
3922	6226	0.02516	5004.93506	125.9241661
3923	3922	0.01146	3172.15991	36.35295257
3924	3892	0.09426	33.72931	3.179324761
3924	3942	0.04371	31.57927	1.380329892
3930	30208	0.04466	1916.95581	85.61124647
3932	3930	0.07768	1916.95581	148.9091273
3933	3704	3.49972	30114.27930	105391.5456
3934	3933	0.05539	30114.27930	1668.02993
3935	3938	0.11016	29839.55273	3287.125129
3936	3934	0.01246	30114.27930	375.2239201
3937	3936	0.09539	30114.27930	2872.601102
3938	3923	0.25011	3172.15991	793.3889151
3938	3940	0.05168	26667.39258	1378.170849
3939	3914	0.07622	5616.40430	428.0823357
3939	3987	0.25370	5433.06250	1378.367956
3940	3952	0.17204	26667.39258	4587.858219
3941	3947	0.02397	5004.93506	119.9682934
3941	6226	0.01635	3135.24829	51.26130954
3942	454	0.05922	747.78882	44.28405392
3942	3924	0.04371	33.72931	1.47430814
3942	3954	0.06953	758.02100	52.70520013
3943	3937	0.22387	30114.27930	6741.683707
3945	3943	0.02251	30114.27930	677.872427
3947	3941	0.02397	3135.24829	75.15190151
3947	3948	0.00755	5004.93506	37.7872597
3948	3932	0.05896	1916.95581	113.0237146
3948	3947	0.00755	3135.24829	23.67112459
3948	30209	0.01479	4154.28125	61.44181969
3949	3922	0.07136	1002.60919	71.5461918
3949	3954	0.07026	1136.16333	79.82683557
3952	3953	0.01339	28584.34961	382.7444413
3953	8375	0.14071	28584.34961	4022.103834
3954	3942	0.06953	754.20203	52.43966715
3954	3949	0.07026	1002.60919	70.44332169

3954	3978	0.23110	784.27716	181.2464517
3957	3945	0.19642	3381.99585	664.2916249
3957	3962	0.03414	3572.97998	121.9815365
3957	30209	0.05607	4201.55029	235.5809248
3962	3957	0.03414	2953.21191	100.8226546
3962	3975	0.07917	3572.97998	282.872825
3964	459	0.10110	693.94153	70.15748868
3964	3886	0.28538	1469.51099	419.3690463
3964	4034	0.21385	2953.09326	631.5189937
3965	3977	0.09172	28584.34961	2621.756546
3967	3945	0.39685	26732.28320	10608.70659
3968	3911	0.24542	1725.79053	423.5435119
3968	4066	0.25568	1831.01563	468.1540763
3975	452	0.11732	103.39353	12.13012894
3975	3962	0.07917	2953.21191	233.8057869
3975	6333	0.02795	3507.69946	98.04019991
3977	3993	0.12031	28584.34961	3438.983102
3978	3954	0.23110	646.90405	149.499526
3978	3995	0.13525	784.27716	106.0734859
3979	3957	0.29719	4049.03296	1203.332105
3979	3967	0.09890	26732.28320	2643.822808
3987	3939	0.25370	5616.40430	1424.881771
3987	4049	0.12406	5433.06250	674.0257338
3991	3862	0.93551	776.79767	726.7019883
3991	4277	1.54185	599.73083	924.6949802
3993	4048	0.18788	28584.34961	5370.427605
3994	3979	0.11948	30781.31641	3677.751685
3995	460	0.04061	226.94556	9.216259192
3995	3978	0.13525	646.90405	87.49377276
3995	4035	0.19824	831.19647	164.7763882
4008	2003	2.66007	17.49873	46.54784671
4008	2005	3.99776	17.40297	69.57289735
4009	1896	1.05206	0.00000	0
4009	4010	0.79458	0.00000	0
4010	4009	0.79458	0.00000	0
4010	4011	0.49784	0.00000	0
4011	3814	1.00399	506.24634	508.2662629
4011	4010	0.49784	0.00000	0
4011	4013	0.50677	1666.81287	844.6907581
4011	4460	1.06452	771.55103	821.3315025
4012	1768	1.10164	121.48532	133.8330879
4012	3849	0.80449	325.44885	261.8203453
4012	4140	0.35635	191.78487	68.34253842
4013	3815	1.00412	2294.77954	2304.234032
4013	4011	0.50677	283.03619	143.43425
4013	4017	0.49849	1997.24768	995.607996
4013	4467	1.06335	2075.86133	2207.367145
4016	1876	1.04159	70.03131	72.94391218
4016	4017	0.23650	1073.98633	253.997767
4016	4022	0.27028	2005.86035	542.1439354
4017	4013	0.49849	1073.98633	535.3714456
4017	4016	0.23650	1997.24768	472.3490763
4019	1868	1.23776	7.58384	9.386973798
4019	4020	0.76702	957.53015	734.4447757

4019	4023	0.73465	1813.35583	1332.181861
4020	4019	0.76702	1820.93970	1396.697169
4020	4021	0.49780	1013.65167	504.5958013
4020	4429	1.02044	288.79132	294.6942146
4021	1867	2.26847	555.14301	1259.325264
4021	4020	0.49780	2047.52161	1019.256257
4021	4022	0.49918	1288.00708	642.9473742
4022	4016	0.27028	1097.32837	296.5859118
4022	4021	0.49918	2318.17065	1157.184425
4022	4437	1.03407	309.39746	319.9386315
4023	3884	0.48970	878.19501	430.0520964
4023	4019	0.73465	952.36115	699.6521188
4023	4028	0.99973	2255.25757	2254.64865
4023	4425	1.01457	773.50531	784.7752824
4024	1840	1.16417	648.94147	755.4781911
4024	1841	1.24130	4.52414	5.615814982
4024	4027	0.25918	2519.92261	653.1135421
4024	4028	0.24139	1593.40918	384.633042
4025	1329	0.87397	422.14066	368.9382726
4025	4026	0.24959	3128.10767	780.7443934
4025	4030	1.00598	2092.57227	2105.085852
4026	4025	0.24959	2483.92969	619.9640113
4026	4032	0.75635	3128.10767	2365.944236
4027	4024	0.25918	1850.90137	479.7166171
4027	4030	1.00042	2519.92261	2520.980977
4028	4023	0.99973	1593.40918	1592.97896
4028	4024	0.24139	2255.25757	544.3966248
4029	4031	0.15004	2879.50781	432.0413518
4029	4032	0.29304	3880.33667	1137.093858
4030	3893	0.48891	1612.30591	788.2724825
4030	4025	1.00598	2731.55005	2747.884719
4030	4027	1.00042	1850.90137	1851.678749
4030	4402	0.99793	1350.06665	1347.272012
4031	1252	0.26864	531.23956	142.7121954
4031	4029	0.15004	3880.33667	582.205714
4031	4034	0.56221	2523.31836	1418.634815
4032	3882	0.50047	6193.62158	3099.721792
4032	4026	0.75635	2483.92969	1878.720221
4032	4029	0.29304	2879.50781	843.8109686
4032	4079	0.11124	12634.64746	1405.478183
4034	3964	0.21385	2107.37646	450.662456
4034	4031	0.56221	3512.51855	1974.773054
4034	4035	0.03378	687.71289	23.23094142
4035	3995	0.19824	687.71289	136.3322033
4035	4034	0.03378	831.19647	28.07781676
4040	4041	0.06477	301.20120	19.50880172
4040	4091	0.15511	287.87308	44.65199344
4041	452	0.34360	5.53286	1.901090696
4041	4040	0.06477	287.87308	18.64553939
4041	4045	0.48222	306.18359	147.6478508
4043	4051	0.02199	0.00000	0
4045	451	0.24815	288.77176	71.65871224
4045	1682	0.48808	3.38220	1.650784176
4045	4041	0.48222	293.40594	141.4862124

4045	4047	0.51120	75.59074	38.64198629
4047	4045	0.51120	58.69777	30.00630002
4047	4169	0.43221	75.59074	32.67107374
4048	4090	0.23335	28584.34961	6670.157981
4049	3987	0.12406	5616.40430	696.7711175
4049	4129	0.27595	5433.06250	1499.253597
4051	4043	0.02199	0.00000	0
4051	4080	0.15971	0.00000	0
4053	1749	1.11963	177.54530	198.7850442
4053	1760	1.22893	147.75911	181.5856031
4053	3899	0.49943	1422.51892	710.4486242
4053	4319	0.75663	1082.61670	819.1402737
4054	3994	0.18460	30781.31641	5682.231009
4055	4062	0.04115	408.51779	16.81050706
4055	4073	0.04633	372.82257	17.27286967
4059	1730	0.48474	127.16499	61.64195725
4059	1749	0.88195	76.81538	67.74732439
4059	3905	0.49425	1009.55762	498.9738537
4059	4323	0.74583	894.61053	667.2273716
4060	4065	0.02007	2678.29639	53.75340855
4060	6333	0.21605	2429.56519	524.9075593
4062	4055	0.04115	372.82257	15.34164876
4062	4067	0.02875	408.51779	11.74488646
4065	4060	0.02007	2429.56519	48.76137336
4065	4081	0.10101	2678.29639	270.5347184
4066	1730	0.51086	75.63058	38.6366381
4066	3968	0.25568	1725.79053	441.2501227
4066	4126	0.23293	1851.82361	431.3452735
4067	4062	0.02875	372.82257	10.71864889
4067	4068	0.00940	408.51779	3.840067226
4068	4067	0.00940	372.82257	3.504532158
4068	4075	0.05617	408.51779	22.94644426
4073	4055	0.04633	408.51779	18.92662921
4073	4087	0.05971	372.82257	22.26123565
4075	453	0.21130	0.00000	0
4075	4068	0.05617	372.82257	20.94144376
4075	4085	0.08988	408.51779	36.71757897
4079	4032	0.11124	10807.21973	1202.195123
4079	4092	0.04636	12634.64746	585.7422562
4080	4051	0.15971	0.00000	0
4080	4095	0.04905	0.00000	0
4081	4065	0.10101	2429.56519	245.4103798
4081	4089	0.02960	2678.29639	79.27757314
4085	4075	0.08988	372.82257	33.50929259
4085	4094	0.05814	408.51779	23.75122431
4087	4073	0.05971	408.51779	24.39259724
4087	4098	0.05243	372.82257	19.54708735
4089	4081	0.02960	2429.56519	71.91512962
4089	4093	0.01074	2678.29639	28.76490323
4090	4158	0.47638	28584.34961	13617.01247
4091	4040	0.15511	301.20120	46.71931813
4091	4089	0.01022	2429.56519	24.83015624
4091	4093	0.00896	59.66281	0.534578778
4092	4079	0.04636	10807.21973	501.0227067

4092	4104	0.04047	12634.64746	511.3241827
4093	4091	0.00896	846.62280	7.585740288
4093	4098	0.16911	763.17810	129.0610485
4093	4185	0.36151	1735.13525	627.2687442
4094	455	0.17677	239.39183	42.31729379
4094	4085	0.05814	372.82257	21.67590422
4094	4100	0.07104	311.14371	22.10364916
4094	4103	0.03514	347.76996	12.22063639
4095	4080	0.04905	0.00000	0
4095	4110	0.07642	0.00000	0
4096	4054	0.24598	30781.31641	7571.588211
4098	453	0.12687	354.66031	44.99575353
4098	4087	0.05243	408.51779	21.41858773
4098	4093	0.16911	606.97699	102.6458788
4100	4094	0.07104	295.11905	20.96525731
4100	4103	0.06274	168.17543	10.55132648
4100	4107	0.03264	587.92920	19.19000909
4101	4092	0.04019	10807.21973	434.3421609
4103	4094	0.03514	307.24066	10.79643679
4103	4100	0.06274	276.78552	17.36552352
4103	4117	0.06027	515.94537	31.09602745
4104	4112	0.04922	12634.64746	621.877348
4107	4100	0.03264	463.29449	15.12193215
4107	4114	0.09644	587.92920	56.69989205
4108	4096	0.10919	30781.31641	3361.011939
4110	4095	0.07642	0.00000	0
4110	4113	0.01673	0.00000	0
4111	4101	0.04996	10807.21973	539.9286977
4112	4133	0.06829	12634.64746	862.820075
4113	4110	0.01673	0.00000	0
4113	4120	0.01339	0.00000	0
4114	4107	0.09644	463.29449	44.68012062
4114	4122	0.04141	587.92920	24.34614817
4117	4103	0.06027	584.02618	35.19925787
4117	4131	0.05426	515.94537	27.99519578
4120	4113	0.01339	0.00000	0
4120	4124	0.01072	0.00000	0
4122	456	0.08212	359.76398	29.54381804
4122	4114	0.04141	463.29449	19.18502483
4122	4130	0.07178	676.40979	48.55269473
4123	3785	1.53343	112.83774	173.0287756
4123	4157	0.13669	139.22997	19.0313446
4124	455	0.45682	111.36800	50.87512976
4124	1253	0.50293	3.45871	1.73948902
4124	4120	0.01072	0.00000	0
4124	4127	0.01607	467.21381	7.508125927
4125	137	0.25196	924.99548	233.0618611
4125	4449	0.06240	900.72485	56.20523064
4125	4452	0.06240	0.00000	0
4126	4066	0.23293	1747.23083	406.9824772
4126	4210	0.24752	1851.82361	458.3633799
4127	4124	0.01607	107.83479	1.732905075
4127	4148	0.08758	467.21381	40.91858548
4129	182	0.28147	64.93462	18.27714749

4129	4049	0.27595	5616.40430	1549.846767
4129	4159	0.12585	5372.24414	676.096925
4130	4122	0.07178	561.57135	40.3095915
4130	4141	0.09951	676.40979	67.3095382
4131	453	0.18198	240.66663	43.79651333
4131	4117	0.05426	584.02618	31.68926053
4131	4135	0.00765	400.47394	3.063625641
4132	4111	0.06849	10807.21973	740.1864793
4133	4151	0.06925	12634.64746	874.9493366
4135	4131	0.00765	362.68039	2.774504984
4135	4145	0.06303	400.47394	25.24187244
4140	1760	0.85526	111.12263	95.03874053
4140	4012	0.35635	213.22972	75.98441072
4140	4459	0.70668	290.21661	205.090274
4141	4130	0.09951	561.57135	55.88196504
4141	4153	0.09377	676.40979	63.42694601
4145	4135	0.06303	362.68039	22.85974498
4145	4161	0.06024	400.47394	24.12455015
4148	4127	0.08758	107.83479	9.444170908
4148	4154	0.01340	467.21381	6.260665054
4151	4155	0.01619	12634.64746	204.5549424
4152	4132	0.07759	10807.21973	838.5321789
4153	4141	0.09377	561.57135	52.65854549
4153	4154	0.05041	676.40979	34.09781751
4154	4148	0.01340	107.83479	1.444986186
4154	4153	0.05041	561.57135	28.30881175
4154	4238	0.42178	789.50537	332.997575
4154	30207	0.11703	444.05362	51.96759515
4155	4230	0.18213	4251.81787	774.3835887
4155	4242	0.20452	8382.82910	1714.456208
4157	1790	0.49425	11.24072	5.55572586
4157	4123	0.13669	112.83774	15.42379068
4157	4424	0.59642	145.78810	86.9509386
4158	4160	0.03930	28584.34961	1123.36494
4159	140	0.25238	33.90931	8.558031658
4159	4129	0.12585	5555.14551	699.1150624
4159	4218	0.12563	5338.33447	670.6549595
4160	4172	0.04840	28584.34961	1383.482521
4161	4145	0.06024	362.68039	21.84786669
4161	4189	0.06191	400.47394	24.79334163
4169	1682	0.49463	62.43032	30.87990918
4169	1790	0.51444	58.81735	30.25799753
4169	4047	0.43221	58.69777	25.36976317
4169	4411	0.55650	129.87238	72.27397947
4170	4108	0.39660	30781.31641	12207.87009
4172	4181	0.04517	28584.34961	1291.155072
4173	1991	1.59929	840.25348	1343.808988
4173	3898	0.94730	670.61871	635.277104
4173	4613	1.00053	1367.04980	1367.774336
4178	4170	0.06517	30781.31641	2006.01839
4180	3896	0.97134	3455.78516	3356.742357
4180	4622	1.00017	1640.06030	1640.33911
4181	4201	0.07225	19748.02930	1426.795117
4181	4206	0.14418	8836.31836	1274.020381

4182	4091	0.35301	1655.93335	584.5610319
4183	3883	0.98428	2278.64795	2242.827604
4183	4624	0.99996	2462.93115	2462.832633
4185	4186	0.00827	546.49005	4.519472714
4185	4198	0.04880	73.86629	3.604674952
4185	29908	0.25236	1598.26270	403.337575
4186	1682	0.51269	486.02130	249.1782603
4186	4182	0.01450	1655.93335	24.01103358
4186	4185	0.00827	238.93602	1.976000885
4187	4188	0.11101	11.62695	1.29070772
4187	4194	0.07654	11.40532	0.872963193
4188	4187	0.11101	11.40532	1.266104573
4188	4189	0.06137	11.62695	0.713545922
4189	4161	0.06191	362.68039	22.45354294
4189	4188	0.06137	11.40532	0.699944488
4189	4191	0.09446	61.19727	5.780694124
4189	4282	0.19410	456.95578	88.6951169
4190	456	0.17108	64.58837	11.04977834
4190	457	0.24563	3.27741	0.805030218
4190	4192	0.04738	60.62701	2.872507734
4190	4193	0.04364	0.00000	0
4191	4189	0.09446	60.62701	5.726827365
4191	4192	0.08894	61.19727	5.442885194
4192	4190	0.04738	61.19727	2.899526653
4192	4191	0.08894	60.62701	5.392166269
4193	4190	0.04364	0.00000	0
4193	4195	0.09102	0.00000	0
4194	453	0.21873	66.66179	14.58093333
4194	1687	0.24570	4.32240	1.06201368
4194	4187	0.07654	11.62695	0.889926753
4194	4197	0.14756	244.54768	36.08545566
4195	4193	0.09102	0.00000	0
4195	4199	0.08489	0.00000	0
4197	4194	0.14756	73.86629	10.89970975
4197	4198	0.05240	244.54768	12.81429843
4198	4185	0.04880	244.54768	11.93392678
4198	4197	0.05240	73.86629	3.870593596
4199	4195	0.08489	0.00000	0
4200	4186	0.01562	1339.99707	20.93075423
4201	4255	0.22620	19748.02930	4467.004228
4206	4152	0.32461	110.16696	35.76129689
4206	4229	0.14245	8726.15137	1243.040263
4207	4178	0.09745	30781.31641	2999.639284
4208	4212	0.07880	454.27789	35.79709773
4208	4221	0.07251	473.73395	34.35044871
4210	4126	0.24752	1747.23083	432.474575
4210	4211	0.24868	73.09353	18.17689904
4210	4261	0.11939	1778.73010	212.3625866
4211	165	0.11877	20.03501	2.379558138
4211	4210	0.24868	78.85384	19.60937293
4211	4220	0.25229	81.47236	20.5546617
4212	4208	0.07880	473.73395	37.33023526
4212	4213	0.51893	90.93330	47.18801737
4212	4350	0.28590	363.34457	103.8802126

4213	1651	0.53430	90.93330	48.58566219
4213	4212	0.51893	90.05602	46.73277046
4213	4215	0.23193	0.00000	0
4214	4215	0.25856	0.00000	0
4214	4464	0.49804	0.00000	0
4215	4213	0.23193	0.00000	0
4215	4214	0.25856	0.00000	0
4216	184	0.07923	30.49773	2.416335148
4216	4221	0.21753	454.27789	98.81906941
4216	4226	0.13089	494.43701	64.71686024
4217	140	0.12043	264.54089	31.85865938
4217	150	0.24838	181.36072	45.04637563
4217	4218	0.25086	1069.38306	268.2654344
4217	4220	0.24972	887.35376	221.5899809
4218	4159	0.12563	5520.07373	693.4868627
4218	4217	0.25086	1050.76917	263.595954
4218	4219	0.09377	877.19556	82.25462766
4218	4267	0.11963	4043.92480	483.7747238
4219	4218	0.09377	900.52850	84.44255745
4219	4223	0.13031	877.19556	114.3073534
4220	4211	0.25229	86.97247	21.94228446
4220	4217	0.24972	894.74280	223.435172
4220	4266	0.11693	800.38129	93.58858424
4221	4208	0.07251	454.27789	32.9396898
4221	4216	0.21753	473.73395	103.0513461
4223	137	0.23663	327.26669	77.44111685
4223	182	0.26531	169.31841	44.92186736
4223	4219	0.13031	900.52850	117.3478688
4223	4224	0.12411	443.40231	55.03066069
4224	4223	0.12411	460.58633	57.16336942
4224	4225	0.05171	443.40231	22.92833345
4225	4224	0.05171	460.58633	23.81691912
4225	4226	0.09998	443.40231	44.33136295
4226	4216	0.13089	475.58432	62.24923164
4226	4225	0.09998	460.58633	46.04942127
4226	4253	0.09234	33.85070	3.125773638
4229	4280	0.21055	8726.15137	1837.291171
4230	4318	0.21199	0.00000	0
4230	4368	0.38761	4251.81787	1648.047125
4237	4274	0.09315	444.05362	41.3635947
4237	30207	0.07575	412.19327	31.2236402
4238	4154	0.42178	347.14825	146.4201889
4238	4244	0.03256	789.50537	25.70629485
4242	4280	0.09323	8382.82910	781.531157
4243	4255	0.14085	9396.70996	1323.526598
4244	1253	0.11517	272.12057	31.34012605
4244	4238	0.03256	347.14825	11.30314702
4244	4270	0.12759	917.24847	117.0317323
4249	4152	0.25819	10697.05273	2761.872044
4253	4226	0.09234	32.18201	2.971686803
4253	4309	0.11516	33.85070	3.898246612
4255	4351	0.31515	29144.74023	9184.964883
4259	4243	0.04989	9396.70996	468.8018599
4261	165	0.24977	0.00000	0

4261	4210	0.11939	1668.37695	199.1875241
4261	4328	0.12669	1778.73010	225.3473164
4262	4259	0.00684	9396.70996	64.27349613
4266	165	0.25212	0.00000	0
4266	4220	0.11693	813.27045	95.09571372
4266	4330	0.12401	800.38129	99.25528377
4267	4218	0.11963	4183.71729	500.4980994
4267	4320	0.11853	4043.92480	479.3264065
4269	4207	0.22632	20677.13867	4679.650024
4270	4244	0.12759	471.23489	60.12485962
4270	4333	0.28157	917.24847	258.2696517
4274	4237	0.09315	412.19327	38.3958031
4274	4331	0.10808	444.05362	47.99331525
4277	3991	1.54185	776.79767	1197.705487
4277	4317	0.16190	539.42773	87.33334949
4277	4390	0.29753	60.30310	17.94198134
4280	4431	0.33037	17108.98047	5652.293878
4282	4189	0.19410	419.51086	81.42705793
4282	4301	0.04992	456.95578	22.81123254
4292	4249	0.08477	10697.05273	906.7891599
4299	3860	1.29887	1855.95190	2410.640244
4299	4302	0.01739	1822.51074	31.69346177
4301	457	0.24623	193.08783	47.54401638
4301	1687	0.25000	267.52567	66.8814175
4301	4282	0.04992	419.51086	20.94198213
4301	4410	0.25420	685.37439	174.2221699
4302	4299	0.01739	1855.95190	32.27500354
4302	4317	0.01964	1822.51074	35.79411093
4306	4200	0.23909	1339.99707	320.3798995
4309	137	0.27257	33.85070	9.226685299
4309	4253	0.11516	32.18201	3.706080272
4309	4355	0.08678	0.00000	0
4317	4277	0.16190	715.45337	115.8319006
4317	4302	0.01964	1855.95190	36.45089532
4317	4335	0.06580	663.63074	43.66690269
4317	4354	0.06901	1631.90173	112.6175384
4318	4366	0.10493	0.00000	0
4319	4053	0.75663	1300.23254	983.7949467
4319	4325	0.99562	1881.91699	1873.674194
4319	4485	0.31798	2545.01563	809.26407
4320	4267	0.11853	4183.71729	495.8960104
4320	4336	0.02064	4043.92480	83.46660787
4322	175	0.37973	95.98215	36.44730182
4322	1730	0.70549	112.48920	79.36000571
4322	4323	0.49781	2202.34546	1096.349593
4322	4328	0.49850	2368.24463	1180.569948
4323	4059	0.74583	898.80188	670.3534062
4323	4322	0.49781	2227.86743	1109.054685
4323	4329	0.50265	2028.12622	1019.437644
4323	4502	0.37609	1058.31799	398.0228129
4325	4319	0.99562	1856.50159	1848.370113
4325	4327	0.14332	1881.91699	269.716343
4326	165	0.12674	49.48832	6.272149677
4326	166	0.42057	76.12763	32.01699735

4326	4328	0.25398	3954.74463	1004.426041
4326	4330	0.24797	4088.10254	1013.726787
4327	1749	0.75324	371.54346	279.8613958
4327	4325	0.14332	1856.50159	266.0738079
4327	4329	0.35449	2052.90454	727.7341304
4328	4261	0.12669	1668.37695	211.3666758
4328	4322	0.49850	2345.11523	1169.039942
4328	4326	0.25398	4093.01855	1039.544851
4328	4506	0.38653	602.95367	233.0596821
4329	4323	0.50265	2052.90454	1031.892467
4329	4327	0.35449	2028.12622	718.9504637
4330	150	0.24713	522.17706	129.0456168
4330	4266	0.12401	813.27045	100.8536685
4330	4326	0.24797	3949.26416	979.2990338
4330	4392	0.16528	2825.92358	467.0686493
4331	1254	0.15726	108.31418	17.03348795
4331	4274	0.10808	412.19327	44.54984862
4331	4409	0.21195	335.73944	71.15997431
4333	4270	0.28157	471.23489	132.685608
4333	4446	0.29613	917.24847	271.6247894
4335	4317	0.06580	844.34863	55.55813985
4335	4354	0.07276	1.83100	0.13322356
4335	4759	1.46470	665.48932	974.742207
4336	137	0.23041	104.19550	24.00768516
4336	150	0.25314	939.93073	237.934065
4336	4320	0.02064	4183.71729	86.35192487
4336	4373	0.10399	4905.37256	510.1096925
4350	4212	0.28590	383.67792	109.6935173
4350	4435	0.19363	363.34457	70.35440909
4351	4368	0.12209	29144.74023	3558.281335
4352	4207	0.36598	10104.17773	3697.926966
4354	4317	0.06901	1660.65063	114.6015
4354	4335	0.07276	1.85855	0.135228098
4354	4390	0.10496	1633.73279	171.4765936
4355	4309	0.08678	0.00000	0
4356	4269	0.31893	20677.13867	6594.559836
4362	4306	0.11115	1339.99707	148.9406743
4363	4262	0.21467	9396.70996	2017.191727
4363	4292	0.15431	7590.81201	1171.338201
4365	1254	0.49972	0.00000	0
4366	4356	0.15571	0.00000	0
4368	4401	0.15375	33396.55859	5134.720883
4373	4336	0.10399	5023.50293	522.3940697
4373	4445	0.12077	4905.37256	592.4218441
4387	4356	0.12365	20677.13867	2556.728197
4388	4441	0.09958	0.00000	0
4390	4277	0.29753	61.34431	18.25177255
4390	4354	0.10496	1662.50916	174.4969614
4390	5178	1.14407	1694.03589	1938.095641
4391	4387	0.04454	20677.13867	920.9597564
4392	4330	0.16528	2682.75317	443.4054439
4392	4453	0.07901	2825.92358	223.2762221
4401	4504	0.22470	33396.55859	7504.206715
4402	1329	0.95951	360.47855	345.8827735

4402	1841	1.11213	419.42108	466.4507657
4402	4030	0.99793	1331.56604	1328.809698
4402	4925	0.80927	2128.45947	1722.498395
4403	457	0.25065	379.23093	95.0542326
4403	1225	0.25143	9.23847	2.322828512
4403	4405	0.15877	438.73752	69.65835605
4403	4410	0.24312	25.52448	6.205511578
4405	4403	0.15877	406.48016	64.536855
4405	4406	0.05516	438.73752	24.2007616
4406	4405	0.05516	406.48016	22.42144563
4406	4407	0.01862	438.73752	8.169292622
4407	4406	0.01862	406.48016	7.568660579
4407	4409	0.01242	438.73752	5.449119998
4408	1254	0.17561	1077.28015	189.1811671
4408	4409	0.15095	1204.47693	181.8157926
4408	4413	0.07590	135.36710	10.27436289
4409	4331	0.21195	299.97702	63.58012939
4409	4407	0.01242	406.48016	5.048483587
4409	4408	0.15095	1184.29980	178.7700548
4409	4563	0.36542	1681.07568	614.298675
4410	4301	0.25420	676.66522	172.0082989
4410	4403	0.24312	28.13573	6.840358678
4410	4427	0.24012	187.27151	44.96763498
4410	30125	0.08725	491.95972	42.92348557
4411	4169	0.55650	109.09544	60.71161236
4411	4520	0.25291	129.87238	32.84602363
4412	4414	0.03238	2.12093	0.068675713
4412	4417	0.08967	2.12093	0.190183793
4413	4408	0.07590	138.43599	10.50729164
4413	4415	0.04068	135.36710	5.506733628
4414	1255	0.27025	133.24617	36.00977744
4414	4412	0.03238	2.12093	0.068675713
4414	4415	0.07033	138.43599	9.736203177
4415	4413	0.04068	138.43599	5.631576073
4415	4414	0.07033	135.36710	9.520368143
4417	4412	0.08967	2.12093	0.190183793
4417	4418	0.05585	2.12093	0.118453941
4418	4417	0.05585	2.12093	0.118453941
4418	30121	0.14538	2.12093	0.308340803
4422	4423	0.00896	70.17518	0.628769613
4422	4427	0.25576	255.94473	65.46042414
4422	4481	0.09314	1673.02698	155.8257329
4423	4362	0.13887	1339.99707	186.0853931
4423	4422	0.00896	250.46265	2.244145344
4424	4157	0.59642	119.39281	71.20825974
4424	4665	0.49842	145.78810	72.6637048
4425	1841	1.43017	45.15852	64.58436055
4425	1868	0.98651	117.90525	116.3147082
4425	4023	1.01457	561.14166	569.317494
4425	4672	0.49807	862.99438	429.8316108
4427	1209	0.24911	9.71276	2.419545644
4427	1687	0.25740	83.83085	21.57806079
4427	4410	0.24012	182.25482	43.76302738
4427	4422	0.25576	251.93794	64.43564753

4428	4292	0.56820	3106.24023	1764.965699
4428	4391	0.10087	20677.13867	2085.702978
4429	4020	1.02044	118.33095	120.7496346
4429	4696	0.50884	288.79132	146.9485753
4431	4484	0.09050	17108.98047	1548.362733
4433	4439	0.05136	0.00000	0
4433	4443	0.16496	193.92020	31.98907619
4434	4363	0.16371	16987.52148	2781.027141
4435	4350	0.19363	383.67792	74.29155565
4435	4433	0.09044	193.92020	17.53814289
4435	4503	0.14056	304.87103	42.85267198
4436	4442	0.01571	522.60211	8.210079148
4437	4022	1.03407	431.02896	445.7141167
4437	4700	0.50058	309.39746	154.8781805
4438	4352	0.21048	10104.17773	2126.727329
4439	4433	0.05136	0.00000	0
4439	4435	0.13857	189.31578	26.23348763
4440	4441	0.03531	326.85474	11.54124087
4440	4450	0.00668	0.00000	0
4441	4388	0.09958	0.00000	0
4441	4450	0.03587	334.30286	11.99144359
4441	13861	0.14617	326.85474	47.77635735
4442	4440	0.20217	326.85474	66.08022279
4442	4454	0.00573	195.74739	1.121632545
4443	183	0.19649	531.98041	104.5288308
4443	4436	0.00871	522.60211	4.551864378
4445	4373	0.12077	5023.50293	606.6884489
4445	4447	0.25374	2193.99976	556.7054991
4445	4448	0.04483	1044.71997	46.83479626
4445	4477	0.06008	6516.16504	391.4911956
4446	4333	0.29613	471.23489	139.546788
4446	4636	0.47027	917.24847	431.354438
4447	150	0.23539	258.47726	60.84296223
4447	151	0.24051	731.98541	176.049811
4447	4445	0.25374	2365.85596	600.3122913
4447	4453	0.24547	1719.76184	422.1499389
4448	4445	0.04483	1019.79431	45.71737892
4448	4449	0.07791	1044.71997	81.39413286
4449	186	0.10496	143.98705	15.11288077
4449	4125	0.06240	924.99548	57.71971795
4449	4448	0.07791	1019.79431	79.45217469
4450	4440	0.00668	0.00000	0
4450	4454	0.19987	334.30286	66.81711263
4452	4125	0.06240	0.00000	0
4453	4392	0.07901	2682.75317	211.964328
4453	4447	0.24547	1871.42468	459.3786162
4453	4512	0.18254	1211.89856	221.2199631
4454	4465	0.01230	530.05023	6.519617829
4459	4140	0.70668	314.21924	222.0524525
4459	4752	0.49521	290.21661	143.7181674
4460	1896	1.23893	212.17023	262.8640631
4460	4011	1.06452	261.90018	278.7979796
4460	4864	0.68568	944.93866	647.9255404
4464	1651	0.43009	0.00000	0

4464	4214	0.49804	0.00000	0
4464	4757	0.49830	0.00000	0
4465	4468	0.00576	530.05023	3.053089325
4466	132	0.12894	9.14633	1.17932779
4466	4439	0.12065	189.31578	22.84094886
4466	4443	0.01803	340.76401	6.1439751
4467	1876	0.76376	299.71573	228.9108859
4467	4013	1.06335	1624.94678	1727.887159
4467	5102	0.98955	2282.78857	2258.933429
4468	4466	0.00576	530.05023	3.053089325
4477	4445	0.06008	6487.36475	389.7608742
4477	4492	0.03005	6516.16504	195.8107595
4481	4518	0.14972	1673.02698	250.4855994
4482	4423	0.09314	1520.28455	141.599303
4483	4542	0.47967	11455.45508	5494.838138
4484	4542	0.18808	17108.98047	3217.857047
4485	4319	0.31798	2788.04688	886.5431469
4485	4740	0.43318	2545.01563	1102.449871
4486	4434	0.08418	16987.52148	1430.009558
4492	4477	0.03005	6487.36475	194.9453107
4492	4501	0.02949	6516.16504	192.161707
4498	4483	0.05129	11455.45508	587.5502911
4499	4428	0.17084	23783.37891	4063.152453
4500	4499	0.00781	23783.37891	185.7481893
4501	186	0.12808	237.31654	30.39550244
4501	4492	0.02949	6487.36475	191.3123865
4501	4537	0.13311	6752.87500	898.8751913
4502	175	0.49604	65.06398	32.27433664
4502	4323	0.37609	1063.25305	399.8788396
4502	4737	0.37202	1122.14978	417.4621612
4503	132	0.27438	0.00000	0
4503	4435	0.14056	329.80878	46.35792212
4503	4540	0.12368	304.87103	37.70644899
4504	4556	0.24519	33396.55859	8188.502201
4505	4482	0.06971	1520.28455	105.979036
4506	166	0.26833	9.48706	2.54566281
4506	175	0.50360	78.61752	39.59178307
4506	4328	0.38653	607.74506	234.911698
4506	4611	0.29741	687.35999	204.4277346
4512	4453	0.18254	1220.39099	222.7701713
4512	4522	0.04885	1211.89856	59.20124466
4517	4409	0.24459	1592.87878	389.6022208
4518	1209	0.25763	61.27861	15.78720829
4518	4633	0.24736	1611.74841	398.6820867
4519	1201	0.49883	0.00000	0
4519	4505	0.08002	1520.28455	121.6531697
4520	1201	0.50107	0.10654	0.053383998
4520	4411	0.25291	109.09544	27.59132773
4520	4645	0.24668	129.76584	32.01063741
4521	1209	0.23681	41.35607	9.793530937
4521	1225	0.24421	45.98772	11.2306611
4521	4554	0.07515	412.61533	31.00804205
4521	30125	0.16772	490.87848	82.33013867
4522	151	0.23038	1745.20142	402.0595031

4522	166	0.23889	51.82094	12.37950436
4522	4512	0.04885	1220.39099	59.61609986
4522	4586	0.15544	1096.43567	170.4299605
4523	4498	0.23696	11455.45508	2714.484636
4524	138	0.13567	193.09662	26.19741844
4524	139	0.13188	28.50128	3.758748806
4524	4526	0.07875	1305.37659	102.7984065
4524	4531	0.11431	1219.56091	139.4080076
4525	187	0.13240	0.00000	0
4525	4527	0.03655	1576.67078	57.62731701
4525	4547	0.06237	1556.09180	97.05344557
4526	4524	0.07875	1322.36548	104.1362816
4526	4533	0.01590	1305.37659	20.75548778
4527	4525	0.03655	1556.09180	56.87515529
4527	4528	0.03034	1576.67078	47.83619147
4528	4527	0.03034	1556.09180	47.21182521
4528	4530	0.03172	1576.67078	50.01199714
4529	132	0.11287	777.82153	87.79271609
4529	133	0.12815	266.88971	34.20191634
4529	4534	0.11998	956.97119	114.8174034
4529	4535	0.05309	202.68402	10.76049462
4530	4528	0.03172	1556.09180	49.3592319
4530	4532	0.03172	1576.67078	50.01199714
4531	4524	0.11431	1206.92798	137.9639374
4531	4534	0.13583	962.70105	130.7636836
4531	4721	0.27044	87.76640	23.73554522
4531	13861	0.10808	334.30286	36.13145311
4532	4530	0.03172	1556.09180	49.3592319
4532	4533	0.03447	1322.36548	45.5819381
4532	4582	0.13297	270.09607	35.91467443
4533	4526	0.01590	1322.36548	21.02561113
4533	4532	0.03447	1305.37659	44.99633106
4534	4529	0.11998	962.70105	115.504872
4534	4531	0.13583	956.97119	129.9853967
4535	4529	0.05309	202.91226	10.77261188
4535	4536	0.02206	202.68402	4.471209481
4536	4535	0.02206	202.91226	4.476244456
4536	4539	0.08620	202.68402	17.47136252
4537	151	0.26913	2367.14282	637.0691471
4537	4501	0.13311	6724.68115	895.1223079
4537	4550	0.04552	9089.59570	413.7583963
4538	177	0.13554	4.16110	0.563995494
4538	1651	0.38700	99.17146	38.37935502
4538	4565	0.08451	101.83891	8.606406284
4539	4536	0.08620	202.91226	17.49103681
4539	4540	0.08825	202.68402	17.88686477
4540	177	0.11847	78.41124	9.289379603
4540	4503	0.12368	329.80878	40.79074991
4540	4539	0.08825	202.91226	17.90700695
4540	4566	0.08733	456.63788	39.87818606
4541	4486	0.18471	16987.52148	3137.765093
4542	4557	0.05525	28564.43555	1578.185064
4547	4525	0.06237	1576.67078	98.33695655
4547	4559	0.08224	1556.09180	127.9729896

4550	4537	0.04552	9000.87695	409.7199188
4550	4559	0.01947	9089.59570	176.9744283
4554	4521	0.07515	408.27731	30.68203985
4554	4656	0.17067	412.61533	70.42105837
4556	4571	0.07667	33396.55859	2560.514147
4557	4577	0.06583	28564.43555	1880.396792
4558	4438	0.32222	10104.17773	3255.768148
4558	4541	0.05691	16987.52148	966.7598474
4559	152	0.10953	163.78058	17.93888693
4559	4547	0.08224	1576.67078	129.6654049
4559	4550	0.01947	9000.87695	175.2470742
4559	4579	0.06399	8443.62207	540.3073763
4560	4500	0.28331	23783.37891	6738.069079
4560	4523	0.13253	11455.45508	1518.191462
4563	1255	0.26452	341.08136	90.22284135
4563	4564	0.00965	0.00000	0
4563	4661	0.13787	2045.92639	282.0718714
4564	4517	0.12087	1592.87878	192.5312581
4564	4563	0.00965	341.08136	3.291435124
4565	4538	0.08451	102.32827	8.647762098
4565	4573	0.02725	101.83891	2.775110298
4566	4540	0.08733	481.82721	42.07797025
4566	4574	0.03115	456.63788	14.22426996
4571	4871	0.88222	33396.55859	29463.11192
4572	4560	0.06912	35238.83594	2435.70834
4573	4565	0.02725	102.32827	2.788445358
4573	4719	0.13517	101.83891	13.76556546
4574	133	0.24875	0.00000	0
4574	4566	0.03115	481.82721	15.00891759
4574	13258	0.10008	456.63788	45.70031903
4575	4572	0.01996	35238.83594	703.3671654
4576	4558	0.06473	27091.69922	1753.645691
4577	4614	0.06639	28564.43555	1896.392876
4579	187	0.12136	276.11716	33.50957854
4579	4559	0.06399	8370.89648	535.6536658
4579	4716	0.11962	8357.20020	999.6882879
4582	139	0.12488	269.00223	33.59299848
4582	187	0.12825	11.54145	1.480190963
4582	4532	0.13297	266.50604	35.43730814
4582	4612	0.05732	3.39371	0.194527457
4583	133	0.25225	14.35573	3.621232893
4583	139	0.12451	13.82402	1.72122873
4586	4522	0.15544	1085.10413	168.668586
4586	4629	0.07180	1096.43567	78.72408111
4590	79	10.00000	54.47035	544.7035
4590	4591	1.00181	53.26605	53.36246155
4591	4590	1.00181	54.47035	54.56894133
4591	4594	0.99767	53.26605	53.1419401
4594	4591	0.99767	54.47035	54.34343408
4594	4597	0.99079	53.26605	52.77546968
4597	2004	2.65474	141.13454	374.6755087
4597	4594	0.99079	54.47035	53.96867808
4597	5006	0.49576	187.28978	92.85078133
4599	4840	0.69053	0.00000	0

4601	3865	2.00571	8.63918	17.32768972
4601	4605	0.50414	10.10709	5.095388353
4603	4576	0.05022	27091.69922	1360.545135
4604	4575	0.11451	35238.83594	4035.199103
4605	4601	0.50414	8.63918	4.355356205
4605	4608	0.48470	10.10709	4.898906523
4608	4605	0.48470	8.63918	4.187410546
4608	6282	1.99902	10.10709	20.20427505
4611	4506	0.29741	694.02893	206.4111441
4611	4749	0.06288	687.35999	43.22119617
4612	4582	0.05732	3.47855	0.199390486
4612	4715	0.05897	3.39371	0.200127079
4613	4173	1.00053	1357.28076	1358.000119
4613	5463	0.99995	1367.04980	1366.981448
4614	4882	0.27944	6380.37695	1782.932535
4614	4898	0.30128	22184.05859	6683.613172
4616	4603	0.01674	27091.69922	453.5150449
4620	1256	0.24928	1237.22559	308.4155951
4620	4652	0.01841	1269.88342	23.37855376
4622	4180	1.00017	3455.78516	3456.372643
4622	5029	0.48812	1640.06030	800.5462336
4624	4183	0.99996	2278.64795	2278.556804
4624	5474	0.99886	2462.93115	2460.123408
4626	1256	0.33243	0.00000	0
4629	4586	0.07180	1085.10413	77.91047653
4629	4720	0.04064	1096.43567	44.55914563
4630	4637	0.16000	7048.94775	1127.83164
4631	4635	0.19375	6575.90137	1274.08089
4632	4631	0.04413	6575.90137	290.1945275
4633	4632	0.00621	6575.90137	40.83634751
4633	4667	0.00837	2533.36206	21.20424044
4634	4519	0.24738	1515.19312	374.828474
4634	4633	0.00827	7497.51514	62.00445021
4635	1209	0.23936	664.72760	159.1091983
4635	1210	0.25274	219.76451	55.54328226
4635	4630	0.08274	7048.94775	583.2299368
4635	4673	0.00948	147.02007	1.393750264
4636	4446	0.47027	471.23489	221.6076317
4636	4655	0.10186	917.24847	93.43092915
4637	4656	0.00940	7048.94775	66.26010885
4638	4639	0.03103	9090.07227	282.0649425
4638	4641	0.02669	8487.98730	226.544381
4639	4638	0.03103	8487.98730	263.3822459
4639	4648	0.07516	9090.07227	683.2098318
4640	4641	0.03418	10062.11523	343.9230986
4640	4765	0.22434	9605.90625	2154.989008
4641	1255	0.26311	1136.43091	299.0063367
4641	1257	0.24821	19.31439	4.794024742
4641	4638	0.02669	9090.07227	242.6140289
4641	4640	0.03418	9605.90625	328.3298756
4642	1225	0.25049	488.66196	122.4049344
4642	1226	0.25284	530.32349	134.0869912
4642	4650	0.16894	7670.34424	1295.827956
4642	4654	0.04550	7841.92529	356.8076007

4644	4646	0.25550	7674.57764	1960.854587
4645	4520	0.24668	109.05203	26.90095476
4645	4644	0.25334	7674.57764	1944.277499
4645	4689	0.00948	238.97331	2.265466979
4646	1201	0.25208	20.00208	5.042124326
4646	4647	0.23729	7685.02051	1823.578517
4646	4687	0.00836	2.43005	0.020315218
4647	4634	0.25023	7685.02051	1923.022682
4648	4639	0.07516	8487.98730	637.9571255
4648	4651	0.11169	9090.07227	1015.270172
4650	4642	0.16894	7246.93896	1224.297868
4650	4656	0.07377	7670.34424	565.8412946
4651	4648	0.11169	8487.98730	948.0233015
4651	4660	0.04827	9090.07227	438.7777885
4652	4620	0.01841	1237.22559	22.77732311
4652	4655	0.11307	471.23489	53.28252901
4652	4677	0.13497	217.87943	29.40718667
4652	4853	0.18867	1916.94299	361.6696339
4653	4659	0.03572	7747.40186	276.7371944
4654	4642	0.04550	8262.48730	375.9431722
4654	4657	0.10411	7841.92529	816.4228419
4655	4636	0.10186	471.23489	47.9999859
4655	4652	0.11307	917.24847	103.7132845
4656	4554	0.17067	408.27731	69.6806885
4656	4650	0.07377	7246.93896	534.6066871
4656	4681	0.00915	7490.61182	68.53909815
4656	4928	0.30676	269.72733	82.74155575
4657	4654	0.10411	8262.48730	860.2075528
4657	4658	0.05447	7841.92529	427.1496705
4658	4657	0.05447	8262.48730	450.0576832
4658	4663	0.02690	7841.92529	210.9477903
4659	1790	1.10065	0.02054	0.022607351
4659	4645	0.50332	7747.40186	3899.422304
4659	4691	0.00892	0.02037	0.0001817
4660	4651	0.04827	8487.98730	409.715147
4660	4661	0.03861	9090.07227	350.9676903
4661	4660	0.03861	8487.98730	327.7211897
4661	4662	0.01034	9266.86230	95.81935618
4661	29953	0.24151	1047.07239	252.8784529
4662	4564	0.13778	1933.96021	266.4610377
4662	4661	0.01034	7665.92236	79.2656372
4662	4663	0.01034	8262.48730	85.43411868
4663	4658	0.02690	8262.48730	222.2609084
4663	4662	0.01034	7841.92529	81.0855075
4665	4424	0.49842	119.39281	59.50776436
4665	4679	0.91218	8422.75684	7683.070334
4665	4686	0.13594	7747.40186	1053.181809
4665	5301	0.75467	938.00757	707.8861729
4666	4667	0.00621	6966.05957	43.25922993
4667	4668	0.00827	7109.25293	58.79352173
4667	4889	0.25551	2390.16895	610.7120684
4668	4634	0.00837	1327.68787	11.11274747
4668	4670	0.04068	8079.34766	328.6678628
4670	1475	0.32504	30.83772	10.02349251

4670	4687	0.44684	8050.75586	3597.399748
4672	4425	0.49807	658.48932	327.9737756
4672	5081	0.50983	862.99438	439.9804248
4673	4635	0.00948	671.57214	6.366503887
4673	4666	0.23788	6966.05957	1657.086251
4675	4673	0.08274	7490.61182	619.773222
4677	4652	0.13497	167.57275	22.61729407
4677	4765	0.07877	217.87943	17.1623627
4679	4665	0.91218	8004.56445	7301.6036
4679	4680	0.26938	8422.75684	2268.922238
4680	1778	0.90873	135.73433	123.3458577
4680	4679	0.26938	8004.56445	2156.269572
4680	4688	2.77046	8573.99609	23753.91321
4681	4675	0.15997	7490.61182	1198.273173
4686	4653	0.32697	7747.40186	2533.167986
4686	4665	0.13594	8657.06348	1176.841209
4687	4646	0.00836	17.57827	0.146954337
4687	4689	0.50883	8035.60791	4088.758373
4688	1768	1.22914	488.37769	600.2845539
4688	4680	2.77046	8140.29883	22552.3723
4688	4693	0.08834	8392.36426	741.3814587
4689	4645	0.00948	145.43484	1.378722283
4689	4691	0.50332	8657.06348	4357.273191
4689	4923	0.29351	209.69260	61.54687503
4691	1791	0.73693	0.02037	0.015011264
4691	4659	0.00892	0.02054	0.000183217
4691	4686	0.36216	8657.06348	3135.24211
4693	4688	0.08834	7953.89746	702.6473016
4693	4752	1.00678	8392.36426	8449.26449
4696	4429	0.50884	118.33095	60.2115206
4696	5086	0.50160	288.79132	144.8577261
4697	4668	0.01673	2297.78223	38.44189671
4700	4437	0.50058	431.02896	215.7644768
4700	5093	0.50169	309.39746	155.2216117
4701	4703	0.01323	3233.21899	42.77548724
4701	29919	0.01313	262.56717	3.447506942
4701	29961	0.01368	3593.04321	49.15283111
4701	29964	0.01263	481.82721	6.085477662
4702	139	0.11801	450.14087	53.12112407
4702	141	0.19135	472.95670	90.50026455
4702	4715	0.11527	4914.08057	566.4460673
4702	4721	0.08126	4578.54541	372.0526
4703	4701	0.01323	3322.55493	43.95740172
4703	22461	0.01104	3233.21899	35.69473765
4704	4723	0.05314	3233.21899	171.8132571
4704	22461	0.17822	3322.55493	592.1457396
4705	4709	0.01989	1438.64270	28.6146033
4705	4716	0.05723	1466.79529	83.94469445
4706	4712	0.03448	3910.06494	134.8190391
4706	4717	0.03310	3997.97803	132.3330728
4707	187	0.11772	43.51477	5.122558724
4707	188	0.20052	55.18792	11.06628172
4707	4711	0.05723	4951.53857	283.3765524
4707	4722	0.07103	4857.37549	345.0193811

4708	4710	0.03993	292.75629	11.68975866
4708	4714	0.03724	282.26694	10.51162085
4709	152	0.10653	191.73007	20.42500436
4709	153	0.20076	344.36157	69.13402879
4709	4705	0.01989	1466.79529	29.17455832
4709	4718	0.03873	1061.75232	41.12166735
4710	159	0.08735	79.01067	6.901582025
4710	4708	0.03993	282.26694	11.27091891
4710	4713	0.04282	374.56256	16.03876882
4711	4707	0.05723	4901.94043	280.5380508
4711	4715	0.05999	4951.53857	297.0427988
4712	4706	0.03448	3997.97803	137.8502825
4712	4726	0.12549	3910.06494	490.6740493
4713	4710	0.04282	361.27762	15.46990769
4713	4727	0.02690	1077.07275	28.97325698
4713	4766	0.03322	961.10529	31.92791773
4714	4708	0.03724	292.75629	10.90224424
4714	4724	0.03448	510.45398	17.60045323
4714	4772	0.04500	313.46225	14.10580125
4715	4612	0.05897	3.47855	0.205130094
4715	4702	0.11527	4997.53760	576.0661592
4715	4711	0.05999	4901.94043	294.0674064
4715	4796	0.06510	53.29559	3.469542909
4716	4579	0.11962	8292.13281	991.9049267
4716	4705	0.05723	1438.64270	82.33352172
4716	4722	0.06068	4858.86670	294.8360314
4716	4792	0.06344	7042.61084	446.7832317
4717	4706	0.03310	3910.06494	129.4231495
4717	4723	0.05516	3997.97803	220.5284681
4718	4709	0.03873	1077.07275	41.71502761
4718	4732	0.05241	1061.75232	55.64643909
4719	131	0.53313	51.10926	27.24787978
4719	4573	0.13517	102.32827	13.83171226
4719	4731	0.06619	3447.79492	228.2095458
4719	30123	0.22408	3539.29199	793.0845491
4720	4629	0.04064	1085.10413	44.09863184
4720	4724	0.03447	504.10495	17.37649763
4720	4728	0.04896	827.68616	40.52351439
4721	4531	0.27044	88.31136	23.8829242
4721	4702	0.08126	4476.48779	363.7593978
4721	4725	0.04275	4537.49951	193.9781041
4722	4707	0.07103	4858.86670	345.1253017
4722	4716	0.06068	4857.37549	294.7455447
4723	133	0.12178	321.56522	39.16021249
4723	134	0.18915	779.21722	147.3889372
4723	4704	0.05314	3322.55493	176.560569
4723	4717	0.05516	3910.06494	215.6791821
4724	4714	0.03448	504.10495	17.38153868
4724	4720	0.03447	510.45398	17.59534869
4725	4721	0.04275	4435.98682	189.6384366
4725	4726	0.00965	4537.49951	43.78687027
4726	4712	0.12549	3997.97803	501.706263
4726	4725	0.00965	4435.98682	42.80727281
4726	4799	0.06788	694.50665	47.1431114

4727	4713	0.02690	1061.75232	28.56113741
4727	4729	0.06964	1077.07275	75.00734631
4728	4720	0.04896	810.00555	39.65787173
4728	4730	0.04137	827.68616	34.24137644
4729	4727	0.06964	1061.75232	73.94043156
4729	4732	0.05033	1077.07275	54.20907151
4730	4728	0.04137	810.00555	33.5099296
4730	4733	0.03793	1176.50842	44.62496437
4730	4773	0.05660	342.65997	19.3945543
4731	4719	0.06619	3395.27563	224.7332939
4731	4736	0.05585	3447.79492	192.5593463
4732	4718	0.05241	1077.07275	56.44938283
4732	4729	0.05033	1061.75232	53.43799427
4733	4730	0.03793	1152.66553	43.72060355
4733	4735	0.07929	1176.50842	93.28535262
4734	175	0.36854	32.44057	11.95564767
4734	178	0.28994	19.12227	5.544310964
4734	4737	0.50285	728.40948	366.280707
4734	4742	0.24663	792.36786	195.4216853
4735	166	0.32569	53.01143	17.26529264
4735	189	0.17886	27.05382	4.838846245
4735	4733	0.07929	1152.66553	91.39484987
4735	4744	0.16316	1177.59790	192.1368734
4736	4731	0.05585	3395.27563	189.6261439
4736	4748	0.03999	3447.79492	137.8773189
4737	4502	0.37202	1128.31702	419.7564978
4737	4734	0.50285	759.58130	381.9554567
4737	4743	1.00183	4980.27441	4989.388312
4737	4940	0.29767	4854.18848	1444.946285
4738	4739	0.01241	5062.87988	62.83033931
4738	4740	0.12204	4980.27441	607.792689
4739	4738	0.01241	4980.27441	61.80520543
4739	4747	0.36129	5062.87988	1829.167872
4740	4485	0.43318	2788.04688	1207.726147
4740	4738	0.12204	5062.87988	617.8738606
4740	4776	0.35417	8072.30811	2858.969363
4740	5109	0.50285	3149.09863	1583.524246
4741	4743	0.16479	5062.87988	834.3119754
4741	4747	0.33303	4980.27441	1658.580787
4742	4734	0.24663	761.33838	187.7688847
4742	4745	0.03447	792.36786	27.31292013
4743	4737	1.00183	5062.87988	5072.14495
4743	4741	0.16479	4980.27441	820.69942
4744	171	0.13228	179.29105	23.71662009
4744	4735	0.16316	1150.50098	187.7157399
4744	4749	0.12575	998.30682	125.5370826
4745	4742	0.03447	761.33838	26.24333396
4745	4746	0.07905	792.36786	62.63667933
4746	176	0.27645	149.01790	41.19599846
4746	4745	0.07905	761.33838	60.18379894
4746	4749	0.13607	832.82019	113.3218433
4747	4739	0.36129	4980.27441	1799.323342
4747	4741	0.33303	5062.87988	1686.090886
4748	4736	0.03999	3395.27563	135.7770724

4748	4750	0.04895	3447.79492	168.7695613
4749	4611	0.06288	694.02893	43.64053912
4749	4744	0.12575	977.11469	122.8721723
4749	4746	0.13607	801.00586	108.9928674
4749	4802	0.07960	1450.50562	115.4602474
4750	4748	0.04895	3395.27563	166.1987421
4750	4751	0.03793	3447.79492	130.7748613
4751	4750	0.03793	3395.27563	128.7828046
4751	4753	0.04965	3447.79492	171.1830178
4752	4459	0.49521	314.21924	155.6045098
4752	4693	1.00678	7953.89746	8007.824885
4752	4767	0.88575	8484.49512	7515.141553
4752	5098	0.49576	812.84082	402.9739649
4753	1651	0.46103	9.00637	4.152206761
4753	4751	0.04965	3395.27563	168.575435
4753	4754	0.05447	4291.33594	233.7490687
4753	5161	0.53647	871.39893	467.479384
4754	4753	0.05447	4274.91748	232.8547551
4754	4755	0.07033	4291.33594	301.8096567
4755	4754	0.07033	4274.91748	300.6549464
4755	4756	0.07516	4291.33594	322.5368093
4756	1652	0.51513	307.14713	158.2207011
4756	4755	0.07516	4274.91748	321.3027978
4756	4757	0.25581	3984.18872	1019.195316
4757	93	2.00000	4014.39551	8028.79102
4757	4464	0.49830	0.00000	0
4757	4756	0.25581	3962.03223	1013.527465
4757	5018	0.41366	275.63049	114.0173085
4759	4335	1.46470	846.17963	1239.399304
4759	4897	0.39496	665.48932	262.8416618
4765	4640	0.22434	10062.11523	2257.334931
4765	4677	0.07877	167.57275	13.19970552
4765	4812	0.12306	12115.02832	1490.875385
4765	4878	0.19712	2721.22510	536.4078917
4766	153	0.15783	174.87701	27.60083849
4766	4713	0.03322	963.14081	31.99553771
4766	4814	0.11924	846.61523	100.9504
4767	1760	1.30271	18.15772	23.65424342
4767	1761	1.78246	6.55966	11.69233156
4767	4752	0.88575	8060.71143	7139.775149
4767	4768	0.11776	8496.22461	1000.51541
4768	4767	0.11776	8072.30811	950.595003
4768	4776	0.67730	8496.22461	5754.492928
4772	159	0.04150	70.31240	2.9179646
4772	4714	0.04500	330.30060	14.863527
4772	4808	0.08364	243.14986	20.33705429
4773	4730	0.05660	348.82227	19.74334048
4773	4808	0.07427	342.65997	25.44935597
4776	4740	0.35417	8496.22461	3009.10787
4776	4768	0.67730	8072.30811	5467.374283
4792	4716	0.06344	6950.88184	440.9639439
4792	4801	0.03397	2955.36157	100.3936325
4792	4817	0.06344	4237.17334	268.8062767
4796	4715	0.06510	87.23891	5.679253041

4796	4825	0.06399	53.29559	3.410384804
4799	4726	0.06788	680.90729	46.21998685
4799	4819	0.05953	694.50665	41.34398087
4801	4792	0.03397	2995.79053	101.7670043
4801	4839	0.08892	2955.36157	262.7907508
4802	4749	0.07960	1404.16809	111.77178
4802	4809	0.01782	1450.50562	25.84801015
4807	4697	0.10596	2297.78223	243.4730051
4808	189	0.09535	178.64124	17.03344223
4808	4772	0.08364	256.16681	21.42579199
4808	4773	0.07427	348.82227	25.90702999
4808	4816	0.03431	576.57831	19.78240182
4809	4802	0.01782	1404.16809	25.02227536
4809	4830	0.02950	1450.50562	42.78991579
4812	4765	0.12306	12545.69043	1543.872664
4812	4853	0.10666	12115.02832	1292.188921
4813	4815	0.01994	228.05858	4.547488085
4813	4851	0.07603	222.59760	16.92409553
4814	159	0.03956	195.43263	7.731314843
4814	4766	0.11924	877.38721	104.6196509
4814	4841	0.06045	1044.65112	63.1491602
4815	171	0.12210	220.77538	26.9566739
4815	4813	0.01994	222.59760	4.438596144
4815	4886	0.10794	9.38558	1.013079505
4816	159	0.08621	2.81448	0.242636321
4816	4808	0.03431	597.88098	20.51329642
4816	4841	0.04045	573.76379	23.20874531
4817	4792	0.06344	4105.01563	260.4221916
4817	4852	0.03786	4237.17334	160.4193827
4819	4799	0.05953	680.90729	40.53441097
4819	4844	0.02837	694.50665	19.70315366
4825	4796	0.06399	87.23891	5.582417851
4825	4861	0.06178	53.29559	3.29260155
4830	171	0.12623	330.76309	41.75222485
4830	4809	0.02950	1404.16809	41.42295866
4830	4873	0.07680	1436.82544	110.3481938
4839	4801	0.08892	2995.79053	266.3856939
4839	4872	0.09141	2955.36157	270.1496011
4840	4599	0.69053	0.00000	0
4840	4887	0.17463	0.00000	0
4841	4814	0.06045	1072.81982	64.85195812
4841	4816	0.04045	594.95807	24.06605393
4841	4856	0.05165	556.57623	28.74716228
4841	4877	0.09294	1120.73975	104.1615524
4844	4819	0.02837	680.90729	19.31733982
4844	4860	0.03450	694.50665	23.96047943
4851	4813	0.07603	228.05858	17.33929384
4851	4885	0.07236	222.59760	16.10716234
4852	4817	0.03786	4105.01563	155.4158918
4852	4863	0.02894	4237.17334	122.6237965
4853	1258	0.14588	804.48346	117.3580471
4853	4652	0.18867	1488.57813	280.8500358
4853	4812	0.10666	12545.69043	1338.123341
4853	4884	0.16228	14642.10645	2376.121035

4856	4841	0.05165	573.44012	29.6181822
4856	4879	0.03118	556.57623	17.35404685
4860	134	0.24823	565.85492	140.4621668
4860	141	0.12756	174.13748	22.21297695
4860	4844	0.03450	680.90729	23.49130151
4860	4903	0.06236	1361.15051	84.8813458
4861	141	0.12342	500.28571	61.74526233
4861	188	0.11615	10.72690	1.245929435
4861	4825	0.06178	87.23891	5.38961986
4861	4904	0.06237	544.26379	33.94573258
4862	1331	0.30211	25.67650	7.757127415
4862	4866	0.05330	48.33762	2.576395146
4862	5008	0.30835	41.64645	12.84168286
4863	188	0.13328	433.75986	57.81151414
4863	4852	0.02894	4105.01563	118.7991523
4863	4895	0.03897	4184.71143	163.0782044
4864	4460	0.68568	418.15891	286.7232014
4864	5100	0.30839	944.93866	291.4096334
4866	4862	0.05330	9.24723	0.492877359
4866	30198	0.33511	48.33762	16.19841984
4870	134	0.25038	83.85928	20.99668653
4870	4901	0.05165	346.49905	17.89667593
4870	30122	0.18015	252.17201	45.4287876
4871	4966	0.31127	33396.55859	10395.34679
4872	153	0.07853	228.14122	17.91593001
4872	154	0.12992	25.69173	3.337869562
4872	4839	0.09141	2995.79053	273.8452123
4872	4919	0.08991	2752.20288	247.4505609
4873	4830	0.07680	1396.42737	107.245622
4873	4951	0.11132	1436.82544	159.947408
4876	4662	0.23685	753.58258	178.4860341
4877	168	0.15953	118.41473	18.89070188
4877	189	0.10442	5.94902	0.621196668
4877	4841	0.09294	1153.23889	107.1820224
4877	4921	0.09284	1008.00958	93.58360941
4878	1257	0.19930	1175.03516	234.1845074
4878	4765	0.19712	2696.46558	531.5272951
4878	5053	0.25473	1561.00354	397.6344317
4879	4856	0.03118	573.44012	17.87986294
4879	4920	0.07765	556.57623	43.21814426
4880	4604	0.77739	35238.83594	27394.31867
4881	1330	0.29792	2001.71326	596.3504144
4881	4882	0.09859	2353.77295	232.0584751
4881	30198	0.12520	305.61307	38.26275636
4882	4881	0.09859	2252.25244	222.0495681
4882	4883	0.13031	6645.81592	866.0162725
4882	5067	0.26269	10345.16699	2717.571917
4883	4616	0.28099	6150.65039	1728.271253
4883	4882	0.13031	10509.08496	1369.438861
4883	4884	0.03724	14662.87598	546.0455015
4884	4853	0.16228	14662.87598	2379.491514
4884	4883	0.03724	14642.10645	545.2720442
4885	167	0.09971	59.20589	5.903419292
4885	189	0.09669	81.58077	7.888044651

4885	4851	0.07236	228.05858	16.50231885
4885	4921	0.07153	353.89789	25.31431607
4886	4815	0.10794	9.71422	1.048552907
4886	4913	0.03172	9.38558	0.297710598
4887	4840	0.17463	0.00000	0
4887	4896	0.01793	20.05580	0.359600494
4887	5096	0.27273	8.97395	2.447465384
4889	1210	0.25148	62.83345	15.80135601
4889	1475	0.24951	12.03240	3.002204124
4889	4807	0.13274	2297.78223	305.0076132
4889	5057	0.23988	2473.62329	593.3727548
4894	1474	0.24671	0.00000	0
4894	1475	0.24699	0.00000	0
4895	154	0.14558	271.44992	39.51767935
4895	4863	0.03897	4108.66406	160.1146384
4895	4908	0.02226	3913.26147	87.10920032
4896	4887	0.01793	8.97395	0.160902924
4896	5165	0.54391	20.05580	10.90855018
4897	4759	0.39496	846.17963	334.2071067
4897	4899	0.00794	665.48932	5.283985201
4898	5067	0.22614	22184.05859	5016.70301
4899	4897	0.00794	846.17963	6.718666262
4899	4970	0.22944	665.48932	152.6898696
4901	4870	0.05165	336.03131	17.35601716
4901	4939	0.04621	346.49905	16.0117211
4903	4860	0.06236	1348.95447	84.12080075
4903	4944	0.06292	1361.15051	85.64359009
4904	4861	0.06237	576.96179	35.98510684
4904	4932	0.03060	544.26379	16.65447197
4908	4895	0.02226	3838.97778	85.45564538
4908	4922	0.01670	3913.26147	65.35146655
4913	167	0.07914	7.27322	0.575602631
4913	4886	0.03172	9.71422	0.308135058
4913	4959	0.06456	14.75269	0.952433666
4919	4872	0.08991	2788.59766	250.7228156
4919	4960	0.08876	2752.20288	244.2855276
4920	153	0.18017	589.54755	106.2187821
4920	168	0.09308	400.19321	37.24998399
4920	4879	0.07765	573.44012	44.52762532
4920	4960	0.07690	1571.33838	120.8359214
4921	4877	0.09284	1034.82434	96.07309173
4921	4885	0.07153	361.17032	25.83451299
4921	4962	0.09333	971.45209	90.66562356
4921	4963	0.09027	281.09735	25.37465778
4922	4908	0.01670	3838.97778	64.11092893
4922	4933	0.01226	3913.26147	47.97658562
4923	1474	0.26021	9.43952	2.456257499
4923	4689	0.29351	737.61017	216.495961
4923	5051	0.19360	200.79591	38.87408818
4925	4402	0.80927	2086.90942	1688.873186
4925	5002	0.12951	2128.45947	275.656786
4928	4656	0.30676	283.64810	87.01189116
4928	4938	0.02009	269.72733	5.41882206
4932	4904	0.03060	576.96179	17.65503077

4932	4947	0.03341	544.26379	18.18385322
4933	4922	0.01226	3838.97778	47.06586758
4933	4952	0.03396	3913.26147	132.8943595
4938	1210	0.26175	291.58688	76.32286584
4938	1226	0.22404	20.17961	4.521039824
4938	4928	0.02009	283.64810	5.698490329
4938	5069	0.17319	572.88623	99.21816617
4939	4901	0.04621	336.03131	15.52800684
4939	4980	0.08014	346.49905	27.76843387
4940	178	0.50679	12.92863	6.552100398
4940	4737	0.29767	4808.92236	1431.471919
4940	5110	0.20552	4841.25977	994.9757079
4944	4903	0.06292	1348.95447	84.87621525
4944	4983	0.06286	1361.15051	85.56192106
4947	4932	0.03341	576.96179	19.2762934
4947	4984	0.06177	544.26379	33.61917431
4948	4950	0.06619	42.95815	2.843399949
4948	4956	0.02694	14.88505	0.401003247
4948	5016	0.10344	27.47696	2.842216742
4950	171	0.18302	30.47129	5.576855496
4950	172	0.11248	2.60023	0.29247387
4950	4948	0.06619	42.36201	2.803941442
4950	4955	0.05931	14.41183	0.854765637
4951	176	0.14447	295.87885	42.74561746
4951	4873	0.11132	1396.42737	155.4502948
4951	4955	0.06481	14.54270	0.942512387
4951	4964	0.02282	1478.14111	33.73118013
4952	4933	0.03396	3838.97778	130.3716854
4952	4972	0.04896	3913.26147	191.5932816
4955	4950	0.05931	14.54270	0.862527537
4955	4951	0.06481	14.41183	0.934030702
4956	4948	0.02694	14.75269	0.397437469
4956	4959	0.03245	14.88505	0.483019873
4959	4913	0.06456	14.88505	0.960978828
4959	4956	0.03245	14.75269	0.478724791
4960	4919	0.08876	2788.59766	247.5159283
4960	4920	0.07690	1526.50293	117.3880753
4960	4995	0.07724	1205.77905	93.13437382
4960	4998	0.09470	3001.42700	284.2351369
4962	4921	0.09333	1014.53833	94.68686234
4962	4969	0.03822	971.45209	37.12889888
4963	4921	0.09027	272.09833	24.56231625
4963	4975	0.05640	281.09735	15.85389054
4964	4951	0.02282	1444.18481	32.95629736
4964	5019	0.08459	1478.14111	125.0359565
4966	5074	0.24955	1545.43494	385.6632893
4966	5153	0.29208	31851.12305	9303.07602
4968	4880	0.30194	35238.83594	10640.01412
4969	167	0.06009	26.30462	1.580644616
4969	190	0.15251	0.58759	0.089613351
4969	4962	0.03822	1014.53833	38.77565497
4969	5141	0.19166	996.70282	191.0280625
4970	4899	0.22944	846.17963	194.1474543
4970	4971	0.00881	665.48932	5.862960909

4971	4970	0.00881	846.17963	7.45484254
4971	4974	0.01117	665.48932	7.433515704
4972	4952	0.04896	3838.97778	187.9563521
4972	4993	0.01393	3913.26147	54.51173228
4974	4971	0.01117	846.17963	9.451826467
4974	5022	0.11908	665.48932	79.24646823
4975	168	0.09138	45.23448	4.133526782
4975	190	0.08132	115.46174	9.389348697
4975	4963	0.05640	272.09833	15.34634581
4975	5000	0.02256	264.13507	5.958887179
4977	4980	0.07033	17.97418	1.264124079
4977	4981	0.05240	18.36690	0.96242556
4978	4979	0.02827	17.97418	0.508130069
4978	4991	0.06277	18.36690	1.152890313
4979	4978	0.02827	18.36690	0.519232263
4979	4982	0.03310	17.97418	0.594945358
4980	4939	0.08014	336.03131	26.92954918
4980	4977	0.07033	18.36690	1.291744077
4980	5082	0.10524	364.47324	38.35716378
4981	4977	0.05240	17.97418	0.941847032
4981	4985	0.06688	18.36690	1.228378272
4982	134	0.18916	57.48981	10.87477246
4982	135	0.33171	58.28603	19.33405901
4982	4979	0.03310	18.36690	0.60794439
4982	4985	0.05792	17.97418	1.041064506
4983	4944	0.06286	1348.95447	84.79527798
4983	4986	0.03999	17.97418	0.718787458
4983	4988	0.12687	578.18292	73.35406706
4983	5037	0.06621	1286.68823	85.19162771
4984	4947	0.06177	576.96179	35.63892977
4984	4987	0.02827	1207.82227	34.14513557
4984	4988	0.12480	563.11987	70.27735978
4984	5009	0.03004	338.02960	10.15440918
4985	4981	0.06688	17.97418	1.202113158
4985	4982	0.05792	18.36690	1.063810848
4986	4983	0.03999	18.36690	0.734492331
4986	4991	0.08619	17.97418	1.549194574
4987	4984	0.02827	1257.14404	35.53946201
4987	4990	0.02965	1207.82227	35.81193031
4988	141	0.18920	7.47610	1.41447812
4988	142	0.17044	31.54753	5.376961013
4988	4983	0.12687	586.36224	74.39177739
4988	4984	0.12480	554.32526	69.17979245
4989	4990	0.02689	1257.14404	33.80460324
4989	4992	0.03517	1207.82227	42.47910924
4990	4987	0.02965	1257.14404	37.27432079
4990	4989	0.02689	1207.82227	32.47834084
4991	4978	0.06277	17.97418	1.128239279
4991	4986	0.08619	18.36690	1.583043111
4992	143	0.19032	172.51923	32.83385985
4992	188	0.18033	35.77573	6.451437391
4992	4989	0.03517	1257.14404	44.21375589
4992	4994	0.09722	1339.91968	130.2669913
4993	4972	0.01393	3838.97778	53.47696048

4993	4994	0.03172	1393.90283	44.21459777
4993	5020	0.04620	3101.74023	143.3003986
4993	5025	0.08276	1465.11938	121.2532799
4994	4992	0.09722	1393.90283	135.5152331
4994	4993	0.03172	1339.91968	42.50225225
4995	154	0.13502	247.88707	33.46971219
4995	160	0.06653	118.96380	7.914661614
4995	4960	0.07724	1183.41821	91.40722254
4995	5027	0.07199	927.74023	66.78801916
4998	160	0.06359	56.98720	3.623816048
4998	168	0.07765	197.21091	15.31342716
4998	4960	0.09470	3015.34692	285.5533533
4998	5040	0.08688	3255.75464	282.8599631
5000	4975	0.02256	263.86853	5.952874037
5000	5040	0.07492	264.13507	19.78899944
5002	4925	0.12951	2086.90942	270.275639
5002	5041	0.05088	2128.45947	108.2960178
5006	4597	0.49576	192.96306	95.66336663
5006	5668	0.77481	187.28978	145.1139944
5008	4862	0.30835	74.01411	22.82225082
5008	5270	0.43851	41.64645	18.26238479
5009	4984	0.03004	330.20041	9.919220316
5009	5032	0.03394	338.02960	11.47272462
5016	172	0.09526	57.20630	5.449472138
5016	4948	0.10344	28.20545	2.917571748
5016	5065	0.04917	72.12393	3.546333638
5018	1652	0.25846	13.65717	3.529832158
5018	4757	0.41366	272.74554	112.8239201
5018	5577	0.59044	261.97330	154.6795153
5019	172	0.09248	101.38842	9.376401082
5019	4964	0.08459	1444.18481	122.1635931
5019	5046	0.03617	1509.39771	54.59491517
5020	4993	0.04620	3071.74902	141.9148047
5020	5036	0.01782	3101.74023	55.2730109
5022	4974	0.11908	846.17963	100.7630703
5022	5023	0.01602	665.48932	10.66113891
5023	5022	0.01602	846.17963	13.55579767
5023	5024	0.03672	665.48932	24.43676783
5024	5023	0.03672	846.17963	31.07171601
5024	5026	0.01072	665.48932	7.13404551
5025	154	0.11447	209.98630	24.03713176
5025	155	0.07050	2.37766	0.16762503
5025	4993	0.08276	1474.81030	122.0553004
5025	5090	0.08791	1563.08167	137.4105096
5026	5024	0.01072	846.17963	9.071045634
5026	5105	0.13992	665.48932	93.11526565
5027	4995	0.07199	905.02289	65.15259785
5027	5090	0.07549	927.74023	70.03510996
5029	1924	1.41256	35.25396	49.79833374
5029	1925	1.37685	500.56158	689.1982114
5029	4622	0.48812	3455.78516	1686.837852
5029	6345	1.52899	2038.97937	3117.579067
5032	5009	0.03394	330.20041	11.20700192
5032	5123	0.06403	338.02960	21.64403529

5035	160	0.03758	9.87860	0.371237788
5035	5101	0.07756	815.28680	63.23364421
5035	5107	0.08977	757.94928	68.04110687
5036	5020	0.01782	3071.74902	54.73856754
5036	5094	0.05120	3101.74023	158.8090998
5037	4983	0.06621	1265.92017	83.81657446
5037	5111	0.06067	1286.68823	78.06337491
5040	4998	0.08688	3262.15625	283.416135
5040	5000	0.07492	263.86853	19.76903027
5040	5088	0.06402	2947.78857	188.7174243
5040	5107	0.07549	437.33890	33.01471356
5041	5002	0.05088	2086.90942	106.1819513
5041	5074	0.01899	2128.45947	40.41944534
5046	5019	0.03617	1476.94995	53.42127969
5046	5128	0.04619	1509.39771	69.71908022
5048	5049	0.17184	1263.41638	217.1054707
5048	5061	0.14141	1362.12219	192.6176989
5049	1257	0.24870	316.77606	78.78220612
5049	1259	0.25063	192.08496	48.14225352
5049	5048	0.17184	1362.12219	234.0670771
5049	5053	0.21223	1049.36121	222.7059296
5050	1474	0.24167	0.00000	0
5050	1695	0.26033	0.00000	0
5051	1791	0.55546	28.01943	15.56367259
5051	4923	0.19360	728.71344	141.078922
5051	5285	0.24922	210.71172	52.51357486
5052	5056	0.10926	1233.15845	134.7348922
5052	5057	0.13712	1136.93787	155.8969207
5053	4878	0.25473	1532.00061	390.2465154
5053	5049	0.21223	1120.97717	237.9049848
5053	5060	0.23719	802.17822	190.268652
5055	1475	0.24363	0.00000	0
5055	1696	0.25713	0.00000	0
5056	1210	0.25063	78.27236	19.61740159
5056	1211	0.50739	5.39057	2.735121312
5056	5052	0.10926	1136.93787	124.2218317
5056	5058	0.12791	1308.99097	167.433035
5057	4889	0.23989	2285.58496	548.2889761
5057	5052	0.13712	1233.15845	169.0906867
5057	5273	0.24295	1251.78845	304.1220039
5058	5056	0.12791	1209.82092	154.7481939
5058	5069	0.12910	989.69501	127.7696258
5058	5292	0.25632	1367.36646	350.483371
5059	1226	0.24726	458.64471	113.404491
5059	5062	0.14411	1332.82678	192.0736673
5059	5069	0.20891	1061.06323	221.6667194
5059	5480	0.49270	1943.21741	957.4232179
5060	1258	0.16793	74.50806	12.51213852
5060	1260	0.24793	737.45197	182.8364669
5060	5053	0.23719	844.79132	200.3760532
5060	5073	0.09277	0.00000	0
5061	5048	0.14141	1263.41638	178.6597103
5061	5063	0.00896	1354.34558	12.1349364
5061	29952	0.24144	963.13605	232.5395679

5062	1228	0.49863	0.00000	0
5062	5059	0.14411	1408.64832	203.0003094
5062	5064	0.11997	1332.82678	159.8992288
5063	4876	0.26071	753.58258	196.4665144
5063	5061	0.00896	1317.87683	11.8081764
5063	5064	0.01172	1408.64832	16.50935831
5064	5062	0.11997	1408.64832	168.995539
5064	5063	0.01172	1332.82678	15.62072986
5065	5016	0.04917	85.41176	4.199696239
5065	5133	0.03789	72.12393	2.732775708
5067	5159	0.05301	32529.22461	1724.374197
5069	1227	0.49280	53.57055	26.39956704
5069	4938	0.17319	582.28284	100.8455651
5069	5058	0.12910	961.50977	124.1309113
5069	5059	0.20891	1080.62402	225.753164
5072	4616	0.52975	20941.05078	11093.52165
5073	5060	0.09277	0.00000	0
5073	5084	0.13607	0.00000	0
5074	5041	0.01899	2086.90942	39.63040989
5074	5191	0.21475	7984.09961	1714.585391
5074	19164	0.10112	2362.76636	238.9229343
5081	4672	0.50983	658.48932	335.71761
5081	5492	0.48467	862.99438	418.2674862
5082	4980	0.10524	354.39819	37.29686552
5082	5222	0.14139	364.47324	51.5328714
5084	5073	0.13607	0.00000	0
5084	5284	0.23721	0.00000	0
5085	1002	0.50353	0.00000	0
5085	5086	0.24836	63.54469	15.78195921
5085	5089	0.25162	58.93897	14.83022363
5086	1868	0.97157	130.78445	127.0662481
5086	4696	0.50160	118.33095	59.35480452
5086	5085	0.24836	58.93897	14.63808259
5086	5514	0.50431	365.86414	184.5089444
5088	5040	0.06402	2930.27026	187.595902
5088	5125	0.02311	2947.78857	68.12339385
5089	5085	0.25162	63.54469	15.9891149
5089	5091	0.24995	109.89571	27.46843271
5089	5513	0.49530	53.51365	26.50531085
5090	5025	0.08791	1570.71729	138.081757
5090	5027	0.07549	905.02289	68.32017797
5090	5130	0.02375	1039.43616	24.6866088
5090	5148	0.02350	1499.45825	35.23726888
5091	1014	0.48700	0.00000	0
5091	5089	0.24995	111.28452	27.81556577
5091	5093	0.24858	109.89571	27.31787559
5093	4700	0.50169	431.02896	216.2429189
5093	5091	0.24858	111.28452	27.66310598
5093	5095	0.25522	518.56921	132.3492338
5093	5448	0.42904	802.35754	344.243479
5094	155	0.04215	90.42811	3.811544837
5094	5036	0.05120	3071.74902	157.2735498
5094	5166	0.03674	3084.34692	113.3189058
5095	1028	0.41644	11.61853	4.838420633

5095	1876	1.00051	508.70859	508.9680314
5095	5093	0.25522	633.73926	161.7429339
5095	5097	0.25986	124.42283	32.3325166
5096	1379	0.62096	0.00000	0
5096	4887	0.27273	20.05580	5.469818334
5096	5377	0.63897	8.97395	5.734084832
5097	5095	0.25986	127.01593	33.00635957
5097	5099	0.24778	82.28503	20.38858473
5097	5264	0.20281	168.39648	34.15249011
5098	4752	0.49576	822.16052	407.5942994
5098	5868	0.98547	812.84082	801.0302429
5099	1044	0.40128	7.17382	2.87871049
5099	5097	0.24778	116.43041	28.84912699
5099	5102	0.26109	86.52333	22.59037623
5100	4864	0.30839	418.15891	128.9560263
5100	5103	0.25574	57.95658	14.82181577
5100	5164	0.02909	967.97858	28.15849689
5101	5035	0.07756	765.87195	59.40102844
5101	5126	0.05567	1088.50439	60.59703939
5101	5223	0.13704	328.58536	45.02933773
5102	4467	0.98955	1924.66260	1904.549876
5102	5099	0.26109	123.60423	32.27182841
5102	5103	0.25282	57.42254	14.51756656
5102	5307	0.23977	2204.46924	528.5655897
5103	1056	0.24114	1.12825	0.272066205
5103	5100	0.25574	57.57158	14.72335587
5103	5102	0.25282	56.82833	14.36733839
5104	5106	0.18547	6.71237	1.244943264
5104	5156	0.10591	4.80910	0.509331781
5105	5026	0.13992	846.17963	118.3974538
5105	5157	0.03319	665.48932	22.08759053
5106	5104	0.18547	4.80910	0.891943777
5106	5118	0.32966	11.65988	3.843796041
5106	5518	0.49516	5.07906	2.51494735
5107	161	0.09171	269.39053	24.70580551
5107	5035	0.08977	807.23700	72.46566549
5107	5040	0.07549	460.99225	34.80030495
5107	5127	0.09624	581.60095	55.97327543
5109	4740	0.50285	3050.81860	1534.104133
5109	5181	0.05847	3149.09863	184.1277969
5110	4940	0.20552	4796.09912	985.6942911
5110	5132	0.52612	4710.38623	2478.228403
5110	5332	0.26196	396.68909	103.916674
5111	5037	0.06067	1265.92017	76.80337671
5111	5184	0.06399	1286.68823	82.33517984
5118	1095	0.48896	1.92326	0.94039721
5118	5106	0.32966	9.88816	3.259730826
5118	5147	0.17508	10.00529	1.751726173
5123	5032	0.06403	330.20041	21.14273225
5123	5170	0.03060	338.02960	10.34370576
5124	190	0.08430	76.94971	6.486860553
5124	5125	0.02206	3567.60303	78.70132284
5124	5129	0.06275	4394.86279	275.7776401
5124	5163	0.02285	1605.79993	36.6925284

5125	5088	0.02311	2930.27026	67.71854571
5125	5124	0.02206	3529.38940	77.85833016
5125	5127	0.01931	637.33270	12.30689444
5126	5101	0.05567	1039.43616	57.86541103
5126	5130	0.04413	1088.50439	48.03569873
5127	5107	0.09624	637.33270	61.33689905
5127	5125	0.01931	581.60095	11.23071434
5128	5046	0.04619	1476.94995	68.22031819
5128	5134	0.06205	5309.35986	329.4457793
5128	5139	0.10136	4415.89746	447.5953665
5128	5182	0.06124	2749.46021	168.3769433
5129	5124	0.06275	4365.81738	273.9550406
5129	5149	0.03107	4394.86279	136.5483869
5130	5090	0.02375	803.33728	19.0792604
5130	5126	0.04413	1039.43616	45.87031774
5130	5140	0.01518	285.16714	4.328837185
5131	5133	0.02206	5382.40234	118.7357956
5131	5135	0.03724	5372.17676	200.0598625
5132	178	0.21608	16.70327	3.609242582
5132	180	0.31051	66.00826	20.49622481
5132	5110	0.52612	4660.32959	2451.892604
5132	5138	0.22138	4787.95459	1059.957387
5133	5065	0.03789	85.41176	3.236251586
5133	5131	0.02206	5372.17676	118.5102193
5133	5141	0.02552	5451.73877	139.1283734
5134	5128	0.06205	5308.62646	329.4002718
5134	5142	0.02552	5309.35986	135.4948636
5135	5131	0.03724	5382.40234	200.4406631
5135	5142	0.03793	5372.17676	203.7666645
5136	5137	0.01310	4414.51807	57.83018672
5136	5144	0.04413	4461.12256	196.8693386
5137	5136	0.01310	4461.12256	58.44070554
5137	5143	0.08067	4414.51807	356.1191727
5138	5132	0.22138	4738.11035	1048.922869
5138	5145	0.12135	4787.95459	581.0182895
5139	5128	0.10136	4458.34229	451.8975745
5139	5146	0.01725	4415.89746	76.17423119
5140	5148	0.01931	285.16714	5.506577473
5141	4969	0.19166	1040.24536	199.3734257
5141	5133	0.02552	5454.80127	139.2065284
5141	5144	0.02758	4414.51807	121.7524084
5142	172	0.08377	21.77807	1.824348924
5142	173	0.11094	119.99628	13.3123873
5142	5134	0.02552	5308.62646	135.4761473
5142	5135	0.03793	5382.40234	204.1545208
5143	169	0.24307	627.28107	152.4732097
5143	190	0.11252	97.58965	10.98078742
5143	5137	0.08067	4461.12256	359.8787569
5143	5149	0.03103	4365.81738	135.4713133
5144	5136	0.04413	4414.51807	194.8126824
5144	5141	0.02758	4461.12256	123.0377602
5145	176	0.22994	133.24533	30.63843118
5145	179	0.15768	208.73514	32.91335688
5145	5138	0.12135	4738.11035	574.969691

5145	5146	0.00965	4458.34229	43.0230031
5146	5139	0.01725	4458.34229	76.9064045
5146	5145	0.00965	4415.89746	42.61341049
5147	5118	0.17508	8.99752	1.575285802
5147	5150	0.24829	10.00529	2.484213454
5148	5090	0.02350	1720.47534	40.43117049
5148	5155	0.01303	1784.62524	23.25366688
5149	5129	0.03107	4365.81738	135.645946
5149	5143	0.03103	4394.86279	136.3725924
5150	1096	0.49910	2.63508	1.315168428
5150	5147	0.24829	8.99752	2.233994241
5150	5151	0.24747	7.37020	1.823903394
5151	1896	1.06063	167.54510	177.7033594
5151	5150	0.24747	7.39598	1.830283171
5151	5330	0.25153	148.88242	37.4483951
5153	5191	0.17410	31851.12305	5545.280523
5154	19788	0.14776	35238.83594	5206.890398
5155	5148	0.01303	1720.47534	22.41779368
5155	5167	0.02080	1784.62524	37.12020499
5156	1074	0.49972	0.00000	0
5156	5104	0.10591	6.71237	0.710907107
5156	5310	0.30228	4.80910	1.453694748
5157	5105	0.03319	846.17963	28.08470192
5157	5168	0.02791	665.48932	18.57380692
5158	5154	0.01324	35238.83594	466.5621878
5159	5290	0.19861	32529.22461	6460.6293
5160	4883	0.31880	10034.68945	3199.058997
5160	5072	0.05133	20941.05078	1074.904137
5161	131	0.22047	6.66451	1.46932452
5161	1652	0.27864	374.01132	104.2145142
5161	4753	0.53647	835.48962	448.2151164
5161	5544	0.48450	1240.47034	601.0078797
5162	5158	0.01212	35238.83594	427.0946916
5163	5124	0.02285	1672.55811	38.21795281
5163	5199	0.06344	1605.79993	101.8719476
5164	5100	0.02909	441.58383	12.84567361
5164	5228	0.10123	967.97858	97.98847165
5165	4896	0.54391	8.97395	4.881021145
5165	20474	0.04735	20.05580	0.94964213
5166	5094	0.03674	3053.89624	112.2001479
5166	5189	0.03786	3084.34692	116.7733744
5167	5155	0.02080	1720.47534	35.78588707
5167	5176	0.02018	1784.62524	36.01373734
5168	5157	0.02791	846.17963	23.61687347
5168	5424	0.82297	665.48932	547.6777457
5170	142	0.12575	299.06638	37.60759729
5170	143	0.12586	92.87310	11.68900837
5170	5123	0.03060	330.20041	10.10413255
5170	5187	0.03282	122.06963	4.006325257
5176	155	0.05559	41.68661	2.31735865
5176	156	0.25833	682.72449	176.3682175
5176	5167	0.02018	1720.47534	34.71919236
5176	5190	0.04059	1069.69556	43.41894278
5178	4390	1.14407	1723.85339	1972.208948

5178	5426	0.35126	1694.03589	595.0470467
5181	5109	0.05847	3050.81860	178.3813635
5181	5353	0.23775	3149.09863	748.6981993
5182	5128	0.06124	2675.30078	163.8354198
5182	5234	0.06919	2749.46021	190.2351519
5184	142	0.12658	34.23566	4.333549843
5184	5111	0.06399	1265.92017	81.00623168
5184	5201	0.02893	1320.36401	38.19813081
5187	5170	0.03282	123.29416	4.046514331
5187	5208	0.03174	122.06963	3.874490056
5189	5166	0.03786	3053.89624	115.6205116
5189	5203	0.03005	3084.34692	92.68462495
5190	5176	0.04059	1007.80475	40.9067948
5190	5198	0.01911	1069.69556	20.44188215
5191	5210	0.07431	39835.22266	2960.155396
5195	5205	0.02692	7964.97705	214.4171822
5196	5162	0.17338	33797.43750	5859.799714
5198	5190	0.01911	1007.80475	19.25914877
5198	5203	0.03023	164.37794	4.969145126
5198	5224	0.04416	905.31757	39.97882389
5199	161	0.12697	1165.57898	147.9935631
5199	5163	0.06344	1672.55811	106.1070865
5199	5259	0.10409	440.22095	45.82259869
5201	5184	0.02893	1300.15588	37.61350961
5201	5229	0.03452	1320.36401	45.57896563
5203	143	0.13453	288.71988	38.84148546
5203	5189	0.03005	3053.89624	91.76958201
5203	5198	0.03023	1007.80475	30.46593759
5203	5224	0.02671	3204.02173	85.57942041
5205	5162	0.10289	1441.39734	148.3053723
5205	5218	0.03115	7964.97705	248.1090351
5207	5217	0.01843	2362.76636	43.54578401
5207	19164	0.02815	8759.88086	246.5906462
5208	5187	0.03174	123.29416	3.913356638
5208	5230	0.03118	122.06963	3.806131063
5210	5932	1.99975	39835.22266	79660.48651
5215	5195	0.15481	7964.97705	1233.058097
5215	5196	0.07148	33797.43750	2415.840833
5217	5207	0.01843	8759.88086	161.4446042
5217	19984	0.02931	1465.21631	42.94549005
5217	20245	0.01931	8846.77539	170.8312328
5217	20474	0.06078	8.97395	0.545436681
5218	5205	0.03115	1441.39734	44.89952714
5218	19939	0.01142	159.34508	1.819720814
5218	19984	0.01425	7974.04834	113.6301888
5222	5082	0.14139	354.39819	50.10836008
5222	5237	0.02862	364.47324	10.43122413
5223	161	0.09506	372.60083	35.4194349
5223	5101	0.13704	328.23877	44.98184104
5223	5257	0.07094	564.98669	40.08015579
5224	5203	0.02671	4021.30615	107.4090873
5224	5247	0.03897	4109.33936	160.1409549
5228	5164	0.10123	441.58383	44.70153111
5228	5236	0.01957	967.97858	18.94334081

5229	5201	0.03452	1300.15588	44.88138098
5229	5241	0.02785	1320.36401	36.77213768
5230	5208	0.03118	123.29416	3.844311909
5230	5244	0.03060	122.06963	3.735330678
5234	173	0.09534	39.67227	3.782354222
5234	179	0.12607	417.95206	52.6912162
5234	5182	0.06919	2675.30078	185.104061
5234	5305	0.09221	2734.63501	252.1606943
5236	5228	0.01957	441.58383	8.641795553
5236	5308	0.09282	967.97858	89.8477718
5237	131	0.30968	61.37519	19.00666884
5237	135	0.25259	143.96933	36.36521306
5237	5222	0.02862	354.39819	10.1428762
5237	5315	0.10391	254.49384	26.44445491
5241	5229	0.02785	1300.15588	36.20934126
5241	5254	0.03563	1320.36401	47.04456968
5244	5230	0.03060	123.29416	3.772801296
5244	5252	0.03227	122.06963	3.93918696
5247	5224	0.03897	4021.30615	156.7103007
5247	5251	0.02949	4109.33936	121.1844177
5250	161	0.10234	229.02328	23.43824248
5250	162	0.16430	181.97838	29.89904783
5250	5257	0.10192	308.60281	31.4527984
5250	5259	0.11459	383.28226	43.92031417
5251	5247	0.02949	4021.30615	118.5883184
5251	5302	0.03172	4109.33936	130.3482445
5252	5244	0.03227	123.29416	3.978702543
5252	5326	0.06594	122.06963	8.049271402
5254	135	0.24923	902.81360	225.0082335
5254	5241	0.03563	1300.15588	46.324554
5254	5304	0.03116	450.66080	14.04259053
5257	5223	0.07094	561.50964	39.83349386
5257	5250	0.10192	325.25140	33.14962269
5257	5279	0.01447	415.96423	6.019002408
5259	5199	0.10409	538.34796	56.03663916
5259	5250	0.11459	361.15039	41.38422319
5259	5335	0.07903	698.70459	55.21862375
5264	5097	0.20281	136.84421	27.75337423
5264	5350	0.09502	168.39648	16.00103353
5270	5008	0.43851	74.01411	32.45592738
5270	5377	0.13170	41.64645	5.484837465
5273	1696	0.25056	9.43952	2.365166131
5273	5057	0.24295	1159.97070	281.8148816
5273	5306	0.02084	1243.19434	25.90817005
5278	5063	0.24207	792.93549	191.9458941
5279	5257	0.01447	429.13577	6.209594592
5279	5316	0.04620	415.96423	19.21754743
5282	1695	0.25100	0.00000	0
5282	1696	0.25130	0.00000	0
5284	1260	0.23392	0.00000	0
5284	5084	0.23721	0.00000	0
5285	1695	0.24515	9.43952	2.314098328
5285	5051	0.24922	738.19818	183.9737504
5285	5488	0.24876	202.13277	50.28254787

5287	1259	0.22702	0.00000	0
5290	5662	0.44298	32529.22461	14409.79592
5292	5058	0.25632	1296.38171	332.2885599
5292	5481	0.23815	1367.36646	325.6383224
5301	1778	0.99108	741.59650	734.9814592
5301	1791	0.50475	6.11780	3.08795955
5301	4665	0.75467	420.14282	317.069182
5301	5805	0.73674	1068.53552	787.232859
5302	5251	0.03172	4021.30615	127.5558311
5302	5340	0.05901	4109.33936	242.4921156
5304	5254	0.03116	448.49564	13.97512414
5304	5323	0.03283	450.66080	14.79519406
5305	5234	0.09221	2657.05884	245.0073956
5305	5370	0.09575	2734.63501	261.8413022
5306	5273	0.02084	1151.37659	23.99468814
5306	5486	0.23256	1243.19434	289.1172757
5307	1056	0.25041	15.35774	3.845731673
5307	5102	0.23977	1884.01807	451.7310126
5307	5525	0.26537	2216.50098	588.1928651
5308	5236	0.09282	441.58383	40.9878111
5308	5331	0.02069	967.97858	20.02747682
5310	5156	0.30228	6.71237	2.029015204
5310	5331	0.02261	4.80910	0.108733751
5315	5237	0.10391	252.71243	26.2593486
5315	5425	0.15026	254.49384	38.2402444
5316	5279	0.04620	429.13577	19.82607257
5316	5337	0.02393	415.96423	9.954024024
5323	5304	0.03283	448.49564	14.72411186
5323	5382	0.09307	450.66080	41.94300066
5326	5252	0.06594	123.29416	8.13001691
5326	5415	0.12526	122.06963	15.29044185
5330	5151	0.25153	164.64584	41.41336814
5330	5578	0.25098	148.88242	37.36650977
5331	1056	0.25067	8.06233	2.020984261
5331	5308	0.02069	441.58383	9.136369443
5331	5310	0.02261	6.71237	0.151766686
5331	5493	0.20288	970.21063	196.8363326
5332	180	0.38204	13.03602	4.980281081
5332	5110	0.26196	401.58548	105.1993323
5332	5532	0.24295	383.65311	93.20852307
5335	169	0.13713	321.54980	44.09412407
5335	5259	0.07903	774.69971	61.22451808
5335	5368	0.04731	832.61035	39.39079566
5337	156	0.13898	122.48502	17.02296808
5337	5316	0.02393	429.13577	10.26921898
5337	5366	0.04062	326.45798	13.26072315
5339	1842	0.33070	31.95573	10.56775991
5339	5585	0.50772	127.38935	64.67812078
5339	20280	0.51454	144.59749	74.4011925
5340	5302	0.05901	4021.30615	237.2972759
5340	5365	0.03552	4109.33936	145.9637341
5350	5264	0.09502	136.84421	13.00293683
5350	5408	0.08213	168.39648	13.8304029
5353	5181	0.23775	3050.81860	725.3321222

5353	5523	0.20603	3149.09863	648.8087907
5365	145	0.14274	195.77875	27.94545878
5365	156	0.14068	353.77969	49.76972679
5365	5340	0.03552	4021.30615	142.8367944
5365	5406	0.05022	4237.17432	212.7908944
5366	5337	0.04062	327.60641	13.30737237
5366	5389	0.03830	326.45798	12.50334063
5368	5335	0.04731	911.26776	43.11207773
5368	5388	0.03586	832.61035	29.85740715
5370	5305	0.09575	2657.05884	254.4133839
5370	5393	0.04076	2734.63501	111.463723
5377	5096	0.63897	20.05580	12.81505453
5377	5270	0.13170	74.01411	9.747658287
5377	5407	0.03466	39.12274	1.355994168
5382	144	0.12502	80.60433	10.07715334
5382	5323	0.09307	448.49564	41.74148921
5382	5429	0.05561	370.05646	20.57883974
5386	2004	3.13859	68.07811	213.6692753
5386	2009	2.54464	67.37594	171.447512
5388	162	0.10941	177.73082	19.44552902
5388	5368	0.03586	911.26776	32.67806187
5388	5410	0.02372	864.35864	20.50258694
5389	162	0.10760	16.86346	1.814508296
5389	5366	0.03830	327.60641	12.5473255
5389	5416	0.02906	309.59451	8.996816461
5392	144	0.11930	2.47013	0.294686509
5392	145	0.12835	2.50776	0.321870996
5393	174	0.15007	236.35222	35.46937766
5393	191	0.11249	38.70059	4.353429369
5393	5370	0.04076	2657.05884	108.3017183
5393	5551	0.14513	2629.37842	381.6016901
5406	5365	0.05022	4149.30322	208.3780077
5406	5475	0.08493	4237.17432	359.863215
5407	5377	0.03466	82.57226	2.861954532
5407	5653	0.27356	39.12274	10.70241675
5408	5350	0.08213	136.84421	11.23901497
5408	5437	0.04079	168.39648	6.868892419
5410	5388	0.02372	946.64520	22.45442414
5410	5433	0.03230	864.35864	27.91878407
5415	5326	0.12526	123.29416	15.44382648
5415	5576	0.12640	122.06963	15.42960123
5416	5389	0.02906	311.49109	9.051931075
5416	5449	0.03617	309.59451	11.19803343
5424	5168	0.82297	846.17963	696.3804501
5424	5683	1.09197	665.48932	726.6943728
5425	5315	0.15026	252.71243	37.97256973
5425	5538	0.10350	254.49384	26.34011244
5426	5178	0.35126	1723.85339	605.5207418
5426	7980	2.00996	1694.03589	3404.944377
5429	5382	0.05561	368.90442	20.5147748
5429	5569	0.10375	370.05646	38.39335773
5433	5410	0.03230	946.64520	30.57663996
5433	5464	0.02783	864.35864	24.05510095
5437	1028	0.25537	437.40591	111.7003472

5437	1044	0.24938	72.77178	18.1478265
5437	5408	0.04079	136.84421	5.581875326
5437	5589	0.12180	455.36957	55.46401363
5448	1014	0.25804	28.56212	7.370169445
5448	1028	0.25581	687.59595	175.89392
5448	5093	0.42904	810.20782	347.6115631
5448	5469	0.02741	1547.20337	42.40884437
5449	5416	0.03617	311.49109	11.26663273
5449	5491	0.04231	309.59451	13.09894372
5461	1966	1.60633	55.61375	89.33403504
5461	1967	1.44971	55.28238	80.14341911
5463	1967	1.54499	212.89922	328.9271659
5463	4613	0.99995	1357.28076	1357.212896
5463	6298	0.99883	1154.15063	1152.800274
5464	5433	0.02783	946.64520	26.34513592
5464	5502	0.02950	864.35864	25.49857988
5467	5160	0.42345	30975.74023	13116.6772
5469	5448	0.02741	1443.17761	39.55749829
5469	5605	0.12569	1547.20337	194.4679916
5474	4624	0.99886	2278.64795	2276.050291
5474	6320	1.00167	2462.93115	2467.044245
5475	146	0.05592	94.52695	5.285947044
5475	5406	0.08493	4149.30322	352.4003225
5475	5566	0.05533	4230.03125	234.0476291
5480	1227	0.19645	1191.33643	234.0380417
5480	1228	0.13508	241.27837	32.59188222
5480	5059	0.49270	1833.90454	903.5647669
5480	5522	0.04387	2459.05200	107.8786112
5481	1211	0.14562	1153.10730	167.915485
5481	1227	0.14347	492.35641	70.63837414
5481	5292	0.23815	1296.38171	308.7333042
5481	5816	0.50420	2036.96838	1027.039457
5482	1696	0.23939	0.00000	0
5482	1697	0.25598	0.00000	0
5484	1683	0.26078	0.00000	0
5484	1695	0.23782	0.00000	0
5486	1211	0.23157	272.01932	62.99151393
5486	5306	0.23256	1151.37659	267.7641398
5486	5679	0.22576	1250.85278	282.3925236
5487	1260	0.24822	158.72646	39.3990819
5487	1262	0.25058	70.21884	17.59543693
5487	5490	0.24303	235.53513	57.24210264
5488	5285	0.24876	729.61920	181.5000722
5488	5600	0.08715	202.13277	17.61587091
5489	1259	0.25193	296.09668	74.59563659
5489	1261	0.26428	18.24094	4.820715623
5489	5490	0.25762	220.26537	56.74476462
5489	5494	0.25051	665.84363	166.8004878
5490	5487	0.24303	220.26537	53.53109287
5490	5489	0.25762	235.53513	60.67856019
5491	5449	0.04231	311.49109	13.17918802
5491	5553	0.04340	309.59451	13.43640173
5492	5081	0.48467	658.48932	319.1500187
5492	5510	0.01162	862.99438	10.0279947

5493	5331	0.20288	444.83707	90.24854476
5493	5584	0.05644	970.21063	54.75868796
5494	1228	0.15129	599.51416	90.70049727
5494	5489	0.25051	493.23868	123.5612217
5494	5495	0.00896	375.61084	3.365473126
5494	29951	0.24697	1609.06970	397.3919438
5495	5278	0.25773	792.93549	204.3632638
5495	5494	0.00896	839.94647	7.525920371
5502	5464	0.02950	946.64520	27.9260334
5502	5542	0.03900	864.35864	33.70998696
5510	1869	0.83132	3.14260	2.612506232
5510	5492	0.01162	658.48932	7.651645898
5510	5861	0.50322	859.85181	432.6946278
5513	1002	0.24971	13.09543	3.270059825
5513	1014	0.24780	142.77444	35.37950623
5513	5089	0.49530	56.73058	28.09865627
5513	5882	0.50463	195.82146	98.81738336
5514	1002	0.24906	18.14474	4.519128944
5514	1869	0.67819	7.85695	5.328504921
5514	5086	0.50431	188.68852	95.15750752
5514	5878	0.49604	380.45630	188.7215431
5516	5612	0.09179	8846.77539	812.045513
5516	20245	0.35586	8723.97559	3104.513953
5518	1074	0.23713	280.33905	66.47679893
5518	1095	0.35402	23.59362	8.352613352
5518	5106	0.49516	4.94751	2.449809052
5518	5890	0.49849	306.27884	152.676939
5522	5480	0.04387	2335.99854	102.4802559
5522	5837	0.46407	2459.05200	1141.172262
5523	5353	0.20603	3050.81860	628.5601562
5523	5527	0.49919	2565.68750	1280.765543
5523	6174	0.81507	1038.55103	846.491788
5525	1044	0.28083	66.07413	18.55559793
5525	5307	0.26537	1896.21008	503.1972689
5525	5608	0.07606	1182.76074	89.96078188
5525	5620	0.08159	1100.12634	89.75930808
5526	5527	0.49781	2469.67407	1229.428449
5526	5530	0.49781	2565.68750	1277.224894
5527	5523	0.49919	2469.67407	1232.836599
5527	5526	0.49781	2565.68750	1277.224894
5529	169	0.26075	151.74651	39.56790248
5529	5542	0.14370	3020.15747	433.9966284
5529	5550	0.07488	3059.62988	229.1050854
5530	5526	0.49781	2469.67407	1229.428449
5530	5532	0.49864	2565.68750	1279.354415
5531	180	0.23216	75.72441	17.58017903
5531	5532	0.36322	2334.64282	847.9889651
5531	5533	0.13529	2419.91431	327.390207
5532	5332	0.24295	387.84174	94.22615073
5532	5530	0.49864	2469.67407	1231.478278
5532	5531	0.36322	2431.66016	883.2276033
5532	5803	0.45267	308.10925	139.4718142
5533	5531	0.13529	2324.24048	314.4464945
5533	5545	0.12383	2419.91431	299.657989

5534	170	0.50695	6.73298	3.413284211
5534	5550	0.02684	3171.90405	85.1339047
5534	5560	0.02694	3055.35205	82.31118423
5535	162	0.15062	78.31346	11.79557335
5535	163	0.12319	276.60712	34.07523111
5535	5536	0.06067	3118.53271	189.2013795
5535	5537	0.06068	2981.90845	180.9422047
5536	5535	0.06067	3129.20093	189.8486204
5536	5553	0.03517	3118.53271	109.6787954
5537	5535	0.06068	2981.70337	180.9297605
5537	5542	0.06688	2981.90845	199.4300371
5538	5425	0.10350	252.71243	26.15573651
5538	5539	0.00896	2695.89111	24.15518435
5538	5561	0.05379	2829.67847	152.2084049
5538	5689	0.19249	292.15982	56.23784375
5539	5538	0.00896	2727.19849	24.43569847
5539	5541	0.28266	2695.89111	762.0205812
5540	135	0.30143	1072.30090	323.2236603
5540	136	0.24975	51.01827	12.74181293
5540	5547	0.08550	2796.74048	239.121311
5540	5568	0.12067	3578.64551	431.8351537
5541	131	0.47786	0.00000	0
5541	5539	0.28266	2727.19849	770.8699252
5541	5544	0.20344	2695.89111	548.4520874
5542	5502	0.03900	946.64520	36.9191628
5542	5529	0.14370	2930.74756	421.1484244
5542	5537	0.06688	2981.70337	199.4163214
5542	5645	0.12909	430.17844	55.53173482
5543	174	0.19679	67.21761	13.22775347
5543	5551	0.14011	2988.13452	418.6675276
5543	5556	0.02882	3167.66699	91.29216265
5544	1653	0.51356	7.54279	3.873675232
5544	5161	0.48450	1204.63647	583.6463697
5544	5541	0.20344	2727.19849	554.8212608
5544	5555	0.29730	1489.03455	442.6899717
5545	181	0.50595	0.63619	0.321880331
5545	5533	0.12383	2324.24048	287.8106986
5545	5565	0.06992	2419.68701	169.1845157
5546	5549	0.03310	3412.39526	112.9502831
5546	5557	0.05792	3424.96021	198.3736954
5547	5540	0.08550	2829.67847	241.9375092
5547	5554	0.04206	2796.74048	117.6309046
5548	145	0.12651	218.22633	27.60781301
5548	148	0.10567	338.77173	35.79800871
5548	5558	0.05999	2569.72754	154.1579551
5548	5563	0.01794	2779.46533	49.86360802
5549	156	0.21721	340.85391	74.03687779
5549	157	0.10664	125.57800	13.39163792
5549	5546	0.03310	3424.96021	113.366183
5549	5559	0.08688	2969.94165	258.0285306
5550	5529	0.07488	3171.90405	237.5121753
5550	5534	0.02684	3059.62988	82.12046598
5551	5393	0.14513	2557.56934	371.1800383
5551	5543	0.14011	3101.82373	434.5965228

5551	5552	0.08964	2331.72046	209.015422
5551	5908	0.50637	3395.33472	1719.295642
5552	191	0.08033	44.73778	3.593785867
5552	5551	0.08964	2427.89453	217.6364657
5552	5567	0.16134	2324.02026	374.9574287
5553	5491	0.04340	311.49109	13.51871331
5553	5536	0.03517	3129.20093	110.0539967
5553	5557	0.03310	3412.39526	112.9502831
5554	5547	0.04206	2829.67847	119.0162764
5554	5561	0.07102	2796.74048	198.6245089
5555	1652	0.49075	5.08521	2.495566808
5555	5544	0.29730	1484.37170	441.3037064
5555	5577	0.22909	1494.18677	342.3032471
5556	5543	0.02882	3055.35205	88.05524608
5556	5560	0.05102	3167.66699	161.6143698
5557	5546	0.05792	3412.39526	197.6459335
5557	5553	0.03310	3424.96021	113.366183
5557	5646	0.12908	0.00000	0
5558	5548	0.05999	2525.30981	151.4933355
5558	5570	0.02965	2569.72754	76.19242156
5559	5549	0.08688	2982.40527	259.1113699
5559	5564	0.03310	2969.94165	98.30506862
5560	5534	0.02694	3167.66699	85.33694871
5560	5556	0.05102	3055.35205	155.8840616
5561	5538	0.05379	2796.74048	150.4366704
5561	5554	0.07102	2829.67847	200.9637649
5562	146	0.05600	17.79900	0.996744
5562	5563	0.05121	2817.33643	144.2757986
5562	5566	0.05636	2761.66626	155.6475104
5563	5548	0.01794	2817.33643	50.54301555
5563	5562	0.05121	2779.46533	142.3364195
5564	5559	0.03310	2982.40527	98.71761444
5564	5566	0.03241	2969.94165	96.25580888
5565	5545	0.06992	2324.02026	162.4954966
5565	5567	0.05378	2419.68701	130.1307674
5566	5475	0.05533	4141.17432	229.1311751
5566	5562	0.05636	2799.02417	157.7530022
5566	5564	0.03241	2982.40527	96.6597548
5566	5616	0.07679	3953.93896	303.6229727
5567	5552	0.16134	2419.68701	390.3923022
5567	5565	0.05378	2324.02026	124.9858096
5568	5540	0.12067	3546.75806	427.9872951
5568	5569	0.12618	3578.64551	451.5534905
5569	5429	0.10375	368.90442	38.27383358
5569	5568	0.12618	3546.75806	447.529932
5569	5573	0.09584	2049.85205	196.4578205
5569	5637	0.11098	2474.72705	274.645208
5570	5558	0.02965	2525.30981	74.87543587
5570	5572	0.02000	2569.72754	51.3945508
5571	144	0.14886	452.17725	67.31110544
5571	147	0.10749	89.52338	9.622868116
5571	5573	0.02344	2081.87305	48.79910429
5571	5575	0.08688	2485.53174	215.9429976
5572	5570	0.02000	2525.30981	50.5061962

5572	5576	0.00967	2569.72754	24.84926531
5573	5569	0.09584	2081.87305	199.5267131
5573	5571	0.02344	2049.85205	48.04853205
5574	5575	0.01379	2528.72510	34.87111913
5574	5576	0.03034	2485.53174	75.41103299
5575	5571	0.08688	2528.72510	219.6956367
5575	5574	0.01379	2485.53174	34.27548269
5576	5415	0.12640	123.29416	15.58438182
5576	5572	0.00967	2525.30981	24.41974586
5576	5574	0.03034	2528.72510	76.72151953
5577	94	2.00000	1683.30774	3366.61548
5577	5018	0.59044	259.08765	152.9757121
5577	5555	0.22909	1489.45691	341.2196835
5577	5899	0.49788	207.63733	103.3784739
5578	1096	0.25218	17.30780	4.364681004
5578	1112	0.54646	46.93050	25.64564103
5578	5330	0.25098	164.64584	41.32281292
5578	5895	0.48628	206.35406	100.3458523
5584	1074	0.26136	67.84670	17.73241351
5584	5493	0.05644	444.83707	25.10660423
5584	5655	0.12407	919.78430	114.1176381
5585	5339	0.50772	117.37798	59.59514801
5585	5850	0.45064	127.38935	57.40673668
5589	5437	0.12180	569.71185	69.39090333
5589	5614	0.04693	455.36957	21.37049392
5600	5488	0.08715	729.61920	63.58631328
5600	5702	0.17093	202.13277	34.55055438
5605	5469	0.12569	1443.17761	181.3929938
5605	5621	0.01454	1547.20337	22.496337
5608	5525	0.07606	1234.99646	93.93383075
5608	5620	0.02160	8.73534	0.188683344
5608	5681	0.15804	1191.33435	188.2784807
5612	1379	0.38698	40.79105	15.78532053
5612	1842	0.44410	21.67374	9.625307934
5612	5516	0.09179	8723.97559	800.7737194
5612	5846	0.38820	8828.08398	3427.062201
5614	5589	0.04693	569.71185	26.73657712
5614	5723	0.17040	455.36957	77.59497473
5616	5566	0.07679	3914.90356	300.6254444
5616	5634	0.02877	3953.93896	113.7548239
5620	5525	0.08159	727.24182	59.33566009
5620	5608	0.02160	8.57359	0.185189544
5620	5746	0.18633	1108.86169	206.6141987
5621	5605	0.01454	1443.17761	20.98380245
5621	5636	0.02850	1547.20337	44.09529605
5634	148	0.12745	102.14571	13.01847074
5634	157	0.13747	207.17827	28.48079678
5634	5616	0.02877	3914.90356	112.6317754
5634	5741	0.15040	3935.98877	591.972711
5636	5621	0.02850	1443.17761	41.13056189
5636	5737	0.14636	1547.20337	226.4486852
5637	147	0.11414	47.10278	5.376311309
5637	5569	0.11098	2409.66650	267.4247882
5637	5671	0.05925	2484.35205	147.197859

5645	163	0.12340	34.21551	4.222193934
5645	5542	0.12909	422.84998	54.58570392
5645	5688	0.06287	465.21979	29.2483682
5646	157	0.11133	1.93916	0.215886683
5646	163	0.13069	40.51897	5.295424189
5646	5557	0.12908	0.00000	0
5646	5740	0.12692	37.58466	4.770245047
5653	1357	0.27548	9.83158	2.708403658
5653	1379	0.62220	54.37737	33.83359961
5653	5407	0.27356	82.57226	22.58846745
5653	5839	0.32351	70.33578	22.75432819
5655	1134	0.18389	258.08554	47.45934995
5655	5584	0.12407	412.97897	51.23830081
5655	5748	0.12964	1127.38831	146.1546205
5661	5467	0.21647	30975.74023	6705.318488
5662	5698	0.04798	32529.22461	1560.752197
5668	5006	0.77481	192.96306	149.5097085
5668	5683	0.01798	187.28978	3.367470244
5671	5637	0.05925	2419.96484	143.3829168
5671	5744	0.08623	2484.35205	214.2256773
5679	1697	0.26461	5.80581	1.536275384
5679	5486	0.22576	1150.49304	259.7353087
5679	5811	0.27562	1245.04688	343.1598211
5681	5608	0.15804	1243.73181	196.5593753
5681	5759	0.15956	1191.33435	190.0893089
5683	5424	1.09197	846.17963	924.0027706
5683	5668	0.01798	192.96306	3.469475819
5683	5692	0.00674	0.00000	0
5683	5845	1.03989	822.69653	855.5138946
5688	5645	0.06287	457.06549	28.73570736
5688	5734	0.06176	465.21979	28.73197423
5689	185	0.04380	22.17934	0.971455092
5689	5538	0.19249	292.00906	56.20882396
5689	5745	0.07062	279.55225	19.7419799
5692	5683	0.00674	0.00000	0
5696	1683	0.25052	0.00000	0
5696	1697	0.23685	0.00000	0
5698	5824	0.25941	1450.06519	376.1614109
5698	5925	0.31410	31079.16016	9761.964206
5701	5495	0.24725	1257.27112	310.8602844
5702	1683	0.24625	14.31182	3.524285675
5702	5600	0.17093	729.61920	124.7138099
5702	5804	0.24057	204.34550	49.15939694
5708	5661	0.06695	29638.82227	1984.319151
5713	1261	0.36389	0.00000	0
5723	1029	0.25321	457.60291	115.8696328
5723	1045	0.25486	49.02006	12.49325249
5723	5614	0.17040	569.71185	97.07889924
5723	5760	0.03352	628.04272	21.05199197
5734	5688	0.06176	457.06549	28.22836466
5734	5926	0.26649	465.21979	123.9764218
5737	1029	0.25608	679.24261	173.9404476
5737	5636	0.14636	1443.17761	211.223475
5737	5784	0.12235	2308.56519	282.452951

5738	5740	0.06206	38.54411	2.392047467
5738	5742	0.06481	37.58466	2.435861815
5740	5646	0.12692	38.54411	4.892018441
5740	5738	0.06206	37.58466	2.332504
5741	5634	0.15040	3903.47168	587.0821407
5741	5743	0.07447	38.54411	2.870379872
5741	5761	0.03282	3973.57349	130.4126819
5742	5738	0.06481	38.54411	2.498043769
5742	5743	0.05171	37.58466	1.943502769
5743	5741	0.07447	37.58466	2.79892963
5743	5742	0.05171	38.54411	1.993115928
5744	136	0.23099	191.07845	44.13721117
5744	5671	0.08623	2419.96484	208.6735682
5744	5774	0.09881	2297.44263	227.0103063
5745	5689	0.07062	279.62665	19.74723402
5745	5919	0.25035	279.55225	69.98590579
5746	1045	0.25480	62.46878	15.91704514
5746	1057	0.13620	18.88073	2.571555426
5746	5620	0.18633	735.81543	137.1044891
5746	5787	0.14839	1034.18494	153.4627032
5748	5655	0.12964	623.65839	80.85107368
5748	5778	0.09892	1127.38831	111.5212516
5759	1134	0.14141	582.46106	82.36581849
5759	5681	0.15956	1243.73181	198.4498476
5759	5772	0.08134	1695.37280	137.9016236
5760	5723	0.03352	890.30261	29.84294349
5760	5871	0.19275	628.04272	121.0552343
5761	5741	0.03282	3942.01563	129.376953
5761	5780	0.08067	3973.57349	320.5481734
5772	1057	0.18734	95.34778	17.86245311
5772	5759	0.08134	1755.20496	142.7683714
5772	5854	0.12868	1787.63477	230.0328422
5774	149	0.23840	41.56278	9.908566752
5774	5744	0.09881	2233.59448	220.7014706
5774	5917	0.15546	2255.87988	350.6990861
5778	5748	0.09892	623.65839	61.69228794
5778	5783	0.00950	1127.38831	10.71018895
5780	149	0.25754	124.08736	31.95745869
5780	5761	0.08067	3942.01563	318.0024009
5780	5796	0.05677	3849.48608	218.5353248
5783	5778	0.00950	623.65839	5.924754705
5783	5862	0.09611	1127.38831	108.3532905
5784	5737	0.12235	2081.47729	254.6687464
5784	5885	0.10337	2308.56519	238.6363837
5787	5746	0.14839	686.28796	101.8382704
5787	5853	0.05587	1034.18494	57.7799126
5796	5780	0.05677	3817.79028	216.7359542
5796	5911	0.08179	3849.48608	314.8494665
5803	181	0.61323	37.98808	23.2954303
5803	5532	0.45267	313.30185	141.8223484
5803	5909	0.05602	270.12119	15.13218906
5804	5702	0.24057	734.14948	176.6143404
5804	5807	0.25119	168.09180	42.22297924
5804	6089	0.26461	191.92168	50.78439574

5805	5301	0.73674	553.31848	407.651857
5805	6327	0.49662	1068.53552	530.6561099
5806	1211	0.49062	5.47095	2.684157489
5806	1212	0.26284	156.71188	41.19015054
5806	5810	0.20194	104.24280	21.05079103
5806	5816	0.16006	253.38446	40.55671667
5807	1683	0.23987	63.96168	15.34248818
5807	1698	0.27283	8.91858	2.433256181
5807	5804	0.25119	226.11298	56.79731945
5807	5808	0.24515	244.08495	59.83742549
5808	5807	0.24515	298.99323	73.29819033
5808	5809	0.23531	244.08495	57.43562958
5809	1697	0.24609	3.48071	0.856567924
5809	1699	0.26411	0.43997	0.116200477
5809	5808	0.23531	298.99323	70.35609695
5809	5811	0.26259	246.28368	64.67163153
5810	5806	0.20194	104.64829	21.13267568
5810	5811	0.01448	104.24280	1.509435744
5811	5679	0.27562	1144.81604	315.5341969
5811	5809	0.26259	301.07803	79.0600799
5811	5810	0.01448	104.64829	1.515307239
5811	6083	0.25709	1271.28772	326.8353599
5812	5813	0.01103	3939.81836	43.45619651
5812	5815	0.09377	3916.11743	367.2143314
5812	6029	0.20527	1077.70496	221.2204971
5813	5701	0.24974	1257.27112	313.9908895
5813	5812	0.01103	3505.06812	38.66090136
5813	5814	0.01655	3541.93628	58.61904543
5814	5813	0.01655	3512.48145	58.131568
5814	5820	0.12008	3541.93628	425.3157085
5815	5812	0.09377	3670.31250	344.1652031
5815	5834	0.09450	3916.11743	370.0730971
5816	5481	0.50420	1933.65601	974.9493602
5816	5806	0.16006	255.35258	40.87173395
5816	5822	0.12687	879.51349	111.5838765
5816	6081	0.25377	1362.09119	345.6578813
5817	5821	0.07787	3245.48804	252.7261537
5817	5824	0.02694	6882.24561	185.4076967
5818	5819	0.01724	6430.93994	110.8694046
5818	5821	0.11376	6400.97510	728.1749274
5819	5818	0.01724	6400.97510	110.3528107
5819	5826	0.09239	6430.93994	594.1545411
5820	1228	0.50035	2.11018	1.055828563
5820	1232	0.25032	547.63629	137.0843161
5820	5814	0.12008	3512.48145	421.7787725
5820	5837	0.13711	3253.55103	446.0943817
5821	5661	0.30976	1336.91736	414.1235214
5821	5817	0.07787	6882.24561	535.9204657
5821	5818	0.11376	6430.93994	731.5837276
5822	5816	0.12687	888.28015	112.6961026
5822	5823	0.02144	879.51349	18.85676923
5823	1227	0.50419	14.01702	7.067241314
5823	1229	0.19699	632.65710	124.6271221
5823	5822	0.02144	888.28015	19.04472642

5823	5837	0.19921	1252.65930	249.5422592
5824	5817	0.02694	3245.48804	87.4334478
5824	5825	0.11307	3874.53760	438.0939664
5824	6080	0.25699	4968.22949	1276.785297
5825	5824	0.11307	3755.94434	424.6846265
5825	5827	0.15307	3874.53760	593.0754704
5826	1262	0.25396	772.22125	196.1133087
5826	1265	0.50243	1202.29858	604.0708755
5826	5819	0.09239	6400.97510	591.3860895
5826	5828	0.04275	5408.13867	231.1979281
5827	1332	0.35344	22.96321	8.116116942
5827	1333	0.25166	81.69533	20.55944675
5827	5825	0.15307	3755.94434	574.9224001
5827	30021	0.18240	3812.30420	695.3642861
5828	5826	0.04275	5361.57568	229.2073603
5828	5831	0.18271	5408.13867	988.1210164
5829	5830	0.04275	5198.10449	222.2189669
5829	5831	0.09170	5151.57129	472.3990873
5830	5829	0.04275	5151.57129	220.2296726
5830	5833	0.02896	5198.10449	150.537106
5831	5828	0.18271	5361.57568	979.6134925
5831	5829	0.09170	5198.10449	476.6661817
5831	5965	0.11771	273.65414	32.21182882
5832	1357	0.29097	38.21737	11.12010815
5832	1358	0.25104	159.15170	39.95344277
5832	5839	0.24162	3715.54419	897.7497872
5832	30021	0.25857	3693.87524	955.1253208
5833	5830	0.02896	5151.57129	149.1895046
5833	5838	0.09369	5198.10449	487.0104097
5834	5815	0.09450	3670.31250	346.8445313
5834	5838	0.05938	3916.11743	232.539053
5835	1380	0.25244	222.56264	56.18371284
5835	5840	0.07816	3984.48242	311.4271459
5835	5841	0.02045	4065.47485	83.13896068
5837	5522	0.46407	2335.99854	1084.066842
5837	5820	0.13711	3212.21460	440.4267438
5837	5823	0.19921	1309.90222	260.9456212
5837	6194	0.37423	1215.02490	454.6987683
5838	1261	0.28010	1302.28711	364.7706195
5838	1263	0.22217	1304.20923	289.7561646
5838	5833	0.09369	5151.57129	482.6507142
5838	5834	0.05938	3670.31250	217.9431563
5839	5653	0.32351	113.51114	36.7219889
5839	5832	0.24162	3598.60693	869.4954064
5839	5840	0.16341	4067.20117	664.6213432
5839	5870	0.01507	989.61420	14.91348599
5840	5835	0.07816	4067.20117	317.8924434
5840	5839	0.16341	3984.48242	651.1042723
5841	5835	0.02045	3987.06885	81.53555798
5841	5842	0.24324	4065.47485	988.8861025
5842	5841	0.24324	3987.06885	969.8146271
5842	5843	0.19450	4065.47485	790.7348583
5843	1379	0.37602	16.07130	6.043130226
5843	1404	0.25436	37.75316	9.602893778

5843	5842	0.19450	3987.06885	775.4848913
5843	5847	0.29798	4042.87573	1204.69611
5844	1422	0.25220	0.02563	0.006463886
5844	5846	0.26704	725.20264	193.658113
5844	5848	0.23285	531.58759	123.7801703
5845	5683	1.03989	1009.06018	1049.311591
5845	6102	1.00383	1209.18774	1213.818929
5845	7951	1.42743	759.65643	1084.356378
5846	5612	0.38820	8699.53125	3377.158031
5846	5844	0.26704	531.56238	141.948418
5846	5847	0.00965	3964.03320	38.25292038
5846	6096	0.25471	4516.18994	1150.31874
5847	5843	0.29798	3964.03320	1181.202613
5847	5846	0.00965	4042.87573	39.01375079
5848	1842	0.38653	13.52517	5.22788396
5848	5844	0.23285	725.22827	168.8694027
5848	5849	0.24562	50.68664	12.44965252
5848	6099	0.25717	494.42038	127.1500891
5849	1689	0.26168	7.33276	1.918836637
5849	5848	0.24562	37.28797	9.158671191
5849	5850	0.25494	43.35388	11.05263817
5850	5585	0.45064	117.37798	52.89521291
5850	5849	0.25494	29.70988	7.574236807
5850	6101	0.25880	170.74323	44.18834792
5852	5853	0.01379	2694.04150	37.15083229
5852	5855	0.11928	2661.62866	317.4790666
5853	5787	0.05587	686.28796	38.34290833
5853	5852	0.01379	2661.62866	36.70385922
5853	5857	0.12686	2878.50977	365.1677494
5853	6057	0.22799	1890.07849	430.9189949
5854	5772	0.12868	1845.24231	237.4457805
5854	5856	0.09101	2346.98560	213.5991595
5854	5858	0.09377	2711.09814	254.2196726
5854	5948	0.07601	604.69360	45.96276054
5855	1057	0.13869	140.53304	19.49052732
5855	1058	0.23053	212.83861	49.06568476
5855	5852	0.11928	2694.04150	321.3452701
5855	5856	0.09377	2312.11035	216.8065875
5856	5854	0.09101	2312.11035	210.425163
5856	5855	0.09377	2346.98560	220.0768397
5857	5853	0.12686	2848.44873	361.3542059
5857	5859	0.10549	2878.50977	303.6539956
5858	1090	0.22687	252.07590	57.18845943
5858	5854	0.09377	2775.34033	260.2436627
5858	5862	0.08828	2459.02246	217.0825028
5859	1045	0.20475	1493.70581	305.8362646
5859	1046	0.16513	790.93915	130.6077818
5859	5857	0.10549	2848.44873	300.4828565
5859	5864	0.10481	3415.60596	357.9896607
5861	5510	0.50322	655.39081	329.8057634
5861	5863	0.49987	4737.12256	2367.945454
5861	5874	0.12847	5431.09961	697.7333669
5862	5783	0.09611	623.65839	59.93980786
5862	5858	0.08828	2515.60132	222.0772845

5862	5872	0.06352	2183.86768	138.719275
5862	5950	0.07432	1487.57288	110.5564164
5863	5861	0.49987	4655.87109	2327.330282
5863	5867	0.34457	4737.12256	1632.27032
5864	5859	0.10481	3376.84009	353.9266098
5864	5866	0.04550	3415.60596	155.4100712
5866	5864	0.04550	3376.84009	153.6462241
5866	5869	0.05861	3415.60596	200.1886653
5867	1869	0.41195	236.77396	97.53903282
5867	5863	0.34457	4655.87109	1604.273501
5867	5878	0.65246	4735.38818	3089.651372
5868	5098	0.98547	822.16052	810.2145276
5868	6160	0.32664	812.84082	265.5063254
5869	5866	0.05861	3376.84009	197.9165977
5869	5871	0.06619	3415.60596	226.0789585
5870	5839	0.01507	998.57104	15.04846557
5870	5934	0.06138	989.61420	60.7425196
5871	5760	0.19275	890.30261	171.6058281
5871	5869	0.06619	3376.84009	223.5130456
5871	5876	0.19238	3217.99194	619.0772894
5871	5912	0.03576	391.30438	13.99304463
5872	5862	0.06352	2036.09558	129.3327912
5872	5875	0.05449	2183.86768	118.9989499
5874	5861	0.12847	5307.89014	681.9046463
5874	5898	0.04410	5431.09961	239.5114928
5875	5872	0.05449	2036.09558	110.9468482
5875	5881	0.08347	2183.86768	182.2874352
5876	5871	0.19238	3184.60962	612.6551987
5876	5877	0.06452	3217.99194	207.62484
5877	1029	0.23872	6.26139	1.494719021
5877	1030	0.24789	347.96100	86.25605229
5877	5876	0.06452	3184.60962	205.4710127
5877	5880	0.12236	3253.34937	398.0798289
5878	5514	0.49604	199.91737	99.16701221
5878	5867	0.65246	4651.91113	3035.185936
5878	5883	0.24960	4886.38086	1219.640663
5878	6141	0.29267	659.59570	193.0438735
5880	5877	0.12236	3402.99487	416.3904523
5880	5885	0.13307	3253.34937	432.9232007
5881	1074	0.47773	672.24072	321.1495592
5881	1075	0.24121	934.97540	225.5254162
5881	5875	0.08347	2036.09558	169.9528981
5881	5887	0.14830	616.57745	91.43843584
5882	5513	0.50463	205.99350	103.9504999
5882	5883	0.24959	4743.80908	1184.007308
5882	5886	0.24616	4054.44604	998.0424372
5882	6114	0.26312	668.12842	175.7979499
5883	1002	0.49818	0.06793	0.033841367
5883	1003	0.26265	2.89357	0.759996161
5883	5878	0.24960	4746.58789	1184.748337
5883	5882	0.24959	4883.55615	1218.886779
5885	5784	0.10337	2081.47729	215.1623075
5885	5880	0.13307	3402.99487	452.8365274
5885	5886	0.25235	4131.35742	1042.548045

5885	5894	0.00894	1733.50635	15.49754677
5886	1014	0.51358	197.18771	101.2716641
5886	1015	0.25048	38.63311	9.676821393
5886	5882	0.24616	3903.34741	960.8479984
5886	5885	0.25235	4318.08936	1089.66985
5887	5881	0.14830	493.49020	73.18459666
5887	5890	0.14967	616.57745	92.28314694
5890	5518	0.49849	297.71045	148.4056822
5890	5887	0.14967	493.49020	73.86067823
5890	5892	0.34039	69.29408	23.58701189
5890	5897	0.01062	853.39435	9.063047997
5891	1096	0.48877	38.63905	18.88560847
5891	1097	0.34536	7.65690	2.644386984
5891	5893	0.23959	83.47408	19.99955483
5891	5895	0.26099	45.45963	11.86450883
5892	1095	0.50313	5.58984	2.812416199
5892	5890	0.34039	77.88424	26.51101645
5892	5893	0.15948	75.66678	12.06733807
5893	5891	0.23959	75.66678	18.12900382
5893	5892	0.15948	83.47408	13.31244628
5894	5885	0.00894	1469.33179	13.1358262
5894	6002	0.13351	1733.50635	231.4404328
5895	5578	0.48628	223.28810	108.5805373
5895	5891	0.26099	49.50404	12.9200594
5895	5901	0.01232	184.40846	2.271912227
5897	5890	0.01062	713.14856	7.573637707
5897	5937	0.04359	853.39435	37.19945972
5898	5874	0.04410	5307.89014	234.0779552
5898	5993	0.16048	5431.09961	871.5828654
5899	1653	0.50032	0.15139	0.075743445
5899	5577	0.49788	205.66978	102.3988701
5899	6448	0.50282	207.48593	104.3280753
5901	5895	0.01232	205.38690	2.530366608
5901	6388	0.47290	184.40846	87.20676073
5906	149	0.15026	60.74857	9.128080128
5906	1655	0.25824	52.52650	13.56444336
5906	5911	0.25511	2850.64722	727.2286123
5906	5917	0.23998	2725.31592	654.0213145
5908	170	0.24726	255.09175	63.07398611
5908	181	0.39015	106.98743	41.74114581
5908	5551	0.50637	3341.04053	1691.802693
5908	6458	0.50303	3231.05127	1625.31572
5909	5803	0.05602	275.82663	15.45180781
5909	6008	0.12411	270.12119	33.52474089
5911	158	0.13246	931.31848	123.3624459
5911	5796	0.08179	3817.79028	312.257067
5911	5906	0.25511	2800.00684	714.309745
5911	6137	0.25793	4980.94434	1284.734974
5912	5871	0.03576	648.18060	23.17893826
5912	5977	0.08325	391.30438	32.57608964
5917	5774	0.15546	2191.64355	340.7129063
5917	5906	0.23998	2775.60181	666.0889224
5917	5918	0.19407	935.01453	181.4582698
5918	136	0.26638	85.00061	22.64246249

5918	1654	0.24893	25.83253	6.430491693
5918	5917	0.19407	921.06427	178.7509429
5918	5924	0.02315	854.95001	19.79209273
5919	1653	0.50741	91.53587	46.4462158
5919	5745	0.25035	279.62665	70.00453183
5919	5924	0.27995	838.86749	234.8409538
5919	6128	0.24206	1036.28870	250.8440427
5924	5918	0.02315	838.86749	19.41978239
5924	5919	0.27995	854.95001	239.3432553
5925	6080	0.19359	31079.16016	6016.614615
5926	170	0.24790	262.97739	65.19209498
5926	5734	0.26649	457.06549	121.8033824
5926	6123	0.22916	311.84741	71.46295248
5932	5938	0.01643	39835.22266	654.4927083
5934	5870	0.06138	998.57104	61.29229044
5934	5963	0.03907	989.61420	38.66422679
5937	5897	0.04359	713.14856	31.08614573
5937	5984	0.05477	853.39435	46.74040855
5938	6006	0.19485	3078.77100	599.8985294
5938	6039	0.24059	36756.45313	8843.235059
5939	5215	1.99856	41762.41406	83464.69024
5948	5854	0.07601	632.93427	48.10933386
5948	6005	0.07879	604.69360	47.64380874
5950	5862	0.07432	1188.19421	88.30659369
5950	5973	0.03912	1487.57288	58.19385107
5954	5939	0.01618	38718.94922	626.4725984
5963	5934	0.03907	998.57104	39.01417053
5963	6069	0.13057	989.61420	129.2139261
5965	5831	0.11771	273.62384	32.20826221
5965	6065	0.12496	273.65414	34.19582133
5973	5950	0.03912	1188.19421	46.4821575
5973	5979	0.00726	1487.57288	10.79977911
5977	5912	0.08325	648.18060	53.96103495
5977	6056	0.10336	391.30438	40.44522072
5979	5973	0.00726	1188.19421	8.626289965
5979	5997	0.02906	1487.57288	43.22886789
5984	5937	0.05477	713.14856	39.05914663
5984	6018	0.05142	853.39435	43.88153748
5993	5898	0.16048	5307.89014	851.8102097
5993	6006	0.02580	5431.09961	140.1223699
5997	5979	0.02906	1188.19421	34.52892374
5997	6041	0.05309	1487.57288	78.9752442
6002	5894	0.13351	1469.33179	196.1704873
6002	6054	0.07150	1733.50635	123.945704
6005	5948	0.07879	632.93427	49.86889113
6005	6035	0.03800	604.69360	22.9783568
6006	5993	0.02580	5307.89014	136.9435656
6006	6098	0.14304	5542.09863	792.741788
6006	6133	0.26230	4130.32227	1083.383531
6008	5909	0.12411	275.82663	34.23284305
6008	6456	0.37791	270.12119	102.0814989
6018	5984	0.05142	713.14856	36.67009896
6018	6043	0.03465	853.39435	29.57011423
6022	5954	0.17152	38718.94922	6641.07417

6022	6027	0.10758	2538.82471	273.1267623
6027	5939	0.16644	3043.46484	506.554288
6027	6098	0.07638	2538.82471	193.9154313
6029	6143	0.11212	1625.18713	182.215981
6031	6022	0.02073	41257.77344	855.2736434
6035	6005	0.03800	632.93427	24.05150226
6035	6062	0.03576	604.69360	21.62384314
6039	6133	0.21683	36756.45313	7969.901732
6041	5997	0.05309	1188.19421	63.08123061
6041	6053	0.01956	1487.57288	29.09692553
6042	1380	0.25324	0.33909	0.085871152
6042	1404	0.23058	0.34695	0.079999731
6043	6018	0.03465	713.14856	24.7105976
6043	6086	0.03130	853.39435	26.71124316
6046	6031	0.05048	41257.77344	2082.692403
6048	1767	0.60582	98.10195	59.43212335
6048	17753	0.23878	499.54572	119.281527
6048	17762	0.23880	404.30240	96.54741312
6053	1075	0.24561	1120.70398	275.2561045
6053	1090	0.08828	345.00906	30.45739982
6053	6041	0.01956	1188.19421	23.24107875
6053	6108	0.04303	2828.07324	121.6919915
6054	6002	0.07150	1469.33179	105.057223
6054	6104	0.04078	1733.50635	70.69238895
6056	1030	0.25819	7.64672	1.974306637
6056	1046	0.28795	184.34798	53.08300084
6056	5977	0.10336	648.18060	66.99594682
6056	6220	0.15759	559.58032	88.18426263
6057	1058	0.15966	287.36780	45.88114295
6057	5853	0.22799	1539.82959	351.0657482
6057	6276	0.21953	2167.57715	475.8482117
6062	1058	0.16097	327.15344	52.66188924
6062	1090	0.09308	345.34671	32.14487177
6062	6035	0.03576	632.93427	22.6337295
6062	6109	0.04109	1185.43762	48.70963181
6065	5965	0.12496	273.62384	34.19203505
6065	6116	0.04527	273.65414	12.38832292
6069	5963	0.13057	998.57104	130.3834207
6069	6103	0.02988	989.61420	29.5696723
6075	1333	0.22088	0.00000	0
6076	5813	0.25158	851.97565	214.340034
6076	6029	0.04907	547.48212	26.86494763
6079	5708	0.48928	29638.82227	14501.68296
6080	6178	0.10378	36047.39063	3740.9982
6081	1212	0.21305	4.06296	0.865613628
6081	1229	0.17839	3.91510	0.698414689
6081	5816	0.25377	1251.98022	317.7150204
6081	6185	0.11378	1362.09119	154.9787356
6083	1212	0.16398	93.67032	15.36005907
6083	1699	0.26313	8.84655	2.327792702
6083	5811	0.25709	1226.25659	315.2583067
6083	6336	0.24483	1252.65356	306.6871711
6086	1075	0.25397	774.52386	196.7058247
6086	1097	0.49796	32.75286	16.30961417

6086	6043	0.03130	713.14856	22.32154993
6086	6115	0.03242	1630.39270	52.85733133
6089	1698	0.23332	0.60287	0.140661628
6089	5804	0.26461	663.70447	175.6228398
6089	6331	0.23478	191.60530	44.98509233
6090	473	0.24172	0.00000	0
6090	17108	0.22532	0.00000	0
6090	17126	0.26633	0.00000	0
6096	1404	0.27654	47.06778	13.01612388
6096	1422	0.24835	11.16970	2.773994995
6096	5846	0.25471	4115.15381	1048.170827
6096	30199	0.24809	4507.83301	1118.348291
6098	6006	0.14304	6470.43994	925.531729
6098	6027	0.07638	3043.46484	232.4598445
6098	6154	0.08675	5143.11328	446.165077
6099	1422	0.25089	1.08329	0.271786628
6099	1689	0.25409	5.43379	1.380671701
6099	5848	0.25717	701.45239	180.3925111
6099	6754	0.48913	500.60672	244.861765
6101	1689	0.24762	4.36103	1.079878249
6101	5850	0.25880	147.08786	38.06633817
6101	6367	0.24061	175.10167	42.13121282
6102	78	10.00000	1209.18774	12091.8774
6102	5845	1.00383	1182.49280	1187.021747
6103	1358	0.25060	66.17625	16.58376825
6103	1380	0.25267	225.90282	57.07886553
6103	6069	0.02988	998.57104	29.83730268
6103	6346	0.22571	1274.99011	287.7780177
6104	1015	0.24906	185.34221	46.16133082
6104	1030	0.25598	267.26590	68.41472508
6104	6054	0.04078	1469.33179	59.9193504
6104	6169	0.07206	2080.81274	149.943366
6108	6053	0.04303	2533.15161	109.0015138
6108	6149	0.03800	2828.07324	107.4667831
6109	6062	0.04109	1223.09155	50.25683179
6109	6150	0.03716	1185.43762	44.05086196
6110	1090	0.04136	0.00000	0
6114	1003	0.25093	67.08424	16.83344834
6114	1015	0.25084	633.78772	158.9793117
6114	5882	0.26312	689.65222	181.4612921
6114	6414	0.23961	47.16463	11.30111699
6115	6086	0.03242	1480.21326	47.98851389
6115	6147	0.03018	1630.39270	49.20525169
6116	1263	0.28957	1764.49670	510.9453094
6116	6065	0.04527	273.62384	12.38695124
6116	6171	0.06296	1890.31030	119.0139365
6118	1698	0.26678	0.00000	0
6118	1699	0.23576	0.00000	0
6123	164	0.25774	28.28242	7.289510931
6123	5926	0.22916	309.95029	71.02820846
6123	6464	0.26441	283.56500	74.97742165
6128	1654	0.24451	2.12910	0.520586241
6128	5919	0.24206	1019.98889	246.8985107
6128	6486	0.27262	1036.21960	282.4941874

6133	6181	0.17890	40886.77344	7314.643768
6136	6046	0.21164	41257.77344	8731.795171
6137	6138	0.00967	65.27164	0.631176759
6137	6469	0.25149	4915.67236	1236.242442
6138	164	0.25520	77.29601	19.72594175
6138	1655	0.24411	0.21529	0.052554442
6138	5911	0.25907	4864.93848	1260.359612
6138	6137	0.00967	0.00000	0
6141	1003	0.24993	96.63383	24.15169313
6141	5878	0.29267	535.37317	156.6876657
6141	6578	0.31613	783.80334	247.7837499
6143	1263	0.24010	547.48212	131.450457
6143	6264	0.12718	1837.42249	233.6833923
6144	6076	0.06638	1399.45776	92.89600611
6147	6115	0.03018	1480.21326	44.67283619
6147	6173	0.03409	1630.39270	55.58008714
6149	6108	0.03800	2533.15161	96.25976118
6149	6161	0.02459	2828.07324	69.54232097
6150	6109	0.03716	1223.09155	45.450082
6150	6213	0.07264	1185.43762	86.11018872
6154	6098	0.08675	6576.09473	570.4762178
6154	6205	0.06778	5143.11328	348.6002181
6154	6313	0.98123	0.00000	0
6160	1761	0.94874	504.99435	479.1083396
6160	5868	0.32664	822.16052	268.5505123
6160	9138	1.70585	986.44202	1682.72212
6161	6149	0.02459	2533.15161	62.29019809
6161	6180	0.01453	2828.07324	41.09190418
6169	6104	0.07206	1594.46143	114.8968906
6169	6200	0.03072	2080.81274	63.92256737
6171	6116	0.06296	2038.12048	128.3200654
6171	6234	0.05412	1890.31030	102.3035934
6173	6147	0.03409	1480.21326	50.46047003
6173	6206	0.03410	1630.39270	55.59639107
6174	1761	1.07352	555.09143	595.9017519
6174	5523	0.81507	1036.28418	844.6441466
6174	6447	0.19165	945.36292	181.1788036
6175	5821	0.36068	5003.64014	1804.712926
6175	6079	0.10211	29638.82227	3026.420142
6178	6651	0.32739	36047.39063	11801.55522
6180	6161	0.01453	2533.15161	36.80669289
6180	6207	0.03297	2828.07324	93.24157472
6181	6211	0.08800	40886.77344	3598.036063
6185	6081	0.11378	1251.98022	142.4503094
6185	6318	0.12047	1362.09119	164.0911257
6193	6194	0.02590	0.00000	0
6194	5837	0.37423	1107.87805	414.6012027
6194	6193	0.02590	0.00000	0
6194	6201	0.05383	1215.02490	65.40479037
6200	6169	0.03072	1594.46143	48.98185513
6200	6401	0.14134	2080.81274	294.1020727
6201	6194	0.05383	1107.87805	59.63707543
6201	6219	0.05056	1215.02490	61.43165894
6205	6154	0.06778	6576.09473	445.7277008

6205	6666	0.31249	5143.11328	1607.171469
6206	6173	0.03410	1480.21326	50.47527217
6206	6243	0.03185	1630.39270	51.9280075
6207	6180	0.03297	2533.15161	83.51800858
6207	6252	0.03856	2828.07324	109.0505041
6210	6136	0.20155	41257.77344	8315.504237
6211	6296	0.16877	40097.82422	6767.309794
6211	6313	0.33290	788.94763	262.640666
6213	6150	0.07264	1223.09155	88.84537019
6213	6294	0.07655	1185.43762	90.74524981
6219	6201	0.05056	1107.87805	56.01431421
6219	6262	0.10774	1215.02490	130.9067827
6220	6056	0.15759	824.90063	129.9960903
6220	6418	0.13186	559.58032	73.786261
6226	3922	0.02516	3135.24829	78.88284698
6226	3941	0.01635	5004.93506	81.83068823
6234	6171	0.05412	2038.12048	110.3030804
6234	6280	0.05523	1890.31030	104.4018379
6243	6206	0.03185	1480.21326	47.14479233
6243	6270	0.03241	1630.39270	52.84102741
6252	6207	0.03856	2533.15161	97.67832608
6252	6295	0.04023	2828.07324	113.7733864
6259	6210	0.09096	37964.39453	3453.241326
6262	1229	0.24273	216.13539	52.46254321
6262	6219	0.10774	1107.87805	119.3627811
6262	6318	0.15468	1476.29285	228.352978
6264	6265	0.01034	0.00000	0
6264	29950	0.27616	1837.42249	507.4225948
6265	6144	0.12662	1399.45776	177.1993416
6265	6264	0.01034	0.00000	0
6270	6243	0.03241	1480.21326	47.97371176
6270	6328	0.04136	1630.39270	67.43304207
6276	1046	0.34976	828.89233	289.9133813
6276	6057	0.21953	1827.19739	401.124643
6276	6426	0.08433	2983.48511	251.5972993
6280	6234	0.05523	2038.12048	112.5653941
6280	6569	0.16289	1890.31030	307.9126448
6281	1992	1.53695	74.20212	114.0449483
6281	6282	0.92579	23.46521	21.72385677
6281	6283	0.07258	60.30028	4.376594322
6282	1991	2.90705	344.20523	1000.621814
6282	4608	1.99902	8.63918	17.2698936
6282	6281	0.92579	23.68616	21.92841007
6282	6299	0.00897	335.31552	3.007780214
6283	6281	0.07258	60.02309	4.356475872
6283	6288	0.50469	60.30028	30.43294831
6288	6283	0.50469	60.02309	30.29305329
6288	6297	0.49711	60.30028	29.97587219
6290	1090	0.22799	4.22152	0.962464345
6290	1135	0.13671	4.34020	0.593348742
6290	6294	0.09308	240.72839	22.40699854
6290	6295	0.08965	239.50366	21.47150312
6294	6213	0.07655	1223.09155	93.62765815
6294	6290	0.09308	239.50366	22.29300067

6294	6374	0.04584	1002.48254	45.95379963
6295	6252	0.04023	2533.15161	101.9086893
6295	6290	0.08965	240.72839	21.58130016
6295	6380	0.04754	3045.46973	144.781631
6296	6304	0.00791	40097.82422	317.1737896
6297	6288	0.49711	60.02309	29.83807827
6297	6298	0.99353	60.30028	59.91013719
6298	5463	0.99883	1140.63440	1139.299858
6298	6297	0.99353	60.02309	59.63474061
6298	6307	1.00387	491.39264	493.2943295
6298	8025	1.00222	1412.46423	1415.599901
6299	6282	0.00897	329.37921	2.954531514
6299	8003	0.99098	335.31552	332.290974
6304	6310	0.01304	40097.82422	522.8756278
6306	6210	0.30982	3293.38086	1020.355258
6307	6298	1.00387	475.67834	477.5192152
6307	6311	0.49780	491.39264	244.6152562
6309	1924	1.53388	457.49289	701.7391941
6309	6314	0.25856	1028.67871	265.9751673
6309	6345	1.27728	997.86407	1274.551819
6310	6465	0.11629	40097.82422	4662.975979
6311	1967	0.89868	1545.42004	1388.838082
6311	6307	0.49780	475.67834	236.7926777
6311	6320	1.50097	1283.31189	1926.212648
6313	6154	0.98123	0.00000	0
6313	6306	0.10567	3293.38086	348.0115555
6313	6316	0.01542	788.94763	12.16557245
6314	1926	1.07137	85.01422	91.08168488
6314	6309	0.25856	1255.28015	324.5652356
6314	6317	0.24338	1071.61548	260.8097755
6316	6313	0.01542	3293.38086	50.78393286
6316	6400	0.20874	788.94763	164.6849283
6316	6493	0.09126	0.00000	0
6317	6314	0.24338	1291.89441	314.4212615
6317	6332	0.75499	1071.61548	809.0589712
6318	6185	0.12047	1251.98022	150.8260571
6318	6262	0.15468	1324.01343	204.7983974
6318	6334	0.18866	1140.57153	215.1802248
6318	6580	0.14812	2123.08936	314.471996
6320	5474	1.00167	2278.64795	2282.453292
6320	6311	1.50097	1238.08252	1858.32472
6320	6323	1.00042	328.21545	328.3533005
6320	8043	1.00107	3396.66309	3400.29752
6323	6320	1.00042	262.58862	262.6989072
6323	6326	0.99628	793.81250	790.8595175
6323	10019	2.00235	473.95166	949.0171064
6326	1966	0.79368	1227.71387	974.4119443
6326	6323	0.99628	734.19836	731.4671421
6326	6330	0.96525	1227.24341	1184.596702
6327	1792	0.49804	24.99193	12.44698082
6327	5805	0.49662	553.31848	274.7890235
6327	7159	0.50361	1071.95508	539.8472978
6328	6270	0.04136	1480.21326	61.22162043
6328	6378	0.02403	1630.39270	39.17833658

6329	1684	0.25194	0.00000	0
6329	1698	0.22495	0.00000	0
6330	1925	1.63281	167.43649	273.3919752
6330	6326	0.96525	1150.75745	1110.768629
6330	6345	2.01823	1059.80688	2138.934039
6331	1792	0.50355	126.55804	63.72830104
6331	6089	0.23478	663.38879	155.7504201
6331	6750	0.26168	249.97795	65.41422996
6332	6317	0.75499	1291.89441	975.3673606
6332	6343	0.37579	1071.61548	402.7023812
6333	455	0.34786	839.42755	292.0032675
6333	3975	0.02795	2884.91089	80.63325938
6333	4060	0.21605	2678.29639	578.6459351
6334	1212	0.24436	218.29622	53.34286432
6334	1213	0.27828	2.14305	0.596367954
6334	6318	0.18866	1038.85754	195.9908635
6334	6335	0.06757	924.43420	62.46401889
6335	6334	0.06757	830.56854	56.12151625
6335	6336	0.12066	924.43420	111.5422306
6336	6083	0.24483	1208.45667	295.8664465
6336	6335	0.12066	830.56854	100.2164
6336	6732	0.25047	2176.46289	545.1386601
6337	1203	0.24433	0.00000	0
6337	1699	0.23931	0.00000	0
6339	1333	0.25356	26.86838	6.812746433
6339	1334	0.12620	0.14201	0.017921662
6339	6348	0.05381	24.46643	1.316538598
6340	6341	0.09170	406.18683	37.24733231
6340	6352	0.11732	410.16327	48.12035484
6341	6340	0.09170	410.16327	37.61197186
6341	6348	0.19376	26.72414	5.178069366
6341	6538	0.10156	424.05139	43.06665917
6343	6332	0.37579	1291.89441	485.4810003
6343	6349	0.10275	1071.61548	110.1084906
6344	6346	0.10204	120.71463	12.31772085
6344	6347	0.09309	115.92733	10.79167515
6345	5029	1.52899	3849.29956	5885.540534
6345	6309	1.27728	768.52936	981.6271809
6345	6330	2.01823	982.36206	1982.63258
6345	9148	1.55293	2378.93750	3694.323412
6346	6103	0.22571	1288.80469	290.8961066
6346	6344	0.10204	115.92733	11.82922475
6346	6356	0.07865	406.18683	31.94659418
6346	6603	0.15178	764.96008	116.1056409
6347	6344	0.09309	120.71463	11.23732491
6347	6350	0.02898	115.92733	3.359574023
6348	6339	0.05381	26.72414	1.438025973
6348	6341	0.19376	24.46643	4.740615477
6349	6343	0.10275	1291.89441	132.7421506
6349	6358	0.03940	1071.61548	42.22164991
6350	6347	0.02898	120.71463	3.498309977
6350	6351	0.02954	115.92733	3.424493328
6351	1380	0.25252	90.93662	22.96331528
6351	1381	0.25213	4.25081	1.071756725

6351	6350	0.02954	120.71463	3.56591017
6351	6354	0.09879	200.37611	19.79515591
6352	6340	0.11732	406.18683	47.6538389
6352	6353	0.10963	410.16327	44.96619929
6353	6352	0.10963	406.18683	44.53026217
6353	6356	0.10412	410.16327	42.70619967
6354	6351	0.09879	207.48778	20.49771779
6354	6361	0.05247	200.37611	10.51373449
6356	6346	0.07865	410.16327	32.25934119
6356	6353	0.10412	406.18683	42.29217274
6358	6349	0.03940	1291.89441	50.90063975
6358	6375	0.24971	1071.61548	267.5931015
6361	6354	0.05247	207.48778	10.88688382
6361	6365	0.09455	200.37611	18.9455612
6363	1404	0.25256	0.34201	0.086378046
6363	1405	0.25187	0.34416	0.086683579
6364	1689	0.23737	0.02636	0.006257073
6364	1690	0.25227	0.00134	0.000338042
6364	6366	0.50226	0.02486	0.012486184
6365	6361	0.09455	207.48778	19.6179696
6365	6660	0.18511	200.37611	37.09162172
6366	1422	0.25063	0.02069	0.005185535
6366	1423	0.25216	0.04536	0.011437978
6366	6364	0.50226	0.02499	0.012551477
6367	6101	0.24061	151.44888	36.44011502
6367	6784	0.26216	175.10167	45.90465381
6372	1265	0.23713	0.00000	0
6374	6294	0.04584	1038.91174	47.62371416
6374	6459	0.03866	1002.48254	38.755975
6375	1112	0.77247	15.89453	12.27804759
6375	6358	0.24971	1291.89441	322.5989531
6375	6377	0.07998	1038.12280	83.02906154
6375	6764	0.24989	71.94959	17.97948305
6376	6380	0.10204	347.52975	35.46193569
6376	6385	0.09861	362.04544	35.70130084
6377	6375	0.07998	1265.13953	101.1858596
6377	6395	0.10553	1038.12280	109.5530991
6378	6328	0.02403	1480.21326	35.56952464
6378	6382	0.10618	347.52975	36.90070886
6378	6387	0.49712	1028.06750	511.0729156
6378	6485	0.05421	1249.21179	67.71977114
6379	6259	0.16311	37964.39453	6192.372392
6380	6295	0.04754	2751.77271	130.8192746
6380	6376	0.10204	362.04544	36.9431167
6380	6500	0.06671	3245.09692	216.4804155
6381	6383	0.06274	347.52975	21.80401652
6381	6386	0.03517	362.04544	12.73313812
6382	6378	0.10618	362.04544	38.44198482
6382	6384	0.02689	347.52975	9.345074978
6383	6381	0.06274	362.04544	22.71473091
6383	6385	0.03378	347.52975	11.73955496
6384	6382	0.02689	362.04544	9.735401882
6384	6386	0.03309	347.52975	11.49975943
6385	6376	0.09861	347.52975	34.26990865

6385	6383	0.03378	362.04544	12.22989496
6386	6381	0.03517	347.52975	12.22262131
6386	6384	0.03309	362.04544	11.98008361
6387	6378	0.49712	827.88055	411.555979
6387	6388	0.50125	1028.06750	515.3188344
6388	5901	0.47290	205.38690	97.12746501
6388	6387	0.50125	827.88055	414.9751257
6388	6395	0.55641	1265.13953	703.9362859
6388	7380	0.54825	426.76703	233.9750242
6391	1358	0.26711	0.88579	0.236603367
6391	1359	0.16944	0.90760	0.153783744
6395	6377	0.10553	1265.13953	133.5101746
6395	6388	0.55641	1038.12280	577.6219071
6396	1003	0.23508	0.00089	0.000209221
6396	1133	0.07704	0.00089	6.85656E-05
6400	6316	0.20874	3293.38086	687.4603207
6400	6412	0.01542	788.94763	12.16557245
6401	6200	0.14134	1594.46143	225.3611785
6401	6402	0.14134	858.59888	121.3543657
6401	6431	0.01285	2899.36084	37.25678679
6402	6401	0.14134	839.45734	118.6489004
6402	6403	0.10894	858.59888	93.53576199
6403	1015	0.24838	760.57617	188.9119091
6403	1016	0.13022	18.94701	2.467279642
6403	6402	0.10894	839.45734	91.45048262
6403	6404	0.03240	86.65361	2.807576964
6404	6403	0.03240	47.16463	1.528134012
6404	6409	0.11997	86.65361	10.39583359
6408	6414	0.02760	0.00000	0
6409	6404	0.11997	47.16463	5.658340661
6409	6414	0.09515	86.65361	8.245090992
6412	6400	0.01542	3293.38086	50.78393286
6412	6553	0.51633	788.94763	407.3573298
6414	6114	0.23961	86.65361	20.76307149
6414	6408	0.02760	0.00000	0
6414	6409	0.09515	47.16463	4.487714545
6418	6220	0.13186	824.90063	108.7713971
6418	6421	0.15927	2440.01196	388.6207049
6418	6467	0.03135	2243.52246	70.33442912
6421	6418	0.15927	2116.35156	337.071313
6421	6428	0.05934	2440.01196	144.7903097
6422	6175	0.17687	34642.46094	6127.212066
6423	6425	0.03610	1726.26709	62.31824195
6423	6428	0.02183	1670.82678	36.47414861
6425	6423	0.03610	1670.82678	60.31684676
6425	6431	0.23237	1726.26709	401.1326837
6426	1059	0.20606	23.74384	4.89265567
6426	6276	0.08433	2643.25806	222.9059522
6426	6472	0.03057	2959.74121	90.47928879
6428	1030	0.26390	318.62143	84.08419538
6428	1031	0.17033	407.17383	69.35391846
6428	6421	0.05934	2116.35156	125.5843016
6428	6423	0.02183	1726.26709	37.68441057
6431	6401	0.01285	2432.15088	31.25313881

6431	6425	0.23237	1670.82678	388.2500189
6431	6619	0.12402	4459.44141	553.0599237
6447	6174	0.19165	941.01514	180.3455516
6447	6453	0.49988	519.62891	259.7520995
6447	6520	0.05067	546.52338	27.69233966
6448	5899	0.50282	205.51707	103.3380931
6448	6466	0.49142	207.48593	101.9627357
6450	1750	0.66425	1096.14014	728.111088
6450	6454	0.05704	498.76266	28.44942213
6450	6455	0.52775	929.53766	490.5635001
6453	6447	0.49988	498.76266	249.3214785
6453	6454	0.50337	519.62891	261.5656044
6454	6450	0.05704	519.62891	29.63963303
6454	6453	0.50337	498.76266	251.0621602
6455	6450	0.52775	901.72314	475.8843871
6455	6456	0.41374	929.53766	384.5869114
6456	6008	0.37791	275.82663	104.2376417
6456	6455	0.41374	901.72314	373.0789319
6456	6461	0.50195	899.19611	451.3514874
6456	7864	0.81578	247.73582	202.0979272
6458	5908	0.50303	3183.08472	1601.187107
6458	6460	0.24986	884.03510	220.8850101
6458	6462	0.40985	857.28815	351.3595483
6458	8177	1.01026	2249.52466	2272.604783
6459	6374	0.03866	1038.91174	40.16432787
6459	6509	0.03943	1002.48254	39.52788655
6460	170	0.50450	0.00000	0
6460	6458	0.24986	883.00574	220.6278142
6460	6464	0.24865	884.03510	219.8153276
6461	6456	0.50195	876.63257	440.0257185
6461	6462	0.09374	899.19611	84.29064335
6462	181	0.50647	19.30447	9.777134921
6462	6458	0.40985	879.89166	360.6235969
6462	6461	0.09374	876.63257	82.17553711
6463	164	0.26159	18.52263	4.845334782
6463	6464	0.25780	854.27448	220.2319609
6463	6469	0.24829	846.92554	210.2831423
6464	1731	0.76144	396.89041	302.2082338
6464	6123	0.26441	281.86847	74.52884215
6464	6460	0.24865	883.00574	219.5593773
6464	6463	0.25780	853.67487	220.0773815
6465	6593	0.16388	40097.82422	6571.231433
6466	1653	0.50228	4.84181	2.431944327
6466	6448	0.49142	205.51707	100.9951985
6466	6486	0.49980	212.37898	106.1470142
6467	6418	0.03135	2832.50293	88.79896686
6467	6473	0.01261	2218.58813	27.97639632
6467	6516	0.03464	24.93438	0.863726923
6469	6463	0.24829	835.85779	207.5351307
6469	6474	0.00912	625.08093	5.700738082
6469	6871	0.26492	4905.19678	1299.484731
6471	1655	0.25569	18.25039	4.666442219
6471	6474	0.23034	393.69476	90.68365102
6471	6482	0.19235	380.81760	73.25026536

6472	6426	0.03057	2619.87378	80.08954145
6472	6583	0.07694	2959.74121	227.7224887
6473	6467	0.01261	2807.75293	35.40576445
6473	6484	0.04763	2218.58813	105.6713526
6474	6138	0.25259	4812.86670	1215.682
6474	6469	0.00912	603.53729	5.504260085
6474	6471	0.23034	394.11484	90.78041225
6481	1654	0.27115	6.51270	1.765918605
6481	1715	1.21593	350.43991	426.1103998
6481	6482	0.31055	380.24646	118.0855382
6481	6486	0.25070	24.85190	6.23037133
6482	6471	0.19235	380.24646	73.14040658
6482	6481	0.31055	380.81760	118.2629057
6484	6473	0.04763	2807.75293	133.7332721
6484	6505	0.12139	2218.58813	269.3144131
6485	6378	0.05421	1284.70361	69.6437827
6485	6501	0.01341	1249.21179	16.7519301
6486	6128	0.27262	1019.73767	278.0008836
6486	6466	0.49980	210.35887	105.1373632
6486	6481	0.25070	24.74092	6.202548644
6486	7388	0.49976	1273.45056	636.4196519
6493	6316	0.09126	0.00000	0
6493	6593	0.09983	0.00000	0
6495	6379	0.12233	37964.39453	4644.184383
6500	1076	0.26233	654.48450	171.6909189
6500	6380	0.06671	2965.91553	197.856225
6500	6518	0.01247	3679.80591	45.8871797
6501	6485	0.01341	1284.70361	17.22787541
6501	6575	0.04247	1249.21179	53.05402472
6505	1047	0.20612	2840.75757	585.5369503
6505	6484	0.12139	2807.75293	340.8331282
6505	6542	0.08359	2056.14526	171.8731823
6509	1059	0.16035	184.94061	29.65522681
6509	1135	0.09055	199.75439	18.08776001
6509	6459	0.03943	1038.91174	40.96428991
6509	6572	0.03453	1272.98926	43.95631915
6516	6467	0.03464	24.75012	0.857344157
6516	6582	0.04247	24.93438	1.058963119
6518	1135	0.09277	25.29029	2.346180203
6518	6500	0.01247	3412.96997	42.55973553
6518	6614	0.06312	3654.51563	230.6730266
6520	6447	0.05067	563.04187	28.52933155
6520	7415	0.49723	546.52338	271.7478202
6538	1334	0.24292	224.40520	54.51251118
6538	1359	0.24902	456.72388	113.7333806
6538	6341	0.10156	430.28552	43.69979741
6538	6954	0.26949	1010.76343	272.3906368
6542	1048	0.18951	2.99782	0.568116868
6542	6505	0.08359	2647.69556	221.3208719
6542	6559	0.08848	2053.14746	181.6624873
6553	6412	0.51633	3293.38086	1700.471339
6553	6557	0.02629	788.94763	20.74143319
6557	1001	0.19060	36.62115	6.97999119
6557	6553	0.02629	3293.38086	86.58298281

6557	6597	0.12529	774.22675	97.00286951
6559	6542	0.08848	2644.56616	233.9912138
6559	6583	0.08509	2053.14746	174.7023174
6569	6280	0.16289	2038.12048	331.989445
6569	6701	0.10097	1890.31030	190.864631
6572	6509	0.03453	1315.60718	45.42791593
6572	6624	0.03929	1272.98926	50.01574803
6575	6501	0.04247	1284.70361	54.56136232
6575	6647	0.05533	1249.21179	69.11888834
6578	6141	0.31613	632.00702	199.7963792
6578	6623	0.03184	783.80334	24.95629835
6580	6318	0.14812	1962.41284	290.6725899
6580	6694	0.10010	2123.08936	212.5212449
6582	6516	0.04247	24.75012	1.051137596
6582	6595	0.01398	24.93438	0.348582632
6583	6472	0.07694	2619.87378	201.5730886
6583	6559	0.08509	2644.56616	225.0261346
6583	6590	0.05503	661.08527	36.37952241
6583	6631	0.03563	5026.75928	179.1034331
6585	6495	0.10289	164.48654	16.9240201
6585	6749	0.11315	0.00000	0
6590	6583	0.05503	727.40326	40.0290014
6590	6598	0.03884	661.08527	25.67655189
6593	6658	0.08038	40097.82422	3223.063111
6595	6582	0.01398	24.75012	0.346006678
6595	6633	0.02179	24.93438	0.54332014
6597	6557	0.12529	3281.87476	411.1860887
6597	6623	0.11091	774.22675	85.86948884
6597	6724	0.21020	0.00000	0
6598	6590	0.03884	727.40326	28.25234262
6598	6630	0.09108	661.08527	60.21164639
6603	1359	0.26655	302.06052	80.51423161
6603	6346	0.15178	770.01086	116.8722483
6603	6752	0.10172	810.62311	82.45658275
6614	6518	0.06312	3389.59814	213.9514346
6614	6665	0.03972	3654.51563	145.1573608
6618	6495	0.15725	37799.90625	5944.035258
6619	1016	0.23446	97.05761	22.75612724
6619	1031	0.27331	614.18591	167.8631511
6619	6431	0.12402	3936.79126	488.2408521
6619	6805	0.12179	5234.48584	637.5080305
6623	6578	0.03184	632.00702	20.12310352
6623	6597	0.11091	3247.35742	360.1644115
6623	6670	0.25415	918.02563	233.3162139
6623	6724	0.11463	787.64893	90.28819685
6624	6572	0.03929	1315.60718	51.6902061
6624	6669	0.03807	1272.98926	48.46270113
6630	1059	0.11064	233.57681	25.84293826
6630	1060	0.18824	91.62826	17.24810366
6630	6598	0.09108	727.40326	66.25188892
6630	6655	0.08915	517.82965	46.1645133
6631	6583	0.03563	5211.99268	185.7032992
6631	6674	0.04070	5026.75928	204.5891027
6633	6595	0.02179	24.75012	0.539305115

6633	6672	0.03743	24.93438	0.933293843
6647	1076	0.25670	304.44827	78.15187091
6647	6575	0.05533	1284.70361	71.08265074
6647	6761	0.08271	1493.15356	123.4987309
6651	6709	0.04587	30560.23047	1401.797772
6651	7174	0.31577	5487.16016	1732.680564
6654	6422	0.15399	34642.46094	5334.59256
6655	6630	0.08915	591.21259	52.7066024
6655	6669	0.09108	517.82965	47.16392452
6658	7011	0.44655	40097.82422	17905.68341
6660	6365	0.18511	207.48778	38.40806296
6660	6757	0.06958	200.37611	13.94216973
6665	6614	0.03972	3389.59814	134.6348381
6665	6719	0.03807	3654.51563	139.12741
6666	1844	0.48584	36.50618	17.73616249
6666	6205	0.31249	6576.09473	2054.963842
6666	7230	0.31345	5134.41846	1609.383466
6667	6746	0.05302	4507.83301	239.0053062
6667	30199	0.18983	4108.85400	779.9837548
6669	6624	0.03807	1315.60718	50.08516534
6669	6655	0.09108	591.21259	53.8476427
6669	6686	0.09302	494.96997	46.04210661
6669	6720	0.03740	933.60492	34.91682401
6670	1004	0.14075	86.52148	12.17789831
6670	6623	0.25415	3328.37842	845.9073754
6670	6673	0.01852	984.40222	18.23112911
6672	6633	0.03743	24.75012	0.926396992
6672	6811	0.07268	24.93438	1.812230738
6673	6670	0.01852	3414.89990	63.24394615
6673	6798	0.39606	984.40222	389.8823433
6674	6631	0.04070	5211.99268	212.1281021
6674	6730	0.03477	5026.75928	174.7804202
6686	1061	0.18869	36.85905	6.954934145
6686	1135	0.11420	87.65148	10.00979902
6686	6669	0.09302	489.17639	45.5031878
6686	6719	0.08937	546.66516	48.85546535
6694	1213	0.21968	237.68405	52.2144321
6694	6580	0.10010	1962.41284	196.4375253
6694	6769	0.05605	1890.28711	105.9505925
6699	6265	0.28188	1399.45776	394.4791534
6701	1264	0.27777	198.63458	55.17472729
6701	6569	0.10097	2038.12048	205.7890249
6701	6778	0.04631	1691.67566	78.34149981
6709	7176	0.26487	30560.23047	8094.488245
6715	6654	0.04686	34642.46094	1623.34572
6719	6665	0.03807	3389.59814	129.0420012
6719	6686	0.08937	539.14563	48.18344495
6719	6733	0.09264	500.70541	46.38534918
6719	6846	0.07436	3664.65747	272.5039295
6720	6669	0.03740	1055.39917	39.47192896
6720	6789	0.03862	933.60492	36.05582201
6721	1203	0.23501	0.01203	0.00282717
6721	1684	0.26022	0.01205	0.003135651
6724	6597	0.21020	34.51722	7.255519644

6724	6623	0.11463	698.63062	80.08402797
6724	6892	0.05788	787.64893	45.58912007
6728	1264	0.22610	117.26635	26.51392174
6728	7131	0.24562	1986.48877	487.9213717
6729	6699	0.02157	1399.45776	30.18630388
6730	6674	0.03477	5211.99268	181.2209855
6730	6818	0.03960	5026.75928	199.0596675
6732	1203	0.26354	17.26493	4.549999652
6732	1213	0.22131	181.06459	40.07140441
6732	6336	0.25047	2038.40027	510.5581156
6732	7140	0.24309	2166.46069	526.6449291
6733	6719	0.09264	472.93475	43.81267524
6733	6755	0.04627	500.70541	23.16763932
6746	1405	0.30543	210.00015	64.14034581
6746	1423	0.24994	362.58713	90.62502727
6746	6667	0.05302	4108.85400	217.8514391
6746	6762	0.01116	4483.71338	50.03824132
6749	1844	0.51574	0.34209	0.176429497
6749	6585	0.11315	164.48654	18.611652
6749	7257	0.26100	0.33445	0.08729145
6750	1684	0.23858	12.78492	3.050226214
6750	6331	0.26168	720.33307	188.4967578
6750	7145	0.23759	245.54413	58.33882985
6752	1381	0.24778	221.55902	54.89789398
6752	6603	0.10172	818.42938	83.25063653
6752	6822	0.03333	598.56500	19.95017145
6754	1423	0.24936	0.08223	0.020504873
6754	1690	0.25092	7.44502	1.868104418
6754	6099	0.48913	707.96600	346.2874096
6754	7238	0.25419	501.80542	127.5539197
6755	6733	0.04627	472.93475	21.88269088
6755	6766	0.04064	500.70541	20.34866786
6757	1381	0.24627	431.87732	106.3584276
6757	1405	0.20457	83.80360	17.14370245
6757	6660	0.06958	207.48778	14.43699973
6757	6856	0.05443	921.06268	50.13344167
6761	6647	0.08271	1523.57385	126.0147931
6761	6875	0.06204	1493.15356	92.63524686
6762	6746	0.01116	3963.62720	44.23407955
6762	6915	0.08818	4483.71338	395.3738458
6764	6375	0.24989	65.14037	16.27792706
6764	7207	0.23983	71.94959	17.25567017
6766	6755	0.04064	472.93475	19.22006824
6766	6790	0.05878	500.70541	29.431464
6769	1230	0.18320	171.01765	31.33043348
6769	6694	0.05605	1716.25793	96.19625698
6769	6969	0.12996	1849.26282	240.3301961
6778	6701	0.04631	1804.44250	83.56373218
6778	6905	0.07587	1691.67566	128.3474323
6784	1690	0.25077	2.24823	0.563788637
6784	6367	0.26216	151.44888	39.70383838
6784	7246	0.24044	177.36104	42.64468846
6789	6720	0.03862	1055.39917	40.75951595
6789	6854	0.03697	933.60492	34.51537389

6790	1076	0.17596	10.18838	1.792747345
6790	1077	0.15557	172.28052	26.8016805
6790	6766	0.05878	472.93475	27.79910461
6790	6800	0.03552	421.62851	14.97624468
6798	6673	0.39606	3414.89990	1352.505254
6798	6829	0.07092	984.40222	69.81380544
6800	6790	0.03552	393.52289	13.97793305
6800	6835	0.09119	421.62851	38.44830383
6805	6619	0.12179	4566.15479	556.1119919
6805	6847	0.02629	5234.48584	137.6146327
6811	1031	0.25202	4.31988	1.088696158
6811	1048	0.20847	29.27963	6.103924466
6811	6672	0.07268	24.75012	1.798838722
6811	6942	0.08658	0.00000	0
6818	6730	0.03960	5211.99268	206.3949101
6818	6865	0.03697	5026.75928	185.8392906
6822	6752	0.03333	610.79803	20.35789834
6822	6918	0.06473	598.56500	38.74511245
6829	6798	0.07092	3414.89990	242.1847009
6829	6842	0.05898	984.40222	58.06004294
6835	6800	0.09119	393.52289	35.88535234
6835	6853	0.08586	421.62851	36.20102387
6842	1005	0.31832	614.41528	195.5806719
6842	6829	0.05898	3414.89990	201.4107961
6842	6863	0.09739	1130.40234	110.0898839
6846	6719	0.07436	3419.99097	254.3105285
6846	6961	0.07559	3664.65747	277.0114582
6847	6805	0.02629	4566.15479	120.0442094
6847	6867	0.01689	5234.48584	88.41046584
6853	6835	0.08586	393.52289	33.78787534
6853	6872	0.08038	421.62851	33.89049963
6854	6789	0.03697	1055.39917	39.01810731
6854	6911	0.03929	933.60492	36.68133731
6856	6757	0.05443	552.30646	30.06204062
6856	7204	0.19070	921.06268	175.6466531
6863	6842	0.09739	3574.44800	348.1154907
6863	6901	0.12708	1130.40234	143.6515294
6865	1048	0.19776	707.11993	139.8400374
6865	1060	0.17868	538.11823	96.15096534
6865	6818	0.03697	5211.99268	192.6873694
6865	6930	0.03971	5920.02490	235.0841888
6867	6847	0.01689	4566.15479	77.1223544
6867	6901	0.02077	5234.48584	108.7202709
6871	6874	0.00898	0.00000	0
6871	7375	0.23764	4905.19678	1165.670963
6872	6853	0.08038	393.52289	31.6313699
6872	6875	0.01036	421.62851	4.368071364
6874	6474	0.26381	4791.74316	1264.109763
6874	6871	0.00898	0.00000	0
6875	1098	0.49731	2254.18237	1121.027434
6875	6761	0.06204	1523.57385	94.52252165
6875	6872	0.01036	393.52289	4.07689714
6875	6984	0.07321	3022.35669	221.2667333
6892	1001	0.28352	29.39733	8.334731002

6892	1004	0.20797	227.24202	47.2595229
6892	6724	0.05788	733.14783	42.4345964
6892	7050	0.11259	1047.21851	117.906332
6901	6863	0.12708	3574.44800	454.2408518
6901	6867	0.02077	4566.15479	94.83903499
6901	6957	0.18665	1100.77380	205.4594298
6901	6987	0.05811	3462.80469	201.2235805
6905	6778	0.07587	1804.44250	136.9030525
6905	7022	0.07590	1691.67566	128.3981826
6911	6854	0.03929	1055.39917	41.46663339
6911	6973	0.04200	933.60492	39.21140664
6915	6762	0.08818	3963.62720	349.5126465
6915	30168	0.13653	4483.71338	612.1613878
6918	1360	0.25209	367.19196	92.5654212
6918	6822	0.06473	610.79803	39.53695648
6918	6959	0.02288	435.15836	9.956423277
6930	6865	0.03971	6130.51221	243.4426399
6930	6980	0.03601	5920.02490	213.1800966
6942	6811	0.08658	0.00000	0
6954	6538	0.26949	1037.19824	279.5145537
6954	6971	0.01913	1010.76343	19.33590442
6957	7046	0.33718	1100.77380	371.1589099
6959	6918	0.02288	653.64673	14.95543718
6959	7191	0.12388	435.15836	53.90741764
6961	6846	0.07559	3419.99097	258.5171174
6961	7016	0.03697	3664.65747	135.4823867
6963	6901	0.19594	2506.71875	491.1664719
6969	6769	0.12996	1679.18030	218.2262718
6969	7101	0.09327	1849.26282	172.4807432
6971	1335	0.23163	818.47980	189.5844761
6971	1360	0.24813	625.76398	155.2708164
6971	6954	0.01913	1037.19824	19.84160233
6971	7181	0.10808	1217.32178	131.568138
6973	1060	0.18495	3.92630	0.726169185
6973	1061	0.09225	252.79379	23.32022713
6973	6911	0.04200	1055.39917	44.32676514
6973	7023	0.03103	933.60492	28.96976067
6978	1032	0.12229	197.28043	24.12542378
6978	6963	0.07711	2506.71875	193.2930828
6980	6930	0.03601	6130.51221	220.7597447
6980	7030	0.03765	5920.02490	222.8889375
6984	6875	0.07321	3056.45215	223.7628619
6984	7142	0.09389	3022.35669	283.7690696
6987	6901	0.05811	3832.57422	222.7108879
6987	7033	0.03107	3462.80469	107.5893417
7011	7065	0.08919	40097.82422	3576.324942
7016	1061	0.08973	148.35600	13.31198388
7016	1077	0.27686	543.92078	150.5899072
7016	6961	0.03697	3419.99097	126.4370662
7016	7064	0.03917	4267.72070	167.1666198
7022	6905	0.07590	1804.44250	136.9571858
7022	7146	0.07140	1691.67566	120.7856421
7023	6973	0.03103	1304.22644	40.47014643
7023	7066	0.04027	933.60492	37.59627013

7027	6618	0.53043	37799.90625	20050.20427
7030	6980	0.03765	6130.51221	230.8137847
7030	7073	0.03519	5920.02490	208.3256762
7033	1017	0.14901	256.57123	38.23167898
7033	1032	0.20189	248.05162	50.07914156
7033	6987	0.03107	3832.57422	119.078081
7033	7303	0.09308	3696.54541	344.0744468
7046	7062	0.00841	130.65932	1.098844881
7046	29955	0.18922	1081.22620	204.5896216
7050	1132	0.04592	46.91772	2.154461702
7050	6892	0.11259	943.87335	106.2707005
7050	7260	0.07072	1000.30078	70.74127116
7062	6978	0.25174	2703.99927	680.7047762
7062	7046	0.00841	111.11172	0.934449565
7062	7266	0.06592	266.97156	17.59876524
7064	7016	0.03917	4031.51733	157.9145338
7064	7310	0.07559	4267.72070	322.5970077
7065	7180	0.08247	2890.00610	238.3388031
7065	7288	0.12087	37207.82031	4497.309241
7066	7023	0.04027	1304.22644	52.52119874
7066	7170	0.03519	933.60492	32.85355713
7073	7030	0.03519	6130.51221	215.7327247
7073	7251	0.04778	5920.02490	282.8587897
7089	7027	0.08567	37234.05078	3189.84113
7099	1049	0.12080	458.10510	55.33909608
7099	7062	0.18754	2820.77588	529.0083085
7101	6969	0.09327	1679.18030	156.6171466
7101	7103	0.15582	2380.03394	370.8568885
7101	7136	0.00848	1189.76758	10.08922908
7103	1230	0.24969	338.09216	84.41823143
7103	7126	0.17807	3070.27979	546.7247222
7103	7155	0.01060	0.00000	0
7109	1213	0.22486	540.29767	121.4913341
7109	7110	0.09515	1190.97632	113.3213968
7109	7143	0.00781	2.83672	0.022154783
7110	7101	0.11446	1190.97632	136.3191496
7111	7109	0.07515	686.51422	51.59154363
7112	7111	0.02827	686.51422	19.407757
7112	7153	0.03213	62.80125	2.017804163
7114	7112	0.03517	749.31549	26.35342578
7115	7122	0.11449	2159.26929	247.214741
7118	7114	0.05999	746.49359	44.78215046
7122	1264	0.27049	699.59967	189.2347147
7122	7141	0.11523	2498.04565	287.8498002
7122	7187	0.01060	20.69272	0.219342832
7124	1231	0.23673	391.45773	92.66978842
7124	7133	0.12275	3387.00342	415.7546698
7126	7124	0.03103	3067.95801	95.19873705
7126	7190	0.03464	2.32160	0.080420224
7128	7118	0.08827	746.49359	65.89298919
7131	7115	0.18275	2159.26929	394.6064627
7131	7185	0.00840	2721.18896	22.85798726
7132	6729	0.24556	1399.45776	343.6508475
7132	7131	0.00896	2893.96948	25.92996654

7133	7132	0.01724	3387.00342	58.39193896
7135	1233	0.24587	374.59720	92.10221356
7135	7155	0.05313	3160.13257	167.8978434
7136	7101	0.00848	2208.74292	18.73013996
7136	7144	0.08757	1020.30060	89.34772354
7136	7669	0.25824	2007.57239	518.435494
7140	6732	0.24309	2029.26929	493.2950717
7140	7128	0.00808	746.49359	6.031668207
7140	7147	0.01934	452.50858	8.751515937
7140	7605	0.22364	2156.38037	482.2529059
7141	7146	0.08920	2498.04565	222.825672
7141	7192	0.00837	0.00000	0
7142	6984	0.09389	3056.45215	286.9702924
7142	7325	0.04304	3022.35669	130.0822319
7143	7109	0.00781	537.47583	4.197686232
7143	7153	0.07516	485.66150	36.50231834
7144	7110	0.03209	0.00000	0
7144	7143	0.12342	1020.30060	125.9255001
7145	6750	0.23759	717.57367	170.4883283
7145	7152	0.24543	245.24197	60.1897367
7145	7644	0.24318	368.18439	89.53507996
7146	7022	0.07140	1804.44250	128.8371945
7146	7149	0.10135	5142.14795	521.1566947
7146	7196	0.00893	143.03575	1.277309248
7147	7140	0.01934	439.30710	8.496199314
7147	7151	0.23381	452.50858	105.8010311
7149	7158	0.11033	5142.14795	567.3331833
7149	7199	0.00948	0.00000	0
7151	1203	0.25185	23.06011	5.807688704
7151	1483	0.16938	6.51980	1.104323724
7151	7147	0.23381	439.30710	102.7143931
7151	7161	0.24675	429.68112	106.0238164
7152	1684	0.25083	23.85205	5.982809702
7152	1685	0.25699	151.88568	39.0331009
7152	7145	0.24543	254.16077	62.37867778
7152	7161	0.25316	416.51294	105.4444159
7153	1214	0.24423	65.63797	16.03076141
7153	7156	0.02827	546.76935	15.45716952
7155	7103	0.01060	698.21259	7.401053454
7155	7136	0.15448	2461.91992	380.3173892
7156	7114	0.03834	2.82186	0.108190112
7156	7157	0.03516	543.94751	19.12519445
7157	7166	0.05999	543.94751	32.63141112
7158	1265	0.49572	2240.60962	1110.715001
7158	7160	0.04197	7913.09424	332.1125653
7158	7203	0.00948	695.73163	6.595535852
7159	6327	0.50361	556.63208	280.3254818
7159	8319	0.66755	1071.95508	715.5836137
7160	7162	0.02009	7913.09424	158.9740633
7161	7151	0.24675	416.51294	102.7745679
7161	7152	0.25316	429.68112	108.7780723
7162	7163	0.06689	7913.09424	529.3068737
7163	7167	0.05999	7913.09424	474.7065235
7163	7208	0.00948	0.00000	0

7164	7140	0.00829	543.94751	4.509324858
7165	6715	0.26752	5103.40869	1365.263893
7165	7174	0.08277	9590.44922	793.8014819
7166	7164	0.08825	543.94751	48.00336776
7167	7165	0.05792	7913.09424	458.3264184
7168	1476	0.15902	1729.96655	275.0992808
7168	7171	0.08868	6564.36963	582.1282988
7168	7214	0.01004	2295.92700	23.05110708
7169	7177	0.03790	2065.85547	78.29592231
7170	7066	0.03519	1304.22644	45.89572842
7170	7316	0.03629	933.60492	33.88052255
7171	1335	0.11747	1465.86438	172.1950887
7171	7181	0.21610	7009.96191	1514.852769
7172	7191	0.12565	4317.78564	542.5297657
7172	7216	0.02650	8.68655	0.230193575
7173	7172	0.00896	4326.47217	38.76519064
7174	7168	0.15306	8037.16406	1230.168331
7174	7219	0.00948	7040.44482	66.74341689
7175	1360	0.12288	8.80361	1.081787597
7175	7173	0.08412	4326.47217	363.9428389
7176	7385	0.07443	30560.23047	2274.597954
7177	7115	0.05276	0.00000	0
7177	7185	0.22962	2065.85547	474.361733
7178	7175	0.02104	4113.52246	86.54851256
7179	7178	0.07067	4113.52246	290.7026322
7179	7218	0.00893	476.59814	4.25602139
7180	7254	0.07532	2890.00610	217.6752595
7181	6971	0.10808	1693.19666	183.000695
7181	7183	0.08412	4581.31689	385.3803768
7181	7225	0.00949	3116.95435	29.57989678
7182	7251	0.07018	1081.22620	75.88045472
7183	7179	0.10481	4581.31689	480.1678232
7185	7186	0.00896	2874.76538	25.7578978
7185	7484	0.15151	1912.27917	289.729417
7186	7132	0.00840	906.42389	7.613960676
7186	7188	0.01793	3402.33472	61.00386153
7187	1266	0.35272	20.69272	7.298736198
7187	7122	0.01060	537.62891	5.698866446
7187	7169	0.02906	2065.85547	60.03375996
7188	7189	0.09032	3402.33472	307.2988719
7189	7124	0.03651	327.55240	11.95893812
7189	7190	0.03241	3074.78223	99.65369207
7190	7135	0.15607	3077.10400	480.2436213
7191	6959	0.12388	653.64673	80.97375691
7191	7193	0.10343	3275.05127	338.7385529
7191	7231	0.00949	1798.05457	17.06353787
7192	7141	0.00837	0.00000	0
7192	7187	0.11516	2582.76416	297.4311207
7193	1381	0.28253	644.39490	182.0608911
7193	7194	0.03517	2630.65649	92.52018875
7193	7239	0.03919	617.54883	24.20173865
7194	7200	0.11349	2630.65649	298.5532051
7196	7146	0.00893	2899.90454	25.89614754
7196	7192	0.08921	2582.76416	230.4083907

7196	7424	0.09437	1307.81860	123.4188413
7198	7219	0.05530	7920.11865	437.9825613
7199	7149	0.00948	0.00000	0
7199	7196	0.10136	5374.58301	544.7677339
7200	7210	0.07891	2630.65649	207.5851036
7201	1405	0.24749	509.89777	126.1945991
7201	7213	0.31441	3056.53369	961.0047575
7202	7201	0.04206	3430.73315	144.2966363
7202	7243	0.04525	0.00000	0
7203	1268	0.16800	932.14838	156.6009278
7203	7158	0.00948	3462.38477	32.82340762
7203	7199	0.11033	5374.58301	592.9777435
7204	6856	0.19070	552.30646	105.3248419
7204	7202	0.13376	3430.73315	458.8948661
7204	7249	0.00949	1232.01270	11.69180052
7207	6764	0.23983	65.14037	15.62261494
7207	7280	0.01733	71.94959	1.246886395
7208	7163	0.00948	0.00000	0
7208	7211	0.04688	7233.91016	339.1257083
7209	7165	0.00948	6780.76367	64.28163959
7209	7212	0.06550	7233.91016	473.8211155
7210	7204	0.17237	2630.65649	453.4462592
7211	29949	0.04620	7233.91016	334.2066494
7212	7208	0.05240	7233.91016	379.0568924
7213	30168	0.01894	3963.62720	75.07109917
7213	30171	0.01260	721.21954	9.087366204
7214	7168	0.01004	777.58234	7.806926694
7214	7198	0.09782	7920.11865	774.7460063
7214	7487	0.14705	1154.60620	169.7848417
7215	29948	0.03315	3444.19824	114.1751717
7216	7217	0.03103	3444.19824	106.8734714
7217	7215	0.08412	3444.19824	289.7259559
7218	1361	0.25325	485.28470	122.8983503
7218	7179	0.00893	8.80361	0.078616237
7218	7224	0.10481	3897.25854	408.4716676
7219	7209	0.08276	6311.35889	522.3280617
7219	7649	0.23261	759.67780	176.7086531
7219	7807	0.32803	7889.52686	2588.001496
7220	7099	0.11309	2908.79395	328.9555078
7224	7225	0.08412	3897.25854	327.8373884
7225	7181	0.00949	1164.18457	11.04811157
7225	7430	0.09430	1139.15576	107.4223882
7225	29946	0.21531	5898.58252	1270.023802
7230	6666	0.31345	6567.51416	2058.587313
7230	7235	0.50794	4755.95752	2415.741063
7230	7250	0.51540	23.94836	12.34298474
7230	8085	0.49517	382.01147	189.1606196
7231	7191	0.00949	973.80865	9.241444089
7231	7216	0.10365	3435.51172	356.0907898
7231	7406	0.07812	2123.40112	165.8800955
7232	1690	0.24962	0.23233	0.057994215
7232	1691	0.25091	0.00522	0.00130975
7232	7238	0.26476	134.85190	35.70338904
7232	7246	0.24008	251.16737	60.30026219

7233	1406	0.25032	663.50861	166.0894753
7233	7242	0.05561	2619.39771	145.6647067
7235	1509	0.50220	3.51501	1.765238022
7235	1843	0.61521	261.76010	161.0374311
7235	7230	0.50794	6254.59668	3176.959838
7235	7240	0.07605	4777.10596	363.2989083
7237	7244	0.08412	22.44194	1.887815993
7237	30169	0.14335	19.04130	2.729570355
7238	6754	0.25419	709.11176	180.2491183
7238	7232	0.26476	250.93420	66.43733879
7238	7241	0.15844	169.76598	26.89772187
7238	7485	0.13731	532.42078	73.1066973
7239	7231	0.13860	3623.21924	502.1781867
7240	7235	0.07605	6273.90674	477.1306076
7240	7246	0.41851	4777.10596	1999.266615
7241	1423	0.26485	41.58293	11.01323901
7241	1424	0.26536	114.22304	30.31022589
7241	7238	0.15844	360.06451	57.04862096
7241	7244	0.07033	19.04130	1.339174629
7242	7201	0.04150	135.69838	5.63148277
7242	7243	0.03792	2483.69922	94.18187442
7243	7249	0.17582	2483.69922	436.6839969
7244	7237	0.08412	19.04130	1.601754156
7244	7241	0.07033	22.44194	1.57834164
7245	1382	0.30769	0.00000	0
7245	7194	0.04961	0.00000	0
7245	7239	0.04482	3005.67041	134.7141478
7246	6784	0.24044	153.69711	36.95493313
7246	7232	0.24008	135.07916	32.42980473
7246	7240	0.41851	6273.90674	2625.69271
7246	7697	0.25404	4871.82178	1237.637605
7247	7213	0.00726	1628.31311	11.82155318
7247	7233	0.22089	3275.70532	723.5705481
7249	7204	0.00949	1663.33313	15.7850314
7249	7252	0.17237	1995.10706	343.8966039
7249	7432	0.08985	2034.00757	182.7555802
7250	1146	0.50173	0.04887	0.024519545
7250	1844	0.30158	2.18289	0.658315966
7250	7230	0.51540	1.23322	0.635601588
7250	7257	0.48455	24.95713	12.09297734
7251	7073	0.04778	6130.51221	292.9158734
7251	7269	0.00630	3370.38940	21.23345322
7251	7302	0.02915	3955.39600	115.2997934
7252	7245	0.14757	1995.10706	294.4179488
7253	7027	0.12978	565.85620	73.43681764
7253	7300	0.00972	1362.73169	13.24575203
7254	7255	0.01656	2890.00610	47.85850102
7255	7256	0.21166	2890.00610	611.6986911
7255	7309	0.01975	0.00000	0
7256	1132	0.07247	198.60521	14.39291957
7256	7255	0.21166	0.00000	0
7256	7260	0.02898	3033.06958	87.89835643
7257	6749	0.26100	164.82863	43.02027243
7257	7250	0.48455	2.07083	1.003420677

7257	7264	0.45326	0.33981	0.154022281
7257	7779	0.28871	39.55679	11.42044084
7258	7284	0.05456	0.00000	0
7259	7260	0.18616	725.34229	135.0297207
7259	7262	0.02796	2140.11963	59.83774485
7259	7284	0.03833	11.46781	0.439561157
7260	7050	0.07072	905.72491	64.05286564
7260	7256	0.02898	127.63815	3.698953587
7260	7259	0.18616	2103.49414	391.5864691
7260	7354	0.03464	2813.89966	97.47348422
7260	7364	0.11493	1292.76086	148.5770056
7262	1004	0.17716	40.52723	7.179804067
7262	7259	0.02796	736.81012	20.60121096
7262	7263	0.02653	2107.50171	55.91202037
7263	7262	0.02653	729.24396	19.34684226
7263	7267	0.01452	2107.50171	30.60092483
7264	1149	0.28571	1216.30396	347.5102044
7264	7257	0.45326	14.94175	6.772497605
7264	7300	0.14626	1319.82019	193.036901
7266	7062	0.06592	130.64732	8.612271334
7266	7404	0.06836	266.97156	18.25017584
7267	7263	0.01452	729.24396	10.5886223
7267	7270	0.02760	2107.50171	58.1670472
7269	7220	0.05962	2908.79395	173.4222953
7269	7251	0.00630	6455.04590	40.66678917
7269	7436	0.08670	3383.80859	293.3762048
7270	7267	0.02760	729.24396	20.1271333
7270	7277	0.02485	2107.50171	52.37141749
7271	7272	0.02804	2107.50171	59.09434795
7271	7276	0.05930	729.24396	43.24416683
7272	1007	0.14160	293.71768	41.59042349
7272	7271	0.02804	729.24396	20.44800064
7272	7273	0.04160	1862.60059	77.48418454
7273	7272	0.04160	492.37146	20.48265274
7273	7274	0.07653	1862.60059	142.5448232
7274	7273	0.07653	492.37146	37.68118783
7274	7283	0.10550	1862.60059	196.5043622
7276	7271	0.05930	2107.50171	124.9748514
7276	7277	0.03585	729.24396	26.14339597
7277	7270	0.02485	729.24396	18.12171241
7277	7276	0.03585	2107.50171	75.5539363
7279	7283	0.06412	492.37146	31.57085802
7279	7297	0.06487	1862.60059	120.8269003
7280	7207	0.01733	65.14037	1.128882612
7280	7685	0.23479	71.94959	16.89304424
7281	7289	0.03656	492.37146	18.00110058
7281	7293	0.02075	1862.60059	38.64896224
7283	7274	0.10550	492.37146	51.94518903
7283	7279	0.06412	1862.60059	119.4299498
7284	7258	0.05456	0.00000	0
7284	7259	0.03833	36.62560	1.403859248
7284	7364	0.05201	11.46781	0.596440798
7288	7457	0.19103	37207.82031	7107.809914
7289	7281	0.03656	1862.60059	68.09667757

7289	7297	0.05861	492.37146	28.85789127
7293	7281	0.02075	492.37146	10.2167078
7293	7303	0.10070	1862.60059	187.5638794
7297	7279	0.06487	492.37146	31.94013661
7297	7289	0.05861	1862.60059	109.1670206
7300	7253	0.00972	565.85620	5.500122264
7300	7264	0.14626	1230.57092	179.9833028
7300	7307	0.01835	1220.39282	22.39420825
7302	7327	0.03513	3955.39600	138.9530615
7303	7033	0.09308	3871.24951	360.3359044
7303	7293	0.10070	492.37146	49.58180602
7303	7534	0.14978	3207.58423	480.431966
7307	7300	0.01835	334.26807	6.133819085
7307	7477	0.26145	1220.39282	319.0717028
7309	7254	0.02499	0.00000	0
7310	7064	0.07559	4031.51733	304.742395
7310	7381	0.03630	4267.72070	154.9182614
7316	7170	0.03629	1304.22644	47.33037751
7316	7411	0.05928	933.60492	55.34409966
7325	7142	0.04304	3056.45215	131.5497005
7325	7387	0.03241	3022.35669	97.95458032
7327	29956	0.02737	3955.39600	108.2591885
7330	7089	0.13115	37234.05078	4883.24576
7330	7253	0.11439	1362.73169	155.882878
7335	1062	0.11365	100.71672	11.44645523
7335	7337	0.02968	6176.14404	183.3079551
7337	7269	0.06497	6176.14404	401.2640783
7354	7260	0.03464	1493.79041	51.7448998
7354	7502	0.10465	2813.89966	294.4745994
7355	1156	0.50331	0.00000	0
7355	7997	0.40339	0.00000	0
7364	7260	0.11493	991.01471	113.8973206
7364	7284	0.05201	36.62560	1.904897456
7364	7568	0.18305	1304.22864	238.7390526
7369	1060	0.20885	331.97632	69.33325443
7369	7382	0.00730	206.53085	1.507675205
7369	7411	0.17732	4087.21411	724.744806
7374	6874	0.23652	4791.74316	1133.343092
7374	7375	0.00898	0.00000	0
7375	7374	0.00898	0.00000	0
7375	7643	0.17368	4905.19678	851.9345768
7380	6388	0.54825	474.57538	260.1859521
7380	7597	0.14621	426.76703	62.39760746
7381	7310	0.03630	4031.51733	146.3440791
7381	7428	0.03532	4267.72070	150.7358951
7382	1063	0.13914	200.99124	27.96592113
7382	7335	0.09642	6068.24756	585.1004297
7382	7369	0.00730	331.97632	2.423427136
7383	1098	0.24389	2.99452	0.730333483
7383	1099	0.06454	2.95166	0.190500136
7384	6715	0.33655	29539.05273	9941.368196
7385	7807	0.26345	30560.23047	8051.092717
7387	1077	0.31979	284.97864	91.13331929
7387	7325	0.03241	3056.45215	99.05961418

7387	7447	0.04416	3301.64673	145.8007196
7388	6486	0.49976	1254.83740	627.117539
7388	8185	0.49734	1273.45056	633.3379015
7404	1033	0.26138	153.18089	40.03842103
7404	1049	0.16434	135.64566	22.29200776
7404	7266	0.06836	130.64732	8.931050795
7404	7501	0.06853	11.22565	0.769293795
7406	7231	0.07812	1111.44763	86.82628886
7406	7514	0.07422	2123.40112	157.5988311
7411	7316	0.05928	1304.22644	77.31454336
7411	7425	0.00739	2192.87012	16.20531019
7411	7437	0.09390	4682.56201	439.6925727
7415	6520	0.49723	563.04187	279.961309
7415	7538	0.08526	546.52338	46.59658338
7424	7196	0.09437	1272.86865	120.1206145
7424	7506	0.06081	1307.81860	79.52844907
7425	7382	0.17664	6013.14795	1062.162454
7425	7411	0.00739	3158.83984	23.34382642
7425	7527	0.07436	4063.40942	302.1551245
7428	7381	0.03532	4031.51733	142.3931921
7428	7462	0.02688	4267.72070	114.7163324
7430	7225	0.09430	1187.70984	112.0010379
7430	7623	0.12052	1139.15576	137.2910522
7432	7249	0.08985	1976.73584	177.6097152
7432	7688	0.15403	2034.00757	313.298186
7436	7269	0.08670	3201.11499	277.5366696
7436	7474	0.03610	3383.80859	122.1554901
7437	7450	0.00685	0.00000	0
7437	7462	0.08579	4682.56201	401.7169948
7447	1099	0.57199	96.37881	55.12771553
7447	7387	0.04416	3341.43066	147.5575779
7447	7525	0.05756	3368.65552	193.8998117
7450	1061	0.21545	5.32959	1.148260166
7450	1064	0.10953	5.14635	0.563679716
7450	7425	0.09380	6062.76563	568.6874161
7450	7437	0.00685	0.00000	0
7457	7502	0.13713	1105.22766	151.559869
7457	7562	0.14576	36102.59375	5262.314065
7462	1078	0.28941	53.52550	15.49081496
7462	7428	0.02688	4031.51733	108.3671858
7462	7450	0.08579	5817.43701	499.0779211
7462	7567	0.11559	4008.68701	463.3641315
7462	7576	0.07481	373.19247	27.91852868
7474	1049	0.17974	570.27789	102.5017479
7474	1062	0.09244	482.35886	44.58925302
7474	7436	0.03610	3201.11499	115.5602511
7474	7547	0.04413	4219.63135	186.2123315
7477	7307	0.26145	334.26807	87.3943869
7477	7493	0.01960	1220.39282	23.91969927
7484	7489	0.00980	0.00000	0
7484	7792	0.17223	1912.27917	329.3518414
7485	7238	0.13731	665.51086	91.38129619
7485	7693	0.11160	532.42078	59.41815905
7487	7214	0.14705	1032.37390	151.810582

7487	7646	0.09476	1154.60620	109.4104835
7489	7186	0.15295	1433.99329	219.3292737
7489	7484	0.00980	0.00000	0
7493	1136	0.24444	9.64791	2.35833512
7493	7477	0.01960	334.26807	6.551654172
7493	7553	0.06927	1223.78748	84.77175874
7501	7404	0.06853	19.53560	1.338774668
7501	7596	0.05531	11.22565	0.620890702
7502	7354	0.10465	1493.79041	156.3251664
7502	7544	0.02685	3342.75342	89.75292933
7502	7549	0.04095	1548.00378	63.39075479
7506	1268	0.23558	310.38068	73.11948059
7506	7424	0.06081	1272.86865	77.40314261
7506	7662	0.09093	1673.64636	152.1846635
7514	7406	0.07422	1111.44763	82.4916431
7514	7585	0.04185	2123.40112	88.86433687
7516	7330	0.24369	38596.78125	9405.649623
7525	7447	0.05756	3409.60327	196.2567642
7525	7546	0.01453	3214.10986	46.70101627
7525	7653	0.40993	410.89328	168.4374823
7527	7425	0.07436	4979.76123	370.2950451
7527	7586	0.03532	4063.40942	143.5196207
7534	1018	0.14311	41.71624	5.970011106
7534	1033	0.26141	181.53487	47.45503037
7534	7303	0.14978	2012.05920	301.366227
7534	7734	0.10167	3225.13867	327.8998486
7538	1750	1.08505	377.92651	410.0691597
7538	7415	0.08526	563.04187	48.00494984
7538	8144	0.35800	929.08807	332.6135291
7544	7502	0.02685	2465.42041	66.19653801
7544	7582	0.10681	0.00000	0
7544	7640	0.05043	3342.75342	168.575055
7546	7525	0.01453	3268.08496	47.48527447
7546	7651	0.05477	3214.10986	176.036797
7547	7474	0.04413	3691.41455	162.9021241
7547	7607	0.03177	4219.63135	134.057688
7549	7739	0.14573	1548.00378	225.5905909
7553	7493	0.06927	337.56326	23.38300702
7553	7882	0.23020	1223.78748	281.7158779
7562	7573	0.00890	36102.59375	321.3130844
7567	7462	0.11559	4866.44922	562.5128653
7567	7606	0.02046	312.55429	6.394860773
7567	7625	0.04998	3696.13257	184.7327058
7568	7364	0.18305	1027.64038	188.1095716
7568	7592	0.02912	1304.22864	37.979138
7573	7582	0.00881	36102.59375	318.0638509
7574	7516	0.07128	38596.78125	2751.178568
7576	1064	0.09725	280.71991	27.30001125
7576	7462	0.07481	414.45071	31.00505762
7576	7737	0.07901	92.47257	7.306257756
7578	7209	0.19593	313.62668	61.44887541
7582	7739	0.14876	36102.59375	5370.621846
7585	7514	0.04185	1111.44763	46.51408332
7585	7679	0.05022	2123.40112	106.6372042

7586	1063	0.09053	799.48932	72.37776814
7586	1064	0.09167	705.02362	64.62951525
7586	7527	0.03532	4979.76123	175.8851666
7586	7655	0.03807	4715.07666	179.5029684
7590	7574	0.01863	36519.01172	680.3491883
7592	7568	0.02912	1027.64038	29.92488787
7592	7611	0.05588	1304.22864	72.8802964
7596	7501	0.05531	19.53560	1.080514036
7596	7703	0.05867	11.22565	0.658608886
7597	1113	0.41484	668.71698	277.410552
7597	7380	0.14621	474.57538	69.38766631
7597	7835	0.13784	996.61188	137.3729815
7601	7590	0.00968	36519.01172	353.5040334
7605	7140	0.22364	2234.93652	499.8212033
7605	7656	0.02751	2156.38037	59.32202398
7606	1079	0.13753	312.55429	42.9855915
7606	7567	0.02046	338.95926	6.93510646
7607	7547	0.03177	3691.41455	117.2762403
7607	7673	0.03697	4219.63135	155.999771
7611	7592	0.05588	1027.64038	57.42454443
7611	7636	0.04349	1304.22864	56.72090355
7613	7601	0.00880	36519.01172	321.3673031
7623	1337	0.13463	546.64856	73.59529563
7623	1361	0.25100	650.79584	163.3497558
7623	7430	0.12052	1187.70984	143.1427899
7623	7742	0.05691	1837.39001	104.5658655
7625	7567	0.04998	4527.48975	226.2839377
7625	7606	0.04966	0.00000	0
7625	7639	0.04153	3696.13257	153.5003856
7636	7611	0.04349	1027.64038	44.69208013
7636	7686	0.05163	1304.22864	67.33732468
7639	7625	0.04153	4527.48975	188.0266493
7639	7663	0.08973	3696.13257	331.6539755
7640	7544	0.05043	2465.42041	124.3311513
7640	7574	0.11563	2077.76929	240.252463
7640	7677	0.02041	1914.12109	39.06721145
7643	7374	0.17472	4791.74316	837.2133649
7643	7944	0.19035	4905.19678	933.7042071
7644	1685	0.25603	59.48231	15.22925583
7644	7145	0.24318	831.29510	202.1543424
7644	8056	0.25873	399.71429	103.4180783
7646	1336	0.09886	101.68062	10.05214609
7646	1337	0.11338	750.86340	85.13289229
7646	7487	0.09476	1032.37390	97.82775076
7646	7928	0.17432	677.08282	118.0290772
7649	1336	0.13973	459.73502	64.23877434
7649	7671	0.01386	299.94278	4.157206931
7651	1100	0.47496	134.65056	63.95362998
7651	7546	0.05477	3268.08496	178.9930133
7651	7787	0.07042	3079.45923	216.855519
7652	1483	0.25147	0.00000	0
7652	1685	0.24444	0.00000	0
7653	7525	0.40993	397.86588	163.0971602
7653	7705	0.17360	410.89328	71.33107341

7655	7586	0.03807	5659.49756	215.4570721
7655	7785	0.06709	4715.07666	316.3344931
7656	1214	0.25237	68.59675	17.3117618
7656	1483	0.27213	0.09029	0.024570618
7656	7605	0.02751	2234.93652	61.48310367
7656	8058	0.25194	2225.54370	560.7034798
7662	7506	0.09093	1583.24939	143.964867
7662	7829	0.09645	1673.64636	161.4231914
7663	1078	0.08837	115.83678	10.23649625
7663	7639	0.08973	4527.48975	406.2516553
7663	7735	0.17011	3734.86694	635.3382152
7663	7798	0.07559	380.06000	28.7287354
7669	1214	0.25303	528.00763	133.6017706
7669	1233	0.22010	237.98874	52.38132167
7669	7136	0.25824	1584.92834	409.2918945
7669	7899	0.14167	2081.27002	294.8535237
7670	1268	0.23513	930.43726	218.7737129
7670	7578	0.04955	313.62668	15.54020199
7671	8064	0.24661	299.94278	73.96888898
7673	7607	0.03697	3691.41455	136.4715959
7673	7696	0.07035	1655.73889	116.4812309
7673	7699	0.10927	2725.53149	297.8188259
7673	7802	0.07680	1852.55396	142.2761441
7677	7640	0.02041	3114.55737	63.56811592
7677	7882	0.12221	1914.12109	233.9247384
7679	1361	0.25004	721.56305	180.419625
7679	1382	0.26299	1008.37714	265.193104
7679	7585	0.05022	1111.44763	55.81689998
7679	7842	0.09877	1284.57300	126.8772752
7685	7280	0.23479	65.14037	15.29430747
7685	7769	0.04044	71.94959	2.90964142
7686	7636	0.05163	1027.64038	53.05707282
7686	7738	0.05045	1304.22864	65.79833489
7688	1382	0.25224	983.49817	248.0775784
7688	1406	0.24735	1457.19604	360.4374405
7688	7432	0.15403	1976.73584	304.4766214
7688	7883	0.11887	1736.20618	206.3828286
7693	1424	0.24138	431.79419	104.2264816
7693	1691	0.25877	35.46634	9.177624802
7693	7485	0.11160	665.51086	74.27101198
7693	7888	0.12267	741.50031	90.95984303
7696	7673	0.07035	1540.58704	108.3802983
7696	7701	0.02117	1655.73889	35.0519923
7697	1691	0.25080	12.82455	3.21639714
7697	7246	0.25404	6228.87061	1582.38229
7697	8098	0.24287	4863.35059	1181.161958
7699	7673	0.10927	2336.73804	255.3353656
7699	7700	0.07998	2725.53149	217.9880086
7700	1049	0.16629	756.06665	125.7263232
7700	1050	0.12905	151.15680	19.50678504
7700	7699	0.07998	2336.73804	186.8923084
7700	7703	0.13376	3378.81396	451.9501553
7701	7696	0.02117	1540.58704	32.61422764
7701	7757	0.09121	1655.73889	151.0199442

7703	1035	0.18318	562.90356	103.1126741
7703	7596	0.05867	19.53560	1.146153652
7703	7700	0.13376	3227.97974	431.77457
7703	7709	0.13510	2802.84985	378.6650147
7705	1099	0.14090	35.65324	5.023541516
7705	7653	0.17360	397.86588	69.06951677
7705	7835	0.43084	447.81277	192.9356538
7709	7703	0.13510	2677.21362	361.6915601
7709	7720	0.12278	2802.84985	344.1339046
7713	7719	0.05724	1751.44519	100.2527227
7713	7758	0.07292	1499.43347	109.3386886
7714	7719	0.06412	1499.43347	96.1436741
7714	7727	0.05865	1751.44519	102.7222604
7718	7723	0.03746	1751.44519	65.60913682
7718	7727	0.05862	1499.43347	87.89679001
7719	7713	0.05724	1499.43347	85.82757182
7719	7714	0.06412	1751.44519	112.3026656
7720	1033	0.13746	539.49286	74.15868854
7720	1035	0.23012	215.37497	49.5620881
7720	7709	0.12278	2677.21362	328.7082883
7720	7729	0.05174	3258.31348	168.5851395
7723	1018	0.13034	429.36636	55.96361136
7723	1019	0.12370	50.08624	6.195667888
7723	7718	0.03746	1499.43347	56.16877779
7723	7730	0.06532	1828.65698	119.4478739
7727	7714	0.05865	1499.43347	87.94177302
7727	7718	0.05862	1751.44519	102.669717
7729	7720	0.05174	3082.66089	159.4968744
7729	7732	0.11997	3258.31348	390.8998682
7730	7723	0.06532	1585.72961	103.5798581
7730	7734	0.05932	1828.65698	108.4759321
7732	1034	0.19651	675.36499	132.7159742
7732	7729	0.11997	3082.66089	369.826827
7732	7733	0.03930	2988.64453	117.45373
7733	7732	0.03930	2881.56592	113.2455407
7733	7734	0.04550	2988.64453	135.9833261
7734	7534	0.10167	2075.26636	210.9923308
7734	7730	0.05932	1585.72961	94.06548047
7734	7733	0.04550	2881.56592	131.1112494
7734	7869	0.09386	5449.39893	511.4805836
7735	1080	0.11836	119.31609	14.12225241
7735	7663	0.17011	4549.28125	773.8782334
7735	7775	0.15077	3727.54858	562.0024994
7737	7576	0.07901	85.31499	6.74073736
7737	7790	0.03520	92.47257	3.255034464
7738	7686	0.05045	1027.64038	51.84445717
7738	7756	0.04305	1304.22864	56.14704295
7739	8357	0.83237	37650.59766	31339.22797
7742	7623	0.05691	1931.05054	109.8960862
7742	7838	0.07142	1837.39001	131.2263945
7750	7613	0.12763	36519.01172	4660.921466
7756	1006	0.09475	728.06042	68.9837248
7756	1007	0.13552	344.91855	46.7433619
7756	7738	0.04305	1027.64038	44.23991836

7756	7758	0.05172	1751.44519	90.58474523
7757	1062	0.14272	247.36011	35.3032349
7757	1065	0.07689	291.22601	22.39236791
7757	7701	0.09121	1540.58704	140.5169439
7757	7773	0.09506	1663.51636	158.1338652
7758	7713	0.07292	1751.44519	127.7153833
7758	7756	0.05172	1499.43347	77.55069907
7769	1113	0.33989	41.27000	14.0272603
7769	1156	0.86394	80.40858	69.46818861
7769	7685	0.04044	65.14037	2.634276563
7769	8039	0.18596	91.37289	16.99170262
7773	1063	0.11404	527.96606	60.20924948
7773	7757	0.09506	1517.28015	144.2326511
7773	7795	0.08769	1135.55029	99.57640493
7775	7735	0.15077	4543.61084	685.0402063
7775	7787	0.03153	3727.54858	117.5296067
7779	1149	0.45293	531.54004	240.7504303
7779	7257	0.28871	166.56274	48.08832867
7779	8137	0.22021	502.49954	110.6554237
7785	7655	0.06709	5659.49756	379.6956913
7785	7795	0.00905	4715.07666	42.67144377
7787	7651	0.07042	3135.90283	220.8302773
7787	7775	0.03153	4543.61084	143.2600498
7787	7796	0.07081	2578.01929	182.5495459
7787	7865	0.05812	5185.22705	301.3653961
7790	7737	0.03520	85.31499	3.003087648
7790	7834	0.03630	92.47257	3.356754291
7792	1266	0.22232	480.35565	106.7926681
7792	7793	0.00980	404.92343	3.968249614
7792	8425	0.44315	1945.72070	862.2461282
7793	1233	0.35885	520.42993	186.7562804
7793	7489	0.17223	1433.99329	246.9766643
7793	7792	0.00980	513.79712	5.035211776
7795	7773	0.08769	1136.48657	99.65850732
7795	7785	0.00905	5659.49756	51.21845292
7795	7812	0.09186	408.99417	37.57020446
7795	7904	0.07833	5326.49805	417.2245923
7796	7787	0.07081	2655.22192	188.0162642
7796	7823	0.10874	2578.01929	280.3338176
7798	7663	0.07559	399.61615	30.20698478
7798	7895	0.06866	380.06000	26.0949196
7802	1065	0.18550	416.90878	77.33657869
7802	7673	0.07680	1828.28271	140.4121121
7802	7905	0.06877	2272.77881	156.2989988
7807	7902	0.06360	38449.75781	2445.404597
7808	7384	0.26398	29539.05273	7797.71914
7812	1064	0.11530	24.47515	2.821984795
7812	1145	0.07402	337.57019	24.98694546
7812	7795	0.09186	342.67365	31.47800149
7812	7834	0.09012	316.61349	28.53320772
7823	7796	0.10874	2655.22192	288.7288316
7823	7830	0.01688	2578.01929	43.51696562
7829	1266	0.21108	2243.79858	473.6210043
7829	1269	0.24270	101.40336	24.61059547

7829	7662	0.09645	1583.24939	152.7044037
7829	7972	0.10376	1932.84729	200.5522348
7830	7823	0.01688	2655.22192	44.82014601
7830	7849	0.05742	2578.01929	148.0298676
7834	1079	0.12693	231.29851	29.35871987
7834	7790	0.03630	85.31499	3.096934137
7834	7812	0.09012	259.51678	23.38765221
7835	7597	0.13784	1061.01855	146.2507969
7835	7705	0.43084	433.51913	186.777382
7835	7856	0.01286	1119.22021	14.3931719
7835	7941	0.42979	156.26511	67.16118163
7837	7670	0.10025	1244.06396	124.717412
7838	7742	0.07142	1931.05054	137.9156296
7838	8079	0.15009	1837.39001	275.7738666
7842	7679	0.09877	1260.06555	124.4566744
7842	8081	0.14899	1284.57300	191.3885313
7849	1101	0.09487	406.32440	38.54799583
7849	7830	0.05742	2655.22192	152.4628426
7849	7866	0.07295	2595.94336	189.3740681
7856	7835	0.01286	1110.17126	14.2768024
7856	8045	0.12745	1119.22021	142.6446158
7863	7793	0.05172	1549.49988	80.14013379
7864	1750	0.92413	292.61539	270.4146604
7864	6456	0.81578	248.19034	202.4687156
7864	8164	0.19114	540.49731	103.3106558
7865	7787	0.05812	5980.53027	347.5884193
7865	7920	0.03801	5185.22705	197.0904802
7866	7849	0.07295	2562.00195	186.8980423
7866	7874	0.03987	2595.94336	103.5002618
7869	1019	0.14272	145.98514	20.83499918
7869	7734	0.09386	3949.52026	370.7019716
7869	7943	0.05363	5510.14453	295.5090511
7874	7866	0.03987	2562.00195	102.1470177
7874	7886	0.02668	2595.94336	69.25976884
7882	7553	0.23020	337.56326	77.70706245
7882	7677	0.12221	3114.55737	380.6300562
7882	7925	0.03221	2025.34814	65.23646359
7883	7688	0.11887	1664.66431	197.8786465
7883	8087	0.12891	1736.20618	223.8143387
7886	7874	0.02668	2562.00195	68.35421203
7886	7908	0.10283	2627.54858	270.1908205
7888	7693	0.12267	1110.08728	136.1744066
7888	8105	0.12950	741.50031	96.02429015
7895	1079	0.14641	507.81110	74.34862315
7895	1080	0.17462	209.44881	36.5739512
7895	7798	0.06866	399.61615	27.43764486
7895	8129	0.13489	718.98315	96.9836371
7899	7669	0.14167	1773.68176	251.2774949
7899	8044	0.09778	2081.27002	203.5065826
7902	8036	0.08759	38449.75781	3367.814287
7903	7209	0.39081	7389.68799	2887.963963
7903	7808	0.06360	29539.05273	1878.683754
7904	1065	0.18091	563.53998	101.9500178
7904	1145	0.09396	12.44203	1.169053139

7904	7795	0.07833	6338.17578	496.4693088
7904	7948	0.03574	5532.99268	197.7491584
7905	1050	0.14570	232.29189	33.84492837
7905	7802	0.06877	2245.19141	154.4018133
7905	7918	0.00822	2398.78125	19.71798188
7908	1100	0.06654	858.02911	57.09325698
7908	7886	0.10283	2549.88232	262.204399
7908	7911	0.01066	2295.03247	24.46504613
7911	7908	0.01066	2194.24609	23.39066332
7911	7936	0.11708	2295.03247	268.7024016
7918	7905	0.00822	2371.99414	19.49779183
7918	7935	0.07305	331.54309	24.21922272
7918	8002	0.06024	2266.61523	136.5409015
7920	7865	0.03801	5980.53027	227.3199556
7920	7995	0.04778	5185.22705	247.7501484
7925	7882	0.03221	2339.56006	75.35722953
7925	7986	0.04156	2025.34814	84.1734687
7928	7646	0.17432	683.49670	119.1471447
7928	8076	0.08983	677.08282	60.82234972
7935	7918	0.07305	339.62286	24.80944992
7935	7945	0.04976	331.54309	16.49758416
7936	1103	0.29298	1443.65894	422.9631962
7936	7911	0.11708	2194.24609	256.9023322
7936	7970	0.13881	1289.79956	179.0370769
7941	1113	0.20462	108.56461	22.2144905
7941	7835	0.42979	215.42722	92.58846488
7941	8009	0.23614	272.79218	64.41714539
7943	7869	0.05363	4010.83936	215.1013149
7943	8026	0.04972	5510.14453	273.964386
7944	7643	0.19035	4791.74316	912.1083105
7944	8179	0.13707	4905.19678	672.3553226
7945	7935	0.04976	339.62286	16.89963351
7945	7956	0.05860	331.54309	19.42842507
7948	7904	0.03574	6528.22412	233.31873
7948	8020	0.04094	5532.99268	226.5207203
7951	2009	1.86164	3.59714	6.69657971
7951	5845	1.42743	972.71503	1388.482615
7951	9928	1.01756	756.05933	769.3357318
7956	1065	0.07380	14.35914	1.059704532
7956	1131	0.10674	135.34941	14.44719602
7956	7945	0.05860	339.62286	19.9018996
7956	7965	0.03107	211.04459	6.557155411
7965	7956	0.03107	216.63126	6.730733248
7965	7992	0.06237	211.04459	13.16285108
7970	7936	0.13881	1152.92920	160.0381023
7970	8004	0.11630	1289.79956	150.0036888
7972	7829	0.10376	1868.72266	193.8986632
7972	8140	0.07866	1932.84729	152.0377678
7980	2005	1.71721	778.23450	1336.392066
7980	2009	3.23049	83.08266	268.3977023
7980	5426	2.00996	1723.85339	3464.87636
7980	9897	0.98651	2326.05835	2294.679823
7986	7925	0.04156	2339.56006	97.23211609
7986	8515	0.31726	2025.34814	642.5619509

7992	7965	0.06237	216.63126	13.51129169
7992	8020	0.09016	211.04459	19.02778023
7995	1080	0.20299	119.23720	24.20395923
7995	1101	0.23149	772.85651	178.9085535
7995	7920	0.04778	5980.53027	285.7497363
7995	8061	0.04280	6065.18604	259.5899625
7997	7355	0.40339	0.00000	0
7997	8367	0.25872	0.00000	0
8002	7918	0.06024	2231.74854	134.440532
8002	8124	0.06105	2266.61523	138.3768598
8003	6299	0.99098	329.37921	326.4082095
8003	9957	1.00107	335.31552	335.6743076
8004	1104	0.25970	123.12787	31.97630784
8004	7970	0.11630	1152.92920	134.085666
8004	8045	0.13813	1204.14063	166.3279452
8009	7941	0.23614	323.99182	76.50742837
8009	8039	0.09244	272.79218	25.21690912
8020	7948	0.04094	6528.22412	267.2654955
8020	7992	0.09016	216.63126	19.5314744
8020	8041	0.09420	2953.06787	278.1789934
8020	8118	0.04931	6360.25049	313.6239517
8022	1269	0.11453	1.83324	0.209960977
8022	1270	0.16026	1.84540	0.295743804
8025	6298	1.00222	1414.38513	1417.525065
8025	9987	1.00051	1412.46423	1413.184587
8026	1034	0.12522	1367.77502	171.272788
8026	7943	0.04972	4010.83936	199.418933
8026	8138	0.05084	6974.14502	354.5655328
8033	1269	0.24702	322.07059	79.55787714
8033	7837	0.12909	1244.06396	160.5962166
8033	8064	0.06562	970.36377	63.67527059
8036	8063	0.01506	38449.75781	579.0533526
8039	7769	0.18596	77.44287	14.40127611
8039	8009	0.09244	323.99182	29.94980384
8039	30070	0.12005	227.31079	27.28866034
8041	1067	0.30493	546.36755	166.603857
8041	1145	0.07833	932.34637	73.03069116
8041	8020	0.09420	2811.27808	264.8223951
8041	8065	0.08595	2254.90894	193.8094234
8042	1214	0.25325	0.72259	0.182995918
8042	1215	0.25095	70.15971	17.60657922
8042	8044	0.25338	60.71716	15.384514
8042	8047	0.10695	27.96653	2.991020384
8043	6320	1.00107	3232.77734	3236.236412
8043	10002	0.99772	3396.66309	3388.918698
8044	7899	0.09778	1773.68176	173.4306025
8044	8042	0.25338	97.40834	24.68132519
8044	8046	0.18199	308.99307	56.23364881
8044	8337	0.19581	1675.25269	328.0312292
8045	7856	0.12745	1110.17126	141.4913271
8045	8004	0.13813	1065.16467	147.1311959
8045	8062	0.03919	1132.15173	44.3690263
8045	8423	0.25825	1693.95654	437.4642765
8046	1233	0.25235	28.28725	7.138287538

8046	1234	0.24904	303.31573	75.5377494
8046	8044	0.18199	278.75412	50.7304623
8046	8048	0.02628	33.28119	0.874629673
8047	8042	0.10695	2.15785	0.230782058
8047	8053	0.05725	27.96653	1.601083843
8048	8046	0.02628	33.37028	0.876970958
8048	8050	0.03310	33.28119	1.101607389
8049	8050	0.05378	33.37028	1.794653658
8049	8054	0.05518	33.28119	1.836456064
8050	8048	0.03310	33.37028	1.104556268
8050	8049	0.05378	33.28119	1.789862398
8052	1483	0.32910	0.00000	0
8053	8047	0.05725	2.15785	0.123536913
8053	8058	0.09862	27.96653	2.758059189
8054	8049	0.05518	33.37028	1.84137205
8054	8055	0.11032	33.28119	3.671580881
8055	8054	0.11032	33.37028	3.68140929
8055	8057	0.04000	33.28119	1.3312476
8056	1793	0.38348	95.04368	36.44735041
8056	7644	0.25873	861.01215	222.7696736
8056	8945	0.49282	424.72617	209.3135511
8057	8055	0.04000	33.37028	1.3348112
8057	8253	0.12767	33.28119	4.249009527
8058	7656	0.25194	2303.62354	580.3749147
8058	8053	0.09862	2.15785	0.212807167
8058	8416	0.24889	2253.51001	560.8761064
8059	1685	0.24399	0.96544	0.235557706
8059	1694	0.23955	0.94494	0.226360377
8061	7995	0.04280	6862.09180	293.697529
8061	8121	0.02711	6065.18604	164.4271935
8062	8045	0.03919	1265.30908	49.58746285
8062	8192	0.34766	1132.15173	393.6038705
8063	8168	0.06137	38449.75781	2359.661637
8064	8033	0.06562	207.87007	13.64043399
8064	8067	0.12641	777.05060	98.22696635
8064	8276	0.14081	1122.28308	158.0286805
8065	8041	0.08595	2088.63599	179.5182633
8065	8088	0.03395	2254.90894	76.55415851
8067	1336	0.23293	822.57330	191.6019988
8067	8064	0.12641	836.89728	105.7921852
8067	8069	0.03910	467.03564	18.26109352
8068	8070	0.06711	171.53275	11.51156285
8068	8075	0.08481	200.39633	16.99561275
8069	8067	0.03910	498.37259	19.48636827
8069	8076	0.06758	467.03564	31.56226855
8070	1361	0.24865	5.18059	1.288153704
8070	1362	0.12616	5.24996	0.662334954
8070	8068	0.06711	200.39633	13.44859771
8070	8071	0.03701	171.53275	6.348427078
8071	8070	0.03701	200.39633	7.416668173
8071	8073	0.02276	171.53275	3.90408539
8072	1337	0.26112	0.00000	0
8072	8074	0.06826	259.99319	17.74713515
8072	8076	0.12273	306.95453	37.67252947

8073	8071	0.02276	200.39633	4.561020471
8073	8078	0.06068	171.53275	10.40860727
8074	8072	0.06826	306.95453	20.95271622
8074	8079	0.05309	259.99319	13.80303846
8075	8068	0.08481	171.53275	14.54769253
8075	8077	0.03999	200.39633	8.013849237
8076	1338	0.11270	573.60303	64.64506148
8076	7928	0.08983	683.49670	61.39850856
8076	8069	0.06758	498.37259	33.68001963
8076	8072	0.12273	259.99319	31.90896421
8077	8075	0.03999	171.53275	6.859594673
8077	8079	0.06205	200.39633	12.43459228
8078	8073	0.06068	200.39633	12.1600493
8078	8081	0.12549	171.53275	21.5256448
8079	7838	0.15009	1931.05054	289.8313755
8079	8074	0.05309	306.95453	16.296216
8079	8077	0.06205	171.53275	10.64360714
8079	8247	0.11775	2118.16162	249.4135308
8081	7842	0.14899	1260.06555	187.7371663
8081	8078	0.12549	200.39633	25.14773545
8081	8082	0.11032	2096.05640	231.236942
8081	8160	0.05023	3391.20117	170.3400348
8082	8081	0.11032	2199.18604	242.6142039
8082	8083	0.09102	2096.05640	190.7830535
8083	8082	0.09102	2199.18604	200.1699134
8083	8084	0.06306	2096.05640	132.1773166
8084	1382	0.19383	2633.12720	510.3790452
8084	1383	0.13399	14.42908	1.933352429
8084	8083	0.06306	2199.18604	138.6806717
8084	8086	0.09349	580.78082	54.29719886
8085	1146	0.50484	25.33408	12.78965695
8085	1509	0.49900	38.35804	19.14066196
8085	7230	0.49517	339.18344	167.953464
8085	9067	0.51128	318.51270	162.8491733
8086	8084	0.09349	689.24396	64.43741782
8086	8087	0.14548	580.78082	84.49199369
8087	7883	0.12891	1664.66431	214.5918762
8087	8086	0.14548	689.24396	100.2712113
8087	8091	0.12480	151.41687	18.89682538
8087	8265	0.12204	2090.13892	255.0805538
8088	8065	0.03395	2088.63599	70.90919186
8088	8097	0.02641	2254.90894	59.55214511
8089	8090	0.05765	178.61914	10.29739342
8089	8092	0.05930	505.36823	29.96833604
8090	1406	0.24683	7.87031	1.942628617
8090	1407	0.12048	265.05011	31.93323725
8090	8089	0.05765	505.36823	29.13447846
8090	8091	0.11404	169.53107	19.33332322
8091	8087	0.12480	169.53107	21.15747754
8091	8090	0.11404	151.41687	17.26757985
8092	8089	0.05930	178.61914	10.592115
8092	30165	0.13567	505.36823	68.56330776
8093	30167	0.06640	0.00000	0
8094	1441	0.12135	0.00491	0.000595829

8094	1691	0.24772	0.00497	0.001231168
8096	1424	0.24727	6.98757	1.727816434
8096	1425	0.12042	6.78726	0.817321849
8097	1079	0.18319	745.99780	136.659337
8097	1081	0.25706	193.17599	49.65781999
8097	8088	0.02641	2088.63599	55.1608765
8097	8112	0.03095	1348.38013	41.73236502
8098	1509	0.50091	50.74500	25.41867795
8098	7697	0.24287	6220.58447	1510.79335
8098	8277	0.13088	4908.63965	642.4427574
8105	7888	0.12950	1110.08728	143.7563028
8105	8263	0.11465	741.50031	85.01301054
8112	8097	0.03095	1142.68652	35.36614779
8112	8119	0.03017	1348.38013	40.68062852
8118	8020	0.04931	7502.85889	369.9659719
8118	8183	0.04772	6360.25049	303.5111534
8119	8112	0.03017	1142.68652	34.47485231
8119	8135	0.05603	1348.38013	75.54973868
8121	8061	0.02711	6862.09180	186.0313087
8121	8131	0.11514	1294.46497	149.0446966
8121	8213	0.07237	6443.08643	466.2861649
8124	1131	0.20196	11.24290	2.270616084
8124	8002	0.06105	2231.74854	136.2482484
8124	8193	0.05589	2277.77881	127.3050577
8127	8128	0.09170	1316.58911	120.7312214
8127	8131	0.09034	1470.84753	132.8763659
8128	1082	0.11464	100.16000	11.4823424
8128	8127	0.09170	1470.84753	134.8767185
8128	8129	0.09446	1300.87854	122.8809869
8129	7895	0.13489	789.72723	106.5263061
8129	8128	0.09446	1456.91455	137.6201484
8129	8135	0.09929	1142.68652	113.4573446
8129	8219	0.07711	260.20331	20.06427723
8131	1084	0.10925	84.66994	9.250190945
8131	8121	0.11514	1446.70703	166.5738474
8131	8127	0.09034	1316.58911	118.9406602
8135	8119	0.05603	1142.68652	64.02472572
8135	8129	0.09929	1348.38013	133.8806631
8137	1146	0.49842	39.67310	19.7738665
8137	7779	0.22021	695.69415	153.1988088
8137	9086	0.49515	525.43311	260.1682044
8138	8026	0.05084	5369.58936	272.9899231
8138	8340	0.16313	6974.14502	1137.692277
8139	1034	0.14358	0.00000	0
8140	7972	0.07866	1868.72266	146.9937244
8140	8458	0.22593	1932.84729	436.6881882
8144	7538	0.35800	940.96838	336.86668
8144	8244	0.08017	929.08807	74.48499057
8160	8081	0.05023	3292.42749	165.3786328
8160	8266	0.07653	3391.20117	259.5286255
8164	7864	0.19114	540.80573	103.3696072
8164	9150	0.49871	540.49731	269.5514135
8166	8033	0.07874	2003.25659	157.7364239
8168	8307	0.09596	29693.79492	2849.416561

8168	8783	0.32644	8755.96191	2858.296206
8169	7903	0.16459	36928.74219	6078.101677
8173	1338	0.05245	0.00000	0
8177	1731	0.55433	124.96669	69.27278527
8177	6458	1.01026	2179.98389	2202.350525
8177	10218	0.99884	2374.34351	2371.589272
8179	7944	0.13707	4791.74316	656.8042349
8179	8233	0.04673	4905.19678	229.2198455
8183	1131	0.16872	474.60300	80.07501816
8183	8118	0.04772	7502.85889	358.0364262
8183	8279	0.07645	6446.50342	492.8351865
8185	7388	0.49734	1254.83740	624.0808325
8185	8402	0.17307	1273.45056	220.3960884
8192	1114	0.06543	897.53516	58.72572552
8192	1115	0.26583	315.66678	83.91370013
8192	8062	0.34766	1265.30908	439.8973548
8192	8214	0.09708	272.43576	26.44806358
8193	1051	0.12838	814.56097	104.5733373
8193	8124	0.05589	2242.99121	125.3607787
8193	8203	0.00931	2335.28662	21.74151843
8203	8193	0.00931	2368.02271	22.04629143
8203	8237	0.02850	2335.28662	66.55566867
8208	8240	0.11986	227.31079	27.24547129
8208	30070	0.48771	264.58041	129.0385118
8213	8121	0.07237	7087.75049	512.940503
8213	8269	0.03698	6443.08643	238.2653362
8214	8192	0.09708	345.32230	33.52388888
8214	8278	0.19011	272.43576	51.79276233
8219	8129	0.07711	281.28976	21.69025339
8219	8274	0.03660	260.20331	9.523441146
8227	1270	0.21561	563.99536	121.6030396
8227	8166	0.04686	2003.25659	93.87260381
8233	8179	0.04673	4791.74316	223.9181579
8233	8343	0.08067	4905.19678	395.7022242
8237	8203	0.02850	2368.02271	67.48864724
8237	8287	0.03297	2335.28662	76.99439986
8240	8208	0.11986	264.58041	31.71260794
8240	8326	0.32374	227.31079	73.58959515
8244	8144	0.08017	940.96838	75.43743502
8244	8561	0.17350	929.08807	161.1967801
8247	1338	0.24302	1078.52344	262.1027664
8247	1362	0.25002	386.32007	96.5877439
8247	8079	0.11775	2229.91992	262.5730706
8247	8447	0.13222	2344.72168	310.0191005
8253	1235	0.06412	96.45768	6.184866442
8253	8057	0.12767	33.37028	4.260383648
8253	8315	0.03849	107.90959	4.153440119
8263	1441	0.23348	18.09623	4.22510778
8263	8105	0.11465	1110.08728	127.2715067
8263	8487	0.13281	750.99713	99.73992884
8265	1383	0.24567	96.27087	23.65086463
8265	1407	0.27037	1.17142	0.316716825
8265	8087	0.12204	2108.94604	257.3757747
8265	8470	0.12800	1995.04114	255.3652659

8266	1362	0.24993	242.15912	60.52282886
8266	1383	0.25663	438.42310	112.5125202
8266	8160	0.07653	3292.42749	251.9694758
8266	8356	0.07357	3564.72827	262.2570588
8269	1084	0.11446	141.98737	16.25187437
8269	8213	0.03698	7087.75049	262.1050131
8269	8332	0.04127	6581.57910	271.6217695
8274	1082	0.09353	83.73790	7.832005787
8274	8219	0.03660	281.28976	10.29520522
8274	8331	0.03661	341.18762	12.49087877
8276	1338	0.23535	0.00000	0
8276	8435	0.11136	2378.28052	264.8453187
8277	1441	0.27118	6.19690	1.680475342
8277	8098	0.13088	6265.78418	820.0658335
8277	8492	0.12011	4906.60107	589.3318545
8278	8214	0.19011	345.32230	65.64922245
8278	8325	0.11648	272.43576	31.73331732
8279	8183	0.07645	7590.96387	580.3291879
8279	8281	0.06550	1541.87231	100.9926363
8279	8468	0.11517	6472.87939	745.4815193
8280	1140	0.22810	40.67368	9.277666408
8280	8282	0.03536	1493.15710	52.79803506
8280	8287	0.05361	2149.50928	115.2351925
8281	8279	0.06550	884.44537	57.93117174
8281	8283	0.05378	1541.87231	82.92189283
8282	8280	0.03536	2143.31567	75.78764209
8282	8284	0.03794	1493.15710	56.65038037
8283	8281	0.05378	884.44537	47.565472
8283	8285	0.06620	1541.87231	102.0719469
8284	8282	0.03794	2143.31567	81.31739652
8284	8285	0.06068	1493.15710	90.60477283
8285	1066	0.20488	101.62021	20.81994862
8285	1131	0.10763	517.25598	55.67226113
8285	8283	0.06620	884.44537	58.55028349
8285	8284	0.06068	2143.31567	130.0563949
8287	8237	0.03297	2368.02271	78.07370875
8287	8280	0.05361	1501.43616	80.49199254
8287	8288	0.09403	1920.19580	180.5560111
8287	8631	0.16706	1848.58374	308.8243996
8288	8287	0.09403	1258.76477	118.3616513
8288	8289	0.03539	1920.19580	67.95572936
8289	1051	0.07853	498.94864	39.1824367
8289	8288	0.03539	1258.76477	44.54768521
8289	8290	0.04915	2494.09717	122.5848759
8290	1052	0.22277	84.62047	18.8509021
8290	8289	0.04915	1757.71338	86.39161263
8290	8297	0.03724	2541.41284	94.64221416
8292	1035	0.21842	1839.17493	401.7125882
8292	8293	0.05309	3237.48682	171.8781753
8292	8294	0.09584	1753.66895	168.0716322
8293	8292	0.05309	2500.04028	132.7271385
8293	8295	0.01655	3237.48682	53.58040687
8294	1037	0.18844	106.81020	20.12731409
8294	8292	0.09584	2451.57544	234.9589902

8294	8297	0.06205	1828.50989	113.4590387
8295	8293	0.01655	2500.04028	41.37566663
8295	8296	0.05929	3237.48682	191.9505936
8296	1037	0.22619	45.14075	10.21038624
8296	8295	0.05929	2500.04028	148.2273882
8296	8328	0.13509	3266.67676	441.2953635
8297	8290	0.03724	1828.50989	68.0937083
8297	8294	0.06205	2541.41284	157.6946667
8307	9627	0.65269	29693.79492	19380.84301
8310	8169	0.09652	36928.74219	3564.362196
8315	8253	0.03849	110.26608	4.244141419
8315	8406	0.08144	107.90959	8.78815701
8319	1794	0.35061	1.59562	0.559440328
8319	7159	0.66755	556.63208	371.579745
8319	8952	0.32777	1072.08862	351.398487
8325	8278	0.11648	345.32230	40.2231415
8325	8338	0.07096	272.43576	19.33204153
8326	1118	0.11324	98.95650	11.20583406
8326	1156	0.36750	273.24637	100.418041
8326	8240	0.32374	264.58041	85.65526193
8326	8367	0.24422	381.11221	93.07522393
8328	1034	0.20271	98.13461	19.89286679
8328	1036	0.09682	1670.50623	161.7384132
8328	8296	0.13509	2545.18115	343.8285216
8328	8340	0.13369	4127.04492	551.7446354
8331	8274	0.03661	365.02768	13.36366336
8331	8430	0.07600	341.18762	25.93025912
8332	8269	0.04127	7229.73779	298.3712786
8332	8422	0.07377	6581.57910	485.5230902
8337	8044	0.19581	1434.59473	280.9079941
8337	8398	0.05134	1675.25269	86.0074731
8338	1115	0.41428	229.20108	94.95342342
8338	8325	0.07096	345.32230	24.50407041
8338	8512	0.35197	517.31995	182.0811028
8338	30069	0.26893	39.54115	10.63380147
8340	1020	0.16313	1354.91016	221.0264944
8340	8138	0.16313	5369.58936	875.9411123
8340	8328	0.13369	3363.39038	449.6516599
8340	8359	0.02067	11189.76172	231.2923748
8343	8233	0.08067	4791.74316	386.5499207
8343	8415	0.05341	4905.19678	261.98656
8356	8266	0.07357	3479.52490	255.9886469
8356	8455	0.04966	3564.72827	177.0244059
8357	8464	0.15806	5371.21387	848.9740643
8357	8687	0.27378	32279.38281	8837.449426
8359	8340	0.02067	8786.17676	181.6102736
8359	8464	0.04529	11189.76172	506.7843083
8367	7997	0.25872	0.00000	0
8367	8326	0.24422	431.00552	105.2601681
8367	8382	0.01065	790.83105	8.422350683
8367	8610	0.50441	413.06134	208.3522705
8375	3965	0.06031	28584.34961	1723.922125
8382	8367	0.01065	770.46393	8.205440855
8382	8500	0.03858	790.83105	30.51026191

8389	7750	0.87667	36519.01172	32015.122
8390	1482	0.11226	1.84759	0.207410453
8390	1694	0.25007	291.76779	72.96237125
8390	8529	0.04157	315.73279	13.12501208
8395	8337	0.05177	1434.59473	74.26896917
8398	8576	0.05696	1675.25269	95.42239322
8402	1715	0.34051	371.43188	126.4762695
8402	8185	0.17307	1254.83740	217.1747088
8402	9130	0.30115	1424.72864	429.0570299
8406	1234	0.27718	1.55399	0.430734948
8406	8315	0.08144	110.26608	8.980069555
8406	8409	0.03309	0.00000	0
8406	8412	0.03520	0.00000	0
8406	8726	0.11323	107.96195	12.2245316
8409	8406	0.03309	0.00000	0
8412	8406	0.03520	0.00000	0
8415	8343	0.05341	4791.74316	255.9270022
8415	8450	0.00779	4905.19678	38.21148292
8416	1204	0.16520	224.25073	37.0462206
8416	1215	0.25921	56.04712	14.52797398
8416	8058	0.24889	2305.78149	573.885955
8416	8578	0.04837	2037.58838	98.55814994
8419	1481	0.11604	0.00000	0
8422	1102	0.28880	355.96225	102.8018978
8422	8332	0.07377	7229.73779	533.3377568
8422	8494	0.01341	6225.61719	83.48552652
8423	1104	0.19640	4.65226	0.913703864
8423	1115	0.46221	729.82281	337.331401
8423	8045	0.25825	1412.77417	364.8489294
8423	8868	0.18391	2391.83521	439.8824135
8424	8425	0.07860	1408.16943	110.6821172
8424	8431	0.08187	1177.94763	96.43857247
8425	8424	0.07860	1177.94763	92.58668372
8425	8426	0.00965	140.29279	1.353825424
8425	8824	0.16061	3126.88525	502.20904
8426	7863	0.38986	1549.49988	604.0880232
8426	8425	0.00965	1091.23535	10.53042113
8430	1081	0.21912	35.13892	7.69964015
8430	8331	0.07600	365.02768	27.74210368
8430	8662	0.07601	307.18967	23.34948682
8431	1266	0.40021	695.27795	278.2571884
8431	8424	0.08187	1408.16943	115.2868312
8431	8446	0.08985	534.02216	47.98189108
8432	8433	0.07378	1267.46240	93.51337587
8432	8435	0.16478	142.84579	23.53812928
8433	1338	0.13678	1194.94666	163.4448042
8433	1339	0.12609	18.53487	2.337061758
8433	8432	0.07378	142.84579	10.53916239
8433	8441	0.03724	90.44833	3.368295809
8434	8439	0.05998	104.15769	6.247378246
8434	8449	0.06137	117.12368	7.187880242
8435	8432	0.16478	1267.46240	208.8524543
8435	8438	0.02218	415.52536	9.216352485
8435	8727	0.10428	3568.92529	372.1675292

8436	8441	0.02896	107.75522	3.120591171
8436	8445	0.04689	90.44833	4.241122194
8438	8435	0.02218	2730.78662	60.56884723
8438	8440	0.01965	415.52536	8.165073324
8439	8434	0.05998	117.12368	7.025078326
8439	8443	0.06550	104.15769	6.822328695
8440	8438	0.01965	2730.78662	53.65995708
8440	8442	0.01896	415.52536	7.878360826
8441	8433	0.03724	107.75522	4.012804393
8441	8436	0.02896	90.44833	2.619383637
8442	8227	0.14563	2329.51880	339.2478228
8442	8440	0.01896	2730.78662	51.77571432
8442	8469	0.11728	1371.23694	160.8186683
8443	8439	0.06550	117.12368	7.67160104
8443	8447	0.06274	104.15769	6.534853471
8444	8448	0.06137	117.12368	7.187880242
8444	8457	0.06275	104.15769	6.535895048
8445	8436	0.04689	107.75522	5.052642266
8445	8447	0.12480	90.44833	11.28795158
8446	8431	0.08985	670.54456	60.24842872
8446	8452	0.04251	534.02216	22.70128202
8447	8247	0.13222	2507.83545	331.5860032
8447	8443	0.06274	117.12368	7.348339683
8447	8445	0.12480	107.75522	13.44785146
8447	8773	0.12593	2269.61426	285.8125238
8448	8444	0.06137	104.15769	6.392157435
8448	8455	0.06344	117.12368	7.430326259
8449	1362	0.12446	1.04785	0.130415411
8449	1363	0.12618	1.05831	0.133537556
8449	8434	0.06137	104.15769	6.392157435
8449	8457	0.06344	117.12368	7.430326259
8450	8415	0.00779	4791.74316	37.32767922
8450	8618	0.05397	4905.19678	264.7334702
8451	8454	0.06137	1490.50903	91.47253917
8451	8456	0.01449	1524.73010	22.09333915
8452	1267	0.11209	334.70386	37.51695567
8452	8446	0.04251	670.54456	28.50484925
8452	8458	0.04300	776.92572	33.40780596
8453	8455	0.11100	104.28390	11.5755129
8453	8459	0.04345	150.15793	6.524362059
8454	8451	0.06137	1524.73010	93.57268624
8454	8460	0.07171	1490.50903	106.8844025
8455	8356	0.04966	3479.52490	172.7932065
8455	8448	0.06344	104.15769	6.607763854
8455	8453	0.11100	150.15793	16.66753023
8455	8770	0.12289	3517.75195	432.2965371
8456	8451	0.01449	1490.50903	21.59747584
8456	8458	0.05033	1524.73010	76.73966593
8457	8444	0.06275	117.12368	7.34951092
8457	8449	0.06344	104.15769	6.607763854
8458	8140	0.22593	1868.72266	422.2005106
8458	8452	0.04300	875.27142	37.63667106
8458	8456	0.05033	1490.50903	75.01731948
8459	8453	0.04345	104.28390	4.531135455

8459	8462	0.04689	150.15793	7.040905338
8460	1270	0.13288	164.23947	21.82414077
8460	1271	0.14443	72.41422	10.45878579
8460	8454	0.07171	1524.73010	109.3383955
8460	8461	0.08963	1616.90979	144.9236245
8461	8460	0.08963	1371.23694	122.9039669
8461	8469	0.05934	1616.90979	95.94742694
8462	8459	0.04689	104.28390	4.889872071
8462	8467	0.08620	150.15793	12.94361357
8463	8466	0.09033	374.11298	33.79362548
8463	8467	0.07171	316.61279	22.70430317
8464	8359	0.04529	8786.17676	397.9259455
8464	8569	0.06287	13940.01953	876.4090279
8466	8463	0.09033	316.61279	28.59963332
8466	8470	0.05241	374.11298	19.60726128
8467	1383	0.12040	185.73685	22.36271674
8467	1384	0.13373	32.95807	4.407482701
8467	8462	0.08620	104.28390	8.98927218
8467	8463	0.07171	374.11298	26.8276418
8468	8279	0.11517	8274.76660	953.0048693
8468	8669	0.07705	6472.87939	498.735357
8469	8442	0.11728	1616.90979	189.6311802
8469	8461	0.05934	1371.23694	81.36920002
8470	8265	0.12800	2038.80249	260.9667187
8470	8466	0.05241	316.61279	16.59367632
8470	8471	0.06412	402.60480	25.81501978
8470	8642	0.06196	2372.71338	147.013321
8471	8470	0.06412	322.79968	20.69791548
8471	8473	0.06137	402.60480	24.70785658
8473	8471	0.06137	322.79968	19.81021636
8473	8480	0.05586	402.60480	22.48950413
8474	8477	0.03034	602.06934	18.26678378
8474	30166	0.09090	918.29108	83.47265917
8477	8474	0.03034	918.29108	27.86095137
8477	8483	0.05379	602.06934	32.3853098
8479	8480	0.03654	322.79968	11.79510031
8479	8481	0.02207	402.60480	8.885487936
8480	8473	0.05586	322.79968	18.03159012
8480	8479	0.03654	402.60480	14.71117939
8481	1407	0.13696	251.53448	34.45016238
8481	1408	0.12655	47.98999	6.073133235
8481	8479	0.02207	322.79968	7.124188938
8481	8485	0.05516	323.12091	17.8233494
8483	1425	0.14966	602.06934	90.10569742
8483	8477	0.05379	918.29108	49.39487719
8483	8488	0.07240	0.00000	0
8485	8481	0.05516	113.84677	6.279787833
8485	8490	0.11171	323.12091	36.09583686
8486	1441	0.13000	0.00106	0.0001378
8486	1480	0.17363	0.00107	0.000185784
8487	8263	0.13281	1119.99902	148.7470698
8487	8495	0.06152	46.82310	2.880557112
8487	8732	0.10003	704.17407	70.43853222
8488	8483	0.07240	0.00000	0

8490	8485	0.11171	113.84677	12.71782268
8490	30164	0.08106	323.12091	26.19218096
8492	8277	0.12011	6263.81689	752.3470467
8492	9043	0.24965	4906.60107	1224.932957
8494	8422	0.01341	6860.82422	92.00365279
8494	8737	0.09948	6225.61719	619.3243981
8495	8487	0.06152	167.34027	10.29477341
8495	8499	0.04345	46.82310	2.034463695
8498	1479	0.16449	46.82310	7.701931719
8498	8499	0.01725	167.34027	2.886619658
8499	8495	0.04345	167.34027	7.270934732
8499	8498	0.01725	46.82310	0.807698475
8500	1118	0.21420	1038.32617	222.4094656
8500	1120	0.12958	188.92374	24.48073823
8500	8382	0.03858	770.46393	29.72449842
8500	8586	0.03076	1805.43408	55.5351523
8512	8338	0.35197	614.06451	216.1322856
8512	8606	0.14841	517.31995	76.77545378
8512	8712	0.08529	0.00000	0
8515	7986	0.31726	2339.56006	742.2488246
8515	8519	0.12126	2157.61768	261.6327199
8515	8800	0.12424	2862.49585	355.6364844
8519	1137	0.13107	13.24552	1.736090306
8519	8515	0.12126	2094.47778	253.9763756
8519	8524	0.11650	2149.86816	250.4596406
8524	1008	0.22130	1008.83069	223.2542317
8524	8519	0.11650	2087.31543	243.1722476
8524	8527	0.13687	2251.39795	308.1488374
8527	1138	0.06771	35.60678	2.410935074
8527	8524	0.13687	2167.57422	296.6758835
8527	8537	0.12040	2252.22046	271.1673434
8529	8390	0.04157	293.61536	12.20559052
8529	8793	0.11600	315.73279	36.62500364
8537	8527	0.12040	2168.87402	261.132432
8537	8540	0.11381	2067.55835	235.3088158
8537	8693	0.06813	254.92294	17.3678999
8539	8540	0.01389	2139.54175	29.71823491
8539	8589	0.09067	2255.69385	204.5237614
8540	1021	0.12991	1061.70239	137.9257575
8540	1023	0.12481	122.15398	15.24603824
8540	8537	0.11381	1978.18616	225.1373669
8540	8539	0.01389	2255.69385	31.33158758
8558	1482	0.06140	0.00000	0
8561	1751	0.25470	99.43964	25.32727631
8561	8244	0.17350	940.96838	163.2580139
8561	9108	0.23966	917.28632	219.8368395
8569	8464	0.06287	6165.22070	387.6074254
8569	8663	0.06777	13940.01953	944.7151235
8576	1234	0.22502	285.17853	64.17087282
8576	8577	0.00965	2.30151	0.022209572
8576	8970	0.20191	2100.23779	424.0590122
8577	1215	0.25106	138.05960	34.66124318
8577	8395	0.05720	1434.59473	82.05881856
8577	8576	0.00965	427.35159	4.123942844

8578	8416	0.04837	2108.85840	102.0054808
8578	8966	0.20077	2037.58838	409.0866191
8586	8500	0.03076	1904.03381	58.56808
8586	8646	0.02796	1805.43408	50.47993688
8589	8539	0.09067	2139.54175	193.9922505
8589	8623	0.01649	2255.69385	37.19639159
8606	8512	0.14841	614.06451	91.13331393
8606	8708	0.31627	517.31995	163.6127806
8610	1120	0.37186	5.54339	2.061365005
8610	8367	0.50441	483.32178	243.792339
8610	8813	0.54413	416.67773	226.7268532
8618	8450	0.05397	4791.74316	258.6103783
8618	8688	0.03640	4905.19678	178.5491628
8623	1022	0.15570	1050.10693	163.501649
8623	8589	0.01649	2139.54175	35.28104346
8623	8769	0.07560	1299.90662	98.27294047
8631	8287	0.16706	1894.67773	316.5248616
8631	8805	0.08045	1848.58374	148.7185619
8642	8470	0.06196	2438.77979	151.1067958
8642	8721	0.03460	2372.71338	82.09588295
8645	8426	0.07398	2500.44238	184.9827273
8646	8586	0.02796	1904.03381	53.23678533
8646	8749	0.04250	1805.43408	76.7309484
8662	8430	0.07601	332.43002	25.26800582
8662	8753	0.04067	307.18967	12.49340388
8663	8569	0.06777	6165.22070	417.8170068
8663	8706	0.02212	11070.23633	244.8736276
8663	8836	0.17281	14728.19727	2545.17977
8669	1066	0.18595	369.49362	68.70733864
8669	1067	0.12375	2401.89111	297.2340249
8669	8468	0.07705	8274.76660	637.5707665
8669	8766	0.04324	8683.40430	375.4704019
8687	8717	0.02024	32279.38281	653.3347081
8688	1716	0.25320	249.81535	63.25324662
8688	1717	0.18749	446.52045	83.71811917
8688	1731	0.72697	92.02582	66.90001037
8688	8618	0.03640	4791.74316	174.419451
8688	8884	0.10787	4874.11963	525.7712845
8693	1138	0.11930	3.77319	0.450141567
8693	8537	0.06813	260.94855	17.77842471
8693	8869	0.08895	258.30331	22.97607942
8706	8663	0.02212	15187.39941	335.9452749
8706	8730	0.01350	11070.23633	149.4481905
8708	1118	0.18021	126.01878	22.70984434
8708	8606	0.31627	614.06451	194.2101826
8708	8779	0.13827	391.30118	54.10521416
8712	8512	0.08529	0.00000	0
8717	8687	0.02024	0.00000	0
8717	8847	0.12915	32279.38281	4168.88229
8721	1384	0.26355	47.41054	12.49504782
8721	1408	0.25088	114.94314	28.83693496
8721	8642	0.03460	2438.77979	84.38178073
8721	9032	0.15402	2217.82446	341.5893233
8723	8389	0.24414	31517.08398	7694.580883

8723	8742	0.01761	0.00000	0
8726	1481	0.09303	107.84529	10.03284733
8726	8406	0.11323	110.30667	12.49002424
8726	8961	0.13778	199.12642	27.43563815
8727	1339	0.23243	78.41503	18.22600542
8727	8783	0.02907	3490.51025	101.469133
8730	8706	0.01350	15187.39941	205.029892
8730	8768	0.02068	11070.23633	228.9324873
8732	1479	0.23492	934.75604	219.5928889
8732	8487	0.10003	952.65875	95.29445476
8732	8786	0.03003	1635.08728	49.10167102
8737	8494	0.09948	6860.82422	682.5147934
8737	8758	0.00950	6225.61719	59.14336331
8739	1271	0.21477	321.84985	69.12369228
8739	8442	0.11091	4399.10742	487.905004
8742	8723	0.01761	31517.08398	555.0158489
8749	8646	0.04250	1904.03381	80.92143693
8749	8750	0.04827	1324.68689	63.94263618
8749	8751	0.01931	368.08261	7.107675199
8749	8840	0.04697	1081.79480	50.81190176
8750	8749	0.04827	1022.82373	49.37170145
8750	8916	0.14145	1324.68689	187.3769606
8751	8749	0.01931	391.30118	7.556025786
8751	8779	0.23344	368.08261	85.92520448
8753	1083	0.09131	50.27368	4.590489721
8753	8662	0.04067	332.43002	13.51992891
8753	8814	0.03197	256.91599	8.2136042
8758	8737	0.00950	6860.82422	65.17783009
8758	8788	0.01788	6225.61719	111.3140354
8766	8669	0.04324	10778.59570	466.0664781
8766	8808	0.01900	8683.40430	164.9846817
8768	8389	0.25316	5001.92773	1266.288024
8768	8730	0.02068	15187.39941	314.0754198
8768	8812	0.02639	8366.29492	220.7865229
8769	8623	0.07560	1528.07251	115.5222818
8769	9098	0.14976	1299.90662	194.6740154
8770	1363	0.25063	30.60690	7.671007347
8770	1384	0.23949	799.61316	191.4993557
8770	8455	0.12289	3465.45654	425.8699542
8770	9013	0.12766	3992.76221	509.7160237
8773	1339	0.24310	151.77483	36.89646117
8773	1363	0.24962	57.38029	14.32326799
8773	8447	0.12593	2463.00098	310.1657134
8773	9001	0.12404	2196.89893	272.5033433
8774	8778	0.12278	36966.59375	4538.758381
8778	8835	0.13895	36966.59375	5136.508202
8779	8708	0.13827	368.08261	50.89478248
8779	8751	0.23344	391.30118	91.34534746
8783	8991	0.11947	12246.47266	1463.086089
8786	8732	0.03003	1887.41479	56.67906614
8786	9053	0.12447	1635.08728	203.5193137
8788	8758	0.01788	6860.82422	122.6715371
8788	9033	0.11847	6225.61719	737.5488685
8793	8529	0.11600	293.61536	34.05938176

8793	8953	0.10149	315.73279	32.04372086
8800	1009	0.06419	0.97380	0.062508222
8800	8515	0.12424	3239.84766	402.5186733
8800	9078	0.12713	2862.56152	363.917446
8805	1052	0.11862	653.84821	77.55947467
8805	1140	0.03905	125.70984	4.908969252
8805	8631	0.08045	1894.67773	152.4268234
8805	9075	0.12663	2247.19507	284.5623117
8808	8766	0.01900	10778.59570	204.7933183
8808	8867	0.03688	8683.40430	320.2439506
8812	8768	0.02639	17485.38477	461.4393041
8812	8853	0.02542	8366.29492	212.6712169
8813	1926	0.69158	544.12207	376.3039412
8813	8610	0.54413	488.86517	266.006205
8813	9008	0.69247	159.01790	110.1151252
8814	8753	0.03197	280.23297	8.959048051
8814	8926	0.07265	256.91599	18.66494667
8824	1267	0.22279	86.96250	19.37437538
8824	8937	0.08052	3039.92261	244.7745686
8831	8645	0.08855	2500.44238	221.4141727
8835	8863	0.08301	36966.59375	3068.596947
8836	1037	0.17242	390.38312	67.30985755
8836	8663	0.17281	2836.23535	490.1298308
8836	8857	0.02621	666.37000	17.4655577
8836	8870	0.02545	13947.60449	354.9665343
8840	8749	0.04697	1459.03918	68.53107028
8840	8855	0.00951	1081.79480	10.28786855
8841	8774	0.16495	36966.59375	6097.639639
8847	8994	0.19569	32279.38281	6316.752422
8848	8742	0.10886	31517.08398	3430.949762
8853	8812	0.02542	17485.38477	444.4784809
8853	8866	0.01235	8366.29492	103.3237423
8855	8840	0.00951	1459.03918	13.8754626
8855	8940	0.13817	1081.79480	149.4715875
8857	8836	0.02621	2696.91724	70.68620086
8857	8870	0.02003	0.00000	0
8857	9083	0.27114	666.37000	180.6795618
8859	8879	0.25613	35148.80469	9002.663345
8862	8848	0.01996	31517.08398	629.0809962
8863	8855	0.17006	1459.03918	248.124203
8863	8876	0.05342	35507.55469	1896.813572
8865	13438	0.05484	8046.15869	441.2513426
8866	1022	0.19753	3344.80957	660.7002344
8866	1038	0.12271	312.56116	38.35437994
8866	8853	0.01235	17485.38477	215.9445019
8866	8939	0.06440	6641.19629	427.6930411
8867	8808	0.03688	10778.59570	397.5146094
8867	8920	0.03688	8683.40430	320.2439506
8868	8423	0.18391	2137.93457	393.1875468
8868	9017	0.07099	2391.83521	169.7963816
8869	1139	0.16263	210.55365	34.2423401
8869	8693	0.08895	264.72174	23.54699877
8869	9080	0.08741	411.07510	35.93207449
8870	8994	0.14421	13947.60449	2011.384044

8871	8859	0.15976	35148.80469	5615.373037
8875	8935	0.35493	191.54306	67.98437829
8875	9191	0.38902	184.51343	71.77941454
8876	8917	0.10711	35507.55469	3803.214183
8878	8841	0.09715	36966.59375	3591.304583
8879	8906	0.09406	35148.80469	3306.096569
8880	8871	0.08152	35148.80469	2865.330558
8884	8688	0.10787	4773.88037	514.9584755
8884	9131	0.09189	4874.11963	447.8828528
8890	8880	0.04987	35148.80469	1752.87089
8906	30068	0.43048	35148.80469	15130.85744
8912	8310	0.30572	7985.00879	2441.176887
8912	8739	0.09988	4676.74854	467.1136442
8913	30069	0.04984	0.00000	0
8916	8750	0.14145	1022.82373	144.6784166
8916	8959	0.02852	1324.68689	37.7800701
8917	8940	0.10666	35507.55469	3787.235783
8920	8867	0.03688	10778.59570	397.5146094
8920	9041	0.04135	8683.40430	359.0587678
8926	8814	0.07265	280.23297	20.35892527
8926	9056	0.04137	256.91599	10.62861451
8933	8890	0.11327	33769.12891	3825.029232
8934	9012	0.16075	39.54115	6.356239863
8934	30069	0.19671	5.20347	1.023574584
8935	1119	0.14872	92.76897	13.79660122
8935	8875	0.35493	184.51343	65.48935171
8935	9132	0.09061	276.60077	25.06279577
8937	8967	0.00916	3039.92261	27.84569111
8938	8831	0.07888	2500.44238	197.2348949
8939	8866	0.06440	15419.46289	993.0134101
8939	9107	0.04642	6641.19629	308.2843318
8940	8958	0.01788	36589.35156	654.2176059
8941	1793	0.50684	12.49803	6.334501525
8941	1794	0.35415	6.48599	2.297013359
8941	1795	0.97360	290.61703	282.9447404
8941	8946	0.26879	2277.06445	612.0521535
8941	8952	0.49310	1561.92041	770.1829542
8945	8056	0.49282	885.25482	436.2712804
8945	8946	0.23442	1774.52698	415.9846147
8945	8949	0.24543	2154.52930	528.7861261
8946	8941	0.26879	1774.52698	476.975107
8946	8945	0.23442	2277.06445	533.7894484
8949	1484	0.26069	0.77488	0.202003467
8949	1694	0.25381	157.00906	39.85046952
8949	8945	0.24543	2112.52075	518.4759677
8949	8951	0.12896	2171.59351	280.048699
8950	8951	0.01103	1316.26184	14.5183681
8950	8953	0.11171	1510.05042	168.6877324
8951	8949	0.12896	2158.31396	278.3361683
8951	8950	0.01103	1510.05042	16.65585613
8951	9456	0.23644	680.23132	160.8338933
8952	8319	0.32777	556.76831	182.491949
8952	8941	0.49310	2067.33496	1019.402869
8952	10026	0.50453	1351.09277	681.6668352

8953	8793	0.10149	293.61536	29.79902289
8953	8950	0.11171	1316.26184	147.0396101
8953	8954	0.15100	1825.66187	275.6749424
8954	8953	0.15100	1609.75586	243.0731349
8954	8955	0.12056	4500.27637	542.5533192
8954	9195	0.10078	766.71307	77.26934319
8955	1204	0.17182	402.22360	69.11005895
8955	1465	0.26769	983.93970	263.3908183
8955	8954	0.12056	1964.44421	236.833394
8955	8960	0.11870	5761.66113	683.9091761
8956	1215	0.25176	0.99502	0.250506235
8956	1216	0.25139	256.39761	64.45579518
8956	8957	0.12479	2585.81470	322.6838164
8956	8972	0.24554	4742.72070	1164.527641
8957	8956	0.12479	4212.03955	525.6204154
8957	8965	0.12549	2585.81470	324.4938867
8958	9000	0.03000	36589.35156	1097.680547
8959	8916	0.02852	1022.82373	29.17093278
8959	9111	0.03690	1324.68689	48.88094624
8960	8955	0.11870	3092.43823	367.0724179
8960	8966	0.10963	5761.66113	631.6509097
8961	8726	0.13778	203.69397	28.06495519
8961	8962	0.12578	10130.67285	1274.236031
8961	8964	0.13996	9595.96777	1343.051649
8961	9318	0.16177	873.00763	141.2264443
8962	1272	0.52072	52.79411	27.49094896
8962	8961	0.12578	10403.11719	1308.50408
8962	8963	0.07490	11246.28906	842.3470506
8963	8962	0.07490	10349.57813	775.1834019
8963	8968	0.01242	11246.28906	139.6789101
8964	8961	0.13996	9433.54785	1320.319357
8964	8971	0.10019	9595.96777	961.4200109
8965	8957	0.12549	4212.03955	528.5688431
8965	8966	0.01034	2585.81470	26.737324
8966	8578	0.20077	2108.85840	423.395501
8966	8960	0.10963	3092.43823	339.0240032
8966	8965	0.01034	4212.03955	43.55248895
8966	9370	0.19217	1630.98706	313.4267833
8967	8968	0.00827	10336.40039	85.48203123
8967	8974	0.15583	9818.09863	1529.95431
8967	9190	0.09461	2759.11987	261.0403309
8968	8938	0.00916	2500.44238	22.9040522
8968	8963	0.01242	10349.57813	128.5417604
8968	8967	0.00827	9860.07422	81.5428138
8969	1267	0.14009	749.57813	105.0084002
8969	8973	0.05240	10119.28516	530.2505424
8969	8974	0.02000	10013.62207	200.2724414
8970	8972	0.00965	3133.71265	30.24032707
8970	8977	0.16479	6147.98340	1013.126184
8970	9102	0.03376	4599.39355	155.2755262
8971	1234	0.25908	1546.61011	400.6957473
8971	1237	0.24716	2223.67358	549.603162
8971	8964	0.10019	9433.54785	945.1471591
8971	8977	0.08942	6104.87891	545.8982721

8972	8577	0.20191	1853.23645	374.1869716
8972	8956	0.24554	2841.21094	697.6309342
8972	8970	0.00965	5675.97266	54.77313617
8973	8969	0.05240	10256.75586	537.4540071
8973	8975	0.02483	10119.28516	251.2618505
8974	8967	0.15583	10013.62207	1560.422727
8974	8969	0.02000	9818.09863	196.3619726
8975	8973	0.02483	10256.75586	254.675248
8975	8976	0.02965	10119.28516	300.036805
8976	8975	0.02965	10256.75586	304.1128112
8976	8978	0.04827	10119.28516	488.4578947
8977	8970	0.16479	6104.87891	1006.022996
8977	8971	0.08942	6147.98340	549.7526756
8978	1291	0.29401	550.65466	161.8979766
8978	8976	0.04827	10256.75586	495.0936054
8978	8982	0.04966	10687.32422	530.7325208
8981	1271	0.11883	60.81828	7.227036212
8981	8984	0.02936	10780.25000	316.50814
8981	8986	0.09063	10943.79980	991.8365759
8982	8978	0.04966	10780.25000	535.347215
8982	8984	0.09447	10687.32422	1009.631519
8984	8981	0.02936	10687.32422	313.7798391
8984	8982	0.09447	10780.25000	1018.410218
8986	8981	0.09063	10731.04590	972.5546899
8986	8988	0.05657	10943.79980	619.0907547
8987	1339	0.12422	809.83502	100.5977062
8987	8993	0.03480	11595.05371	403.5078691
8987	8998	0.02450	12172.28613	298.2210102
8988	8986	0.05657	10731.04590	607.0552666
8988	8990	0.04621	10943.79980	505.7129888
8989	1341	0.14340	282.06512	40.44813821
8989	8993	0.05083	11775.98242	598.5731864
8989	8999	0.03812	11312.98828	431.2511132
8990	1292	0.22090	1038.60938	229.428812
8990	8988	0.04621	10731.04590	495.881631
8990	8992	0.06688	10627.18750	710.7463
8991	8996	0.04137	11429.56738	472.8412025
8991	9006	0.02553	12927.36914	330.0357341
8991	9104	0.02626	13132.24219	344.8526799
8992	8912	0.03976	12661.75684	503.431452
8992	8990	0.06688	11169.84668	747.039346
8992	9006	0.04207	12141.06543	510.7746226
8993	8987	0.03480	11775.98242	409.8041882
8993	8989	0.05083	11595.05371	589.3765801
8994	9144	0.14843	46226.98828	6861.47187
8995	1363	0.12323	514.71082	63.42781435
8995	1364	0.18879	145.60170	27.48814494
8995	9005	0.06274	8471.99512	531.5329738
8995	9007	0.06344	8586.83105	544.7485618
8996	8991	0.04137	13101.64063	542.0148729
8996	8997	0.01774	11429.56738	202.7605253
8997	1340	0.15659	296.76474	46.47039064
8997	8996	0.01774	13101.64063	232.4231048
8997	8998	0.12018	11907.92578	1431.09452

8998	8987	0.02450	11907.92578	291.7441816
8998	8997	0.12018	12172.28613	1462.865347
8999	8989	0.03812	11420.62988	435.354411
8999	9002	0.07378	11312.98828	834.6722753
9000	9171	0.26402	36589.35156	9660.320599
9001	8773	0.12404	2448.22827	303.6782346
9001	9002	0.05171	11420.62988	590.5607711
9001	9003	0.06205	8544.13770	530.1637443
9001	9252	0.12262	5043.91602	618.4849824
9002	8999	0.07378	11420.62988	842.6140725
9002	9001	0.05171	11312.98828	584.994624
9003	9001	0.06205	8471.99512	525.6872972
9003	9009	0.06688	8544.13770	571.4319294
9005	8995	0.06274	8544.13770	536.0591993
9005	9009	0.05723	8471.99512	484.8522807
9006	8991	0.02553	12141.06543	309.9614004
9006	8992	0.04207	12927.36914	543.8544197
9007	8995	0.06344	8522.36035	540.6585406
9007	9010	0.06137	8586.83105	526.9738215
9008	1121	0.16703	27.67870	4.623173261
9008	8813	0.69247	246.19371	170.4817584
9008	9148	0.30148	158.80234	47.87572946
9009	9003	0.06688	8471.99512	566.6070336
9009	9005	0.05723	8544.13770	488.9810006
9010	9007	0.06137	8522.36035	523.0172547
9010	9011	0.06205	8586.83105	532.8128667
9011	9010	0.06205	8522.36035	528.8124597
9011	9013	0.06412	8586.83105	550.5876069
9012	8934	0.16075	5.20347	0.836457803
9012	9017	0.41023	39.54115	16.22096596
9013	8770	0.12766	3946.06836	503.7550868
9013	9011	0.06412	8522.36035	546.4537456
9013	9016	0.10756	6829.01514	734.5288685
9013	9199	0.08872	1997.34460	177.2044129
9014	9016	0.05240	6392.36475	334.9599129
9014	9019	0.06137	6829.01514	419.0966591
9015	8933	0.10590	33769.12891	3576.150752
9015	9110	0.12628	946.85828	119.5692636
9016	9013	0.10756	6392.36475	687.5627525
9016	9014	0.05240	6829.01514	357.8403933
9017	8868	0.07099	2137.93457	151.7719751
9017	9012	0.41023	5.20347	2.134619498
9017	9018	0.02827	2439.22583	68.95691421
9017	9255	0.12410	3796.99390	471.206943
9018	9017	0.02827	3470.95801	98.12398294
9018	9020	0.09771	1689.64026	165.0947498
9018	9203	0.10215	2193.27710	224.0432558
9019	9014	0.06137	6392.36475	392.2994247
9019	9023	0.05862	6829.01514	400.3168675
9020	1104	0.29395	320.81775	94.30437761
9020	9018	0.09771	1720.91821	168.1509183
9020	9021	0.12637	1604.96228	202.8190833
9021	9020	0.12637	1633.24146	206.3927233
9021	9024	0.06826	1604.96228	109.5547252

9022	1103	0.29160	3439.11157	1002.844934
9022	9024	0.04263	1633.24146	69.62508344
9022	9028	0.13457	2961.92065	398.5856619
9023	1384	0.13162	460.21558	60.57357464
9023	1385	0.25274	409.21744	103.4256158
9023	9019	0.05862	6392.36475	374.7204216
9023	9025	0.05447	7671.87842	417.8872175
9024	9021	0.06826	1633.24146	111.4850621
9024	9022	0.04263	1604.96228	68.419542
9025	9023	0.05447	7236.30225	394.1613836
9025	9026	0.05447	7671.87842	417.8872175
9026	9025	0.05447	7236.30225	394.1613836
9026	9031	0.05517	7671.87842	423.2575324
9027	9015	0.01316	34715.98438	456.8623544
9028	9022	0.13457	2896.57642	389.7922888
9028	9029	0.00780	2961.92065	23.10298107
9029	1105	0.08116	750.63550	60.92157718
9029	9028	0.00780	2896.57642	22.59329608
9029	9037	0.14322	3299.08740	472.4952974
9030	1102	0.25808	1104.95642	285.1671529
9030	9037	0.10551	3218.64136	339.5988499
9030	9040	0.04628	3916.02222	181.2335083
9031	9026	0.05517	7236.30225	399.2267951
9031	9032	0.05723	7671.87842	439.061602
9032	8721	0.15402	2318.16699	357.0440798
9032	9031	0.05723	7236.30225	414.1335778
9032	9034	0.05447	6816.58105	371.2991698
9032	9265	0.12724	1763.05469	224.3310788
9033	8788	0.11847	6860.82422	812.8018453
9033	9040	0.19996	3854.11328	770.6684915
9033	9064	0.11197	1816.27795	203.3686421
9033	9235	0.10730	10754.94336	1154.005423
9034	9032	0.05447	6557.65137	357.1952701
9034	9035	0.05585	6816.58105	380.7060516
9035	9034	0.05585	6557.65137	366.244829
9035	9038	0.16411	6816.58105	1118.669116
9036	9027	0.00592	34715.98438	205.5186275
9037	9029	0.14322	3218.64136	460.9738156
9037	9030	0.10551	3299.08740	348.0867116
9038	1408	0.12742	588.81573	75.02690032
9038	1409	0.24996	526.82709	131.6856994
9038	9035	0.16411	6557.65137	1076.176166
9038	9044	0.07241	6793.18555	491.8945657
9039	1509	0.49728	8.03322	3.994759642
9039	1510	0.33956	14.67909	4.9844318
9039	9043	0.50509	2275.63452	1149.40024
9039	9059	0.19931	2530.66406	504.3866538
9040	9030	0.04628	3854.11328	178.3683626
9040	9033	0.19996	3916.02222	783.0478031
9041	8920	0.04135	10778.59570	445.6949322
9041	9062	0.02668	2545.59033	67.91635
9041	9066	0.05488	4524.49902	248.3045062
9041	9198	0.08887	7514.10938	667.7789006
9042	8862	0.19149	31517.08398	6035.206411

9043	8492	0.24965	6263.81689	1563.761887
9043	9039	0.50509	2510.38428	1267.969996
9043	9055	0.24926	5974.59473	1489.227482
9043	9544	0.25431	2424.95459	616.6902018
9044	9038	0.07241	7026.27051	508.7722476
9044	9046	0.13652	6793.18555	927.4056913
9046	9044	0.13652	7026.27051	959.22645
9046	30173	0.00688	7230.39209	49.74509758
9046	30186	0.13332	2120.40234	282.69204
9047	1083	0.14394	184.10211	26.49965771
9047	9056	0.09377	1730.73230	162.2907678
9047	9058	0.09104	2210.10352	201.2078245
9048	9049	0.05309	3221.83813	171.0473863
9048	9053	0.09033	4507.30762	407.1450973
9049	9048	0.05309	4507.30762	239.2929615
9049	9054	0.08894	3221.83813	286.5502833
9050	9052	0.04620	6298.31836	290.9823082
9050	30163	0.13346	6020.97070	803.5587496
9051	9053	0.01862	5969.87256	111.1590271
9051	9057	0.16203	7563.78076	1225.559397
9052	1426	0.27277	45.21722	12.3339011
9052	1479	0.15788	1835.41064	289.7746318
9052	9050	0.04620	6020.97070	278.1688463
9052	9054	0.07515	4507.30762	338.7241676
9053	8786	0.12447	1887.41479	234.9265189
9053	9048	0.09033	3221.83813	291.0286383
9053	9051	0.01862	7563.78076	140.8375978
9053	9486	0.23358	3201.99438	747.9218473
9054	9049	0.08894	4507.30762	400.8799397
9054	9052	0.07515	3221.83813	242.1211355
9055	1442	0.24465	9.81762	2.401880733
9055	1480	0.08349	10.45540	0.872921346
9055	9043	0.24926	7561.23779	1884.714132
9055	9057	0.08862	5969.87256	529.0501063
9056	8926	0.04137	280.23297	11.59323797
9056	9047	0.09377	2258.48364	211.7780109
9056	9063	0.10550	1628.15930	171.7708062
9057	9051	0.16203	5969.87256	967.2984509
9057	9055	0.08862	7563.78076	670.302251
9058	1091	0.06808	885.50134	60.28493123
9058	9047	0.09104	1689.85620	153.8445084
9058	9064	0.09173	2135.83911	195.9205216
9059	1511	0.48250	89.90624	43.3797608
9059	9039	0.19931	2296.85962	457.7870909
9059	9067	0.29263	2589.25464	757.6935853
9060	1067	0.22759	301.81384	68.68981185
9060	9061	0.12361	2558.58887	316.2671702
9060	9065	0.06414	1685.75244	108.1241615
9061	1086	0.09338	477.89526	44.62585938
9061	9060	0.12361	1981.93884	244.98746
9061	9063	0.13219	2373.17773	313.7103641
9062	9041	0.02668	1787.94141	47.70227682
9062	9065	0.05794	2545.59033	147.4915037
9063	1081	0.27345	602.39081	164.723767

9063	9056	0.10550	2179.22778	229.9085308
9063	9061	0.13219	1803.41003	238.3927719
9064	1085	0.14413	565.23767	81.46770538
9064	9033	0.11197	2355.85767	263.7853833
9064	9058	0.09173	1600.48230	146.8122414
9065	1069	0.07311	662.08044	48.40470097
9065	9060	0.06414	2044.93518	131.1621424
9065	9062	0.05794	1787.94141	103.5933253
9066	9041	0.05488	2848.76270	156.340097
9066	9073	0.04551	4524.49902	205.9099504
9067	8085	0.51128	275.32300	140.7671434
9067	9059	0.29263	2329.44263	681.6647968
9067	9076	0.49706	2569.60205	1277.246395
9067	10083	0.49319	326.58313	161.0675339
9069	9036	0.03327	34715.98438	1155.0008
9070	1068	0.05198	131.99757	6.861233689
9070	9071	0.01172	4770.82861	55.91411131
9070	9073	0.07584	2848.76270	216.0501632
9071	1066	0.16857	238.96530	40.28238062
9071	9070	0.01172	2980.76025	34.93451013
9071	9072	0.04619	5070.05225	234.1857134
9072	9071	0.04619	3210.84106	148.3087486
9072	9077	0.04278	5070.05225	216.8968353
9073	9066	0.04551	2848.76270	129.6471905
9073	9070	0.07584	4524.49902	343.1380057
9074	9075	0.04413	5070.05225	223.7414058
9074	9077	0.04554	3210.84106	146.2217019
9075	8805	0.12663	2337.83545	296.040103
9075	9074	0.04413	3210.84106	141.694416
9075	9090	0.05664	2384.86108	135.0785316
9075	30071	0.07743	4599.52246	356.1410241
9076	1146	0.50319	50.06690	25.19316341
9076	1147	0.50138	0.26034	0.130529269
9076	9067	0.49706	2234.94897	1110.903735
9076	9086	0.50477	2519.79761	1271.91824
9077	9072	0.04278	3210.84106	137.3597805
9077	9074	0.04554	5070.05225	230.8901795
9078	8800	0.12713	3239.91846	411.8908338
9078	9081	0.07867	2182.53882	171.700329
9078	9088	0.25470	2499.85986	636.7143063
9078	9247	0.10329	607.41223	62.73960924
9080	8869	0.08741	419.58710	36.67610841
9080	9084	0.23605	16.18379	3.82018363
9080	9093	0.10759	6791.21240	730.6665421
9080	9266	0.11396	2741.29688	312.3981924
9081	1009	0.12353	0.55436	0.068480091
9081	9078	0.07867	158.32245	12.45522714
9081	9087	0.04615	2183.11646	100.7508246
9083	1052	0.19812	269.05267	53.30471498
9083	8857	0.27114	2696.91724	731.2421405
9083	9089	0.10593	397.31729	42.08782053
9084	1139	0.10763	148.18906	15.94958853
9084	9080	0.23605	2043.43713	482.3533345
9084	9087	0.13901	167.59389	23.29722665

9086	8137	0.49515	717.93158	355.4838218
9086	9076	0.50477	2185.08398	1102.964841
9086	9097	0.49852	2657.22974	1324.68217
9086	30200	0.50707	647.43854	328.2966605
9087	1122	0.10439	0.80955	0.084508925
9087	1137	0.12724	22.13762	2.816790769
9087	9081	0.04615	158.87682	7.332165243
9087	9084	0.13901	2191.62622	304.6579608
9088	1151	0.50136	263.31183	132.0140191
9088	9078	0.25470	2884.70020	734.7331409
9088	9097	0.24174	2342.61719	566.3042795
9089	9083	0.10593	2384.86108	252.6283342
9089	9090	0.04785	397.31729	19.01163233
9090	9075	0.05664	397.31729	22.50405131
9090	9089	0.04785	2384.86108	114.1156027
9091	9092	0.02206	7168.51416	158.1374224
9092	9094	0.10135	7168.51416	726.5289101
9093	1023	0.12077	403.75037	48.76093218
9093	9080	0.10759	2618.53174	281.7278299
9093	9098	0.14414	7012.63574	1010.801316
9094	9095	0.02207	7168.51416	158.2091075
9095	1038	0.08025	199.42451	16.00381693
9095	9096	0.05999	6969.08984	418.0756995
9096	9095	0.05999	0.00000	0
9096	9099	0.02276	6969.08984	158.6164848
9097	9086	0.49852	2342.61719	1167.841522
9097	9088	0.24174	2657.22974	642.3587173
9098	8769	0.14976	1528.07251	228.8441391
9098	9093	0.14414	2827.35742	407.5352985
9098	9107	0.24993	8384.69336	2095.586411
9098	9307	0.12740	366.06970	46.63727978
9099	9096	0.02276	0.00000	0
9099	9107	0.12550	6969.08984	874.6207749
9102	8972	0.03235	2493.98657	80.68046554
9102	9388	0.16565	4599.39355	761.8895416
9104	9316	0.12704	2976.53760	378.1393367
9104	9627	0.28111	10155.70410	2854.86998
9105	1022	0.18628	136.16342	25.36452188
9105	1128	0.13663	1686.84436	230.4735449
9105	9098	0.09009	4194.14746	377.8507447
9107	8939	0.04642	15419.46289	715.7714674
9107	9099	0.12550	0.00000	0
9107	9113	0.06234	4691.09424	292.4428149
9107	9582	0.24977	10094.16504	2521.219602
9108	8561	0.23966	931.45807	223.2332411
9108	9205	0.06627	917.28632	60.78856443
9110	8890	0.14746	1379.67700	203.4471704
9110	9132	0.01342	946.85828	12.70683812
9111	8959	0.03690	1022.82373	37.74219564
9111	9226	0.18927	1324.68689	250.7234877
9113	9105	0.09547	4691.09424	447.8587671
9127	9091	0.07661	7168.51416	549.1798698
9130	8402	0.30115	1402.87268	422.4751076
9130	10806	0.76659	1424.72864	1092.182728

9131	9179	0.02393	4874.11963	116.6376827
9132	8935	0.09061	268.10336	24.29284545
9132	9110	0.01342	1379.67700	18.51526534
9132	9226	0.06866	968.80103	66.51787872
9135	8884	0.09702	4773.88037	463.1618735
9138	6160	1.70585	987.57324	1684.651811
9138	10203	0.50461	986.44202	497.7685077
9144	9230	0.23598	46226.98828	10908.64469
9148	6345	1.55293	3882.47827	6029.21698
9148	9008	0.30148	230.65988	69.53934062
9148	9193	0.03469	2431.57886	84.35147065
9150	8164	0.49871	540.80573	269.7052256
9150	10219	0.50481	540.49731	272.8484471
9171	9703	1.54738	36589.35156	56617.63082
9174	9264	0.18884	87.31300	16.48818692
9174	9274	0.37258	209.77113	78.15652762
9176	9042	0.15502	31517.08398	4885.778359
9176	9127	0.10779	7168.51416	772.6941413
9177	9041	0.06161	12042.68652	741.9499165
9179	9180	0.00896	0.00000	0
9179	9491	0.18248	4874.11963	889.4293501
9180	9135	0.01892	4773.88037	90.3218166
9180	9179	0.00896	0.00000	0
9190	8968	0.09625	1127.40491	108.5127226
9190	9584	0.19584	2759.11987	540.3460353
9191	8875	0.38902	191.54306	74.5140812
9191	9267	0.17269	699.82648	120.8530348
9191	30196	0.53601	581.89923	311.9038063
9192	9197	0.07105	9121.57715	648.0880565
9192	9287	0.11461	3198.04028	366.5273965
9193	9148	0.03469	4006.97705	139.0020339
9193	9278	0.04980	2431.57886	121.0926272
9195	9196	0.00689	0.00000	0
9195	9418	0.11488	766.71307	88.07999748
9196	8954	0.10000	3086.63916	308.663916
9196	9195	0.00689	0.00000	0
9197	1068	0.07791	452.77466	35.27567376
9197	9192	0.07105	3198.04028	227.2207619
9197	9207	0.04435	9153.87891	405.9745297
9198	1069	0.09054	0.00000	0
9198	9219	0.01528	7925.95068	121.1085264
9199	9013	0.08872	2322.83057	206.0815282
9199	9245	0.02957	1997.34460	59.06147982
9203	9018	0.10215	3193.73145	326.2396676
9203	9277	0.09834	2193.27710	215.68687
9205	9108	0.06627	931.45807	61.7277263
9205	10793	0.70824	917.28632	649.6588633
9207	9177	0.04915	3745.32104	184.0825291
9207	9197	0.04435	3335.29810	147.9204707
9207	9212	0.01553	5408.55762	83.99489984
9212	9177	0.04231	8297.36523	351.0615229
9212	9207	0.01553	1439.91382	22.36186162
9212	9219	0.00857	5408.55762	46.3513388
9219	9212	0.00857	1439.91382	12.34006144

9219	9295	0.04563	11894.59473	542.7503575
9226	9111	0.18927	1022.82373	193.5898474
9226	9132	0.06866	1393.12231	95.6517778
9226	9274	0.03289	87.31300	2.87172457
9227	9192	0.03144	9121.57715	286.7823856
9230	9236	0.02105	46226.98828	973.0781033
9235	9033	0.10730	10788.66211	1157.623444
9235	9282	0.34073	4933.88965	1681.12422
9235	9377	0.07209	10869.61426	783.590492
9236	9249	0.03309	46226.98828	1529.651042
9243	9176	0.21720	38685.59766	8402.511812
9245	9199	0.02957	2322.83057	68.68609995
9245	9509	0.12947	1997.34460	258.5962054
9247	1122	0.08240	0.87572	0.072159328
9247	9078	0.10329	2624.14502	271.0479391
9247	10131	0.40171	607.20685	243.9210637
9249	9227	0.10346	9121.57715	943.7183719
9249	9287	0.19584	37105.41016	7266.723526
9252	1341	0.15944	144.30833	23.00852014
9252	1364	0.27064	484.28995	131.0682321
9252	9001	0.12262	5475.02930	671.3480928
9252	9496	0.12514	4660.79248	583.2515709
9253	9243	0.02330	38685.59766	901.3744255
9255	9017	0.12410	2477.02344	307.3986089
9255	9360	0.04919	3796.99390	186.7741299
9256	9253	0.02173	38685.59766	840.6380372
9261	9207	0.03414	1895.38416	64.70841522
9261	9212	0.03238	8297.36523	268.6686861
9264	9174	0.18884	209.77113	39.61318019
9264	9423	0.07836	87.31300	6.84184668
9265	9032	0.12724	1686.75085	214.6221782
9265	9518	0.12175	1763.05469	214.6519085
9266	9080	0.11396	4895.23633	557.8611322
9266	9303	0.08862	181.07762	16.04709868
9266	9347	0.15442	2666.56396	411.7708067
9266	9465	0.09776	144.91519	14.16690897
9267	9191	0.17269	585.99774	101.1959497
9267	9547	0.23959	699.82648	167.6714263
9269	30063	0.58056	36966.59375	21461.32567
9273	8992	0.13900	12418.11328	1726.117746
9274	9174	0.37258	87.31300	32.53107754
9274	9226	0.03289	209.77113	6.899372466
9275	9203	0.09528	3193.73145	304.2987326
9275	9279	0.07309	34773.31641	2541.581696
9276	9269	0.09730	36966.59375	3596.849572
9277	9276	0.01586	36966.59375	586.2901769
9278	9193	0.04980	4006.97705	199.5474571
9278	9426	0.07184	2431.57886	174.6846253
9279	9277	0.07102	34773.31641	2469.600931
9282	9275	0.51021	37967.05078	19371.16898
9283	9282	0.04413	33033.16016	1457.753358
9285	9283	0.28475	33033.16016	9406.192356
9286	9285	0.02000	33033.16016	660.6632032
9287	9292	0.02898	40303.44922	1167.993958

9289	9235	0.32004	7270.29004	2326.783624
9289	9290	0.06619	33033.16016	2186.464871
9290	9286	0.24201	33033.16016	7994.35509
9292	9294	0.02760	40303.44922	1112.375198
9293	9289	0.43988	40303.44922	17728.68124
9294	9292	0.02760	0.00000	0
9294	9293	0.18409	40303.44922	7419.461967
9295	9380	0.04485	11894.59473	533.4725736
9299	9310	0.08486	33317.01953	2827.282277
9299	9422	0.09919	1831.78577	181.6948305
9303	1127	0.06233	110.64855	6.896724122
9303	9266	0.08862	190.09802	16.84648653
9303	9445	0.12640	130.96727	16.55426293
9307	1127	0.13400	145.33418	19.47478012
9307	9098	0.12740	599.50305	76.37668857
9307	9445	0.08314	220.73550	18.35194947
9308	9312	0.03999	33317.01953	1332.347611
9310	9311	0.02275	33317.01953	757.9621943
9311	9308	0.02207	33317.01953	735.306621
9312	9313	0.07240	36342.12109	2631.169567
9313	9319	0.50607	36342.12109	18391.65722
9316	1340	0.03990	1538.31396	61.378727
9316	9717	0.18284	1831.78625	334.923798
9318	8961	0.16177	767.54956	124.1664923
9318	9543	0.10994	873.00763	95.97845884
9319	9323	0.05240	36342.12109	1904.327145
9321	9322	0.01931	31283.89844	604.0920789
9322	9326	0.24269	31283.89844	7592.289312
9323	9321	0.28475	31283.89844	8908.090081
9323	9377	0.29686	5058.22217	1501.583833
9324	9312	0.06368	3025.10132	192.6384521
9325	9333	0.42817	39106.07031	16744.04612
9326	9325	0.07860	39106.07031	3073.737126
9328	9324	0.01934	3025.10132	58.50545953
9329	9256	0.25085	38685.59766	9704.282173
9330	9261	0.02638	10192.75000	268.884745
9333	9334	0.18740	32141.11523	6023.244994
9333	9339	0.04167	6964.95654	290.229739
9334	9329	0.03192	38685.59766	1234.844277
9339	9350	0.03613	6964.95654	251.6438798
9344	9107	0.14407	8209.74316	1182.777697
9347	1010	0.21798	451.04968	98.31980925
9347	9266	0.15442	4807.14111	742.3187302
9347	9462	0.14632	2215.51440	324.174067
9350	9427	0.05360	6964.95654	373.3216705
9360	9255	0.04919	2477.02344	121.844783
9360	9680	0.14477	3796.99390	549.6908069
9369	8966	0.18906	659.25885	124.6394782
9370	9478	0.05611	1630.98706	91.51468394
9377	9235	0.07209	8566.93164	617.5901019
9377	9326	0.25518	7822.17383	1996.062318
9377	9458	0.04080	7785.66504	317.6551336
9380	9414	0.01689	9426.64453	159.2160261
9380	9424	0.02295	2467.94995	56.63945135

9387	9450	0.04850	4599.52246	223.0768393
9387	30073	0.03407	4818.49561	164.1661454
9388	9102	0.16565	2493.98657	413.1288753
9388	9472	0.04069	4599.39355	187.1493235
9409	9330	0.04830	10192.75000	492.309825
9409	9414	0.00791	4076.53394	32.24538347
9414	9409	0.00791	3297.48120	26.08307629
9414	9424	0.01812	4076.53394	73.86679499
9414	9440	0.01478	9426.64453	139.3258062
9418	1465	0.19228	356.06766	68.46468966
9418	9419	0.00689	105.97336	0.73015645
9418	9688	0.11767	682.03943	80.25557973
9419	9196	0.11488	3086.63916	354.5931067
9419	9418	0.00689	251.12093	1.730223208
9420	1292	0.08083	980.63263	79.26453548
9420	9273	0.06778	2643.69458	179.1896186
9422	9328	0.05723	3025.10132	173.1265485
9422	9620	0.09734	1831.78577	178.3060269
9423	9264	0.07836	209.77113	16.43766575
9423	9475	0.03823	87.31300	3.33797599
9424	9414	0.01812	3297.48120	59.75035934
9424	9440	0.02505	3667.47534	91.87025727
9424	9441	0.08915	6544.48389	583.4407388
9426	9278	0.07184	4006.97705	287.8612313
9426	9476	0.02728	2431.57886	66.3334713
9427	9334	0.12267	6544.48389	802.8118388
9427	9441	0.00645	6964.95654	44.92396968
9440	9479	0.02512	13094.12012	328.9242974
9441	9424	0.08915	6964.95654	620.9258755
9441	9427	0.00645	6544.48389	42.21192109
9445	9303	0.12640	143.06627	18.08357653
9445	9307	0.08314	451.44275	37.53295024
9445	9671	0.14494	351.70279	50.97580238
9450	9387	0.04850	4818.49561	233.6970371
9450	9516	0.06549	4599.52246	301.2227259
9451	9409	0.02332	10971.80273	255.8624397
9456	1205	0.15985	53.70010	8.583960985
9456	1484	0.19191	9.56388	1.835404211
9456	8951	0.23644	860.74054	203.5134933
9456	9855	0.18457	665.33807	122.8014476
9458	9377	0.04080	8246.93457	336.4749305
9458	9531	0.03298	7785.66504	256.771233
9462	1123	0.10697	97.70285	10.45127386
9462	9347	0.14632	4360.63916	638.0487219
9462	9526	0.06338	2121.93164	134.4880273
9465	1024	0.20027	165.14893	33.07437621
9465	9266	0.09776	149.25725	14.59138876
9465	9716	0.10749	158.55055	17.04259862
9472	1216	0.25880	324.56281	83.99685523
9472	1237	0.25587	426.59793	109.1536123
9472	9388	0.04069	2493.98657	101.4803135
9472	9654	0.08266	4300.94775	355.516341
9475	9423	0.03823	209.77113	8.0195503
9475	9533	0.02997	87.31300	2.61677061

9476	1121	0.32948	387.67429	127.7309251
9476	9426	0.02728	4006.97705	109.3103339
9476	9590	0.10217	1261.95496	128.9339383
9476	9719	0.09959	2719.02197	270.787398
9478	1216	0.24035	194.40485	46.7252057
9478	9369	0.05671	659.25885	37.38656938
9478	9833	0.16384	1650.50330	270.4184607
9479	9571	0.03139	13094.12012	411.0244306
9486	1426	0.27000	537.06750	145.008225
9486	1442	0.26740	100.66810	26.91864994
9486	9053	0.23358	3762.76025	878.9055392
9486	9690	0.07792	3001.36011	233.8659798
9489	9419	0.04247	3231.78662	137.2539778
9491	9492	0.00896	0.00000	0
9491	10204	0.30489	4874.11963	1486.070334
9492	9180	0.18248	4773.88037	871.1376899
9492	9491	0.00896	0.00000	0
9495	9496	0.05171	1303.29968	67.39362645
9495	9501	0.05103	1287.20300	65.68596909
9496	9252	0.12514	5080.07422	635.7204879
9496	9495	0.05171	1287.20300	66.56126713
9496	9500	0.06413	4082.33325	261.8000313
9496	9618	0.05412	1135.03174	61.42791777
9500	9496	0.06413	4374.08203	280.5098806
9500	9568	0.07433	4082.33325	303.4398305
9501	9495	0.05103	1303.29968	66.50738267
9501	9548	0.05733	1287.20300	73.79534799
9509	1364	0.24583	9.23857	2.271117663
9509	1385	0.24135	1344.83948	324.5770085
9509	9245	0.12947	2322.83057	300.7368739
9509	9668	0.06867	2133.08569	146.4789943
9516	9450	0.06549	4818.49561	315.5632775
9516	9566	0.06699	4599.52246	308.1220096
9518	1385	0.25787	213.60918	55.08339925
9518	1409	0.24630	1525.22717	375.663452
9518	9265	0.12175	1686.75085	205.361916
9518	9802	0.12445	1941.47437	241.6164853
9525	1484	0.18496	0.00000	0
9526	9462	0.06338	4221.68213	267.5702134
9526	9614	0.05990	2121.93164	127.1037052
9531	9458	0.03298	8246.93457	271.9839021
9531	9676	0.06035	7785.66504	469.8648852
9533	9475	0.02997	209.77113	6.286840766
9533	9601	0.04562	87.31300	3.98321906
9543	1237	0.25070	463.95190	116.3127413
9543	9318	0.10994	767.54956	84.38439863
9543	10016	0.22368	1374.13733	307.367038
9544	1442	0.25125	23.37858	5.873868225
9544	1510	0.34852	36.28492	12.64602032
9544	9043	0.25431	2430.27710	618.0437693
9544	10059	0.24091	2414.22754	581.6115567
9547	9267	0.23959	585.99774	140.3991985
9547	9592	0.04199	699.82648	29.3857139
9548	1341	0.12051	333.83450	40.2303956

9548	1343	0.30672	182.49915	55.97613929
9548	9501	0.05733	1303.29968	74.71817065
9548	9591	0.04225	1345.90576	56.86451836
9563	1053	0.15024	635.11499	95.4196761
9563	1054	0.12370	219.47769	27.14939025
9563	9566	0.04827	4818.49561	232.5887831
9563	9579	0.10119	4277.85693	432.8763427
9566	9516	0.06699	4818.49561	322.7910209
9566	9563	0.04827	4599.52246	222.0189491
9568	9500	0.07433	4374.08203	325.1255173
9568	9698	0.10613	4082.33325	433.2580278
9570	9451	0.04992	10971.80273	547.7123923
9571	9662	0.04582	13094.12012	599.9725839
9579	9563	0.10119	4510.60352	456.4279702
9579	9597	0.03372	4277.85693	144.2493357
9582	9583	0.01105	4782.08398	52.84202798
9582	9803	0.10279	6874.03027	706.5815715
9583	1025	0.12170	745.65259	90.7459202
9583	1039	0.26678	2323.70581	619.918236
9583	1040	0.20612	573.33533	118.1758782
9583	1128	0.17874	2087.09204	373.0468312
9583	9344	0.10806	8209.74316	887.1448459
9583	9582	0.01105	1561.94922	17.25953888
9584	1291	0.26894	648.52246	174.4136304
9584	9190	0.19584	1127.40491	220.7909776
9584	9996	0.20772	2661.23486	552.7917051
9590	9476	0.10217	4044.07642	413.1832878
9590	9756	0.21001	1261.95496	265.0231611
9591	9548	0.04225	1464.56140	61.87771915
9591	9645	0.05135	1345.90576	69.11226078
9592	1117	0.40696	405.09683	164.8582059
9592	9547	0.04199	585.99774	24.6060451
9592	9617	0.03050	354.16891	10.80215176
9597	9579	0.03372	4510.60352	152.0975507
9597	9630	0.02217	4277.85693	94.84008814
9601	9533	0.04562	209.77113	9.569758951
9601	10298	0.39798	87.31300	34.74882774
9614	1010	0.14611	197.57880	28.86823847
9614	9526	0.05990	4221.68213	252.8787596
9614	9892	0.13209	2305.55737	304.541073
9617	9592	0.03050	230.91716	7.04297338
9617	9683	0.03464	354.16891	12.26841104
9618	9496	0.05412	1246.46790	67.45884275
9618	9764	0.05581	1135.03174	63.34612141
9620	9422	0.09734	3025.10132	294.4633625
9620	9680	0.03721	1831.78577	68.1607485
9627	9697	0.01954	39849.50000	778.65923
9628	8310	0.65163	28943.73242	18860.60436
9630	1040	0.19591	258.91428	50.72389659
9630	9597	0.02217	4510.60352	100.00008
9630	9964	0.16647	4018.94263	669.0333796
9645	9591	0.05135	1464.56140	75.20522789
9645	9729	0.06553	1345.90576	88.19720445
9654	9472	0.08266	2519.68652	208.2772877

9654	9743	0.03570	4300.94775	153.5438347
9658	9570	0.04585	10971.80273	503.0571552
9658	9571	0.04736	0.00000	0
9662	9876	0.10337	13094.12012	1353.539197
9663	1116	0.16202	471.77908	76.43764654
9663	1155	0.53066	44.44054	23.58281696
9663	9799	0.63379	876.04358	555.2276606
9663	30196	0.21083	702.75763	148.1623911
9668	9509	0.06867	2461.10547	169.0041126
9668	10036	0.18136	2133.08569	386.8564207
9671	9445	0.14494	594.50903	86.16813881
9671	9748	0.04692	351.70279	16.50189491
9676	1092	0.20882	773.46844	161.5156796
9676	1106	0.23088	901.97913	208.2489415
9676	9531	0.06035	8246.93457	497.7025013
9676	9806	0.06259	6427.81201	402.3167537
9680	9360	0.14477	2477.02344	358.5986834
9680	9620	0.03721	3025.10132	112.5640201
9680	9799	0.05702	3418.73877	194.9364847
9683	9617	0.03464	230.91716	7.998970422
9683	9742	0.05400	354.16891	19.12512114
9688	9689	0.00689	384.19049	2.647072476
9688	9899	0.11686	549.27002	64.18769454
9689	1205	0.13372	684.35577	91.51205356
9689	9489	0.07519	3231.78662	242.998036
9689	9688	0.00689	251.42105	1.732291035
9690	9486	0.07792	3523.40942	274.544062
9690	9879	0.09936	3001.36011	298.2151405
9697	9725	0.01509	39849.50000	601.328955
9698	9568	0.10613	4374.08203	464.2213258
9698	9778	0.05774	4082.33325	235.7139219
9700	9590	0.10693	4044.07642	432.4330916
9701	9700	0.01172	4044.07642	47.39657564
9702	9701	0.01027	4044.07642	41.53266483
9703	9702	0.08224	4044.07642	332.5848448
9703	9721	0.10368	32545.27344	3374.29395
9707	9420	0.12819	2275.57202	291.7055772
9707	9710	0.03120	1208.45703	37.70385934
9707	9732	0.02646	599.65881	15.86697211
9710	9707	0.03120	1156.27844	36.07588733
9710	9717	0.01465	1208.45703	17.70389549
9716	9465	0.10749	159.74513	17.17100402
9716	9893	0.20286	132.67017	26.91347069
9716	10117	0.21691	25.88038	5.613713226
9717	9710	0.01465	1156.27844	16.93947915
9717	9735	0.09830	1377.95972	135.4534405
9717	10190	0.20720	1556.10022	322.4239656
9718	9658	0.02053	10971.80273	225.25111
9719	9476	0.09959	1520.12634	151.3893822
9719	9904	0.10602	2719.02197	288.2707093
9721	9756	0.25444	32545.27344	8280.819374
9725	9944	0.11346	39849.50000	4521.32427
9726	9069	1.79781	34715.98438	62412.74388
9729	9645	0.06553	1464.56140	95.97270854

9729	9735	0.07164	1345.90576	96.42068865
9732	9707	0.02646	692.90479	18.33426074
9732	9863	0.09060	599.65881	54.32908819
9734	9726	0.06854	34715.98438	2379.433569
9735	1340	0.19909	531.53394	105.8230921
9735	1342	0.22956	152.72462	35.05946377
9735	9717	0.09830	1050.09509	103.2243473
9735	9729	0.07164	1464.56140	104.9211787
9737	9734	0.01315	34715.98438	456.5151946
9739	9737	0.01222	34715.98438	424.2293291
9742	9683	0.05400	230.91716	12.46952664
9742	9842	0.10097	354.16891	35.76043484
9743	9654	0.03570	2519.68652	89.95280876
9743	10006	0.13498	4300.94775	580.5419273
9744	9739	0.01664	34715.98438	577.6739801
9748	1024	0.16406	93.50710	15.34077483
9748	1025	0.08631	68.89186	5.946056437
9748	9671	0.04692	594.50903	27.89436369
9748	10147	0.18410	202.07726	37.20242357
9756	9818	0.49500	33807.23047	16734.57908
9757	9718	0.01919	10971.80273	210.5488944
9764	9618	0.05581	1246.46790	69.5653735
9764	9864	0.05524	1135.03174	62.69915332
9772	9744	0.25529	32270.68164	8238.382316
9772	9862	0.21216	1254.64514	266.1855129
9778	1364	0.18131	241.11565	43.7166785
9778	1365	0.18200	298.60815	54.3466833
9778	9698	0.05774	4374.08203	252.5594964
9778	9835	0.04208	4583.37598	192.8684612
9782	1109	0.14811	690.82672	102.3183455
9782	1110	0.40623	387.93900	157.59246
9782	9786	0.12069	1139.22571	137.4931509
9782	9796	0.13933	544.36359	75.84617899
9786	9782	0.12069	1146.66492	138.3909892
9786	9799	0.07589	1139.22571	86.45583913
9790	9793	0.05171	544.36359	28.14904124
9790	9796	0.11308	556.37701	62.91511229
9793	9790	0.05171	556.37701	28.77025519
9793	9813	0.05563	544.36359	30.28294651
9796	9782	0.13933	556.37701	77.5200088
9796	9790	0.11308	544.36359	61.55663476
9799	9663	0.63379	991.97766	628.7055211
9799	9680	0.05702	3292.08374	187.7146149
9799	9786	0.07589	1146.66492	87.02040078
9799	9949	0.08000	2047.06543	163.7652344
9802	9518	0.12445	2043.03101	254.2552092
9802	10047	0.12333	1941.47437	239.4420341
9803	10140	0.14748	6874.03027	1013.781984
9806	9676	0.06259	6846.19092	428.5030897
9806	9982	0.08941	6427.81201	574.7106718
9813	1110	0.26512	1131.56348	300.0001098
9813	9793	0.05563	556.37701	30.95125307
9813	9830	0.05948	1661.99402	98.85540431
9818	9823	0.05323	33807.23047	1799.558878

9823	9890	0.53775	33807.23047	18179.83819
9830	9813	0.05948	1687.94055	100.3987039
9830	9866	0.03763	1661.99402	62.54083497
9832	9772	0.49564	33525.32813	16616.49363
9833	10172	0.13162	1650.50330	217.2392443
9834	1465	0.22203	640.49170	142.2083722
9834	9478	0.16377	682.81305	111.8242932
9835	9778	0.04208	4908.64600	206.5558237
9835	9901	0.05220	4583.37598	239.2522262
9842	9742	0.10097	230.91716	23.31570565
9842	9898	0.05733	354.16891	20.30450361
9843	9832	0.05319	33525.32813	1783.212203
9855	9456	0.18457	807.71716	149.0803562
9855	10186	0.12938	665.33807	86.0814395
9862	9744	0.11674	2445.30347	285.4647271
9862	9904	0.07829	1254.64514	98.22616801
9863	1292	0.19195	168.85301	32.41133527
9863	9732	0.09060	692.90479	62.77717397
9863	9907	0.04137	883.67853	36.55778079
9864	9764	0.05524	1246.46790	68.8548868
9864	9971	0.05524	1135.03174	62.69915332
9866	9830	0.03763	1687.94055	63.5172029
9866	9918	0.06075	1661.99402	100.9661367
9876	1087	0.34467	1200.28857	413.7034614
9876	9877	0.01241	967.33057	12.00457237
9876	10097	0.09387	12634.12500	1185.965314
9877	1070	0.19559	408.27933	79.85535415
9877	9757	0.06515	10971.80273	714.8129479
9877	9876	0.01241	563.60596	6.994349964
9879	9690	0.09936	3523.40942	350.08596
9879	10113	0.09603	3001.36011	288.2206114
9890	11067	2.66594	33807.23047	90128.048
9892	1123	0.21183	149.38048	31.64326708
9892	9614	0.13209	4415.14063	583.1959258
9892	10138	0.09552	2453.23682	234.333181
9893	1123	0.12994	99.07821	12.87422261
9893	9716	0.20286	142.14334	28.83519795
9893	10082	0.17071	665.38934	113.5886142
9893	10108	0.09530	583.45660	55.60341398
9897	7980	0.98651	2343.38159	2311.769372
9897	9911	0.01010	2326.05835	23.49318934
9898	9842	0.05733	230.91716	13.23848078
9898	10298	0.26771	354.16891	94.8145589
9899	9900	0.00623	0.00000	0
9899	17732	0.08242	549.27002	45.27083505
9900	9689	0.11736	3154.04663	370.1589125
9900	9899	0.00623	0.00000	0
9901	9835	0.05220	4908.64600	256.2313212
9901	9985	0.06130	4583.37598	280.9609476
9903	9843	0.53371	33525.32813	17892.80288
9904	9719	0.10602	1520.12634	161.1637946
9904	9862	0.07829	2445.30347	191.4428087
9904	10073	0.06643	1459.73413	96.97013826
9907	9863	0.04137	540.41522	22.35697765

9907	9999	0.04626	883.67853	40.8789688
9911	9897	0.01010	2343.38159	23.66815406
9911	12229	1.02387	2326.05835	2381.581363
9918	9866	0.06075	1687.94055	102.5423884
9918	9979	0.04146	1661.99402	68.90627207
9928	7951	1.01756	969.04590	986.062346
9928	13900	2.00474	756.05933	1515.702381
9940	9273	0.31553	9774.41895	3084.122411
9940	9628	0.14702	28943.73242	4255.30754
9944	10210	0.10243	39849.50000	4081.784285
9949	9799	0.08000	2043.78381	163.5027048
9949	10410	0.23537	2047.06543	481.8177903
9957	1992	1.11238	324.51532	360.9843517
9957	8003	1.00107	329.37921	329.7316458
9957	12216	1.00275	661.40546	663.224325
9964	9630	0.16647	4215.84277	701.8113459
9964	10132	0.05699	4018.94263	229.0395405
9971	9864	0.05524	1246.46790	68.8548868
9971	10121	0.05245	1135.03174	59.53241476
9979	9918	0.04146	1687.94055	69.9820152
9979	9994	0.02239	1661.99402	37.21204611
9982	9806	0.08941	6846.19092	612.1179302
9982	10077	0.03577	6427.81201	229.9228356
9985	9901	0.06130	4908.64600	300.8999998
9985	10022	0.06005	4583.37598	275.2317276
9987	1992	2.04295	420.12494	858.2942462
9987	8025	1.00051	1414.38513	1415.106466
9987	12116	0.91706	1839.33130	1686.777162
9994	1106	0.17636	91.27242	16.09680399
9994	1107	0.13636	926.50549	126.3382886
9994	9979	0.02239	1687.94055	37.79298891
9994	10020	0.03382	2151.77319	72.77296929
9996	1272	0.16611	2303.11475	382.5703911
9996	9584	0.20772	1061.52295	220.4995472
9996	11027	0.42307	2573.07300	1088.589994
9999	1291	0.37002	936.42578	346.4962671
9999	9907	0.04626	540.41522	24.99960808
9999	10153	0.04756	1399.71082	66.5702466
10002	8043	0.99772	3232.77734	3225.406608
10002	10651	0.26987	3396.66309	916.6574681
10004	10005	0.05929	4010.88257	237.8052276
10004	10006	0.08825	2092.77148	184.6870831
10005	10004	0.05929	2092.77148	124.080421
10005	10079	0.07841	4010.88257	314.4933023
10006	9743	0.13498	2519.68652	340.1072865
10006	10004	0.08825	4010.88257	353.9603868
10006	10008	0.00829	1503.06128	12.46037801
10007	10008	0.08825	742.11560	65.4917017
10007	10010	0.10136	534.56250	54.183255
10008	10006	0.00829	1639.91101	13.59486227
10008	10007	0.08825	534.56250	47.17514063
10008	10319	0.12884	1457.96216	187.8438447
10009	1237	0.24661	196.46596	48.4504704
10009	1238	0.25080	28.20541	7.073916828

10009	10010	0.03585	742.11560	26.60484426
10009	10012	0.08688	365.42465	31.74809359
10010	10007	0.10136	742.11560	75.22083722
10010	10009	0.03585	534.56250	19.16406563
10011	10012	0.03861	369.65320	14.27231005
10011	10013	0.06550	365.42465	23.93531458
10012	10009	0.08688	369.65320	32.11547002
10012	10011	0.03861	365.42465	14.10904574
10013	10011	0.06550	369.65320	24.2122846
10013	10016	0.07998	365.42465	29.22666351
10016	1272	0.15964	626.21429	99.96884926
10016	9543	0.22368	1231.50146	275.4622466
10016	10013	0.07998	369.65320	29.56486294
10016	10645	0.26551	1516.36182	402.6092268
10019	6323	2.00235	467.93896	936.9775766
10019	10308	0.11700	473.95166	55.45234422
10020	9994	0.03382	2235.95728	75.62007521
10020	10058	0.07050	2151.77319	151.7000099
10022	9985	0.06005	4908.64600	294.7641923
10022	10036	0.06469	4583.37598	296.4985921
10026	8952	0.50453	1341.18689	676.6690216
10026	11695	0.62504	709.49371	443.4619485
10026	29907	0.64764	1427.24512	924.3410295
10030	10050	0.49575	1442.47791	715.1084239
10030	29907	0.34936	1466.73254	512.4176802
10034	10036	0.05240	4039.04810	211.6461204
10034	10037	0.04965	3971.39624	197.1798233
10036	9668	0.18136	2461.10547	446.346088
10036	10022	0.06469	4908.64600	317.5403097
10036	10034	0.05240	3971.39624	208.101163
10036	10292	0.09989	4649.13330	464.4019253
10037	10034	0.04965	4039.04810	200.5387382
10037	10041	0.04827	3971.39624	191.6992965
10038	1929	0.92575	374.15744	346.3762501
10038	10065	1.04554	94.08652	98.37122012
10038	10073	1.00249	291.54837	292.2743254
10039	10041	0.04964	4039.04810	200.4983477
10039	10042	0.05033	3971.39624	199.8803728
10041	10037	0.04827	4039.04810	194.9648518
10041	10039	0.04964	3971.39624	197.1401094
10042	1385	0.24781	256.58914	63.58535478
10042	1386	0.15570	249.07671	38.78124375
10042	10039	0.05033	4039.04810	203.2852909
10042	10044	0.05034	4083.42432	205.5595803
10043	10045	0.05033	4051.17041	203.8954067
10043	10047	0.05241	4083.42432	214.0122686
10044	10042	0.05034	4051.17041	203.9359184
10044	10046	0.04827	4083.42432	197.1068919
10045	10043	0.05033	4083.42432	205.518746
10045	10046	0.05033	4051.17041	203.8954067
10046	10044	0.04827	4051.17041	195.5499957
10046	10045	0.05033	4083.42432	205.518746
10047	9802	0.12333	2043.03101	251.9670145
10047	10043	0.05241	4051.17041	212.3218412

10047	10049	0.05102	3494.63916	178.2964899
10047	10354	0.13078	2424.18701	317.0351772
10048	1442	0.24420	0.00000	0
10049	10047	0.05102	3077.82031	157.0303922
10049	10053	0.11790	3494.63916	412.017957
10050	10030	0.49575	1466.73254	727.1326567
10050	10081	0.61629	1442.47791	888.9847112
10053	10049	0.11790	3077.82031	362.8750145
10053	10055	0.05171	3494.63916	180.707791
10054	1409	0.24930	575.32269	143.4279466
10054	1410	0.14455	163.15851	23.58456262
10054	10055	0.05516	3077.82031	169.7725683
10054	10063	0.05658	4357.81885	246.5653905
10055	10053	0.05171	3077.82031	159.1540882
10055	10054	0.05516	3494.63916	192.7642961
10058	10020	0.07050	2235.95728	157.6349882
10058	10072	0.04695	2151.77319	101.0257513
10059	9544	0.24091	2413.05688	581.329533
10059	10630	0.24393	2414.22754	588.9025238
10060	10061	0.02827	4357.81885	123.1955389
10060	10062	0.05585	3793.06616	211.842745
10061	10060	0.02827	3793.06616	107.2299803
10061	30180	0.02388	4357.81885	104.0647141
10062	10060	0.05585	4357.81885	243.3841828
10062	10063	0.05240	3793.06616	198.7566668
10063	10054	0.05658	3793.06616	214.6116833
10063	10062	0.05240	4357.81885	228.3497077
10064	30180	0.00370	3320.25146	12.2849304
10064	30181	0.00370	4838.96729	17.90417897
10065	10038	1.04554	90.84252	94.97948836
10065	10254	0.46137	94.08652	43.40869773
10067	10068	0.01931	3648.99194	70.46203436
10067	10075	0.08619	3987.36060	343.6706101
10068	10067	0.01931	3987.36060	76.99593319
10068	30181	0.03354	3648.99194	122.3871897
10070	1444	0.23351	0.00000	0
10071	1426	0.22761	1033.23511	235.1746434
10071	1427	0.17832	93.01555	16.58653288
10071	10075	0.04720	3648.99194	172.2324196
10071	10080	0.05141	3236.80835	166.4043173
10072	10058	0.04695	2235.95728	104.9781943
10072	10077	0.09928	2151.77319	213.6280423
10073	9904	0.06643	1451.49707	96.42295036
10073	10038	1.00249	284.44785	285.1561251
10073	12318	1.00388	1176.41931	1180.983817
10074	1443	0.19338	0.00000	0
10075	10067	0.08619	3648.99194	314.5066153
10075	10071	0.04720	3987.36060	188.2034203
10076	10077	0.12342	2318.57031	286.1579477
10076	10078	0.06619	1905.85938	126.1488324
10077	9982	0.03577	6846.19092	244.8882492
10077	10072	0.09928	2235.95728	221.9858388
10077	10076	0.12342	1905.85938	235.2211647
10077	10361	0.13133	4351.70166	571.508979

10078	1092	0.18132	389.12228	70.55565181
10078	1093	0.24939	848.64203	211.6428359
10078	10076	0.06619	2318.57031	153.4661688
10078	10084	0.05516	1656.13708	91.35252133
10079	1216	0.26844	139.93436	37.5639796
10079	1217	0.21862	654.09021	142.9972017
10079	10005	0.07841	2092.77148	164.0942117
10079	10170	0.09921	3500.95459	347.3297049
10080	10071	0.05141	2589.50146	133.1262701
10080	10115	0.08089	3236.80835	261.8254274
10081	1769	1.74057	563.93604	981.5701531
10081	1779	0.76694	84.83386	65.06248059
10081	10050	0.61629	1466.73254	903.9325971
10081	10130	0.88962	837.27667	744.8580712
10082	9893	0.17071	587.04492	100.2144383
10082	10138	0.09378	665.38934	62.40021231
10083	1147	0.50340	92.49591	46.56244109
10083	1511	0.32449	19.77763	6.417643159
10083	9067	0.49319	358.23428	176.6775646
10083	10927	0.34329	570.61945	195.887951
10084	10078	0.05516	2108.01514	116.2781151
10084	10085	0.06964	1656.13708	115.3333863
10085	10084	0.06964	2108.01514	146.8021743
10085	10086	0.06205	1656.13708	102.7633058
10086	10085	0.06205	2108.01514	130.8023394
10086	10089	0.08412	1183.03308	99.51674269
10086	10233	0.06094	473.10406	28.83096142
10087	10089	0.03932	1641.64758	64.54958285
10087	10090	0.03105	1183.03308	36.73317713
10089	10086	0.08412	1641.64758	138.0953944
10089	10087	0.03932	1183.03308	46.51686071
10090	10087	0.03105	1641.64758	50.97315736
10090	10091	0.03841	1183.03308	45.4403006
10091	1089	0.25076	1191.33728	298.7397363
10091	10090	0.03841	1641.64758	63.05568355
10091	10092	0.08914	2362.78735	210.6188644
10092	1087	0.17475	415.45660	72.60104085
10092	10091	0.08914	2832.98486	252.5322704
10092	10102	0.09378	1956.13977	183.4467876
10095	10099	0.03034	1956.13977	59.34928062
10095	10102	0.06275	2388.16138	149.8571266
10096	10098	0.06619	3537.93506	234.1759216
10096	10104	0.06137	4496.21777	275.9328845
10097	10098	0.01310	5009.30811	65.62193624
10097	10101	0.12204	2305.79248	281.3989143
10097	10255	0.06649	9034.94141	600.7332544
10098	9877	0.09388	10588.02344	994.0036405
10098	10096	0.06619	4496.21777	297.6046542
10098	10097	0.01310	1785.68933	23.39253022
10099	10095	0.03034	2388.16138	72.45681627
10099	10101	0.02827	1956.13977	55.3000713
10101	1088	0.25119	25.91250	6.508960875
10101	10097	0.12204	1930.22729	235.5649385
10101	10099	0.02827	2388.16138	67.51332221

10102	10092	0.09378	2388.16138	223.9617742
10102	10095	0.06275	1956.13977	122.7477706
10104	1070	0.17237	163.51958	28.18587
10104	10096	0.06137	3537.93506	217.1230746
10104	10112	0.05865	4675.61621	274.2248907
10105	1024	0.18297	159.30312	29.14769187
10105	10107	0.02254	865.69897	19.51285478
10105	10147	0.13265	805.14630	106.8026567
10107	10105	0.02254	708.43457	15.96811521
10107	10117	0.08082	865.69897	69.96579076
10108	1011	0.10790	389.65970	42.04428163
10108	9893	0.09530	717.27625	68.35642663
10108	10287	0.09033	199.79459	18.04744531
10110	10111	0.02528	3027.04443	76.52368319
10110	10114	0.08069	3999.32739	322.7057271
10111	10110	0.02528	3999.32739	101.1029964
10111	10112	0.03265	3027.04443	98.83300064
10112	1071	0.28804	1152.61401	331.9989394
10112	10104	0.05865	3701.45459	217.0903117
10112	10111	0.03265	3999.32739	130.5780393
10113	9879	0.09603	3523.40942	338.3530066
10113	10116	0.05506	2051.04980	112.930802
10113	10617	0.22758	3420.84644	778.5162328
10114	10110	0.08069	3027.04443	244.2522151
10114	10118	0.06828	3999.32739	273.0740742
10115	10080	0.08089	2589.50146	209.4647731
10115	10116	0.10854	3367.18335	365.4740808
10115	10406	0.14042	590.40729	82.90499166
10116	1429	0.24759	1005.55457	248.965256
10116	10113	0.05506	2361.62866	130.031274
10116	10115	0.10854	3085.25928	334.8740423
10117	9716	0.21691	17.60179	3.818004269
10117	10107	0.08082	708.43457	57.25568195
10117	10191	0.09078	891.57941	80.93757884
10118	10114	0.06828	3027.04443	206.6865937
10118	10120	0.07377	3999.32739	295.0303816
10119	10125	0.06207	2928.19360	181.7529768
10119	10132	0.06625	3890.68286	257.7577395
10120	10118	0.07377	3027.04443	223.3050676
10120	10122	0.04896	3999.32739	195.807069
10121	1343	0.15618	116.94923	18.26513074
10121	1365	0.15045	614.83661	92.50216797
10121	9971	0.05245	1246.46790	65.37724136
10121	10194	0.02400	1111.84802	26.68435248
10122	1054	0.14742	294.22443	43.37456547
10122	1055	0.20961	217.99373	45.69366575
10122	10120	0.04896	3027.04443	148.2040953
10122	10125	0.04689	3890.68286	182.4341193
10125	10119	0.06207	3890.68286	241.4946851
10125	10122	0.04689	2928.19360	137.3029979
10127	10129	0.03584	2596.09229	93.04394767
10127	10132	0.11998	2082.56421	249.8660539
10129	1040	0.13741	459.33374	63.11704921
10129	1041	0.11903	266.07846	31.67131909

10129	10127	0.03584	2082.56421	74.63910129
10129	10133	0.07178	2682.36084	192.5398611
10130	10081	0.88962	860.68347	765.6812286
10130	10139	0.52988	1025.74390	543.5211777
10130	12322	0.99270	185.75446	184.3984524
10131	9247	0.40171	2623.95313	1054.068212
10131	10138	0.10208	5596.05127	571.2449136
10131	10657	0.23428	3379.73315	791.8038824
10132	9964	0.05699	4215.84277	240.2608795
10132	10119	0.06625	2928.19360	193.992826
10132	10127	0.11998	2596.09229	311.479153
10132	10263	0.05866	5642.33789	330.9795406
10133	10129	0.07178	2163.61865	155.3045467
10133	10140	0.08485	2682.36084	227.5983173
10136	1025	0.16005	393.08609	62.9134287
10136	10141	0.04874	1915.87195	93.37959884
10136	10147	0.07606	2100.20166	159.7413383
10137	17712	0.00942	765.94464	7.215198509
10138	1126	0.18237	186.71852	34.05185649
10138	9892	0.09552	4564.52100	436.0030459
10138	10082	0.09378	587.04492	55.0530726
10138	10131	0.10208	3571.93433	364.6230564
10138	10324	0.09104	375.83054	34.21561236
10139	1769	1.44462	212.87224	307.5194953
10139	1770	0.99833	192.75949	192.4375817
10139	10130	0.52988	1046.43799	554.4865621
10139	10156	0.03763	1143.08276	43.01420426
10140	10133	0.08485	2163.61865	183.5830425
10140	10141	0.00965	2553.89404	24.64507749
10140	10341	0.10284	6695.73779	688.5896743
10141	9583	0.24971	4057.57715	1013.21759
10141	10136	0.04874	2437.78955	118.8178627
10141	10140	0.00965	1856.85938	17.91869302
10147	9748	0.18410	418.13889	76.97936965
10147	10105	0.13265	1018.99860	135.1701643
10147	10136	0.07606	1537.58093	116.9484055
10147	10301	0.07543	716.54773	54.04919527
10153	9999	0.04756	1056.95068	50.26857434
10153	10258	0.05133	1399.71082	71.84715639
10156	10139	0.03763	1162.34546	43.73905966
10156	10180	0.43508	1143.08276	497.3324472
10166	10168	0.06550	1597.76355	104.6535125
10166	10172	0.05240	3500.95459	183.4500205
10168	10166	0.06550	3500.95459	229.3125256
10168	10170	0.05723	1597.76355	91.44000797
10170	10079	0.09921	1597.76355	158.5141218
10170	10168	0.05723	3500.95459	200.3596312
10172	10166	0.05240	1597.76355	83.72281002
10172	10173	0.00758	4179.28955	31.67901479
10172	10827	0.28221	1288.46594	363.6179729
10173	9834	0.13162	1307.33936	172.0720066
10173	10172	0.00758	1914.06116	14.50858359
10173	10174	0.09170	4036.86523	370.1805416
10174	10173	0.09170	1783.77747	163.572394

10174	10175	0.05102	4036.86523	205.960864
10175	1465	0.28641	21.87267	6.264551415
10175	1466	0.24112	364.36096	87.85471468
10175	10174	0.05102	1783.77747	91.00832652
10175	10176	0.06550	3932.40430	257.5724817
10176	10175	0.06550	935.52832	61.27710496
10176	17392	0.08381	3932.40430	329.5748044
10178	17577	0.00762	0.00000	0
10179	10181	0.08067	155.69492	12.5599092
10179	17707	0.00642	3919.99121	25.16634357
10180	10156	0.43508	1162.34546	505.7132627
10180	10203	0.99845	1143.08276	1141.310982
10181	10179	0.08067	8.90146	0.718080778
10181	10182	0.04245	155.69492	6.609249354
10182	1205	0.28443	3.56574	1.014203428
10182	1467	0.22631	3.58696	0.811764918
10182	10181	0.04245	8.90146	0.377866977
10182	10183	0.02103	155.69492	3.274264168
10183	10182	0.02103	8.90146	0.187197704
10183	10184	0.05723	155.69492	8.910420272
10184	10183	0.05723	8.90146	0.509430556
10184	10186	0.09585	155.69492	14.92335808
10186	9855	0.12938	807.71716	104.5024462
10186	10184	0.09585	8.90146	0.853204941
10186	10584	0.19728	668.64984	131.9112404
10187	1484	0.29781	0.00033	9.82773E-05
10187	1485	0.21117	0.00033	6.96861E-05
10190	10596	0.20001	1556.10022	311.235605
10191	1011	0.10589	432.12216	45.75741552
10191	1129	0.11705	91.55824	10.71689199
10191	10117	0.09078	726.03638	65.90958258
10191	10211	0.03707	495.99637	18.38658544
10192	17628	0.00940	142.86536	1.342934384
10194	10121	0.02400	1220.53650	29.292876
10194	10285	0.04966	1111.84802	55.21437267
10200	9492	0.30433	4773.88037	1452.835013
10200	10204	0.00967	0.00000	0
10203	9138	0.50461	987.57324	498.3393326
10203	10180	0.99845	1162.34546	1160.543825
10203	10561	0.17553	793.94830	139.3617451
10204	10200	0.00967	0.00000	0
10204	10804	0.25372	4874.11963	1236.661633
10210	10587	0.18123	29032.56641	5261.57201
10210	10591	0.18194	10816.93262	1968.032721
10211	10191	0.03707	350.51926	12.99374897
10211	10287	0.09175	495.99637	45.50766695
10213	9940	0.10411	38718.15234	4030.94684
10218	8177	0.99884	2304.95068	2302.276937
10218	11557	0.49473	2374.34351	1174.658965
10219	9150	0.50481	540.80573	273.0041406
10219	11341	0.43337	540.49731	234.2353192
10233	10086	0.06094	466.36758	28.42044033
10233	10335	0.05785	473.10406	27.36906987
10254	10065	0.46137	90.84252	41.91201345

10254	10434	0.51046	94.08652	48.027405
10255	10370	0.06202	9034.94141	560.3470662
10258	10153	0.05133	1056.95068	54.2532784
10258	10426	0.08592	1399.71082	120.2631537
10263	10132	0.05866	5390.27686	316.1936406
10263	10395	0.06648	5642.33789	375.1026229
10285	10194	0.04966	1220.53650	60.61184259
10285	10411	0.06305	1111.84802	70.10201766
10287	1126	0.15877	209.71695	33.29676015
10287	10108	0.09033	339.96600	30.70912878
10287	10211	0.09175	350.51926	32.16014211
10287	10624	0.16685	12.37694	2.065092439
10290	10141	0.07095	3882.45996	275.4605342
10292	1366	0.12062	142.37801	17.17363557
10292	10036	0.09989	5234.77148	522.9013231
10292	10418	0.06083	4615.24951	280.7456277
10298	9601	0.39798	209.77113	83.48471432
10298	9898	0.26771	230.91716	61.8188329
10298	10402	0.06604	441.48190	29.15546468
10301	1026	0.24878	259.45789	64.54793387
10301	10147	0.07543	583.84094	44.0391221
10301	10487	0.11407	457.08984	52.14023805
10308	10019	0.11700	467.93896	54.74885832
10308	10483	0.08678	473.95166	41.12952505
10310	10098	0.09555	8322.68750	795.2327906
10319	10008	0.12884	1387.25879	178.7344225
10319	10459	0.06358	1457.96216	92.69723413
10324	10138	0.09104	388.91470	35.40679429
10324	10385	0.02808	375.83054	10.55332156
10325	9707	0.28455	2234.50464	635.8282953
10335	10233	0.05785	466.36758	26.9793645
10335	10458	0.05141	473.10406	24.32227972
10337	1927	0.91304	0.00000	0
10341	10467	0.05091	6695.73779	340.8800109
10354	1386	0.25127	359.59430	90.35525976
10354	1410	0.23261	522.60492	121.5631304
10354	10047	0.13078	2910.30835	380.610126
10354	10436	0.03781	2527.86377	95.57852914
10361	1107	0.25091	296.77908	74.46483896
10361	10077	0.13133	4441.55371	583.3092487
10361	10438	0.03241	4646.29492	150.5864184
10370	10374	0.01380	0.00000	0
10370	10466	0.03856	9034.94141	348.3873408
10374	10310	0.03353	8322.68750	279.0597119
10374	10370	0.01380	0.00000	0
10385	1125	0.10763	208.18146	22.40657054
10385	10324	0.02808	388.91470	10.92072478
10385	10698	0.16897	261.86676	44.24762644
10395	10263	0.06648	5390.27686	358.3456057
10395	10499	0.05339	5642.33789	301.2444199
10402	10298	0.06604	440.68829	29.10305467
10402	10766	0.16973	441.48190	74.93272289
10406	1427	0.17891	167.69083	30.0015664
10406	10115	0.14042	225.02466	31.59796276

10406	10678	0.10855	719.55701	78.10791344
10410	1144	0.32056	1074.74451	344.5201001
10410	9949	0.23537	2043.78381	481.0453954
10410	10494	0.05320	1407.70227	74.88976076
10411	10285	0.06305	1220.53650	76.95482633
10411	10610	0.08649	1111.84802	96.16373525
10418	1386	0.25030	326.22690	81.65459307
10418	10292	0.06083	5209.25928	316.879242
10418	10527	0.05078	4934.21533	250.5594545
10426	10258	0.08592	1056.95068	90.81320243
10426	10597	0.07543	1399.71082	105.5801872
10434	10254	0.51046	90.84252	46.37147276
10434	10573	0.34430	94.08652	32.39398884
10436	10354	0.03781	3000.92578	113.4650037
10436	10544	0.04967	2527.86377	125.5589935
10438	10361	0.03241	4738.33301	153.5693729
10438	10638	0.07880	4646.29492	366.1280397
10458	10335	0.05141	466.36758	23.97595729
10458	10577	0.05422	473.10406	25.65170213
10459	10319	0.06358	1387.25879	88.20191387
10459	10568	0.05283	1457.96216	77.02414091
10466	10696	0.08717	9034.94141	787.5758427
10467	10290	0.08386	3882.45996	325.5830922
10467	10500	0.02299	6695.73779	153.9350118
10468	10374	0.03799	8322.68750	316.1788981
10483	966	0.42094	30.53473	12.85328925
10483	10308	0.08678	467.93896	40.60774295
10483	10653	0.06492	501.24033	32.54052222
10487	10301	0.11407	329.72119	37.61129614
10487	10586	0.07115	457.08984	32.52194212
10494	10410	0.05320	1434.42188	76.31124402
10494	10681	0.06691	1407.70227	94.18935889
10499	1041	0.16399	30.36932	4.980264787
10499	1055	0.11453	466.53052	53.43174046
10499	10395	0.05339	5390.27686	287.7868816
10499	10564	0.02654	5599.42725	148.6087992
10500	1041	0.17091	85.25975	14.57174387
10500	10467	0.02299	3882.45996	89.25775448
10500	10978	0.17142	6782.81543	1162.710221
10526	10528	0.05378	454.23904	24.42897557
10526	10539	0.05229	348.58768	18.22764979
10527	10418	0.05078	5534.23779	281.028595
10527	10528	0.05516	348.58768	19.22809643
10527	10710	0.06473	4837.35547	313.1220196
10528	10526	0.05378	348.58768	18.74704543
10528	10527	0.05516	454.23904	25.05582545
10531	10173	0.17987	1295.19873	232.9673956
10539	1366	0.10316	56.41370	5.819637292
10539	10526	0.05229	454.23904	23.7521594
10539	10631	0.05904	409.64133	24.18522412
10544	10436	0.04967	3000.92578	149.0559835
10544	10713	0.05657	2527.86377	143.0012535
10561	1771	0.42502	1042.26294	442.9825948
10561	10203	0.17553	814.34222	142.9414899

10561	12417	0.84453	697.50275	589.0619975
10564	10499	0.02654	5352.51318	142.0556998
10564	10795	0.07788	5599.42725	436.0833942
10568	1217	0.22827	5.82231	1.329058704
10568	1238	0.25151	261.44040	65.754875
10568	10459	0.05283	1387.25879	73.28888188
10568	10738	0.05153	1422.98938	73.32664275
10573	967	0.65203	1.65059	1.076234198
10573	10434	0.34430	90.84252	31.27707964
10573	11446	0.74716	92.43593	69.06442946
10577	10458	0.05422	466.36758	25.28645019
10577	10672	0.02683	473.10406	12.69338193
10581	1467	0.14634	919.12286	134.5044393
10581	10583	0.00678	592.72748	4.018692314
10581	17628	0.19455	3923.91943	763.3985251
10583	1466	0.16441	158.62543	26.07960695
10583	10581	0.00678	495.58881	3.360092132
10583	16734	0.06257	4266.53564	266.957135
10584	1467	0.18657	54.27938	10.12690393
10584	1485	0.17029	18.95634	3.228075139
10584	10186	0.19728	664.23541	131.0403617
10584	11246	0.23791	612.70703	145.7691295
10586	1026	0.16478	79.98922	13.18062367
10586	1129	0.16480	149.97974	24.71666115
10586	10487	0.07115	329.72119	23.45966267
10586	10601	0.15916	383.95160	61.10973666
10587	10634	0.01235	29032.56641	358.5521952
10589	10213	0.18045	38718.15234	6986.69059
10591	10628	0.01124	10816.93262	121.5823226
10594	10325	0.12324	2234.50464	275.3803518
10594	10600	0.02006	3850.69873	77.24501652
10594	10602	0.03324	2764.50293	91.89207739
10596	10602	0.01936	1530.98621	29.63989303
10596	10603	0.07172	574.45270	41.19974764
10596	10864	0.09111	2805.84058	255.6401352
10597	10426	0.07543	1056.95068	79.72578979
10597	10599	0.06855	1054.78540	72.30553917
10597	10855	0.08784	1236.18762	108.5867205
10599	1294	0.11949	3596.74609	429.7751903
10599	10597	0.06855	1211.42371	83.04309532
10599	10600	0.04384	3744.36304	164.1528757
10600	10594	0.02006	3744.36304	75.11192258
10600	10599	0.04384	3850.69873	168.8146323
10601	10586	0.15916	254.54433	40.51327556
10601	10624	0.09469	383.95160	36.356377
10602	10594	0.03324	1530.98621	50.88998162
10602	10596	0.01936	2764.50293	53.52077672
10603	10596	0.07172	590.67633	42.36330639
10603	10604	0.01786	574.45270	10.25972522
10604	1342	0.16615	184.57178	30.66660125
10604	10603	0.01786	590.67633	10.54947925
10604	10607	0.08488	528.81091	44.88547004
10605	1345	0.14422	52.55733	7.579818133
10605	10610	0.03569	820.03723	29.26712874

10605	10614	0.02775	721.28192	20.01557328
10606	1343	0.17356	373.94635	64.90212851
10606	10611	0.02670	720.09320	19.22648844
10606	10616	0.02502	785.82184	19.66126244
10607	1344	0.16200	233.46771	37.82176902
10607	10604	0.08488	551.63202	46.82252586
10607	10613	0.06137	796.03326	48.85256117
10610	10411	0.08649	1220.53650	105.5642019
10610	10605	0.03569	751.55444	26.82297796
10610	10615	0.06068	370.18259	22.46267956
10610	10963	0.12445	1233.44226	153.5018893
10611	10606	0.02670	796.03326	21.25408804
10611	10613	0.05447	720.09320	39.2234766
10613	10607	0.06137	720.09320	44.19211968
10613	10611	0.05447	796.03326	43.35993167
10614	10605	0.02775	785.82184	21.80655606
10614	10616	0.06205	721.28192	44.75554314
10615	10610	0.06068	282.10077	17.11787472
10615	10619	0.06206	370.18259	22.97353154
10616	10606	0.02502	721.28192	18.04647364
10616	10614	0.06205	785.82184	48.76024517
10617	1429	0.06150	1382.67725	85.03465088
10617	1443	0.19987	483.97009	96.73110189
10617	10113	0.22758	3632.31689	826.6426778
10617	10729	0.03575	3591.78345	128.4062583
10618	1485	0.20094	0.00000	0
10619	1365	0.23395	49.70458	11.62838649
10619	10615	0.06206	282.10077	17.50717379
10619	10623	0.09515	424.80682	40.42036892
10623	10619	0.09515	331.80533	31.57127715
10623	10627	0.02485	424.80682	10.55644948
10624	10287	0.16685	12.05865	2.011985753
10624	10601	0.09469	254.54433	24.10280261
10624	10697	0.09577	301.73563	28.89722129
10624	11066	0.16634	126.25246	21.0008342
10627	10623	0.02485	331.80533	8.245362451
10627	10631	0.04345	424.80682	18.45785633
10628	11022	0.14555	10816.93262	1574.404543
10629	10589	0.01180	38718.15234	456.8741976
10630	1444	0.14445	344.66867	49.78738938
10630	1451	0.30406	1102.77405	335.3094776
10630	10059	0.24393	2413.05688	588.6169647
10630	11406	0.25625	2948.82983	755.6376439
10631	1367	0.10708	82.16249	8.797959429
10631	10539	0.05904	510.65274	30.14893777
10631	10627	0.04345	331.80533	14.41694159
10634	10675	0.01124	29032.56641	326.3260464
10638	1093	0.21216	283.67044	60.18352055
10638	10438	0.07880	4738.33301	373.3806412
10638	10812	0.05961	4904.64111	292.3656566
10645	1238	0.24770	1000.91107	247.925672
10645	10016	0.26551	1377.00818	365.6094419
10645	11265	0.22702	1676.75415	380.6567271
10651	968	0.57687	63.62371	36.70260959

10651	10002	0.26987	3232.77734	872.4296207
10651	11084	0.16629	3333.03931	554.2511069
10653	10483	0.06492	495.02408	32.13696327
10653	10800	0.04965	501.24033	24.88658238
10655	10735	0.02511	3279.42505	82.34636301
10656	30149	0.01999	3628.18091	72.52733639
10657	1151	0.33997	465.15829	158.1398639
10657	10131	0.23428	7420.59668	1738.49739
10657	11064	0.15267	3420.68872	522.2365469
10672	1089	0.16755	481.25928	80.63499236
10672	1093	0.17128	8.24879	1.412852751
10672	10577	0.02683	466.36758	12.51264217
10672	10903	0.08606	0.00000	0
10675	10767	0.03318	29032.56641	963.3005535
10678	1429	0.14762	183.63510	27.10821346
10678	10406	0.10855	392.71548	42.62926535
10678	10862	0.07036	2429.54102	170.9425062
10681	10494	0.06691	1434.42188	95.97716799
10681	10836	0.06294	1407.70227	88.60078087
10692	10629	0.01764	38718.15234	682.9882073
10695	1071	0.25010	537.15845	134.3433283
10695	10468	0.08661	8322.68750	720.8279644
10695	10696	0.01311	644.52051	8.449663886
10696	1088	0.12727	374.39993	47.64987909
10696	10695	0.01311	205.85289	2.698731388
10696	11030	0.12795	9413.60840	1204.471195
10697	10624	0.09577	278.21771	26.64491009
10697	10739	0.12559	301.73563	37.89497777
10698	10385	0.16897	280.18494	47.34284931
10698	10739	0.07865	261.86676	20.59582067
10708	1466	0.13393	396.87836	53.15391875
10708	10531	0.06155	1295.19873	79.71948183
10710	10527	0.06473	5331.72705	345.1226919
10710	10803	0.02958	4837.35547	143.0889748
10713	10544	0.05657	3000.92578	169.7623714
10713	11052	0.12941	2527.86377	327.1308505
10729	10617	0.03575	3769.79248	134.7700812
10729	10921	0.06870	3591.78345	246.755523
10735	10788	0.01563	3279.42505	51.25741353
10736	10656	0.02511	3628.18091	91.10362265
10738	10568	0.05153	1357.61963	69.95813953
10738	10845	0.04295	1422.98938	61.11739387
10739	1012	0.12962	284.85898	36.92342099
10739	1126	0.18292	0.72029	0.131755447
10739	10697	0.12559	278.21771	34.9413622
10739	10698	0.07865	280.18494	22.03654553
10766	10402	0.16973	440.68829	74.79802346
10766	12296	0.69107	441.48190	305.0948966
10767	11273	0.18934	29032.56641	5497.026124
10772	10736	0.01453	3628.18091	52.71746862
10788	10896	0.04632	3279.42505	151.9029683
10793	9205	0.70824	931.45807	659.6958635
10793	11554	0.25110	917.28632	230.330595
10795	10564	0.07788	5352.51318	416.8537265

10795	10931	0.06109	5599.42725	342.0690107
10799	10200	0.25370	4773.88037	1211.13345
10799	10804	0.01105	0.00000	0
10800	10653	0.04965	495.02408	24.57794557
10800	10961	0.06295	501.24033	31.55307877
10802	10708	0.03073	1692.07715	51.99753082
10803	10710	0.02958	5331.72705	157.7124861
10803	10856	0.02399	4837.35547	116.0481577
10804	10799	0.01105	0.00000	0
10804	11549	0.24536	4874.11963	1195.913992
10806	9130	0.76659	1402.87268	1075.428168
10806	11972	0.48290	1424.72864	688.0014603
10812	1108	0.25166	528.54639	133.0139845
10812	10638	0.05961	5004.97217	298.3463911
10812	10884	0.03037	4652.73340	141.3035134
10827	1217	0.28425	0.00000	0
10827	11272	0.16290	1440.55005	234.6656031
10836	10681	0.06294	1434.42188	90.28251313
10836	10958	0.04921	821.43732	40.42293052
10836	30059	0.23251	1205.30359	280.2451377
10845	10738	0.04295	1357.61963	58.30976311
10845	11289	0.15728	1422.98938	223.8077697
10855	1293	0.26099	690.97626	180.3378941
10855	10597	0.08784	736.78931	64.71957299
10855	10916	0.01891	1329.74316	25.14544316
10856	1367	0.23073	197.66154	45.60644712
10856	10803	0.02399	5331.72705	127.9081319
10856	10964	0.03906	5018.85254	196.0363802
10862	10678	0.07036	520.13812	36.59691812
10862	11039	0.06967	2429.54102	169.2661229
10864	11022	0.05932	2805.84058	166.4424632
10884	10812	0.03037	4761.97168	144.6210799
10884	11180	0.10842	4652.73340	504.4493552
10896	1428	0.17722	288.13016	51.06242696
10896	10897	0.00965	530.83972	5.122603298
10896	11092	0.08205	2758.59668	226.3428576
10897	1411	0.24348	247.02301	60.14516247
10897	10772	0.04746	3628.18091	172.193466
10897	10896	0.00965	7.21446	0.069619539
10903	10672	0.08606	0.00000	0
10903	11065	0.06595	0.00000	0
10916	10855	0.01891	861.76727	16.29601908
10916	11369	0.15374	1329.74316	204.4347134
10921	10729	0.06870	3769.79248	258.9847434
10921	11151	0.08938	3591.78345	321.0336048
10927	10083	0.34329	283.06183	97.17229562
10927	11448	0.16192	570.61945	92.39470134
10931	10795	0.06109	5352.51318	326.9850302
10931	11466	0.16365	5599.42725	916.3462695
10958	10836	0.04921	898.30701	44.20568796
10958	11254	0.12803	821.43732	105.1686201
10961	10800	0.06295	495.02408	31.16176584
10961	10990	0.13239	1435.14429	189.9987526
10961	11001	0.01351	4424.86377	59.77990953

10963	1367	0.26930	397.52692	107.0539996
10963	10610	0.12445	1361.72974	169.4672661
10963	11071	0.04632	1486.20398	68.84096835
10964	1387	0.13091	3722.14771	487.2663567
10964	10856	0.03906	5529.38867	215.9779215
10964	11208	0.09040	5723.98242	517.4480108
10978	10500	0.17142	3967.71973	680.1465161
10978	11475	0.14748	6782.81543	1000.32962
10990	10961	0.13239	4203.82129	556.5439006
10990	11024	0.07712	1130.84875	87.2110556
10990	11048	0.02565	1137.20154	29.1692195
11001	10961	0.01351	1649.97034	22.29109929
11001	11446	0.13251	4424.86377	586.3386982
11022	11302	0.09542	13622.77344	1299.885042
11024	10990	0.07712	1261.34155	97.27466034
11024	11061	0.08927	1130.84875	100.9508679
11027	9996	0.42307	2133.23926	902.5095337
11027	11296	0.09241	2573.07300	237.7776759
11030	11031	0.01310	0.00000	0
11030	11213	0.06705	9413.60840	631.1824432
11031	10695	0.12851	8764.24121	1126.292638
11031	11030	0.01310	0.00000	0
11039	1428	0.09675	273.85349	26.49532516
11039	10862	0.06967	520.13812	36.23802282
11039	11087	0.02181	2545.40234	55.51522504
11048	10990	0.02565	3775.38574	96.83864423
11048	11124	0.02510	1137.20154	28.54375865
11052	1388	0.09982	987.98218	98.62038121
11052	1411	0.26083	1312.44556	342.3251754
11052	10713	0.12941	3000.92578	388.3498052
11052	11357	0.09049	4418.84473	399.8612596
11061	11024	0.08927	1261.34155	112.5999602
11061	11091	0.09333	1130.84875	105.5421138
11064	1124	0.07937	4.51327	0.35821824
11064	10657	0.15267	7547.52832	1152.281149
11064	11480	0.11244	3420.56787	384.6086513
11065	10903	0.06595	0.00000	0
11066	1012	0.21225	0.39436	0.08370291
11066	1130	0.14460	126.65257	18.31396162
11066	10624	0.16634	20.04481	3.334253695
11066	11417	0.09485	0.00000	0
11067	11083	0.02574	33807.23047	870.1981123
11071	10963	0.04632	1611.18970	74.6303069
11071	11183	0.03460	1486.20398	51.42265771
11083	11163	0.06319	33807.23047	2136.278893
11084	10651	0.16629	3184.04980	529.4756412
11084	11328	0.06999	3333.03931	233.2794213
11087	11039	0.02181	624.64978	13.6236117
11087	11376	0.07763	2545.40234	197.5995837
11088	9903	2.67271	33525.32813	89603.47975
11091	11061	0.09333	1261.34155	117.7210069
11091	11169	0.09265	1130.84875	104.7731367
11092	11371	0.07256	2758.59668	200.1637751
11119	10897	0.08376	3096.99561	259.4043523

11124	11048	0.02510	3775.38574	94.76218207
11124	11241	0.04955	1137.20154	56.34833631
11138	11088	0.02510	33525.32813	841.4857361
11151	10921	0.08938	3769.79248	336.9440519
11151	11386	0.06308	3591.78345	226.5697
11163	11124	0.04807	3775.38574	181.4827925
11163	11241	0.07555	30031.84375	2268.905795
11169	968	0.07016	1482.82788	104.0352041
11169	11091	0.09265	1261.34155	116.8632946
11169	11185	0.04346	521.89886	22.68172446
11180	10884	0.10842	4761.97168	516.2929695
11180	11320	0.03968	4652.73340	184.6204613
11183	1345	0.13601	104.58826	14.22504924
11183	1368	0.23739	879.73993	208.841462
11183	11071	0.03460	1611.18970	55.74716362
11183	11326	0.04074	3179.74316	129.5427363
11185	11169	0.04346	619.97339	26.94404353
11185	11210	0.04705	521.89886	24.55534136
11188	11138	0.05743	33525.32813	1925.359595
11202	11031	0.06035	8764.24121	528.921957
11208	10964	0.09040	6122.83594	553.504369
11208	11336	0.03349	5723.98242	191.6961712
11210	11185	0.04705	619.97339	29.169748
11210	11253	0.09255	521.89886	48.30173949
11213	11458	0.05364	9413.60840	504.9459546
11220	16137	0.00750	652.26605	4.891995375
11220	16534	0.01409	4036.25073	56.87077279
11235	17039	0.00746	4918.80176	36.69426113
11241	11518	0.34958	31169.04492	10896.07472
11246	10584	0.23791	612.24506	145.6592222
11246	14197	0.11262	612.70703	69.00306572
11248	11272	0.10029	772.98914	77.52308085
11248	11293	0.02432	371.96408	9.046166426
11249	1464	0.24582	27.22764	6.693098465
11249	14197	0.08315	4049.48560	336.7147276
11249	15904	0.02661	3840.18628	102.1873569
11252	11265	0.12164	1018.19128	123.8527873
11253	11210	0.09255	619.97339	57.37853724
11253	11332	0.08824	521.89886	46.05235541
11254	10958	0.12803	898.30701	115.0102465
11254	11322	0.03201	821.43732	26.29420861
11258	17078	0.00769	4533.40771	34.86190529
11260	11261	0.03585	1761.55518	63.1517532
11260	11263	0.04758	1684.71606	80.15879013
11261	11260	0.03585	1684.71606	60.39707075
11261	11265	0.03861	1761.55518	68.0136455
11262	11188	0.08048	28967.16016	2331.27705
11262	11346	0.05729	1119.11377	64.11402788
11263	11260	0.04758	1761.55518	83.81479546
11263	11269	0.10253	1684.71606	172.7339376
11264	1238	0.24397	7.82649	1.909428765
11264	1239	0.25189	123.13074	31.0154021
11264	11252	0.11050	1018.19128	112.5101364
11264	11278	0.04969	996.11530	49.49696926

11265	10645	0.22702	1564.67358	355.2121961
11265	11261	0.03861	1684.71606	65.04688708
11265	11290	0.12122	1111.55835	134.7431032
11265	11516	0.05690	894.60010	50.90274569
11266	1202	0.39338	0.02286	0.008992667
11266	1485	0.23268	0.02298	0.005346986
11268	11270	0.05171	918.62616	47.50215873
11268	11289	0.07586	996.11530	75.56530666
11269	1272	0.47330	6.81838	3.227139254
11269	1273	0.11895	108.52055	12.90851942
11269	11263	0.10253	1761.55518	180.6122526
11269	11291	0.18987	1696.86694	322.1841259
11270	11268	0.05171	996.11530	51.50912216
11270	11274	0.04896	918.62616	44.97593679
11272	10802	0.17308	1692.07715	292.8647131
11272	11248	0.10029	370.72150	37.17965924
11272	11276	0.06360	621.40521	39.52137136
11272	11774	0.19019	1580.45374	300.5864968
11273	11377	0.01841	29032.56641	534.4895476
11274	11270	0.04896	996.11530	48.76980509
11274	11278	0.05309	918.62616	48.76986283
11275	10692	0.21703	28248.48633	6130.768988
11276	11272	0.06360	563.63422	35.84713639
11276	11283	0.03724	621.40521	23.14113002
11277	1295	0.09738	474.46277	46.20318454
11277	11285	0.04138	6466.13086	267.568495
11277	11369	0.04990	6328.92627	315.8134209
11278	11264	0.04969	918.62616	45.64653389
11278	11274	0.05309	996.11530	52.88376128
11281	11282	0.03112	621.40521	19.33813014
11281	11286	0.05792	563.63422	32.64569402
11282	1217	0.25965	727.38184	188.8646948
11282	1219	0.24810	44.59400	11.0637714
11282	11281	0.03112	563.63422	17.54029693
11282	11284	0.10748	1012.94537	108.8713684
11283	11276	0.03724	563.63422	20.98973835
11283	11286	0.12549	621.40521	77.9801398
11284	11282	0.10748	1119.59351	120.3339105
11284	11289	0.06895	1012.94537	69.84258326
11285	11304	0.05667	6466.13086	366.4356358
11285	11325	0.00808	0.00000	0
11286	11281	0.05792	621.40521	35.99178976
11286	11283	0.12549	563.63422	70.73045827
11289	10845	0.15728	1357.61963	213.5264154
11289	11268	0.07586	918.62616	69.6869805
11289	11284	0.06895	1119.59351	77.19597251
11289	19287	0.24848	1845.24072	458.5054141
11290	11264	0.11009	1111.55835	122.3714588
11291	11269	0.18987	1781.78796	338.30808
11291	11296	0.01449	1696.86694	24.58760196
11292	11818	0.22511	3679.39087	828.2676787
11292	14197	0.00469	3444.33569	16.15393439
11293	1206	0.23809	1.24259	0.295848253
11293	1466	0.20912	1.23932	0.259166598

11293	17106	0.18972	370.72150	70.33328298
11296	11027	0.09241	2133.23926	197.13264
11296	11291	0.01449	1781.78796	25.81810754
11296	11594	0.08885	3851.65869	342.2198746
11302	11306	0.06343	20963.13867	1329.691886
11302	11344	0.00893	7422.11816	66.27951517
11303	15728	0.01501	848.33032	12.7334381
11303	15904	0.02861	4076.71338	116.6347698
11304	10594	0.24587	3574.35718	878.8271998
11304	10692	0.22082	10469.66406	2311.911218
11304	11302	0.06826	14762.48340	1007.687117
11306	11307	0.06137	20963.13867	1286.50782
11307	1344	0.08510	2366.93506	201.4261736
11307	11317	0.05448	18761.95313	1022.151207
11307	11348	0.00893	2691.51660	24.03524324
11317	11321	0.05309	18761.95313	996.0720917
11318	1345	0.12195	162.21555	19.78218632
11318	11323	0.06049	18599.73633	1125.098051
11318	11353	0.00893	170.85312	1.525718362
11320	11180	0.03968	4761.97168	188.9550363
11320	11397	0.01565	4652.73340	72.81527771
11321	11318	0.07929	18761.95313	1487.635264
11321	11361	0.00948	0.00000	0
11322	11254	0.03201	898.30701	28.75480739
11322	11350	0.07565	821.43732	62.14173326
11323	11326	0.06435	18599.73633	1196.893033
11324	11330	0.12156	619.97339	75.36396529
11324	11370	0.04784	521.89886	24.96764146
11325	11277	0.03924	6759.76807	265.2532991
11325	11285	0.00808	0.00000	0
11326	11183	0.04074	2021.49854	82.35585052
11326	11331	0.17306	17568.94727	3040.482015
11326	11366	0.00781	4362.73926	34.07299362
11328	11084	0.06999	3184.04980	222.8516455
11328	11395	0.01234	3333.03931	41.12970509
11329	11303	0.00717	4925.04346	35.31256161
11330	11324	0.12156	521.89886	63.44202542
11330	11332	0.06072	619.97339	37.64478424
11331	11334	0.06684	18776.69727	1255.034446
11331	11365	0.00725	0.00000	0
11332	11253	0.08824	619.97339	54.70645193
11332	11330	0.06072	521.89886	31.68969878
11333	11338	0.00709	3747.10083	26.56694488
11333	11483	0.03394	1157.02820	39.26953711
11334	1368	0.05424	2431.03540	131.8593601
11334	11335	0.07589	17568.07422	1333.241153
11335	11336	0.18340	17547.49219	3218.210068
11335	11383	0.00837	20.58209	0.172272093
11336	11208	0.03349	6122.83594	205.0537756
11336	11337	0.06412	17112.76367	1097.270407
11336	11388	0.00893	6426.94092	57.39258242
11337	11339	0.10101	17112.76367	1728.560258
11338	11329	0.00777	3747.10083	29.11497345
11339	11340	0.02658	17112.76367	454.8572583

11340	11342	0.05792	17112.76367	991.1712718
11341	1733	0.49987	26.54131	13.26720463
11341	10219	0.43337	540.80573	234.3689792
11341	11603	0.07933	548.39502	43.50417694
11342	1387	0.15781	1758.31812	277.4801825
11342	11343	0.06826	18885.79688	1289.144495
11342	11394	0.00903	0.00000	0
11343	11347	0.07735	19839.58984	1534.592274
11343	11398	0.00893	81.63203	0.728974028
11344	11345	0.06826	13016.65527	888.5168887
11344	11605	0.07923	4479.89697	354.9422369
11344	12011	0.32776	11556.15918	3787.646733
11345	11304	0.00893	22340.37305	199.4995313
11345	11325	0.05882	6759.76807	397.6095579
11346	11188	0.05143	4558.16602	234.4264784
11346	11491	0.03225	1119.11377	36.09141908
11347	1388	0.10335	1288.06531	133.1215498
11347	11357	0.10125	18551.52539	1878.341946
11348	1346	0.23253	839.17572	195.1335302
11348	11307	0.00893	496.40573	4.432903169
11348	11349	0.06136	21630.59375	1327.253233
11349	11344	0.06344	21630.59375	1372.244868
11350	11322	0.07565	898.30701	67.95692531
11350	11367	0.09723	821.43732	79.86835062
11351	11348	0.05448	19373.48047	1055.467216
11353	11318	0.00893	0.00000	0
11353	11361	0.07929	19373.48047	1536.123266
11354	11358	0.10894	17589.40039	1916.189278
11355	11360	0.03861	17589.40039	679.1267491
11356	11355	0.00965	17589.40039	169.7377138
11357	11052	0.09049	3510.19629	317.6376623
11357	11354	0.05171	17589.40039	909.5478942
11357	11401	0.00725	3932.88892	28.51344467
11358	11356	0.01586	17589.40039	278.9678902
11358	11412	0.00893	0.00000	0
11360	11362	0.03310	17589.40039	582.2091529
11360	11418	0.00949	0.00000	0
11361	11321	0.00948	0.00000	0
11361	11351	0.05310	19373.48047	1028.731813
11362	11363	0.05240	17589.40039	921.6845804
11363	11364	0.06964	17589.40039	1224.925843
11364	1411	0.18120	664.20062	120.3531523
11364	11368	0.04689	17420.86523	816.8643706
11364	11420	0.00893	1892.56921	16.90064305
11365	11331	0.00725	1207.74927	8.756182208
11365	11366	0.17306	17256.04883	2986.331811
11366	11326	0.00781	2173.70557	16.9766405
11366	11582	0.06864	2914.17847	200.0292102
11366	29940	0.06499	19202.62695	1247.978725
11367	11350	0.09723	898.30701	87.34239058
11367	11373	0.03448	821.43732	28.32315879
11368	11372	0.07102	17420.86523	1237.229849
11369	10916	0.15374	861.76727	132.4881001
11369	11277	0.05345	6443.67920	344.4146532

11369	11500	0.03842	6840.99561	262.8310513
11370	11324	0.04784	619.97339	29.65952698
11370	11395	0.04367	3393.98633	148.215383
11371	11374	0.08412	16303.27539	1371.431526
11371	11422	0.00893	4435.91064	39.61268202
11372	11119	0.07088	3096.99561	219.5150488
11372	11371	0.01034	17980.58984	185.9192989
11373	11367	0.03448	898.30701	30.9736257
11373	11385	0.22408	821.43732	184.0676747
11374	1428	0.12736	528.20679	67.27241677
11374	11376	0.18202	16324.09277	2971.311366
11374	11427	0.00949	539.17084	5.116731272
11375	1143	0.49508	832.34711	412.0784072
11375	11385	0.02573	898.30701	23.11343937
11375	11393	0.07426	1312.89771	97.49578394
11376	11087	0.07763	624.64978	48.49156242
11376	11380	0.03861	14827.25684	572.4803866
11376	11425	0.00893	3797.19507	33.90895198
11377	12011	0.32193	29032.56641	9346.454104
11378	11382	0.06619	14827.25684	981.4161302
11379	11378	0.00689	14827.25684	102.1597996
11380	11379	0.02482	14827.25684	368.0125148
11382	1429	0.23371	1552.18140	362.760315
11382	11384	0.05447	13275.07520	723.0933461
11383	11335	0.00837	0.00000	0
11383	29939	0.07717	18181.46289	1403.063491
11384	11386	0.03448	13275.07520	457.7245929
11385	11373	0.22408	898.30701	201.2926348
11385	11375	0.02573	821.43732	21.13558224
11386	11151	0.06308	3769.79248	237.7985096
11386	11390	0.16085	17810.90625	2864.88427
11386	11435	0.00896	2100.34521	18.81909308
11387	11275	0.02011	28248.48633	568.0770601
11388	11336	0.00893	6391.06641	57.07222304
11388	11383	0.18341	18160.88086	3330.887159
11388	11647	0.09431	6072.11963	572.6616023
11389	11388	0.06550	16985.39844	1112.543598
11390	11391	0.09431	17810.90625	1679.746568
11391	1443	0.31293	139.02695	43.50570346
11391	11399	0.11317	18102.80664	2048.694627
11391	11440	0.00949	2.19528	0.020833207
11392	11389	0.12618	16985.39844	2143.217575
11393	11375	0.07426	1412.79272	104.9139874
11393	11403	0.04759	1312.89771	62.48080202
11394	11342	0.00903	1758.31812	15.87761262
11394	11392	0.05654	16985.39844	960.3544278
11395	11328	0.01234	3184.04980	39.29117453
11395	11370	0.04367	619.97339	27.07423794
11395	11512	0.16322	2757.57153	450.0908251
11395	11809	0.19652	3184.18774	625.7565747
11397	11320	0.01565	4761.97168	74.52485679
11397	11402	0.04206	1256.94006	52.86689892
11397	11404	0.10549	1412.79272	149.035504
11397	11782	0.16880	3642.54980	614.8624062

11398	1389	0.22150	1115.04565	246.9826115
11398	11343	0.00893	1035.42639	9.246357663
11398	11394	0.06964	18743.71484	1305.312301
11399	1444	0.26366	382.17160	100.7633641
11399	11400	0.03303	17720.63477	585.3125665
11400	11405	0.03861	17720.63477	684.1937085
11401	11357	0.00725	2062.11597	14.95034078
11401	11651	0.09322	1486.97791	138.6160808
11401	29938	0.10093	19697.64258	1988.083066
11402	11397	0.04206	1335.29004	56.16229908
11402	11414	0.16006	1256.94006	201.185826
11403	11393	0.04759	1412.79272	67.23480554
11403	11404	0.02344	1312.89771	30.77432232
11404	11397	0.10549	1312.89771	138.4975794
11404	11403	0.02344	1412.79272	33.11586136
11405	11406	0.06481	17720.63477	1148.474339
11406	10630	0.25625	2548.75391	653.1181894
11406	11437	0.49442	15510.63574	7668.768523
11406	11444	0.00837	3116.07739	26.08156775
11407	11401	0.05172	17820.12305	921.6567641
11409	11410	0.00965	17820.12305	171.9641874
11410	11412	0.01655	17820.12305	294.9230365
11411	11427	0.08912	16857.84961	1502.371557
11412	11358	0.00893	0.00000	0
11412	11407	0.10894	17820.12305	1941.324205
11414	1141	0.08874	162.00061	14.37593413
11414	11402	0.16006	1335.29004	213.7265238
11414	11430	0.18539	1226.33386	227.3500343
11415	11418	0.03378	17820.12305	601.9637566
11417	11066	0.09485	0.00000	0
11418	11360	0.00949	0.00000	0
11418	11409	0.03794	17820.12305	676.0954685
11419	11415	0.05171	17820.12305	921.4785629
11420	1412	0.19115	2957.75854	565.3755449
11420	11364	0.00893	1724.50562	15.39983519
11420	11419	0.06964	17820.12305	1240.993369
11421	11420	0.04896	17558.67773	859.6728617
11422	11423	0.01034	16552.75391	171.1554754
11422	11775	0.16077	4765.66748	766.1763608
11423	11372	0.00893	3656.71899	32.65450058
11423	11421	0.06895	17558.67773	1210.670829
11424	11425	0.03654	14576.45215	532.6235616
11425	11376	0.00893	379.60641	3.389885241
11425	11411	0.09295	16857.84961	1566.937121
11425	11548	0.04242	1556.38586	66.02188818
11427	1430	0.19891	514.50995	102.3411742
11427	11374	0.00949	549.02386	5.210236431
11427	11422	0.08412	16882.50977	1420.156722
11428	11429	0.00689	14576.45215	100.4317553
11429	11424	0.02690	14576.45215	392.1065628
11430	11414	0.18539	1309.19702	242.7120355
11430	11449	0.36612	2149.16919	786.8538238
11430	11599	0.06382	890.55066	56.83494312
11431	1431	0.15120	1970.45178	297.9323091

11431	11428	0.06895	14576.45215	1005.046376
11433	11431	0.05033	14372.26367	723.3560305
11435	11386	0.00896	6814.18604	61.05510692
11435	11433	0.03517	14372.26367	505.4725133
11435	11529	0.03294	3340.55591	110.0379117
11436	1451	0.26183	526.66516	137.8967388
11436	11438	0.14456	15486.82617	2238.775591
11436	11468	0.00952	563.32721	5.362875039
11437	11436	0.01103	15510.63574	171.0823122
11438	1511	0.51849	111.95838	58.04930045
11438	11441	0.10642	15374.86816	1636.19347
11439	11442	0.03930	17136.49609	673.4642963
11440	1445	0.22655	152.26651	34.49597784
11440	11391	0.00949	292.13602	2.77237083
11440	11435	0.25581	17190.34570	4397.462334
11441	11447	0.12756	15374.86816	1961.218182
11442	29945	0.03612	17136.49609	618.9702388
11443	11202	0.05699	8764.24121	499.4741066
11443	11458	0.01352	3255.10547	44.00902595
11444	11406	0.00837	506.00269	4.235242515
11444	11439	0.06413	17136.49609	1098.963494
11444	11567	0.04526	672.24969	30.42602097
11445	11443	0.06895	3798.86523	261.9317576
11446	10573	0.74716	90.32794	67.48942365
11446	11001	0.13251	1649.97034	218.6375698
11446	11491	0.07363	4118.26074	303.2275383
11446	11636	0.07962	3177.67627	253.0065846
11447	11448	0.11790	15374.86816	1812.696956
11448	10927	0.16192	283.06183	45.83337151
11448	11452	0.16341	15197.99902	2483.50502
11448	11478	0.00935	968.38153	9.054367306
11449	1088	0.27517	19.94417	5.488037259
11449	1142	0.24202	1148.67627	278.0026309
11449	11430	0.36612	2199.74780	805.3716645
11449	11458	0.24477	3242.67334	793.7091534
11450	11445	0.18754	3798.86523	712.4391852
11452	11453	0.17927	15197.99902	2724.545284
11453	1148	0.44714	277.98666	124.2989552
11453	11457	0.10894	15103.90918	1645.419866
11453	11485	0.00904	181.86345	1.644045588
11456	1452	0.27932	42.19351	11.78549121
11456	11444	0.33786	14815.16797	5005.45265
11457	11459	0.05089	15103.90918	768.6379382
11458	11449	0.24477	3328.38281	814.6882604
11458	11467	0.01367	4257.97314	58.20649282
11458	11678	0.09276	8325.03125	772.2298988
11459	1147	0.49520	227.28802	112.5530275
11459	11464	0.49657	14876.62109	7387.283735
11461	11450	0.24339	3798.86523	924.6058083
11462	11461	0.01724	3798.86523	65.49243657
11462	11490	0.00894	0.00000	0
11464	11470	0.49988	17079.89063	8537.895728
11464	11497	0.00989	549.17023	5.431293575
11464	30200	0.49202	770.29669	379.0013774

11465	11462	0.14342	3798.86523	544.8332513
11466	10931	0.16365	5352.51318	875.9387819
11466	11465	0.07653	3798.86523	290.7271561
11466	11495	0.00841	6352.39209	53.42361748
11467	11443	0.00726	8220.48145	59.68069533
11467	11471	0.06895	4310.64160	297.2187383
11468	1453	0.37068	561.68457	208.2052364
11468	11436	0.00952	527.91376	5.025738995
11468	11469	0.01034	14857.36133	153.6251162
11469	11456	0.15663	14857.36133	2327.108505
11470	1150	0.51254	88.23026	45.22153746
11470	11480	0.50264	17155.56445	8623.072915
11470	11499	0.00949	87.47787	0.830164986
11471	11477	0.16065	4310.64160	692.504573
11472	1043	0.13432	76.72138	10.30521576
11472	11501	0.12365	10488.99316	1296.964004
11473	29944	0.10843	14824.27930	1607.396604
11474	11473	0.12893	14824.27930	1911.29433
11475	10978	0.14748	3967.71973	585.1593058
11475	11501	0.00838	5499.15918	46.08295393
11475	29954	0.12540	9801.41504	1229.097446
11476	1111	0.28320	455.37384	128.9618715
11476	1144	0.35928	42.44210	15.24859769
11476	11796	0.23970	837.34564	200.7117499
11476	30059	0.05860	1155.15356	67.69199862
11477	1072	0.14408	245.55191	35.37911919
11477	11479	0.02689	4212.68750	113.2791669
11478	11448	0.00935	503.95523	4.711981401
11478	11474	0.11928	14824.27930	1768.240035
11478	11720	0.11698	945.27435	110.5781935
11479	11489	0.24201	4212.68750	1019.512502
11480	11064	0.11244	7548.49219	848.7524618
11480	11482	0.10227	9490.65820	970.6096141
11480	11502	0.00896	3806.89453	34.10977499
11481	11478	0.16341	14379.43359	2349.743243
11482	1124	0.11521	0.00000	0
11482	11492	0.49760	9491.64844	4723.044264
11483	11329	0.03295	1177.94287	38.81321757
11483	11652	0.07500	1157.02820	86.777115
11485	11453	0.00904	91.88904	0.830676922
11485	11481	0.17789	14379.43359	2557.957441
11486	11475	0.22684	9595.27539	2176.592269
11487	11485	0.11584	14289.45898	1655.290928
11488	1130	0.15474	53.03312	8.206344989
11488	11486	0.07263	9595.27539	696.9048516
11489	11490	0.01862	4212.68750	78.44024125
11490	11462	0.00894	0.00000	0
11490	11493	0.15100	4212.68750	636.1158125
11491	11346	0.03225	4558.16602	147.0008541
11491	11446	0.07363	1274.03540	93.8072265
11491	11530	0.09140	1231.85693	112.5917234
11492	11488	0.10117	9491.64844	960.2700727
11493	11495	0.06964	4212.68750	293.3715575
11495	11466	0.00841	77.01614	0.647705737

11495	11472	0.13974	10488.06348	1465.601991
11497	11464	0.00989	2925.13843	28.92961907
11497	12976	0.93560	1791.93848	1676.537642
11497	29941	0.49582	14289.45898	7084.999551
11498	11497	0.43470	15597.84766	6780.384378
11499	1152	0.46941	183.18402	85.98841083
11499	11470	0.00949	161.53760	1.532991824
11499	11498	0.06794	15597.84766	1059.71777
11500	11369	0.03842	6487.77246	249.2602179
11500	11572	0.02960	6840.99561	202.4934701
11501	11475	0.00838	2890.20410	24.21991036
11501	11510	0.27856	12304.38574	3427.509692
11501	12186	0.42129	1919.88525	808.828457
11502	11480	0.00896	269.91309	2.418421286
11502	11499	0.50194	15674.21680	7867.516381
11502	12315	0.47364	535.53516	253.6508732
11510	1027	0.35701	270.39163	96.53251583
11510	29943	0.47268	12122.04004	5729.845886
11512	11395	0.16322	0.00000	0
11512	11521	0.02600	2757.57153	71.69685978
11516	11265	0.05690	799.04749	45.46580218
11516	11591	0.03292	894.60010	29.45023529
11518	11528	0.02387	31169.04492	744.0051022
11521	11527	0.00991	2757.57153	27.32753386
11527	11604	0.16999	2757.57153	468.7595844
11528	11642	0.31209	31169.04492	9727.547229
11529	11435	0.03294	5236.31494	172.4842141
11529	11580	0.02289	3340.55591	76.46532478
11530	11491	0.09140	1826.68384	166.958903
11530	11570	0.09031	1231.85693	111.2489993
11540	11262	0.34819	30086.27539	10475.74023
11546	1295	0.10118	275.36502	27.86143272
11546	11345	0.05616	16083.48633	903.2485923
11548	11425	0.04242	420.19470	17.82465917
11548	11666	0.05135	1556.38586	79.92041391
11549	1732	0.53684	53.65337	28.80327515
11549	11550	0.00965	49.06749	0.473501279
11549	11731	0.09664	4827.70361	466.5492769
11550	10799	0.24592	4773.88037	1173.992661
11550	11549	0.00965	3.65636	0.035283874
11552	11540	0.02173	30086.27539	653.7747642
11554	10793	0.25110	931.45807	233.8891214
11554	11986	0.25055	917.28632	229.8260875
11557	10218	0.49473	2304.95068	1140.32825
11557	11721	0.08561	2374.34351	203.2675479
11567	11444	0.04526	383.50253	17.35732451
11567	11920	0.19771	672.24969	132.9104862
11570	11530	0.09031	1826.68384	164.9678176
11570	11607	0.09090	1231.85693	111.9757949
11572	11500	0.02960	6487.77246	192.0380648
11572	11624	0.02686	6840.99561	183.7491421
11579	11387	0.06416	28248.48633	1812.422883
11580	11529	0.02289	5236.31494	119.859249
11580	11684	0.04912	3340.55591	164.0881063

11582	11366	0.06864	2671.72510	183.3872109
11582	11646	0.02902	2914.17847	84.5694592
11587	11604	0.07949	28296.95703	2249.325114
11591	11516	0.03292	799.04749	26.30464337
11591	11708	0.05411	894.60010	48.40681141
11594	11296	0.08885	3496.74585	310.6858688
11594	11691	0.04675	3851.65869	180.0650438
11599	1141	0.19551	0.00000	0
11599	11430	0.06382	922.83521	58.8953431
11599	11679	0.03941	890.55066	35.09660151
11603	11341	0.07933	548.85889	43.54097574
11603	11979	0.22710	548.39502	124.540509
11604	12341	2.44710	31054.52930	75993.53865
11605	11699	0.04742	4479.89697	212.4367143
11607	11570	0.09090	1826.68384	166.0455611
11607	11632	0.09265	1231.85693	114.1315446
11617	11655	0.27376	27967.95313	7656.506849
11617	11723	0.22429	2211.56934	496.0328873
11624	11572	0.02686	6487.77246	174.2615683
11624	11700	0.03521	6840.99561	240.8714554
11625	11546	0.03662	15702.97363	575.0428943
11626	11617	0.08033	30179.52148	2424.32096
11631	11587	0.27301	28296.95703	7725.352239
11632	11607	0.09265	1826.68384	169.2422578
11632	11713	0.03814	1231.85693	46.98302331
11633	1273	0.23925	0.00000	0
11636	11446	0.07962	3244.90015	258.3589499
11636	11901	0.15227	3177.67627	483.8647656
11637	11631	0.01184	28296.95703	335.0359712
11641	11637	0.01105	28296.95703	312.6813752
11642	11370	0.21799	2872.08740	626.0863323
11642	11641	0.18372	28296.95703	5198.716946
11646	1369	0.24061	1068.55652	257.1053843
11646	11582	0.02902	2671.72510	77.5334624
11646	11743	0.06306	2513.26636	158.4865767
11647	1369	0.25810	212.18279	54.7643781
11647	11388	0.09431	7211.72803	680.1380705
11647	11903	0.15010	6263.73975	940.1873365
11651	11401	0.09322	1493.72412	139.2449625
11651	11730	0.05022	1486.97791	74.67603064
11652	11483	0.07500	1177.94287	88.34571525
11652	11738	0.06289	1157.02820	72.7655035
11655	11670	0.01038	30086.27539	312.2955385
11666	11548	0.05135	420.19470	21.57699785
11666	11751	0.06028	1556.38586	93.81893964
11670	11672	0.01105	30086.27539	332.4533431
11672	11673	0.19965	30086.27539	6006.724882
11673	11552	0.29913	30086.27539	8999.707557
11678	29957	0.05891	8325.03125	490.4275909
11679	11599	0.03941	922.83521	36.36893563
11679	11811	0.09109	890.55066	81.12025962
11684	11580	0.04912	5236.31494	257.2077899
11684	11764	0.04968	3340.55591	165.9588176
11691	1273	0.23522	395.03937	92.92116061

11691	11594	0.04675	3496.74585	163.4728685
11691	11749	0.04690	4246.26270	199.1497206
11695	1780	0.67196	89.79982	60.34188705
11695	1795	0.50046	77.66882	38.87013766
11695	10026	0.62504	675.51141	422.2216517
11695	12995	0.84786	678.14044	574.9681535
11697	11625	0.03292	3710.52246	122.1503994
11699	11842	0.09652	4479.89697	432.3996555
11700	1295	0.08690	165.10033	14.34721868
11700	11624	0.03521	6487.77246	228.4344683
11700	11814	0.08481	7045.36572	597.5174667
11708	11591	0.05411	799.04749	43.23645968
11708	11835	0.09315	894.60010	83.33199932
11713	11632	0.03814	1826.68384	69.66972166
11713	11771	0.03857	1231.85693	47.51272179
11720	11478	0.11698	925.69397	108.2876806
11720	12055	0.20586	945.27435	194.5941777
11721	1732	0.48099	21.58750	10.38337163
11721	1733	0.50897	38.99809	19.84885787
11721	11557	0.08561	2304.95068	197.3268277
11721	12083	0.23332	2357.31812	550.0094638
11723	11655	0.10408	2118.32227	220.4749819
11723	11809	0.10914	2211.56934	241.3706778
11730	11651	0.05022	1493.72412	75.01482531
11730	11804	0.04974	1486.97791	73.96228124
11731	11976	0.14767	4827.70361	712.9069921
11738	11652	0.06289	1177.94287	74.08082709
11738	11824	0.05922	1157.02820	68.51921
11743	11646	0.06306	3009.91479	189.8052267
11743	11866	0.06194	2513.26636	155.6717183
11749	11691	0.04690	3891.78516	182.524724
11749	11857	0.05997	4246.26270	254.6483741
11750	1072	0.23600	117.59275	27.751889
11750	11467	0.14190	8273.14941	1173.959901
11750	11812	0.04219	32.78472	1.383187337
11751	11666	0.06028	420.19470	25.32933652
11751	11847	0.05637	1556.38586	87.73347093
11761	1293	0.32724	194.10446	63.51874349
11761	11877	0.06138	212.40608	13.03748519
11764	11684	0.04968	5236.31494	260.1401262
11764	11825	0.04745	3340.55591	158.5093779
11771	969	0.11320	1163.78772	131.7407699
11771	11713	0.03857	1826.68384	70.45519571
11771	11786	0.04472	68.06921	3.044055071
11774	11272	0.19019	1487.48413	282.9046067
11774	11867	0.05354	1580.45374	84.61749324
11775	1430	0.10262	1946.96521	199.7975699
11775	11776	0.00965	1338.99915	12.9213418
11775	11871	0.05527	4735.57227	261.7350794
11776	1412	0.19257	719.59186	138.5718045
11776	11423	0.16082	4662.64355	749.8463357
11776	11775	0.00965	1308.87097	12.63060486
11782	11397	0.16880	3773.33350	636.9386948
11782	11789	0.07594	2335.32422	177.3445213

11782	12118	0.22085	1378.08667	304.3504411
11786	11771	0.04472	668.45801	29.89344221
11786	11792	0.04716	68.06921	3.210143944
11789	11782	0.07594	2329.96484	176.9375299
11789	11793	0.05511	2335.32422	128.6997178
11792	11786	0.04716	668.45801	31.52447975
11792	11808	0.09109	68.06921	6.200424339
11793	11789	0.05511	2329.96484	128.4043623
11793	11800	0.05122	2335.32422	119.6153065
11796	11476	0.23970	794.20197	190.3702122
11796	11879	0.05392	837.34564	45.14967691
11800	1094	0.52911	2671.17090	1413.343235
11800	1141	0.10130	17.81701	1.804863113
11800	11793	0.05122	2329.96484	119.3407991
11800	11815	0.05504	1520.73523	83.70126706
11804	1389	0.25175	222.90398	56.11607697
11804	11730	0.04974	1493.72412	74.29783773
11804	11912	0.05246	1700.51636	89.20908825
11808	11792	0.09109	668.45801	60.88984013
11808	11836	0.09073	68.06921	6.175919423
11809	11395	0.19652	3018.75659	593.2460451
11809	11723	0.10914	2118.32227	231.1936925
11809	11939	0.07446	2484.81885	185.0196116
11811	1142	0.30759	472.04202	145.1954049
11811	11679	0.09109	922.83521	84.06105928
11811	11820	0.03580	1512.05261	54.13148344
11811	12097	0.18164	125.85799	22.8608453
11812	1142	0.32649	7.52766	2.457705713
11812	11750	0.04219	8209.97363	346.3787874
11812	11921	0.05204	8279.27539	430.8534913
11812	29957	0.03632	0.00000	0
11814	1297	0.10351	82.10632	8.498825183
11814	11700	0.08481	6652.87305	564.2301634
11814	11959	0.07700	7023.58496	540.8160419
11815	11800	0.05504	1512.05261	83.22337565
11815	11821	0.05523	1520.73523	83.99020675
11818	1464	0.08942	11.05561	0.988592646
11818	11292	0.22511	3444.33569	775.3544072
11818	12195	0.25237	3680.75903	928.9131564
11820	11811	0.03580	1520.73523	54.44232123
11820	11821	0.05378	1512.05261	81.31818937
11821	11815	0.05523	1512.05261	83.51066565
11821	11820	0.05378	1520.73523	81.78514067
11824	11738	0.05922	1177.94287	69.75777676
11824	11918	0.04950	1157.02820	57.2728959
11825	1431	0.11709	13.58167	1.59027774
11825	1445	0.16406	430.59714	70.64376679
11825	11764	0.04745	5236.31494	248.4631439
11825	12213	0.25443	3194.09570	812.673769
11834	11835	0.05792	2924.00854	169.3585746
11834	11844	0.06347	2604.10693	165.2826668
11835	1239	0.26280	736.74896	193.6176267
11835	11708	0.09315	799.04749	74.43127369
11835	11834	0.05792	2604.10693	150.8298734

11835	11944	0.05913	3005.14380	177.6941529
11836	969	0.28980	491.30499	142.3801861
11836	11808	0.09073	668.45801	60.64919525
11836	11939	0.31706	556.04187	176.2986353
11841	1273	0.12018	74.93077	9.005179939
11841	1274	0.19902	142.71927	28.40398912
11841	11844	0.12755	2924.00854	372.9572893
11841	11846	0.11929	2577.23364	307.4382009
11842	1346	0.18479	0.00000	0
11842	12032	0.11214	5383.88281	603.7486183
11843	1297	0.08149	35.05752	2.856837305
11843	11697	0.09819	3710.52246	364.3362003
11844	11834	0.06347	2924.00854	185.586822
11844	11841	0.12755	2604.10693	332.1538389
11846	11841	0.11929	2917.33691	348.00912
11846	11859	0.08137	2577.23364	209.7095013
11847	11751	0.05637	420.19470	23.68637524
11847	11925	0.04176	1556.38586	64.99467351
11857	11749	0.05997	3891.78516	233.390356
11857	11858	0.01517	2917.33691	44.25600092
11857	11958	0.06613	6638.47949	439.0026487
11858	11857	0.01517	2577.23364	39.09663432
11858	11859	0.01586	2917.33691	46.26896339
11859	11846	0.08137	2917.33691	237.3837044
11859	11858	0.01586	2577.23364	40.87492553
11866	1346	0.25029	1023.66888	256.214084
11866	1370	0.24560	667.13446	163.8482234
11866	11743	0.06194	3009.91479	186.4341221
11866	12052	0.12332	1298.09888	160.0815539
11867	1206	0.11382	54.08643	6.156117463
11867	1218	0.17520	222.12712	38.91667142
11867	11774	0.05354	1487.48413	79.63990032
11867	12048	0.12046	1417.58923	170.7627986
11871	11982	0.07925	4735.57227	375.2941024
11872	11776	0.05529	4648.57813	257.0198848
11877	11761	0.06138	194.10446	11.91413175
11877	11954	0.05690	212.40608	12.08590595
11879	11796	0.05392	794.20197	42.82337022
11879	12482	0.55193	837.34564	462.1561791
11901	11636	0.15227	3244.90015	494.1009458
11901	11966	0.04143	3177.67627	131.6511279
11903	1370	0.25668	972.25446	249.5582748
11903	1389	0.24988	2095.99438	523.7470757
11903	11647	0.15010	6907.73682	1036.851297
11903	12069	0.11115	6110.38623	679.1694295
11912	11804	0.05246	1716.62817	90.0543138
11912	11989	0.05637	1700.51636	95.85810721
11918	1206	0.17573	9.08766	1.596974492
11918	1464	0.13123	43.02396	5.646034271
11918	11824	0.04950	1177.94287	58.30817207
11918	11990	0.06429	1189.42004	76.46781437
11920	1446	0.14802	518.94293	76.8139325
11920	1452	0.32840	100.10255	32.87367742
11920	11567	0.19771	383.50253	75.82228521

11920	12182	0.19418	55.85772	10.84645207
11921	11812	0.05204	8131.56152	423.1664615
11921	11974	0.03526	8279.27539	291.9272503
11925	1430	0.17783	80.44610	14.30572996
11925	1431	0.15378	2670.03784	410.598419
11925	11847	0.04176	420.19470	17.54733067
11925	12253	0.21212	1462.27734	310.1782694
11939	11809	0.07446	2226.14063	165.7584313
11939	11836	0.31706	1159.76306	367.7144758
11939	12305	0.22283	2213.78809	493.2984001
11944	11835	0.05913	2631.76465	155.6162438
11944	12009	0.04574	3005.14380	137.4552774
11954	11877	0.05690	194.10446	11.04454377
11954	11957	0.07310	3998.74292	292.3081075
11954	11958	0.11722	4273.23145	500.9081906
11957	1488	0.09970	137.85478	13.74412157
11957	11954	0.07310	4167.77246	304.6641668
11957	11960	0.06274	4140.07373	259.7482258
11958	11857	0.06613	6624.10498	438.0520623
11958	11954	0.11722	4085.89990	478.9491863
11958	12090	0.09982	3497.18799	349.0893052
11959	11814	0.07700	6676.26074	514.072077
11959	11960	0.06343	4235.65479	268.6675833
11959	12024	0.04519	2877.99878	130.0567649
11960	11957	0.06274	4302.14648	269.9166702
11960	11959	0.06343	4447.06885	282.0775772
11966	11901	0.04143	3244.90015	134.4362132
11966	12018	0.03751	3177.67627	119.1946369
11972	10806	0.48290	1402.87268	677.4472172
11972	12383	0.25477	1424.72864	362.9781156
11974	11921	0.03526	8131.56152	286.7188592
11974	12007	0.03020	8279.27539	250.0341168
11976	11977	0.01034	209.96663	2.171054954
11976	12376	0.24425	4924.79883	1202.882114
11977	1719	0.50615	509.94870	258.1105345
11977	11550	0.24425	4728.46924	1154.928612
11977	11976	0.01034	307.06198	3.175020873
11979	11603	0.22710	548.85889	124.6458539
11979	12387	0.25385	548.39502	139.2100758
11982	12044	0.03461	4187.68896	144.9359149
11982	12045	0.03746	547.88342	20.52371291
11986	11554	0.25055	931.45807	233.3768194
11986	12396	0.25613	917.28632	234.9445451
11989	11912	0.05637	1716.62817	96.76632994
11989	12089	0.07031	1700.51636	119.5633053
11990	11918	0.06429	1212.14685	77.92892099
11990	12066	0.05484	1189.42004	65.22779499
12007	11974	0.03020	8131.56152	245.5731579
12007	12180	0.12449	8279.27539	1030.686993
12009	11944	0.04574	2631.76465	120.3769151
12009	12042	0.01339	3005.14380	40.23887548
12011	12067	0.03347	40588.72656	1358.504678
12016	11579	0.25775	28248.48633	7281.047352
12018	11966	0.03751	3244.90015	121.7162046

12018	12087	0.05161	3177.67627	163.9998723
12024	11959	0.04519	2319.26050	104.807382
12024	12092	0.04854	2877.99878	139.6980608
12028	11843	0.11047	3665.75488	404.9559416
12032	12123	0.06863	5383.88281	369.4958773
12042	12009	0.01339	2631.76465	35.23932866
12042	12126	0.06415	3005.14380	192.7799748
12044	12281	0.14124	4187.68896	591.4691887
12045	1414	0.29940	547.88342	164.0362959
12045	11872	0.11387	4648.57813	529.3335917
12048	11867	0.12046	1328.96997	160.0877226
12048	12194	0.11767	1417.58923	166.8077247
12052	11866	0.12332	1828.61340	225.5046045
12052	12232	0.12545	1298.09888	162.8465045
12055	1148	0.50775	2.48040	1.2594231
12055	1453	0.30456	384.44446	117.0864047
12055	11720	0.20586	925.69397	190.5633607
12055	12945	0.60488	711.47412	430.3564657
12064	11625	0.26760	11992.45117	3209.179933
12064	12016	0.03013	28248.48633	851.1268931
12066	11990	0.05484	1212.14685	66.47413325
12066	12132	0.05026	1189.42004	59.78025121
12067	12153	0.06975	40588.72656	2831.063678
12068	12028	0.02615	3665.75488	95.85949011
12069	1390	0.25016	314.69983	78.72530947
12069	11903	0.11115	6712.79688	746.1273732
12069	12250	0.11319	6079.50391	688.1390476
12083	11721	0.23332	2288.40015	533.929523
12083	12381	0.16917	2357.31812	398.7875064
12087	967	0.61382	118.23383	72.57428953
12087	969	0.40870	187.59579	76.67039937
12087	12018	0.05161	3244.90015	167.4692967
12087	12304	0.12138	3278.24243	397.9130662
12088	12154	0.05054	1626.19543	82.18791703
12088	19287	0.15913	1593.97546	253.6493149
12089	1390	0.24834	151.40944	37.60102033
12089	11989	0.07031	1716.62817	120.6961266
12089	12172	0.05804	1549.10693	89.91016622
12090	11958	0.09982	3295.48242	328.9550552
12090	12142	0.03465	3497.18799	121.1775639
12092	1296	0.06846	48.23083	3.301882622
12092	1489	0.03279	140.76662	4.61573747
12092	12024	0.04854	2319.26050	112.5769047
12092	12134	0.02510	2825.92236	70.93065124
12094	1488	0.09795	112.38553	11.00816266
12094	1489	0.03178	31.33602	0.995858716
12094	11960	0.09428	373.48666	35.2123223
12097	11811	0.18164	141.40199	25.68425746
12097	12390	0.17269	125.85799	21.73441629
12116	9987	0.91706	1834.51001	1682.35575
12116	12298	0.23801	123.34494	29.35732917
12116	12301	0.09527	1945.40820	185.3390392
12118	11782	0.22085	1514.22998	334.4176911
12118	12188	0.06093	1378.08667	83.9668208

12123	12226	0.06919	5383.88281	372.5108516
12126	12042	0.06415	2631.76465	168.8277023
12126	12163	0.03180	3005.14380	95.56357284
12132	12066	0.05026	1212.14685	60.92250068
12132	12209	0.06157	1189.42004	73.23259186
12134	12092	0.02510	2252.31616	56.53313562
12134	12227	0.06583	2825.92236	186.030469
12142	1274	0.28462	761.54236	216.7501865
12142	1488	0.11085	104.94840	11.63353014
12142	12090	0.03465	3295.48242	114.1884659
12142	12225	0.06361	3432.27246	218.3268512
12153	12184	0.02679	40588.72656	1087.371985
12154	12088	0.05054	1593.97546	80.55951975
12154	12204	0.03739	1626.19543	60.80344713
12163	12126	0.03180	2631.76465	83.69011587
12163	12206	0.03180	3005.14380	95.56357284
12172	12089	0.05804	1569.55798	91.09714516
12172	12297	0.05022	1549.10693	77.79615002
12180	1073	0.10664	99.92106	10.65558184
12180	12007	0.12449	8131.56152	1012.298094
12180	12404	0.11942	8203.21484	979.6279162
12182	11920	0.19418	55.50674	10.77829877
12182	12576	0.24929	55.85772	13.92477102
12184	12270	0.02343	40588.72656	950.9938633
12186	11501	0.42129	1126.32336	474.5087683
12186	12413	0.11844	1919.88525	227.391209
12188	12118	0.06093	1514.22998	92.26203268
12188	12400	0.10730	1378.08667	147.8686997
12191	1206	0.23771	95.72015	22.75363686
12191	1468	0.24210	103.98147	25.17391389
12191	12194	0.11224	2475.01929	277.7961651
12191	12209	0.09307	2572.68237	239.4395482
12192	1207	0.23924	0.00046	0.00011005
12192	1464	0.23950	0.00046	0.00011017
12193	12064	0.10548	40240.93750	4244.614088
12194	12048	0.11767	1328.96997	156.3798964
12194	12191	0.11224	2733.86523	306.8490334
12194	12197	0.18745	3066.18457	574.7562976
12194	12442	0.12605	1127.75549	142.1535795
12195	1202	0.20378	412.40918	84.0407427
12195	11818	0.25237	3446.11572	869.6962243
12195	12408	0.10768	3642.79321	392.2559729
12196	1219	0.23008	219.87666	50.58922193
12196	12199	0.04135	3368.46069	139.2858495
12196	12200	0.02691	3539.72461	95.25398926
12197	1218	0.23496	237.29727	55.75536656
12197	1220	0.25449	322.93875	82.18468249
12197	12194	0.18745	3309.57568	620.3799612
12197	12198	0.02147	3266.83276	70.13889936
12198	12197	0.02147	3539.72461	75.99788738
12198	12205	0.04002	3266.83276	130.7386471
12199	12196	0.04135	3646.43164	150.7799483
12199	12204	0.07931	3368.46069	267.1526173
12200	12196	0.02691	3266.83276	87.91046957

12200	12205	0.03587	3539.72461	126.9699218
12201	1446	0.24462	0.09634	0.023566691
12201	1448	0.24762	0.09996	0.024752095
12202	12203	0.07033	2883.19019	202.7747661
12202	12207	0.07102	2517.54346	178.7959365
12203	12202	0.07033	2517.54346	177.0588315
12203	12204	0.19650	2883.19019	566.5468723
12204	12154	0.03739	1593.97546	59.59874245
12204	12199	0.07931	3646.43164	289.1984934
12204	12203	0.19650	2517.54346	494.6972899
12204	12340	0.06081	2355.42798	143.2335755
12205	12198	0.04002	3539.72461	141.6597789
12205	12200	0.03587	3266.83276	117.1812911
12206	1274	0.26619	248.11316	66.04524206
12206	12163	0.03180	2631.76465	83.69011587
12206	12208	0.12135	3111.64038	377.5975601
12206	12335	0.05857	1417.92700	83.04798439
12207	1239	0.23601	347.62289	82.04247827
12207	1454	0.21057	462.95563	97.48456701
12207	12202	0.07102	2883.19019	204.7641673
12207	12208	0.10963	2768.53320	303.5142947
12208	12206	0.12135	2768.53320	335.9615038
12208	12207	0.10963	3111.64038	341.1291349
12209	12132	0.06157	1212.14685	74.63188155
12209	12191	0.09307	2316.00024	215.5501423
12209	12543	0.19790	2460.86426	487.0050371
12211	1013	0.21532	0.60403	0.13005974
12211	1027	0.27299	0.61685	0.168393882
12212	676	0.32037	57.55672	18.43944639
12212	12221	0.16090	124.40704	20.01709274
12212	12243	0.18040	84.74698	15.28835519
12213	11825	0.25443	3729.92090	949.0037746
12213	12219	0.07981	3194.09570	254.9207778
12214	12215	0.02708	2938.51367	79.57495018
12214	12217	0.06206	2417.13281	150.0072622
12215	1299	0.11330	848.44739	96.12908929
12215	1488	0.09116	2.94139	0.268137112
12215	12214	0.02708	2417.13281	65.45595649
12215	12225	0.09083	2557.93286	232.3370417
12216	9957	1.00275	653.89453	655.69274
12216	12224	0.08205	131.42094	10.78308813
12216	12246	0.17722	68.27081	12.09895295
12216	12640	0.24886	707.72107	176.1234655
12217	12094	0.08926	497.45700	44.40301182
12217	12214	0.06206	2938.51367	182.3641584
12217	12227	0.06551	2754.85376	180.4704698
12219	1431	0.30947	22.41613	6.937119751
12219	1433	0.31587	307.71591	97.19822449
12219	12213	0.07981	3729.92090	297.684987
12219	12253	0.10451	3217.38818	336.2492387
12220	12222	0.04068	3809.82080	154.9835101
12220	12226	0.02207	2964.03857	65.41633124
12221	12212	0.16090	131.42094	21.14562925
12221	12224	0.08205	124.40704	10.20759763

12222	12068	0.11225	3665.75488	411.4809853
12222	12220	0.04068	2964.03857	120.577089
12222	12223	0.12633	4344.99072	548.9026777
12223	1296	0.07562	46.43119	3.511126588
12223	1300	0.11748	1575.03027	185.0345561
12223	12222	0.12633	2987.17554	377.369886
12223	12227	0.05569	2923.52100	162.8108845
12224	12216	0.08205	124.40704	10.20759763
12224	12221	0.08205	131.42094	10.78308813
12225	12142	0.06361	3232.71777	205.6331773
12225	12215	0.09083	2558.28467	232.3689966
12225	12317	0.04390	873.98773	38.36806135
12226	12220	0.02207	3809.82080	84.08274506
12226	12228	0.06205	2050.45581	127.230783
12226	12355	0.06250	3464.16797	216.5104981
12227	12134	0.06583	2252.31616	148.2699728
12227	12217	0.06551	1861.30334	121.9339818
12227	12223	0.05569	3069.38452	170.9340239
12227	12361	0.06307	4627.76318	291.8730238
12228	12226	0.06205	976.52332	60.59327201
12228	12230	0.06205	2050.45581	127.230783
12229	9911	1.02387	2343.38159	2399.318109
12229	12251	0.99973	100.61488	100.587714
12229	13948	1.00255	2225.74536	2231.421011
12230	12228	0.06205	976.52332	60.59327201
12230	12240	0.06137	2050.45581	125.8364731
12231	12235	0.06067	702.56042	42.62434068
12231	12239	0.06274	874.48907	54.86544425
12232	12052	0.12545	1828.61340	229.399551
12232	12239	0.07239	702.56042	50.8583488
12232	12241	0.05585	1496.12097	83.55835617
12232	12464	0.12388	1564.58508	193.8207997
12233	12234	0.01999	1380.31641	27.59252504
12233	12245	0.03999	1496.12097	59.82987759
12234	12233	0.01999	1496.12097	29.90745819
12234	12238	0.03861	1380.31641	53.29401659
12235	12231	0.06067	874.48907	53.05525188
12235	12237	0.02896	702.56042	20.34614976
12237	12235	0.02896	874.48907	25.32520347
12237	12240	0.03241	702.56042	22.76998321
12238	12234	0.03861	1496.12097	57.76523065
12238	12241	0.06067	1380.31641	83.74379659
12239	12231	0.06274	702.56042	44.07864075
12239	12232	0.07239	874.48907	63.30426378
12240	1346	0.24997	893.68286	223.3939045
12240	1347	0.12623	302.14163	38.13933795
12240	12230	0.06137	976.52332	59.92923615
12240	12237	0.03241	874.48907	28.34219076
12241	12232	0.05585	1380.31641	77.0906715
12241	12238	0.06067	1496.12097	90.76965925
12243	12212	0.18040	78.88167	14.23025327
12243	12262	0.49230	84.74698	41.72093825
12244	12246	0.01241	178.32190	2.212974779
12244	12266	0.31100	68.27081	21.23222191

12245	1284	0.11628	212.70898	24.73380019
12245	1370	0.22825	829.87085	189.4180215
12245	12233	0.03999	1380.31641	55.19885324
12245	12247	0.05585	468.65671	26.17447725
12246	12216	0.17722	178.32190	31.60220712
12246	12244	0.01241	68.27081	0.847240752
12247	12245	0.05585	395.22610	22.07337769
12247	12249	0.04827	468.65671	22.62205939
12248	12249	0.04964	395.22610	19.6190236
12248	12252	0.06205	468.65671	29.08014886
12249	12247	0.04827	395.22610	19.07756385
12249	12248	0.04964	468.65671	23.26411908
12250	12069	0.11319	6689.12207	757.1417271
12250	12252	0.06343	395.22610	25.06919152
12250	12254	0.06343	424.33215	26.91538827
12250	12473	0.12555	5723.86670	718.6314642
12251	2008	0.69597	20.17918	14.0441039
12251	12229	0.99973	121.93928	121.9063564
12251	12268	0.99490	91.97237	91.50331091
12252	12248	0.06205	395.22610	24.52377951
12252	12250	0.06343	468.65671	29.72689512
12253	11925	0.21212	1783.27380	378.2680385
12253	12219	0.10451	3758.64282	392.8157611
12253	12509	0.17193	4360.88086	749.7662463
12254	12250	0.06343	426.77545	27.07036679
12254	12256	0.05793	424.33215	24.58156145
12255	2007	0.55748	16.44481	9.167652679
12255	12268	0.59735	131.98317	78.8401466
12255	12278	0.40071	75.52757	30.26465257
12256	1391	0.12572	113.48522	14.26736186
12256	12254	0.05793	426.77545	24.72310182
12256	12257	0.05102	533.76794	27.2328403
12257	12256	0.05102	540.26068	27.56409989
12257	12261	0.04897	533.76794	26.13861602
12258	684	0.19892	203.35515	40.45140644
12258	12265	0.25283	78.88167	19.94365263
12258	12279	0.49599	128.13400	63.55318266
12260	12261	0.00621	540.26068	3.355018823
12260	12263	0.05034	533.76794	26.8698781
12261	12257	0.04897	540.26068	26.4565655
12261	12260	0.00621	533.76794	3.314698907
12262	12243	0.49230	78.88167	38.83344614
12262	12265	0.24614	84.74698	20.85962166
12263	1390	0.11487	26.95563	3.096393218
12263	12260	0.05034	540.26068	27.19672263
12263	12267	0.05171	559.26471	28.91957815
12264	12193	0.01506	40240.93750	606.0285188
12265	12258	0.25283	84.74698	21.42657895
12265	12262	0.24614	78.88167	19.41593425
12266	12244	0.31100	178.32190	55.4581109
12266	12269	0.08329	68.27081	5.686275765
12267	12263	0.05171	565.99036	29.26736152
12267	12280	0.05396	559.26471	30.17792375
12268	12251	0.99490	106.27219	105.7302018

12268	12255	0.59735	91.97237	54.93969522
12268	13433	0.71372	25.71097	18.35043351
12269	681	0.40162	8.99670	3.613254654
12269	12266	0.08329	178.32190	14.85243105
12269	12292	0.42286	68.76395	29.0775239
12270	12554	0.19806	40588.72656	8039.003182
12277	1430	0.28320	15.22883	4.312804656
12277	1432	0.33675	15.86106	5.341211955
12278	2006	1.01472	138.88135	140.9256835
12278	12255	0.40071	115.69027	46.35824809
12278	12288	0.49809	179.04094	89.1785018
12278	13034	0.49960	9.90513	4.948602948
12279	12258	0.49599	123.34494	61.17785679
12279	12298	0.78757	128.13400	100.9144944
12280	1392	0.24108	219.30464	52.86996261
12280	12267	0.05396	565.99036	30.54083983
12280	12293	0.05676	339.96005	19.29613244
12281	12645	0.23866	4187.68896	999.4338472
12285	12045	0.14179	4116.16016	583.6303491
12288	12278	0.49809	68.76395	34.25063586
12288	12292	0.49573	179.04094	88.75596519
12292	12269	0.42286	179.04094	75.70925189
12292	12288	0.49573	68.76395	34.08835293
12293	12280	0.05676	346.19040	19.6497671
12293	12297	0.05724	339.96005	19.45931326
12295	1143	0.24500	0.00000	0
12296	1927	1.00548	280.44791	281.9847645
12296	1928	0.30759	89.87777	27.64550327
12296	10766	0.69107	440.68829	304.5464566
12296	13069	0.51232	108.80648	55.74373583
12297	1413	0.29942	792.58252	237.3150581
12297	12172	0.05022	1569.55798	78.82320176
12297	12293	0.05724	346.19040	19.8159385
12297	12394	0.07535	889.97351	67.05950398
12298	12116	0.23801	128.13400	30.49717334
12298	12279	0.78757	123.34494	97.1427744
12301	12116	0.09527	1935.79797	184.4234726
12301	12406	0.08067	1945.40820	156.9360795
12302	1148	0.50588	0.68458	0.34631533
12302	1152	0.50557	0.69506	0.351401484
12304	12087	0.12138	3351.48877	406.8037069
12304	14011	1.00369	3278.24243	3290.339145
12305	11939	0.22283	2558.83105	570.1843229
12305	14003	0.99828	2213.78809	2209.980374
12315	1013	0.27879	144.13454	40.18326841
12315	1152	0.51621	11.56518	5.970061568
12315	11502	0.47364	617.87524	292.6504287
12315	13015	0.46693	403.19528	188.2639721
12317	12225	0.04390	674.78491	29.62305755
12317	12351	0.02147	873.98773	18.76451656
12318	1927	1.00968	93.18172	94.08371905
12318	1929	0.94460	3.60735	3.40750281
12318	10073	1.00388	1161.08154	1165.586536
12318	14017	1.00402	1086.89526	1091.264579

12322	1770	0.74731	280.94376	209.9520813
12322	1779	0.79698	29.68797	23.66071833
12322	10130	0.99270	188.46716	187.0913497
12322	13130	0.51039	492.24445	251.2366448
12335	12206	0.05857	1391.56567	81.50400129
12335	12456	0.07029	1417.92700	99.66608883
12340	12204	0.06081	2235.53247	135.9427295
12340	12412	0.04744	2355.42798	111.7415034
12341	12406	0.24703	1648.93152	407.3355534
12341	12457	0.25230	29405.59766	7419.03229
12351	12317	0.02147	674.78491	14.48763202
12351	12422	0.04669	873.98773	40.80648711
12355	12455	0.06137	3464.16797	212.5959883
12356	12217	0.06360	1912.38831	121.6278965
12361	12227	0.06307	3306.46997	208.539061
12361	12450	0.05914	4627.76318	273.6859145
12368	11626	2.43899	30179.52148	73607.55109
12374	637	0.13572	26.32062	3.572234546
12374	12376	0.15073	2252.93433	339.5847916
12374	12379	0.22544	2374.99829	535.4196145
12376	12374	0.15073	2374.10400	357.8486959
12376	12377	0.00965	2294.10571	22.1381201
12376	12564	0.14305	3518.04761	503.2567106
12377	11977	0.24426	4818.74561	1177.026803
12377	12376	0.00965	1008.52399	9.732256504
12377	12378	0.49454	1214.91113	600.8221502
12378	611	0.25102	154.96320	38.89886246
12378	1719	0.36326	78.24084	28.42176754
12378	12377	0.49454	1047.51794	518.039522
12378	12383	0.49522	1195.92786	592.2473948
12379	12374	0.22544	2254.25366	508.1989451
12379	12380	0.15269	2374.99829	362.6384889
12380	629	0.11507	422.61285	48.63006065
12380	1732	0.37671	93.01598	35.04004983
12380	12379	0.15269	2254.25366	344.2019913
12380	12381	0.47300	2414.22437	1141.928127
12381	12083	0.16917	2288.40015	387.1286534
12381	12380	0.47300	2300.10962	1087.95185
12381	12728	0.25736	4661.39014	1199.655366
12383	71	3.00000	1202.27380	3606.8214
12383	11972	0.25477	1402.87268	357.4098727
12383	12378	0.49522	1030.41016	510.2797194
12383	13159	0.50143	1212.11963	607.7931461
12387	11979	0.25385	548.85889	139.3278292
12387	12831	0.31877	548.39502	174.8118805
12388	1142	0.31199	147.23293	45.93520183
12388	12393	0.07537	272.66769	20.5509638
12388	12401	0.03978	141.40199	5.624971162
12390	12097	0.17269	141.40199	24.41870965
12390	12391	0.03395	125.85799	4.272878761
12391	12390	0.03395	141.40199	4.800597561
12391	12410	0.10627	125.85799	13.3749286
12393	12388	0.07537	288.63492	21.75441392
12393	12399	0.06345	272.66769	17.30076493

12394	12297	0.07535	937.63831	70.65104666
12394	12500	0.06920	889.97351	61.58616689
12396	11986	0.25613	931.45807	238.5743555
12396	12682	0.20421	917.28632	187.3190394
12399	12393	0.06345	288.63492	18.31388567
12399	12403	0.08482	272.66769	23.12767347
12400	1094	0.37444	52.23930	19.56048349
12400	1143	0.24893	119.56805	29.76407469
12400	12188	0.10730	1514.22998	162.4768769
12400	13020	0.41313	1502.58545	620.763127
12401	12388	0.03978	125.85799	5.006630842
12401	12420	0.10621	141.40199	15.01830536
12403	12399	0.08482	288.63492	24.48201391
12403	12404	0.06483	272.66769	17.67704634
12404	12180	0.11942	8057.76758	962.2586044
12404	12403	0.06483	288.63492	18.71220186
12404	12407	0.35301	216.54712	76.44329883
12404	12603	0.14423	8338.05371	1202.597487
12405	1153	0.23268	364.64038	84.84452362
12405	12407	0.13798	245.24390	33.83875332
12405	12409	0.02544	274.20441	6.97576019
12406	12301	0.08067	1935.79797	156.1608222
12406	12483	0.22335	1258.12036	281.0011824
12406	12585	0.13501	1859.49377	251.0502539
12407	12404	0.35301	245.24390	86.57354914
12407	12405	0.13798	216.54712	29.87917162
12408	12195	0.10768	3417.72095	368.0201919
12408	12944	0.38032	3642.79321	1385.427114
12409	12405	0.02544	308.07162	7.837342013
12409	12413	0.51917	274.20441	142.3587035
12410	12391	0.10627	141.40199	15.02678948
12410	12420	0.04647	125.85799	5.848620795
12412	12340	0.04744	2235.53247	106.0536604
12412	12492	0.05896	2355.42798	138.8760337
12413	1027	0.29763	40.00249	11.9059411
12413	12186	0.11844	1126.32336	133.4017388
12413	12409	0.51917	308.07162	159.941543
12413	12696	0.20374	1819.88184	370.7827261
12417	1762	1.09991	46.50808	51.15470227
12417	10561	0.84453	697.27667	588.8710661
12417	12834	0.30187	650.99469	196.5157671
12420	12401	0.10621	125.85799	13.36737712
12420	12410	0.04647	141.40199	6.570950475
12422	1299	0.10692	321.14783	34.33712598
12422	12351	0.04669	674.78491	31.50570745
12422	12515	0.07308	1225.90796	89.58935372
12429	23629	0.09806	2526.70386	247.7685805
12429	30104	0.01807	2590.80127	46.81577895
12436	1300	0.09926	1026.19165	101.8597832
12436	12222	0.11628	4177.78857	485.7932549
12442	12194	0.12605	1054.59119	132.9312195
12442	12597	0.12167	1127.75549	137.2140105
12450	1300	0.08678	189.77750	16.46889145
12450	1490	0.03183	167.96655	5.346375287

12450	12361	0.05914	3306.46997	195.544634
12450	12522	0.06027	4770.29736	287.5058219
12452	1299	0.08345	264.39941	22.06413076
12452	1490	0.03162	40.08513	1.267491811
12452	12356	0.05969	1912.38831	114.1504582
12455	1347	0.21718	0.00000	0
12455	12529	0.06139	3464.16797	212.6652717
12456	12335	0.07029	1391.56567	97.81315094
12456	12528	0.06136	1417.92700	87.00400072
12457	12483	0.22020	29405.59766	6475.112605
12464	1284	0.25130	2.76839	0.695696407
12464	1347	0.22547	428.86978	96.6972693
12464	12232	0.12388	2038.97559	252.5882961
12464	12641	0.12275	1311.49792	160.9863697
12473	1284	0.24262	247.93558	60.15413042
12473	1391	0.12216	288.88864	35.29063626
12473	12250	0.12555	6257.61084	785.643041
12473	12659	0.12388	5531.94141	685.2969019
12477	12368	0.23838	30179.52148	7194.19433
12481	12477	0.02950	30179.52148	890.2958837
12482	11879	0.55193	794.20197	438.3438933
12482	13058	0.60307	837.34564	504.9780351
12483	12667	0.79010	30663.71875	24227.40418
12488	12481	0.20487	28534.32031	5845.826202
12488	12548	0.14172	1495.94019	212.0046437
12492	12412	0.05896	2235.53247	131.8069944
12492	12553	0.05127	2355.42798	120.7627925
12500	12394	0.06920	937.63831	64.88457105
12500	12537	0.02680	889.97351	23.85129007
12509	12253	0.17193	5223.13135	898.012973
12509	12738	0.16616	4360.88086	724.6039637
12515	12422	0.07308	995.93274	72.78276464
12515	12516	0.05447	3973.59009	216.4414522
12515	12524	0.05036	3042.42676	153.2166116
12515	12632	0.06416	1039.31580	66.68250173
12516	12515	0.05447	3473.08008	189.178672
12516	12538	0.16165	3973.59009	642.330838
12520	1299	0.07238	243.62021	17.6332308
12520	1301	0.21225	272.14459	57.76268923
12520	12521	0.06206	3818.02295	236.9465043
12520	12523	0.06343	3565.65356	226.1694053
12521	12452	0.05970	1546.97351	92.35431855
12521	12520	0.06206	4072.88574	252.763289
12521	12522	0.06274	3973.79980	249.3161995
12522	12450	0.06027	3466.76660	208.942023
12522	12521	0.06274	3374.95947	211.7449571
12522	12621	0.06192	2403.95361	148.8528075
12523	12520	0.06343	3042.42676	192.9811294
12523	12524	0.01172	3565.65356	41.78945972
12524	12515	0.05036	3565.65356	179.5663133
12524	12523	0.01172	3042.42676	35.65724163
12528	1454	0.23241	1013.69519	235.5928991
12528	12456	0.06136	1391.56567	85.38646951
12528	12541	0.12312	2505.30542	308.4532033

12528	12609	0.05746	2683.59741	154.1995072
12529	12633	0.06026	3464.16797	208.7507619
12537	12500	0.02680	937.63831	25.12870671
12537	12661	0.06475	889.97351	57.62578477
12538	12516	0.16165	3473.08008	561.4233949
12538	12540	0.03038	3973.59009	120.7176669
12539	629	0.01199	0.00000	0
12540	1274	0.24646	82.24859	20.27098749
12540	1275	0.18512	1208.22473	223.666562
12540	12538	0.03038	3473.08008	105.5121728
12540	12542	0.06271	3002.22803	188.2697198
12541	12528	0.12312	3002.22803	369.6343151
12541	12542	0.12824	2505.30542	321.2803671
12542	12540	0.06271	2505.30542	157.1077029
12542	12541	0.12824	3002.22803	385.0057226
12543	12209	0.19790	2226.90918	440.7053267
12543	12580	0.03999	2460.86426	98.40996176
12548	12481	0.11718	1645.20251	192.7848301
12548	12589	0.04268	1495.94019	63.84672731
12549	629	0.16637	0.35548	0.059141208
12549	637	0.21863	0.35702	0.078055283
12552	12264	0.19753	40240.93750	7948.792384
12553	12492	0.05127	2235.53247	114.6157497
12553	12590	0.03216	2355.42798	75.75056384
12554	12596	0.03408	40588.72656	1383.263801
12564	637	0.15933	7.93652	1.264525732
12564	12377	0.14349	3700.55713	530.9929426
12564	12736	0.12360	3525.89063	435.8000819
12576	1448	0.12815	16.43880	2.10663222
12576	12182	0.24929	55.50674	13.83727521
12576	12591	0.12217	39.44826	4.819393924
12580	1207	0.12641	3.32183	0.41991253
12580	1468	0.11784	40.46880	4.768843392
12580	12543	0.03999	2226.90918	89.05409811
12580	12743	0.11268	2478.09619	279.2318787
12585	12406	0.13501	1459.07227	196.9893472
12585	12589	0.06689	1653.95020	110.6327289
12585	13056	0.28626	1500.81885	429.624404
12589	1993	0.39666	136.46062	54.12846953
12589	12548	0.04268	1645.20251	70.21724313
12589	12585	0.06689	1515.31873	101.3596698
12590	1220	0.24959	1267.18225	316.2760178
12590	1454	0.28880	352.06714	101.67699
12590	12553	0.03216	2235.53247	71.89472424
12590	12943	0.24427	2563.85596	626.2730953
12591	1512	0.37924	39.44826	14.96035812
12591	12576	0.12217	38.98404	4.762680167
12592	12552	0.03354	40240.93750	1349.681044
12596	12657	0.01275	40588.72656	517.5062636
12597	1220	0.23760	3.29674	0.783305424
12597	1468	0.10846	74.30046	8.058627892
12597	12442	0.12167	1054.59119	128.3121101
12597	12923	0.23782	1201.30676	285.6947737
12603	12404	0.14423	8179.87744	1179.783723

12603	12832	0.16430	8338.05371	1369.942225
12609	12528	0.05746	2205.47852	126.7267958
12609	12655	0.00892	2683.59741	23.9376889
12618	12521	0.06137	2400.67651	147.3295174
12618	12621	0.06344	336.96671	21.37716808
12620	12621	0.03103	1908.83630	59.23119039
12620	12626	0.03172	1604.57861	50.89723351
12621	12522	0.06192	501.58252	31.05798964
12621	12618	0.06344	1383.24988	87.75337239
12621	12620	0.03103	1604.57861	49.79007427
12621	12702	0.06304	1497.43506	94.39830618
12623	12624	0.01435	2230.31152	32.00497031
12623	12626	0.03241	2988.20093	96.84759214
12624	1303	0.12631	866.10242	109.3973967
12624	12623	0.01435	2988.20093	42.88068335
12624	12628	0.07943	2003.38342	159.1287451
12626	1300	0.13330	0.98996	0.131961668
12626	12620	0.03172	1908.83630	60.54828744
12626	12623	0.03241	2230.31152	72.28439636
12626	12697	0.06193	1502.14990	93.02814331
12628	12436	0.12921	3670.74438	474.2968813
12628	12624	0.07943	3420.19409	271.6660166
12628	12634	0.03793	3339.74927	126.6766898
12629	1347	0.12438	360.48212	44.83676609
12629	1348	0.14098	1681.65283	237.079416
12629	12637	0.03852	3282.46509	126.4405553
12629	12641	0.24694	1432.87012	353.8329474
12632	12515	0.06416	786.62360	50.46977018
12632	12695	0.06081	1039.31580	63.2007938
12633	12634	0.02482	3703.80298	91.92838996
12633	12638	0.06275	3203.90796	201.0452245
12633	12704	0.06305	3178.67139	200.4152311
12634	12628	0.03793	3703.80298	140.485247
12634	12633	0.02482	3339.74927	82.89257688
12635	12637	0.03310	3203.90796	106.0493535
12635	12638	0.06068	3282.46509	199.1799817
12637	12629	0.03852	3203.90796	123.4145346
12637	12635	0.03310	3282.46509	108.6495945
12638	12633	0.06275	3282.46509	205.9746844
12638	12635	0.06068	3203.90796	194.413135
12640	12216	0.24886	597.17291	148.6124504
12640	12802	0.13493	707.72107	95.49280398
12641	12464	0.12275	1818.32947	223.1999424
12641	12629	0.24694	1995.85388	492.8561571
12641	12646	0.05934	3763.18311	223.3072857
12641	12746	0.09888	2755.16089	272.4303088
12645	12750	0.09805	4187.68896	410.6029025
12646	12641	0.05934	3828.96826	227.2109765
12646	12647	0.05999	3763.18311	225.7533548
12647	12646	0.05999	3828.96826	229.6998059
12647	12649	0.06068	3763.18311	228.3499511
12648	1284	0.13918	200.58632	27.91760402
12648	1371	0.16741	571.84735	95.73296486
12648	12649	0.06274	3828.96826	240.2294686

12648	12650	0.06343	3517.65869	223.1250907
12649	12647	0.06068	3828.96826	232.341794
12649	12648	0.06274	3763.18311	236.1021083
12650	12648	0.06343	3587.10596	227.530131
12650	12658	0.06206	3517.65869	218.3058983
12655	12609	0.00892	2205.47852	19.6728684
12655	12715	0.06025	2683.59741	161.686744
12656	12658	0.06274	3587.10596	225.0550279
12656	12659	0.06274	3517.65869	220.6979062
12657	12853	0.17519	29287.58008	5130.891154
12657	12908	0.21585	11301.14551	2439.352258
12658	12650	0.06206	3587.10596	222.6157959
12658	12656	0.06274	3517.65869	220.6979062
12659	12473	0.12388	6080.65381	753.271394
12659	12656	0.06274	3587.10596	225.0550279
12659	12678	0.03683	2960.91260	109.0504111
12661	1392	0.11859	430.33640	51.03359368
12661	12537	0.06475	937.63831	60.71208057
12661	12691	0.05078	802.13245	40.73228581
12663	12592	0.01738	40240.93750	699.3874938
12667	12858	0.88642	30663.71875	27180.93357
12676	12488	0.79709	30030.25977	23936.81976
12678	12659	0.03683	3579.07202	131.8172225
12678	12768	0.07031	2960.91260	208.1817649
12682	1752	0.99500	30.71803	30.56443985
12682	1762	0.91541	48.77739	44.65131058
12682	12396	0.20421	931.45807	190.2130525
12682	13204	0.29368	843.16577	247.6209233
12691	12661	0.05078	867.46283	44.04976251
12691	12766	0.05246	802.13245	42.07986833
12695	12632	0.06081	786.62360	47.83458112
12695	12779	0.06304	1039.31580	65.51846803
12696	1154	0.18035	66.88003	12.06181341
12696	12413	0.20374	884.22717	180.1524436
12696	12732	0.02870	1753.00183	50.31115252
12697	12787	0.06360	1502.14990	95.53673364
12699	12618	0.06360	1354.39331	86.13941452
12702	12621	0.06304	337.08936	21.25011325
12702	12786	0.06249	1497.43506	93.5747169
12704	12783	0.06137	3178.67139	195.0750632
12706	12628	0.06360	4723.50146	300.4146929
12715	12655	0.06025	2205.47852	132.8800808
12715	12790	0.05913	2683.59741	158.6811149
12720	12597	0.07729	1125.65588	87.00194297
12728	111	0.12273	1293.41223	158.740483
12728	12381	0.25736	4478.35742	1152.550066
12728	13189	0.25292	5074.45215	1283.430438
12732	12696	0.02870	819.42511	23.51750066
12732	12761	0.01564	1753.00183	27.41694862
12735	621	0.11635	0.00000	0
12736	611	0.49379	135.38560	66.85205542
12736	12564	0.12360	3708.49365	458.3698151
12736	12895	0.11564	3657.85669	422.9945476
12738	1432	0.11018	223.17178	24.58906672

12738	1433	0.14050	2.61235	0.367035175
12738	12509	0.16616	5223.13135	867.8755051
12738	13035	0.17818	4151.74316	739.7575962
12743	12580	0.11268	2243.31641	252.7768931
12743	12935	0.13578	2478.09619	336.4759007
12746	12641	0.09888	3759.19092	371.7087982
12746	12824	0.04999	2755.16089	137.7304929
12750	1432	0.14791	561.77893	83.09272154
12750	12807	0.03852	4271.19141	164.5262931
12751	12285	0.33608	4116.16016	1383.359107
12761	12732	0.01564	819.42511	12.81580872
12761	12990	0.14694	1753.00183	257.5860889
12766	12691	0.05246	867.46283	45.50710006
12766	12806	0.02958	802.13245	23.72707787
12768	12678	0.07031	3579.07202	251.6445537
12768	12848	0.06027	2960.91260	178.4542024
12779	12695	0.06304	786.62360	49.58875174
12779	12823	0.02438	1039.31580	25.3385192
12781	12779	0.06206	0.00000	0
12782	1302	0.03148	381.77045	12.01813377
12782	1491	0.02603	504.57974	13.13421063
12782	12699	0.06249	1354.39331	84.63603794
12783	1348	0.21092	0.00000	0
12783	12869	0.06249	3942.99487	246.3977494
12786	1302	0.03153	442.23935	13.94380671
12786	12702	0.06249	337.08936	21.06471411
12786	12871	0.06252	1393.07080	87.09478642
12787	1303	0.06068	0.00000	0
12787	12796	0.00638	2181.28101	13.91657284
12790	1275	0.31962	206.49162	65.99885158
12790	12715	0.05913	2205.47852	130.4099449
12790	12842	0.04296	3043.01099	130.7277521
12794	1303	0.06690	705.60498	47.20497316
12794	12706	0.06360	4723.50146	300.4146929
12796	12874	0.05680	2181.28101	123.8967614
12798	12676	0.52872	30030.25977	15877.59895
12802	676	0.34801	213.11024	74.16449462
12802	681	0.63671	89.34061	56.88405979
12802	12640	0.13493	597.17291	80.57654075
12802	13012	0.12010	1005.96405	120.8162824
12806	12766	0.02958	867.46283	25.65955051
12806	12897	0.07311	802.13245	58.64390342
12807	30127	0.13172	4271.19141	562.6013325
12808	12750	0.04154	306.20236	12.71964603
12808	12751	0.03852	4116.16016	158.5544894
12815	629	0.20138	2.93687	0.591426881
12815	638	0.10465	2.94615	0.308314598
12815	12817	0.02483	0.00000	0
12823	1275	0.23864	19.91034	4.751403538
12823	1301	0.08977	441.41953	39.62623121
12823	12779	0.02438	786.62360	19.17788337
12823	12868	0.03869	1752.69080	67.81160705
12824	1348	0.22522	721.91180	162.5889756
12824	1371	0.25110	266.62140	66.94863354

12824	12746	0.04999	3759.19092	187.9219541
12824	13075	0.13192	2467.06152	325.4547557
12826	1447	0.18421	0.00000	0
12831	116	0.35843	9.39762	3.368388937
12831	1752	1.00065	232.59888	232.7500693
12831	12387	0.31877	548.85889	174.9597484
12831	14120	0.67805	543.41223	368.4606626
12832	12603	0.16430	8179.87744	1343.953863
12832	12994	0.09331	8338.05371	778.0237917
12834	12417	0.30187	648.92499	195.8909867
12834	13197	0.18159	650.99469	118.2141258
12842	12790	0.04296	2411.96997	103.6182299
12842	12883	0.02622	3043.01099	79.78774816
12848	1371	0.24822	72.53750	18.00525825
12848	12768	0.06027	3579.07202	215.7106706
12848	13090	0.11441	3027.81592	346.4124194
12853	12984	0.06918	29287.58008	2026.11479
12858	12901	0.18598	30663.71875	5702.838413
12859	12663	0.17522	26758.60156	4688.642165
12867	12782	0.06248	1557.85974	97.33507656
12868	12823	0.03869	1015.97778	39.30818031
12868	12972	0.06136	1752.69080	107.5451075
12869	12908	0.03347	3942.99487	131.9720383
12871	12786	0.06252	0.00000	0
12871	12980	0.06192	1393.07080	86.25894394
12874	12981	0.06137	2181.28101	133.8652156
12877	12794	0.06249	4720.96777	295.0132759
12883	12842	0.02622	2411.96997	63.24185261
12883	12975	0.05411	3043.01099	164.6573247
12890	12798	0.36467	30030.25977	10951.13483
12893	621	0.12829	0.00000	0
12895	621	0.12676	101.98349	12.92742719
12895	12736	0.11564	3843.47339	444.4592628
12895	13162	0.12407	3639.03979	451.4956667
12897	12806	0.07311	867.46283	63.4202075
12897	13032	0.05079	802.13245	40.74030714
12901	12962	0.11255	30663.71875	3451.201545
12906	12867	0.03236	1557.85974	50.41234119
12908	13066	0.06194	15244.14063	944.2220706
12912	12663	0.21455	13482.33789	2892.635594
12912	12877	0.03237	4720.96777	152.8177267
12922	12890	0.17540	27962.41406	4904.607426
12922	12946	0.06215	10.78541	0.670313232
12923	12924	0.00689	3905.04126	26.90573428
12923	12932	0.18687	6393.29492	1194.715022
12923	13124	0.07251	3754.75610	272.2573648
12924	12720	0.16023	1125.65588	180.3638417
12924	12923	0.00689	8101.97412	55.82260169
12924	12930	0.11791	6076.72900	716.5071164
12925	12940	0.61916	0.00000	0
12930	1208	0.12616	870.22675	109.7878068
12930	1468	0.24567	7.88329	1.936687854
12930	12924	0.11791	6564.46045	774.0155317
12930	12935	0.13446	6979.89990	938.5173406

12932	1220	0.23745	300.98685	71.46932753
12932	1221	0.11787	226.59279	26.70849216
12932	12923	0.18687	4749.81152	887.5972787
12932	12942	0.18341	6234.77051	1143.519259
12935	12743	0.13578	2243.31641	304.5975021
12935	12930	0.13446	7426.71387	998.595947
12935	12936	0.02965	8408.59473	249.3148337
12935	13155	0.09511	0.00000	0
12936	12935	0.02965	8620.62793	255.6016181
12936	12938	0.08489	8408.59473	713.8056066
12938	1207	0.25047	0.21438	0.053695759
12938	1487	0.26355	113.12013	29.81281026
12938	12936	0.08489	8620.62793	731.805105
12938	12939	0.01992	8342.89551	166.1904786
12939	12938	0.01992	8552.57520	170.367298
12939	12944	0.12066	8342.89551	1006.653772
12940	1512	0.33627	17.72145	5.959191992
12940	12925	0.61916	0.00000	0
12940	12945	0.25097	17.59336	4.415405559
12942	12932	0.18341	4583.36084	840.6342117
12942	12943	0.08825	6234.77051	550.2184975
12943	12590	0.24427	2426.66650	592.761826
12943	12942	0.08825	4583.36084	404.4815941
12943	12948	0.12412	7970.03955	989.2413089
12943	13100	0.06136	360.68921	22.13188993
12944	12408	0.38032	3417.72095	1299.827632
12944	12939	0.12066	8552.57520	1031.953724
12944	12949	0.33320	11682.40137	3892.576136
12945	1513	0.61643	284.73523	175.5193378
12945	12055	0.60488	682.98889	413.1263198
12945	12940	0.25097	17.72145	4.447552307
12945	12958	0.56030	449.29285	251.7387839
12946	12890	0.12226	2067.84595	252.8148458
12946	13017	0.02411	10.78541	0.260036235
12947	1458	0.12925	506.00491	65.40113462
12947	12948	0.11712	6209.97314	727.3120542
12947	12952	0.05871	8394.52832	492.8427577
12948	12943	0.12412	6209.97314	770.7818661
12948	12947	0.11712	7970.03955	933.4510321
12949	1500	0.31433	118.11963	37.1285433
12949	12944	0.33320	11667.00879	3887.447329
12949	12953	0.03292	11564.28125	380.6961388
12952	1454	0.27694	731.80261	202.6654148
12952	12947	0.05871	6245.80420	366.6911646
12952	12954	0.07171	9145.06348	655.7925022
12953	12949	0.03292	11546.55176	380.1124839
12953	12955	0.13376	11564.28125	1546.83826
12954	12952	0.07171	6936.20703	497.3954061
12954	12956	0.07587	9145.06348	693.8359662
12955	12953	0.13376	11546.55176	1544.466763
12955	12957	0.10136	10022.16211	1015.846351
12955	13494	0.26276	1616.78149	424.8255043
12956	12954	0.07587	6936.20703	526.2500274
12956	12975	0.08342	9145.06348	762.8811955

12957	12955	0.10136	10095.66504	1023.296608
12957	12959	0.07240	10022.16211	725.6045368
12958	1148	0.51484	28.07161	14.45238769
12958	12945	0.56030	418.60327	234.5434122
12958	12976	0.43475	475.11551	206.556468
12959	12957	0.07240	10095.66504	730.9261489
12959	12961	0.08619	10022.16211	863.8101523
12961	12959	0.08619	10095.66504	870.1453698
12961	12963	0.03241	10022.16211	324.818274
12962	13036	0.12777	417.95999	53.40274792
12962	13050	0.08471	30245.75781	2562.118144
12963	12961	0.03241	10095.66504	327.2005039
12963	12966	0.21858	10022.16211	2190.644194
12966	1795	0.99783	193.61583	193.1956836
12966	1796	0.25814	651.00677	168.0508876
12966	12963	0.21858	10095.66504	2206.710464
12966	12970	0.23305	9416.29395	2194.467305
12967	12859	0.06305	26758.60156	1687.129828
12970	12966	0.23305	9494.03125	2212.583983
12970	12971	0.01448	9416.29395	136.3479364
12971	12970	0.01448	9494.03125	137.4735725
12971	12995	0.25034	9416.29395	2357.275027
12972	12868	0.06136	1015.97778	62.34039658
12972	13109	0.05133	1752.69080	89.96561876
12974	12906	0.02957	1557.85974	46.06591251
12975	12883	0.05411	2411.96997	130.5116951
12975	12956	0.08342	6936.20703	578.6183904
12975	12989	0.02368	7417.21436	175.639636
12975	13096	0.04523	1559.24963	70.52486076
12976	11497	0.93560	2859.51855	2675.365555
12976	12958	0.43475	443.47266	192.7997389
12976	13015	1.06738	258.81790	276.2570501
12976	13917	0.50116	3378.62939	1693.233905
12980	12871	0.06192	0.00000	0
12980	13115	0.05134	1393.07080	71.52025487
12981	13121	0.05189	2181.28101	113.1866716
12984	13027	0.01785	29287.58008	522.7833044
12986	12912	0.02902	18203.30664	528.2599587
12989	12975	0.02368	4773.43066	113.034838
12989	12991	0.01931	7417.21436	143.2264093
12990	12761	0.14694	819.42511	120.4063257
12990	12997	0.18004	1345.50415	242.2445672
12990	13496	0.25034	799.68945	200.1942569
12991	13005	0.07277	7417.21436	539.750689
12994	12832	0.09331	8179.87744	763.2643639
12994	13000	0.29590	987.66052	292.2487479
12994	13497	0.24920	9183.04590	2288.415038
12995	11695	0.84786	644.31421	546.2882461
12995	12971	0.25034	9494.03125	2376.735783
12995	13054	0.72228	8439.20605	6095.469746
12995	13206	0.09199	1165.08252	107.175941
12996	1276	0.09260	0.00000	0
12996	13005	0.08964	0.00000	0
12996	13105	0.06100	7325.11963	446.8322974

12997	1154	0.18892	30.09901	5.686304969
12997	12990	0.18004	421.52728	75.89177149
12997	13001	0.09230	1361.92151	125.7053554
12998	1433	0.18557	148.56828	27.56981572
12998	1435	0.16899	0.28502	0.04816553
12998	13035	0.11627	146.03151	16.97908367
13000	1094	0.43760	918.83545	402.0823929
13000	12994	0.29590	988.71033	292.5593866
13000	13003	0.02609	81.25285	2.119886857
13001	12997	0.09230	437.42841	40.37464224
13001	13011	0.14618	1361.92151	199.0856863
13002	1153	0.19968	1.50645	0.300807936
13002	1879	1.26357	1.48302	1.873899581
13003	13000	0.02609	71.45231	1.864190768
13003	13006	0.17858	81.25285	14.51013395
13004	12967	0.00837	26758.60156	223.9694951
13005	1276	0.12266	92.09473	11.29633958
13005	12996	0.08964	7325.11963	656.6237236
13006	1898	0.50162	138.68953	69.56944204
13006	13003	0.17858	71.45231	12.75995352
13006	13008	0.02758	205.77968	5.675403574
13007	12922	0.11760	27973.19922	3289.648228
13008	13006	0.02758	197.71410	5.452954878
13008	13020	0.47370	205.77968	97.47783442
13011	13001	0.14618	437.42841	63.94328497
13011	13013	0.33808	1361.92151	460.4384241
13012	12802	0.12010	892.08698	107.1396463
13012	13117	0.04316	1005.96405	43.4174084
13013	1013	0.47243	38.35636	18.12069515
13013	1877	0.23581	5.46567	1.288859643
13013	13011	0.33808	437.42841	147.8857969
13013	13015	0.22452	1361.80054	305.7514572
13015	12315	0.46693	425.65613	198.7516168
13015	12976	1.06738	1176.60083	1255.880194
13015	13013	0.22452	435.35934	97.74687902
13015	13535	0.25930	265.94855	68.96045902
13016	13017	0.01517	1687.99438	25.60687474
13016	13028	0.12788	3.20719	0.410135457
13017	12946	0.02411	2067.84595	49.85576585
13017	13016	0.01517	3.20719	0.048653072
13017	13019	0.11101	12.78938	1.419749074
13018	13019	0.05654	385.06284	21.77145297
13018	13022	0.18299	12.78938	2.340328646
13019	13017	0.11101	385.06284	42.74582587
13019	13018	0.05654	12.78938	0.723111545
13020	12400	0.41313	1639.65198	677.3894225
13020	13008	0.47370	197.71410	93.65716917
13020	14000	0.52065	1430.71118	744.8997759
13022	677	0.50580	39.29832	19.87709026
13022	13018	0.18299	385.06284	70.46264909
13022	13026	0.14589	45.95562	6.704465402
13023	13004	0.00669	26758.60156	179.0150444
13026	13022	0.14589	42.50550	6.201127395
13026	13037	0.49711	45.95562	22.84499826

13027	13093	0.02343	29287.58008	686.2080013
13028	13016	0.12788	1687.99438	215.8607213
13028	13128	0.11774	3.20719	0.377614551
13030	1152	0.47777	0.09010	0.043047077
13030	1870	0.31251	0.08971	0.028035272
13032	12897	0.05079	867.46283	44.05843714
13032	13041	0.21657	506.94058	109.7881214
13032	13150	0.06083	1148.89648	69.88737288
13034	12278	0.49960	159.45834	79.66538666
13034	13061	0.01574	9.90513	0.155906746
13035	12738	0.17818	4797.80566	854.8730125
13035	12998	0.11627	148.28493	17.24108881
13035	13038	0.04000	3907.44629	156.2978516
13035	13281	0.12602	522.66797	65.86661758
13036	13042	0.02794	417.95999	11.67780212
13037	13026	0.49711	42.50550	21.12990911
13037	13045	0.50126	45.95562	23.03571408
13038	13035	0.04000	3131.19507	125.2478028
13038	13040	0.06623	3907.44629	258.7901678
13039	13023	0.00614	26758.60156	164.2978136
13040	13038	0.06623	3131.19507	207.3790495
13040	13043	0.04691	3907.44629	183.2983055
13041	1413	0.27014	384.03845	103.7441469
13041	13032	0.21657	526.01172	113.9183582
13041	13048	0.03258	419.00027	13.6510288
13042	13142	0.19422	417.95999	81.17618926
13043	1434	0.12592	272.88297	34.36142358
13043	13040	0.04691	3131.19507	146.8843607
13043	13046	0.04828	3958.06274	191.0952691
13044	1993	0.19114	29.82142	5.700066219
13044	13045	0.02120	42.50550	0.9011166
13044	13049	0.22839	41.94342	9.579457694
13045	13037	0.50126	42.50550	21.30630693
13045	13044	0.02120	45.95562	0.974259144
13046	13043	0.04828	3174.67505	153.2733114
13046	30127	0.09970	3958.06274	394.6188552
13047	13048	0.06274	578.08533	36.2690736
13047	13051	0.05176	548.67542	28.39943974
13048	1415	0.11731	140.30333	16.45898364
13048	13041	0.03258	444.72934	14.4892819
13048	13047	0.06274	548.67542	34.42389585
13049	13044	0.22839	49.46565	11.2974598
13049	13056	0.24614	41.94342	10.3239534
13050	13068	0.02091	30245.75781	632.4387958
13051	1414	0.38316	246.82118	94.57200333
13051	13047	0.05176	578.08533	29.92169668
13051	13055	0.07171	444.71997	31.89086905
13054	1780	0.76515	116.05985	88.80319423
13054	1782	0.31192	12.34950	3.85205604
13054	12995	0.72228	8448.25684	6102.00695
13054	13064	0.26195	8378.52246	2194.753958
13055	13051	0.07171	478.46167	34.31048636
13055	30126	0.07794	444.71997	34.66147446
13056	12585	0.28626	1239.02881	354.6843872

13056	13049	0.24614	49.46565	12.17547509
13056	15339	1.49181	1542.76221	2301.508093
13058	12482	0.60307	794.20197	478.959382
13058	13062	0.32206	837.34564	269.6755368
13061	681	1.37130	8.84918	12.13488053
13061	2007	0.35456	169.54369	60.11341073
13061	13034	0.01574	159.45834	2.509874272
13061	13534	0.23661	8.83685	2.090887079
13062	13058	0.32206	794.20197	255.7806865
13062	13101	0.09765	837.34564	81.76680175
13064	13054	0.26195	8386.56641	2196.861071
13064	13091	0.49991	8378.52246	4188.507163
13066	13244	0.08257	15244.14063	1258.708692
13068	13273	0.25286	2629.42651	664.8767873
13068	13296	0.24752	27616.33203	6835.594504
13069	12296	0.51232	104.43874	53.50605528
13069	14012	0.50494	108.80648	54.94074401
13075	12824	0.13192	3715.76440	490.1836396
13075	13250	0.08370	2467.06152	206.4930492
13080	13039	0.01729	26758.60156	462.656221
13090	12848	0.11441	3651.60962	417.7806566
13090	13208	0.05803	3027.81592	175.7041578
13091	13064	0.49991	8386.56641	4192.528414
13091	13098	0.49884	8378.52246	4179.542144
13093	13309	0.11661	29287.58008	3415.224713
13094	13007	0.09517	27973.19922	2662.20937
13096	12975	0.04523	1363.13574	61.65462952
13096	13136	0.02235	1559.24963	34.84922923
13098	1779	0.78499	102.17966	80.2100113
13098	1781	0.24944	125.67303	31.3478806
13098	13091	0.49884	8386.56641	4183.554788
13098	13130	0.99746	8198.59766	8177.773222
13100	12943	0.06136	332.15662	20.3811302
13100	13147	0.02678	360.68921	9.659257044
13101	13062	0.09765	794.20197	77.55382237
13101	14012	0.72070	837.34564	603.4750027
13105	12996	0.06100	0.00000	0
13105	13157	0.04251	7325.11963	311.3908355
13109	12972	0.05133	1015.97778	52.15013945
13109	13233	0.06193	1752.69080	108.5441412
13111	12974	0.05132	1557.85974	79.94936186
13115	13237	0.06192	1393.07080	86.25894394
13117	13012	0.04316	892.08698	38.50247406
13117	13178	0.03475	1005.96405	34.95725074
13121	13223	0.05435	2181.28101	118.5526229
13124	30119	0.03059	3754.75610	114.8579891
13128	13028	0.11774	1687.99438	198.7444583
13128	13152	0.03999	3.20719	0.128255528
13130	12322	0.51039	494.51904	252.3975728
13130	13098	0.99746	8205.21582	8184.374572
13130	13185	1.80656	8847.47168	15983.48844
13130	13583	0.23477	1230.89246	288.9766228
13132	12986	0.06362	18203.30664	1158.094368
13136	13096	0.02235	1363.13574	30.46608379

13136	13158	0.01396	1559.24963	21.76712483
13142	676	0.28389	486.67908	138.163324
13142	13042	0.19422	0.00000	0
13142	13170	0.06858	0.00000	0
13142	13273	0.06730	477.87152	32.1607533
13145	13094	0.05581	27973.19922	1561.184248
13146	21618	0.25447	625.90710	159.2745797
13146	30206	0.25075	322.59961	80.89185221
13147	13100	0.02678	332.15662	8.895154284
13147	13253	0.04772	360.68921	17.2120891
13150	13032	0.06083	1195.15564	72.70131758
13150	13218	0.02866	1148.89648	32.92737312
13152	13128	0.03999	1687.99438	67.50289526
13152	13306	0.09384	3.20719	0.30096271
13155	12935	0.09511	0.00000	0
13155	13320	0.08779	0.00000	0
13157	13105	0.04251	0.00000	0
13157	13200	0.02001	7325.11963	146.5756438
13158	13136	0.01396	1363.13574	19.02937493
13158	13229	0.02904	1559.24963	45.28060926
13159	1718	0.46278	141.00066	65.25228543
13159	12383	0.50143	1064.71790	533.8814966
13159	13160	0.23934	289.14200	69.20324628
13159	13649	0.25198	892.27783	224.8361676
13160	612	0.25340	275.26834	69.75299736
13160	13159	0.23934	291.81985	69.8441629
13160	13161	0.26100	354.07721	92.41415181
13161	611	0.25511	40.44904	10.31895459
13161	13160	0.26100	359.92526	93.94049286
13161	13163	0.12434	354.59964	44.09091924
13162	12895	0.12407	3822.79150	474.2937414
13162	13167	0.08412	424.17343	35.68146893
13162	13168	0.12549	194.00142	24.3452382
13162	13365	0.09573	3277.34106	313.7398597
13163	13161	0.12434	361.05417	44.8934755
13163	13165	0.04965	235.68684	11.70185161
13163	13412	0.12746	118.91280	15.15662549
13164	13165	0.05102	234.63852	11.97125729
13164	13169	0.04828	235.68684	11.37896064
13165	13163	0.04965	234.63852	11.64980252
13165	13164	0.05102	235.68684	12.02474258
13166	1208	0.13125	2983.14355	391.5375909
13166	12924	0.10296	4834.85693	497.7968695
13166	30119	0.00474	927.38281	4.395794519
13167	13162	0.08412	420.02530	35.33252824
13167	13172	0.06482	424.17343	27.49492173
13168	13162	0.12549	194.50311	24.40819527
13168	13171	0.06344	194.00142	12.30745008
13169	13164	0.04828	234.63852	11.32834775
13169	13171	0.03103	235.68684	7.313362645
13170	13142	0.06858	0.00000	0
13170	13210	0.07160	0.00000	0
13171	614	0.12856	41.18374	5.294581614
13171	13168	0.06344	194.50311	12.3392773

13171	13169	0.03103	234.63852	7.280833276
13172	621	0.12901	65.77604	8.48576692
13172	622	0.09937	171.67221	17.05906751
13172	13167	0.06482	420.02530	27.22603995
13172	13174	0.05723	319.15143	18.26503634
13174	13172	0.05723	317.83496	18.18969476
13174	13177	0.05171	319.15143	16.50332045
13175	13176	0.06343	318.80728	20.22194577
13175	13179	0.15308	481.49323	73.70698365
13175	13348	0.09056	193.29103	17.50443568
13176	639	0.12506	11.57491	1.447558245
13176	13175	0.06343	319.90335	20.29146949
13176	13177	0.06205	317.83496	19.72165927
13177	13174	0.05171	317.83496	16.43524578
13177	13176	0.06205	319.15143	19.80334623
13178	13117	0.03475	892.08698	31.00002256
13178	13256	0.03699	1005.96405	37.21061021
13179	630	0.19027	97.87679	18.62301683
13179	638	0.09864	245.98462	24.26392292
13179	13175	0.15308	481.25089	73.66988624
13179	13181	0.09170	587.15002	53.84165683
13181	13179	0.09170	592.57227	54.33887716
13181	13184	0.05034	587.15002	29.55713201
13184	13181	0.05034	592.57227	29.83008807
13184	13186	0.18473	587.15002	108.4642232
13185	13130	1.80656	8868.12207	16020.79461
13185	13197	0.19239	8847.47168	1702.165077
13186	632	0.13345	105.36685	14.06120613
13186	13184	0.18473	592.57227	109.4658754
13186	13189	0.14072	481.78320	67.7965319
13187	116	0.32386	51.80198	16.77658924
13187	13190	0.03724	52.36204	1.94996237
13188	13189	0.09239	4086.05859	377.5109531
13188	13192	0.06759	4275.30078	288.9675797
13189	12728	0.25292	4869.35352	1231.556892
13189	13186	0.14072	488.56131	68.75034754
13189	13188	0.09239	4275.30078	394.9950391
13189	13284	0.05231	745.60901	39.00280731
13190	13187	0.03724	51.80198	1.929105735
13190	13193	0.04552	3537.79102	161.0402472
13190	13373	0.10907	3672.80469	400.5928075
13192	112	0.25698	560.15594	143.9488735
13192	13188	0.06759	4086.05859	276.1767001
13192	13193	0.09929	3724.60669	369.8161983
13193	13190	0.04552	3724.60669	169.5440965
13193	13192	0.09929	3537.79102	351.2672704
13195	12989	0.12640	4773.43066	603.3616354
13196	13538	0.42014	1471.03943	618.0425061
13196	13980	0.45758	1566.58630	716.8385592
13197	12834	0.18159	648.92499	117.8382889
13197	13185	0.19239	8868.12207	1706.138005
13197	13263	0.92090	8856.99219	8156.404108
13200	1275	0.21835	785.13538	171.4343102
13200	1276	0.09109	277.55145	25.28216158

13200	1277	0.16213	60.99784	9.889579799
13200	13157	0.02001	0.00000	0
13200	13234	0.02638	7689.01172	202.8361292
13204	12682	0.29368	856.81433	251.6292324
13204	13262	0.03241	843.16577	27.32700261
13206	12995	0.09199	1199.94299	110.3827557
13206	13370	0.08534	1165.08252	99.42814226
13208	1393	0.16831	989.45587	166.5353175
13208	13090	0.05803	3651.60962	211.9029062
13208	13318	0.06752	2893.08252	195.3409318
13210	13170	0.07160	0.00000	0
13210	13232	0.07228	0.00000	0
13218	1394	0.14780	142.03685	20.99304643
13218	1415	0.22415	325.26532	72.90822148
13218	13150	0.02866	1195.15564	34.25316064
13218	13276	0.03339	1016.85382	33.95274905
13219	95	6.00000	728.89410	4373.3646
13219	13889	0.38580	718.16412	277.0677175
13221	1308	0.06037	2994.13086	180.75568
13221	13132	0.04057	18203.30664	738.5081504
13223	1307	0.03478	1021.72760	35.53568593
13223	1308	0.06665	543.48108	36.22301398
13223	13352	0.07007	1482.41980	103.8731554
13229	1458	0.28935	4.19000	1.2123765
13229	1469	0.07764	202.90465	15.75351703
13229	13158	0.02904	1363.13574	39.58546189
13229	13298	0.04239	1490.04810	63.16313896
13232	13210	0.07228	0.00000	0
13232	13259	0.07363	966.39252	71.15548125
13232	13288	0.03420	94.97059	3.247994178
13233	1277	0.10756	370.39453	39.83963565
13233	1304	0.06275	879.08044	55.16229761
13233	13109	0.06193	1015.97778	62.91950392
13233	13344	0.06304	2245.33472	141.5459007
13234	13200	0.02638	1047.34729	27.62902151
13234	13287	0.04728	7689.01172	363.5364741
13236	1305	0.02664	0.00000	0
13237	1306	0.03026	341.27252	10.32690646
13237	1307	0.03328	229.15436	7.626257101
13237	13349	0.06304	1461.16260	92.1116903
13239	1304	0.03034	0.00000	0
13240	1305	0.03474	427.01123	14.83437013
13240	1306	0.02906	2.65251	0.077081941
13240	13111	0.06304	1557.85974	98.20747801
13244	13265	0.01379	15244.14063	210.2166993
13250	1285	0.25307	560.91626	141.9510779
13250	1349	0.22123	170.50511	37.72084549
13250	13075	0.08370	3715.76440	311.0094803
13250	13367	0.06362	2249.98145	143.1438198
13253	1458	0.23645	41.77195	9.876977578
13253	1460	0.06315	86.94619	5.490651899
13253	13147	0.04772	332.15662	15.85051391
13253	13445	0.11125	364.70444	40.57336895
13256	13178	0.03699	892.08698	32.99829739

13256	13311	0.03755	1005.96405	37.77395008
13258	4574	0.10008	481.82721	48.22126718
13258	29964	0.01175	456.63788	5.36549509
13258	30112	0.01309	0.00000	0
13259	13232	0.07363	94.97059	6.992684542
13259	13277	0.07770	966.39252	75.0886988
13262	13204	0.03241	856.81433	27.76935244
13262	14041	0.42927	843.16577	361.9457701
13263	1762	0.53114	155.43106	82.55565321
13263	13197	0.92090	8875.57227	8173.514503
13263	13477	0.32627	8826.99609	2879.984014
13265	1349	0.21697	156.35548	33.9244485
13265	13356	0.04765	15411.70508	734.3677471
13268	1276	0.05910	38.61958	2.282417178
13268	1469	0.08437	325.07574	27.42664018
13268	13195	0.05823	4773.43066	277.9568673
13273	13142	0.06730	68.71908	4.624794084
13273	13384	0.05998	3107.29810	186.37574
13274	13221	0.03122	19039.74609	594.4208729
13276	13218	0.03339	1068.60266	35.68064282
13276	13394	0.06196	1016.85382	63.00426269
13277	13259	0.07770	94.97059	7.379214843
13277	13295	0.07150	966.39252	69.09706518
13281	13035	0.12602	1947.23511	245.3905686
13281	13326	0.02859	522.66797	14.94307726
13284	13189	0.05231	736.53082	38.52792719
13284	13387	0.05398	745.60901	40.24797436
13287	13234	0.04728	1047.34729	49.51857987
13287	13297	0.01001	7689.01172	76.96700732
13288	13232	0.03420	966.39252	33.05062418
13288	13340	0.03035	94.97059	2.882357407
13294	13320	0.24576	0.00000	0
13294	30116	0.00427	17.89777	0.076423478
13294	30118	0.03667	4213.99658	154.5272546
13295	13277	0.07150	94.97059	6.790397185
13295	13311	0.05821	966.39252	56.25370859
13296	13307	0.02455	27616.33203	677.9809513
13297	13287	0.01001	1047.34729	10.48394637
13297	13336	0.03090	7689.01172	237.5904621
13297	13338	0.02906	0.00000	0
13298	13229	0.04239	1300.00244	55.10710343
13298	13335	0.02120	1490.04810	31.58901972
13306	13152	0.09384	1687.99438	158.4013926
13306	13361	0.02932	564.18744	16.54197574
13307	13418	0.30466	27616.33203	8413.591716
13309	13328	0.01062	29287.58008	311.0341004
13310	13080	0.12441	26758.60156	3329.03762
13311	13256	0.03755	892.08698	33.4978661
13311	13295	0.05821	94.97059	5.528238044
13311	13321	0.09132	1819.85901	166.1895248
13311	13434	0.06558	331.29468	21.72630511
13317	13145	0.19643	27973.19922	5494.775523
13317	13306	0.15421	560.98029	86.50877052
13318	1285	0.24891	343.35007	85.46326592

13318	13208	0.06752	3434.08032	231.8691032
13318	13495	0.08817	2777.65894	244.9061887
13319	13317	0.00725	28534.17969	206.8728028
13320	13155	0.08779	0.00000	0
13320	13294	0.24576	0.00000	0
13321	13311	0.09132	53.90249	4.922375387
13321	13322	0.02690	1819.85901	48.95420737
13322	13321	0.02690	0.00000	0
13322	13372	0.14767	1819.85901	268.73858
13326	1435	0.07070	118.90551	8.406619557
13326	13281	0.02859	1947.23511	55.67145179
13326	13505	0.08889	491.12939	43.65649148
13327	13268	0.04893	5012.57666	245.265376
13328	13377	0.01785	29287.58008	522.7833044
13330	13310	0.01060	26758.60156	283.6411765
13331	13319	0.02357	28534.17969	672.5506153
13332	13354	0.01895	499.14786	9.458851947
13332	30116	0.06826	1157.41577	79.00520046
13335	13298	0.02120	1300.00244	27.56005173
13335	13451	0.06192	1490.04810	92.26377835
13336	13297	0.03090	882.45703	27.26792223
13336	13339	0.07791	11189.46094	871.7709018
13336	13396	0.03770	199.65007	7.526807639
13337	13336	0.01310	3355.63721	43.95884745
13338	1276	0.15476	0.60551	0.093708728
13338	13297	0.02906	164.89026	4.791710956
13338	13337	0.02689	3355.63721	90.23308458
13339	1277	0.06304	30.17590	1.902288736
13339	13344	0.10756	11543.22754	1241.589554
13340	13288	0.03035	966.39252	29.33001298
13340	13441	0.05811	94.97059	5.518740985
13341	13345	0.01311	13695.91895	179.5534974
13342	13341	0.04895	13695.91895	670.4152326
13344	13233	0.06304	1811.64941	114.2063788
13344	13342	0.06343	13695.91895	868.732139
13344	13465	0.06304	1158.75476	73.04790007
13345	13346	0.02805	13695.91895	384.1705265
13346	1305	0.06273	186.01268	11.66857542
13346	13351	0.03403	14030.16895	477.4466494
13347	1307	0.05668	1360.96399	77.13943895
13347	13352	0.03067	16256.79688	498.5959603
13348	622	0.21200	74.01749	15.69170788
13348	13175	0.09056	192.43726	17.42711827
13348	13545	0.09585	119.27354	11.43236881
13349	13347	0.03345	15620.85059	522.5174522
13349	13473	0.06304	1972.28357	124.3327563
13350	1306	0.06225	1011.58972	62.97146007
13350	13349	0.03018	16131.97168	486.8629053
13351	13240	0.06249	1700.48462	106.2632839
13351	13350	0.02981	15935.26758	475.0303266
13352	13355	0.03310	16271.34668	538.5815751
13352	13466	0.06193	1467.87012	90.90519653
13353	1308	0.06740	752.70819	50.73253201
13353	1309	0.03388	51.17525	1.73381747

13353	13357	0.05931	16808.17188	996.8926742
13354	13332	0.01895	1157.41577	21.93302884
13354	13375	0.02361	499.14786	11.78488097
13355	13353	0.03172	16271.34668	516.1271167
13356	13358	0.03794	4994.71973	189.4996666
13356	13474	0.06250	21295.73047	1330.983154
13357	13274	0.04129	19039.74609	786.1511161
13357	13356	0.07104	10878.74512	772.8260533
13358	13363	0.06344	4994.71973	316.8650197
13360	13364	0.05499	4994.71973	274.659638
13361	677	0.50284	626.06055	314.808287
13361	13306	0.02932	1687.99438	49.49199522
13361	13384	0.14833	576.04028	85.44405473
13363	13360	0.05792	4994.71973	289.2941668
13364	1349	0.06489	181.51176	11.77829811
13364	1472	0.05798	115.89536	6.719612973
13364	13366	0.14359	4734.72852	679.8596682
13365	13162	0.09573	3464.73926	331.6794894
13365	13407	0.03007	3277.34106	98.54964567
13366	13369	0.07240	4734.72852	342.7943448
13367	13250	0.06362	3942.98120	250.8524639
13367	13416	0.03208	5192.69629	166.581697
13369	13367	0.00758	4734.72852	35.88924218
13370	13206	0.08534	1199.94299	102.4031348
13370	13383	0.01282	1165.08252	14.93635791
13372	13322	0.14767	0.00000	0
13372	13382	0.03940	1819.85901	71.70244499
13373	13190	0.10907	3485.42896	380.1557367
13373	13565	0.11140	3672.80469	409.1504425
13374	1796	0.06803	0.00000	0
13375	13354	0.02361	1157.41577	27.32658633
13375	13398	0.05257	499.14786	26.240203
13377	13392	0.00948	29287.58008	277.6462592
13378	13321	0.03528	53.90249	1.901679847
13378	13322	0.02131	0.00000	0
13380	13330	0.01729	26758.60156	462.656221
13382	13372	0.03940	0.00000	0
13382	13389	0.02926	1819.85901	53.24907463
13383	13370	0.01282	1199.94299	15.38326913
13383	13579	0.09866	1165.08252	114.9470414
13384	13273	0.05998	68.71908	4.121770418
13384	13361	0.14833	2086.43262	309.4805505
13384	13400	0.06151	2241.63477	137.8829547
13384	13520	0.06669	950.18451	63.36780497
13386	13380	0.00781	26758.60156	208.9846782
13387	13284	0.05398	736.53082	39.75793366
13387	13425	0.02318	745.60901	17.28321685
13389	13403	0.03748	0.00000	0
13389	13431	0.11690	1819.85901	212.7415183
13392	13429	0.02455	29287.58008	719.010091
13394	13276	0.06196	1068.60266	66.21062081
13394	13527	0.06585	1016.85382	66.95982405
13396	1471	0.06577	207.06693	13.61879199
13396	13336	0.03770	1226.91980	46.25487646

13396	13450	0.04588	162.34404	7.448344555
13397	1471	0.05474	29.92957	1.638344662
13397	13338	0.04099	3521.13306	144.3312441
13398	1221	0.11331	52.15889	5.910123826
13398	1459	0.13768	292.21179	40.23171925
13398	13375	0.05257	1157.41577	60.84534703
13398	13405	0.05805	639.24713	37.1082959
13400	13384	0.06151	843.09723	51.85891062
13400	13423	0.07160	2241.63477	160.5010495
13403	13382	0.02657	0.00000	0
13405	13398	0.05805	1315.65735	76.37390917
13405	13444	0.14021	639.24713	89.6288401
13407	614	0.18877	544.73059	102.8287935
13407	622	0.16798	101.08796	16.98075552
13407	13365	0.03007	3464.73926	104.1847095
13407	13542	0.06231	3399.01855	211.7928459
13408	1309	0.05609	0.00000	0
13408	13357	0.03175	13110.31934	416.252639
13412	614	0.18376	0.00000	0
13412	13163	0.12746	126.41565	16.11293875
13412	13485	0.03113	118.91280	3.701755464
13416	1472	0.17526	63.81148	11.18359998
13416	13367	0.03208	2150.96753	69.00303836
13416	13488	0.03268	5168.69922	168.9130905
13418	13498	0.20966	27616.33203	5790.040173
13423	13400	0.07160	843.09723	60.36576167
13423	13441	0.06879	2241.63477	154.2020558
13425	632	0.14224	401.53052	57.11370116
13425	13387	0.02318	736.53082	17.07278441
13425	13571	0.06644	851.88531	56.59926
13429	13460	0.01618	29287.58008	473.8730457
13430	13386	0.02566	26758.60156	686.625716
13431	13526	0.25113	29382.28711	7378.773762
13433	2007	0.66627	1.79832	1.198166666
13433	2008	1.04936	118.89011	124.7585258
13433	12268	0.71372	0.00000	0
13433	13961	0.28790	93.43357	26.8995248
13434	13311	0.06558	1111.95215	72.921822
13434	13524	0.03811	331.29468	12.62564025
13436	13331	0.30104	28534.17969	8589.929454
13438	13327	0.09164	5012.57666	459.3525251
13438	13397	0.06885	3547.67993	244.2577632
13438	13452	0.08275	1952.53345	161.572143
13438	13609	0.09363	1166.92578	109.2592608
13440	1487	0.20342	0.00000	0
13441	678	0.23686	898.39099	212.7928899
13441	13340	0.05811	966.39252	56.15706934
13441	13423	0.06879	843.09723	57.99665845
13441	13489	0.08004	917.01941	73.39823358
13442	13443	0.03297	1997.07312	65.84350077
13442	13445	0.06274	1320.18347	82.82831091
13443	1241	0.14037	1057.80347	148.4838731
13443	1460	0.10922	5.58841	0.61036614
13443	13442	0.03297	1320.18347	43.52644901

13443	13444	0.02564	1315.65735	33.73345445
13444	13405	0.14021	1315.65735	184.468317
13444	13443	0.02564	639.24713	16.39029641
13445	13253	0.11125	336.92551	37.48296299
13445	13442	0.06274	1997.07312	125.2963675
13445	13446	0.06343	1117.61523	70.89033404
13445	13641	0.09482	0.00000	0
13446	13445	0.06343	1766.72607	112.0634346
13446	13448	0.06068	1117.61523	67.81689216
13447	13448	0.05929	1766.72607	104.7491887
13447	13449	0.06070	1117.61523	67.83924446
13448	13446	0.06068	1766.72607	107.2049379
13448	13447	0.05929	1117.61523	66.26340699
13449	1240	0.12789	115.35713	14.75302336
13449	1458	0.11941	548.79510	65.53162289
13449	13447	0.06070	1766.72607	107.2402724
13449	13453	0.20133	1158.58276	233.2574671
13450	13396	0.04588	1224.80090	56.19386529
13450	13564	0.06245	8203.96484	512.3376043
13451	13335	0.06192	1300.00244	80.49615108
13451	13453	0.07860	2207.36768	173.4990996
13451	13456	0.08069	921.04211	74.31888786
13451	13584	0.06192	2175.91602	134.73272
13452	1469	0.13984	1.06594	0.14906105
13452	1470	0.12657	171.54259	21.71214562
13452	13438	0.08275	1435.19360	118.7622704
13452	13455	0.04897	1782.07031	87.26798308
13453	13449	0.20133	2207.36768	444.409335
13453	13451	0.07860	1158.58276	91.06460494
13454	13450	0.02052	9078.69043	186.2947276
13455	13452	0.04897	921.04211	45.10343213
13455	13456	0.04137	1782.07031	73.72424872
13456	13451	0.08069	1782.07031	143.7952533
13456	13455	0.04137	921.04211	38.10351209
13458	1310	0.12608	170.71732	21.52403971
13458	13465	0.06206	11604.40625	720.1694519
13459	13461	0.01448	11550.78027	167.2552983
13460	13747	0.17909	29287.58008	5245.112717
13461	13462	0.01793	11550.78027	207.1054902
13462	13458	0.03103	11550.78027	358.4207118
13463	1311	0.12560	273.63681	34.36878334
13463	13459	0.03073	11550.78027	354.9554777
13464	13351	0.06193	3605.58325	223.2937707
13464	13463	0.03063	11729.01367	359.2596887
13465	13344	0.06304	2877.76123	181.4140679
13465	13454	0.10828	9078.69043	983.0405998
13465	13594	0.06138	2530.28857	155.3091124
13466	13473	0.06412	13355.80859	856.3744468
13466	13605	0.06529	1052.86157	68.74133191
13467	1312	0.12603	750.07092	94.53143805
13467	13464	0.03294	14376.53320	473.5630036
13468	1309	0.02924	153.07402	4.475884345
13468	1314	0.12543	807.05914	101.2294279
13468	13469	0.00974	12940.79980	126.0433901

13469	13466	0.06274	12940.79980	811.9057795
13470	13507	0.21412	28746.73242	6155.250346
13471	13430	0.01729	26758.60156	462.656221
13472	13408	0.02964	12957.18457	384.0509507
13472	13468	0.05242	13550.59473	710.3221757
13473	13467	0.02775	14514.30176	402.7718738
13473	13601	0.06250	813.79077	50.86192313
13474	13472	0.06905	11595.53516	800.6717028
13474	13602	0.06305	14773.40137	931.4629564
13476	13474	0.03930	5073.20508	199.3769596
13477	13263	0.32627	8844.94336	2885.83967
13477	14041	0.83479	8826.99609	7368.688066
13478	13476	0.06343	5073.20508	321.7933982
13479	13480	0.01999	5073.20508	101.4133695
13480	13478	0.05793	5073.20508	293.8907703
13482	1298	0.12281	208.66457	25.62609584
13482	1472	0.06628	0.85587	0.056727064
13482	13479	0.02190	5073.20508	111.1031913
13483	13482	0.06706	4726.27930	316.9442899
13485	13412	0.03113	126.41565	3.935319185
13485	13654	0.09348	118.91280	11.11596854
13486	13483	0.08896	4726.27930	420.4498065
13487	13431	0.20370	27562.42969	5614.466928
13488	13416	0.03268	2130.55859	69.62665472
13488	13486	0.07969	4726.27930	376.6371974
13488	13491	0.08760	2032.12927	178.0145241
13488	13608	0.05858	2506.93701	146.85637
13489	13441	0.08004	21.73723	1.739847889
13489	13506	0.06587	917.01941	60.40406854
13490	13491	0.03585	2794.43066	100.1803392
13490	13492	0.06343	2032.12927	128.8979596
13491	13488	0.08760	2794.43066	244.7921258
13491	13490	0.03585	2032.12927	72.85183433
13492	13490	0.06343	2794.43066	177.2507368
13492	13493	0.06336	2032.12927	128.7557105
13493	1285	0.08806	62.25745	5.482391047
13493	1372	0.13209	4.32697	0.571549467
13493	13492	0.06336	2794.43066	177.0551266
13493	13495	0.24862	1974.17053	490.8182772
13494	1500	0.18666	60.89376	11.36642924
13494	1796	0.51059	158.30507	80.82898569
13494	12955	0.26276	1525.54810	400.8530188
13494	13621	0.06176	1771.97205	109.4369938
13495	13318	0.08817	3324.34985	293.1079263
13495	13493	0.24862	2318.48706	576.4222529
13495	13500	0.12483	1413.12964	176.400973
13495	13632	0.06696	3049.42554	204.1895342
13496	12990	0.25034	790.08966	197.7910455
13496	13499	0.96665	379.66412	367.0023216
13496	13927	0.25168	697.89673	175.646649
13497	1898	0.56317	345.62369	194.6448935
13497	12994	0.24920	9023.82031	2248.736021
13497	13499	0.07724	370.81088	28.64143237
13497	14646	0.74927	9135.85547	6845.222428

13498	13378	0.15372	53.90249	8.285890763
13498	13487	0.22693	27562.42969	6254.74217
13499	13496	0.96665	370.81088	358.4443372
13499	13497	0.07724	379.66412	29.32525663
13500	13495	0.12483	1444.06580	180.2627338
13500	13501	0.05236	1413.12964	73.99146795
13501	1393	0.16501	229.79181	37.91794657
13501	1395	0.15883	184.05952	29.23417356
13501	13500	0.05236	1444.06580	75.61128529
13501	13519	0.07273	1720.49023	125.1312544
13504	13510	0.06844	0.00000	0
13504	13530	0.06457	0.00000	0
13505	13326	0.08889	1918.20154	170.5089349
13505	13504	0.06386	0.00000	0
13505	13530	0.00896	497.18027	4.454735219
13506	13489	0.06587	21.73723	1.43183134
13506	13618	0.16466	917.01941	150.9964161
13507	13532	0.21434	27367.53125	5865.956648
13507	13618	0.23984	1379.20056	330.7874623
13508	8865	0.01371	8046.15869	110.3128356
13510	13504	0.06857	0.00000	0
13515	1447	0.33250	0.00045	0.000149625
13515	1449	0.10371	0.00045	4.66695E-05
13518	13505	0.08421	1676.98669	141.2190492
13519	13501	0.07273	1850.40198	134.579736
13519	13523	0.09793	1720.49023	168.4876082
13520	13384	0.06669	820.53534	54.72150182
13520	13635	0.05829	950.18451	55.38625509
13523	1394	0.16249	146.46500	23.79909785
13523	13519	0.09793	1850.40198	181.2098659
13523	13525	0.06620	1574.02527	104.2004729
13524	13434	0.03811	1111.95215	42.37649644
13524	13570	0.02131	331.29468	7.059889631
13525	13523	0.06620	1709.12878	113.1443252
13525	13527	0.08550	1574.02527	134.5791606
13526	13800	0.99033	29382.28711	29098.16039
13527	13394	0.06585	1068.60266	70.36748516
13527	13525	0.08550	1709.12878	146.1305107
13527	13528	0.05862	1085.97107	63.65962412
13528	13527	0.05862	1272.82324	74.61289833
13528	13529	0.03793	1085.97107	41.19088269
13529	13528	0.03793	1272.82324	48.27818549
13529	13537	0.11864	1085.97107	128.8396077
13530	1436	0.17867	270.59225	48.34671731
13530	13505	0.00896	247.26564	2.215500134
13530	13536	0.08346	239.91104	20.0229754
13532	13436	0.21315	27367.53125	5833.389286
13533	1434	0.12231	192.03951	23.48835247
13533	13518	0.10905	1676.98669	182.8753985
13533	13559	0.00893	178.22578	1.591556215
13534	13061	0.23661	317.57153	75.14059971
13534	13887	0.22205	8.83685	1.962222543
13535	1870	0.50490	18.92774	9.556615926
13535	1877	0.20370	7.91348	1.611975876

13535	13015	0.25930	279.75113	72.53946801
13535	13926	0.23557	244.18942	57.52370167
13536	13540	0.04158	239.91104	9.975501043
13537	13529	0.11864	1272.82324	151.0077492
13537	13539	0.01913	1085.97107	20.77462657
13538	13196	0.42014	1566.58630	658.1855681
13538	20762	0.08303	1471.03943	122.1404039
13539	1415	0.13494	7.51939	1.014666487
13539	1416	0.12071	544.37439	65.71143262
13539	13537	0.01913	1272.82324	24.34910858
13539	13543	0.05675	991.96906	56.29424416
13540	13559	0.06758	239.91104	16.21318808
13541	13544	0.06206	349.82312	21.71002283
13541	13545	0.06275	349.16254	21.90994939
13542	13407	0.06231	3597.23022	224.143415
13542	13548	0.06758	371.42059	25.10060347
13542	13653	0.06398	3059.06592	195.7190376
13543	13539	0.05675	1135.62244	64.44657347
13543	13547	0.03999	991.96906	39.66884271
13544	13541	0.06206	349.16254	21.66902723
13544	13546	0.06590	349.82312	23.05334361
13545	630	0.15348	450.08600	69.07919928
13545	13348	0.09585	120.17330	11.51861081
13545	13541	0.06275	349.82312	21.95140078
13545	13666	0.08414	558.29608	46.97503217
13546	622	0.09319	191.62950	17.85795311
13546	623	0.09015	210.01555	18.93290183
13546	13544	0.06590	349.16254	23.00981139
13546	13548	0.12095	365.42535	44.19819608
13547	13543	0.03999	1135.62244	45.41354138
13547	13550	0.03036	991.96906	30.11618066
13548	13542	0.06758	365.42535	24.69544515
13548	13546	0.12095	371.42059	44.92332036
13549	13508	0.00402	8046.15869	32.34555793
13549	13626	0.06404	1.20412	0.077111845
13550	13547	0.03036	1135.62244	34.47749728
13550	13551	0.04897	991.96906	48.57672487
13551	13550	0.04897	1135.62244	55.61143089
13551	13553	0.02138	991.96906	21.2082985
13553	13551	0.02138	1135.62244	24.27960777
13553	13557	0.07520	991.96906	74.59607331
13556	13533	0.11896	1864.76721	221.8327073
13556	13557	0.00898	825.00665	7.408559717
13556	30129	0.23317	7610.15479	1774.459792
13557	13553	0.07520	1135.62244	85.39880749
13557	13556	0.00898	2234.23096	20.06339402
13557	30131	0.13186	7097.96484	935.9376438
13559	13533	0.00893	2.11931	0.018925438
13559	13556	0.11874	416.01752	49.39792032
13564	1471	0.05968	1.55494	0.092798819
13564	13450	0.06245	187.73198	11.72386215
13564	13592	0.02415	8204.33203	198.1346185
13565	13373	0.11140	3485.42896	388.2767861
13565	13651	0.05904	3672.80469	216.8423889

13568	13294	0.13710	3113.38940	426.8456867
13570	13436	0.19812	1166.64783	231.1362681
13570	13524	0.02131	1111.95215	23.69570032
13570	13618	0.02691	164.51004	4.426965176
13571	13425	0.06644	848.47205	56.372483
13571	13766	0.13745	851.88531	117.0916359
13576	13472	0.05022	14912.24414	748.8929007
13579	1782	0.61896	72.10744	44.63162106
13579	1796	0.50000	60.88438	30.44219
13579	13383	0.09866	1199.94299	118.3863754
13579	13699	0.08142	1199.31958	97.6486002
13581	824	0.46916	700.44537	328.6209498
13581	20762	0.07254	2282.01489	165.5373601
13581	21073	0.36033	2583.20703	930.8069891
13583	1781	1.00766	5.54535	5.587827381
13583	13130	0.23477	1219.13538	286.2164132
13583	14018	0.25446	1236.48389	314.6356906
13584	13451	0.06192	2173.62695	134.5909807
13584	13637	0.02454	2175.91602	53.39697913
13592	13564	0.02415	189.28693	4.57127936
13592	13626	0.02706	8204.33203	222.0092247
13594	13465	0.06138	1723.57874	105.7932631
13594	13648	0.03124	2530.28857	79.04621493
13600	13464	0.06249	958.06433	59.86943998
13601	13680	0.06249	813.79077	50.85378522
13602	13683	0.06305	4029.43945	254.0561573
13602	13752	0.12188	10743.96191	1309.474078
13605	13681	0.06087	1052.86157	64.08768377
13608	13488	0.05858	3432.77466	201.0919396
13608	13690	0.06361	2506.93701	159.4662632
13609	1470	0.11921	0.68511	0.081671963
13609	13438	0.09363	2198.36328	205.8327539
13609	13722	0.10992	1167.61401	128.344132
13618	682	0.46734	268.10773	125.2974665
13618	13506	0.16466	21.73723	3.579252292
13618	13570	0.02691	2111.81543	56.82895322
13618	13644	0.01739	1677.67358	29.17474356
13621	13494	0.06176	1700.31519	105.0114661
13621	13849	0.15729	1771.97205	278.7134837
13626	1278	0.16486	217.98022	35.93621907
13626	1279	0.10711	157.20610	16.83834537
13626	13549	0.06404	7981.66553	511.1458605
13626	13592	0.02706	189.28693	5.122104326
13626	13643	0.01393	0.00000	0
13632	13495	0.06696	3909.49707	261.7799238
13632	13721	0.06361	3049.42554	193.9739586
13635	13520	0.05829	820.53534	47.82900497
13635	13714	0.06109	950.18451	58.04677172
13637	13584	0.02454	2173.62695	53.34080535
13637	13670	0.03793	2175.91602	82.53249464
13641	13445	0.09482	0.00000	0
13641	13684	0.03828	0.00000	0
13643	13626	0.01393	0.00000	0
13644	13618	0.01739	1351.24719	23.49818863

13644	13704	0.04932	1677.67358	82.74286097
13646	1310	0.03291	0.00000	0
13648	13594	0.03124	1723.57874	53.84459984
13648	13676	0.03180	2530.28857	80.46317653
13649	612	0.25374	0.00000	0
13649	13159	0.25198	744.51886	187.6038623
13649	14073	0.24808	892.27783	221.3562841
13650	13652	0.07722	54.16129	4.182334814
13650	13653	0.07654	54.42817	4.165932132
13651	112	0.24887	495.46170	123.3055533
13651	13565	0.05904	3485.42896	205.7797258
13651	13703	0.04976	4160.86963	207.0448728
13652	13650	0.07722	54.42817	4.202943287
13652	13655	0.06343	54.16129	3.435450625
13653	13542	0.06398	3263.27271	208.784188
13653	13650	0.07654	54.16129	4.145505137
13653	13702	0.04269	3090.27368	131.9237834
13654	612	0.37026	80.66055	29.86537524
13654	13485	0.09348	126.41565	11.81733496
13654	13655	0.15652	233.67087	36.57416457
13654	13826	0.12361	51.05984	6.311506822
13655	614	0.12498	72.47536	9.057970493
13655	615	0.12114	146.42735	17.73820918
13655	13652	0.06343	54.42817	3.452378823
13655	13654	0.15652	241.57526	37.8113597
13664	1436	0.24711	0.13645	0.03371816
13664	1449	0.20905	0.13784	0.028815452
13666	623	0.19186	53.74425	10.31137181
13666	13545	0.08414	569.18030	47.89083044
13666	13817	0.09896	504.55179	49.93044514
13667	13848	0.11871	2757.70435	327.3670834
13670	1240	0.27781	418.46494	116.253745
13670	1470	0.08477	126.13243	10.69224609
13670	13637	0.03793	2173.62695	82.44567021
13670	13743	0.04853	2059.72852	99.95862508
13676	1279	0.12082	519.16309	62.72528453
13676	1310	0.06275	119.45840	7.4960146
13676	13648	0.03180	1723.57874	54.80980393
13676	13773	0.06248	2016.44543	125.9875105
13677	1311	0.03194	127.13775	4.060779735
13677	1312	0.03032	104.70000	3.174504
13677	13600	0.06248	958.06433	59.85985934
13680	1312	0.03180	258.81281	8.230247358
13680	1313	0.03125	232.68266	7.271333125
13680	13779	0.06248	1020.29187	63.74783604
13681	1313	0.03204	531.47833	17.02856569
13681	1314	0.06489	342.98334	22.25618893
13681	13783	0.06244	1019.20837	63.63937062
13682	13576	0.07532	5482.91943	412.9734915
13683	1298	0.20407	442.10437	90.22023879
13683	13782	0.06139	3587.33521	220.2265085
13684	1241	0.13716	0.00000	0
13684	13641	0.03828	0.00000	0
13684	13749	0.05377	0.00000	0

13690	1298	0.23309	93.66477	21.83232124
13690	1372	0.24939	445.70950	111.1554922
13690	13608	0.06361	3432.77466	218.3587961
13690	13706	0.01174	2370.24536	27.82668053
13699	13579	0.08142	1235.25989	100.5748602
13699	13942	0.13270	1199.31958	159.1497083
13700	1314	0.06056	499.98676	30.27919819
13700	13682	0.01033	5482.91943	56.63855771
13702	623	0.18634	119.00073	22.17459603
13702	13653	0.04269	3294.21362	140.6299794
13702	13733	0.02407	3143.22437	75.65741059
13703	13651	0.04976	3980.89063	198.0891177
13703	13829	0.09311	4160.86963	387.4185712
13704	13644	0.04932	1351.24719	66.64351141
13704	13740	0.02690	1677.67358	45.1294193
13706	13690	0.01174	3069.65649	36.03776719
13706	13791	0.05077	2370.24536	120.3373569
13714	13635	0.06109	820.53534	50.12650392
13714	13941	0.12498	950.18451	118.7540601
13720	1372	0.09377	0.00000	0
13721	1372	0.24821	247.87134	61.5241453
13721	1395	0.17644	534.87628	94.37357084
13721	13632	0.06361	3909.49707	248.6831086
13721	13911	0.11216	2720.39087	305.11904
13722	1278	0.08861	88.12670	7.808906887
13722	13609	0.10992	2199.04858	241.7194199
13722	13845	0.12404	1208.85547	149.9464325
13730	1416	0.29360	2.16236	0.634868896
13730	1436	0.21234	2.18035	0.462975519
13733	13702	0.02407	3346.67456	80.55445666
13733	13814	0.05176	3143.22437	162.6932934
13740	13704	0.02690	1351.24719	36.34854941
13740	13931	0.09921	1677.67358	166.4419959
13743	13670	0.04853	2072.67188	100.5867663
13743	13757	0.01339	2059.72852	27.57976488
13747	13794	0.01953	29287.58008	571.986439
13748	13471	0.17853	26758.60156	4777.213137
13749	13684	0.05377	0.00000	0
13749	13879	0.06805	0.00000	0
13752	13792	0.01116	10743.96191	119.9026149
13757	13743	0.01339	2072.67188	27.75307647
13757	13839	0.04191	2059.72852	86.32322227
13763	632	0.20769	0.00000	0
13766	112	0.20140	285.83521	57.56721129
13766	13571	0.13745	848.47205	116.6224833
13766	13919	0.07781	1106.04919	86.06168747
13773	13676	0.06248	1310.87134	81.90324132
13773	13775	0.06343	162.14931	10.28513073
13773	13842	0.04295	1954.14966	83.9307279
13775	1310	0.06192	79.50723	4.923087682
13775	13773	0.06343	70.34406	4.461923726
13775	13784	0.06047	271.13629	16.39561146
13776	13677	0.06305	838.06885	52.84024099
13776	13779	0.06068	41.42548	2.513698126

13776	13780	0.03519	97.42274	3.428306221
13776	13870	0.06194	220.69737	13.6699951
13777	1313	0.06164	411.33221	25.35451742
13777	13779	0.03103	919.37292	28.52814171
13777	13783	0.03310	452.69330	14.98414823
13778	13700	0.05166	5097.59912	263.3419705
13778	13781	0.06343	702.56805	44.56389141
13778	13782	0.07172	926.27240	66.43225653
13779	13680	0.06248	254.47186	15.89940181
13779	13776	0.06068	426.09012	25.85514848
13779	13777	0.03103	569.46490	17.67049585
13779	13840	0.04017	964.29669	38.73579804
13780	1311	0.06282	141.35600	8.87998392
13780	13776	0.03519	267.11993	9.399950337
13780	13784	0.03054	149.31201	4.559988785
13781	1314	0.06218	128.88463	8.014046293
13781	13778	0.06343	997.41107	63.26578417
13781	13783	0.06067	873.42517	52.99070506
13782	13778	0.07172	42.24522	3.029827178
13782	13787	0.10206	325.74216	33.24524485
13782	13830	0.03435	4357.55273	149.6819363
13783	13777	0.03310	851.59497	28.18779351
13783	13781	0.06067	671.72437	40.75351753
13783	13878	0.06248	833.44153	52.07342679
13784	13775	0.06047	149.31201	9.028897245
13784	13780	0.03054	271.13629	8.280502297
13786	1298	0.06600	236.58684	15.61473144
13786	1473	0.05357	149.45720	8.006422204
13786	13787	0.08205	211.93277	17.38908378
13786	13789	0.08205	287.14392	23.56015864
13787	13782	0.10206	211.93277	21.62985851
13787	13786	0.08205	325.74216	26.72714423
13789	13786	0.08205	160.43091	13.16335617
13789	13790	0.08895	287.14392	25.54145168
13790	13789	0.08895	160.43091	14.27032944
13790	13791	0.07999	287.14392	22.96864216
13791	13706	0.05077	3069.65649	155.84646
13791	13790	0.07999	160.43091	12.83286849
13791	26713	0.05018	2260.99292	113.4566247
13792	13883	0.05670	10743.96191	609.1826403
13794	13883	0.05219	29287.58008	1528.518804
13795	13748	0.01953	26758.60156	522.5954885
13800	13886	0.21605	29382.28711	6348.04313
13814	615	0.19899	539.59924	107.3748528
13814	13733	0.05176	3346.67456	173.2238752
13814	13816	0.07378	15.36360	1.133526408
13814	13896	0.03672	2624.30029	96.36430665
13816	13814	0.07378	15.27579	1.127047786
13816	13819	0.13692	15.36360	2.103584112
13817	13666	0.09896	515.06354	50.97068792
13817	13818	0.02689	302.17377	8.125452675
13817	13938	0.05174	816.25934	42.23325825
13818	13817	0.02689	311.70752	8.381815213
13818	13821	0.10136	302.17377	30.62833333

13819	623	0.09725	297.73492	28.95472097
13819	624	0.06243	11.03527	0.688931906
13819	13816	0.13692	15.27579	2.091561167
13819	13821	0.04029	311.70752	12.55869598
13821	13818	0.10136	311.70752	31.59467423
13821	13819	0.04029	302.17377	12.17458119
13822	631	0.06510	0.00000	0
13826	615	0.17478	0.00000	0
13826	13654	0.12361	51.15353	6.323087843
13826	14078	0.12454	51.05984	6.358992474
13829	13703	0.09311	3980.89063	370.6607266
13829	13910	0.07475	81.22758	6.071761605
13829	14130	0.14558	4079.64185	593.9142605
13830	1473	0.14649	577.13763	84.54489142
13830	13867	0.02999	4340.96777	130.1856234
13834	13470	1.25294	28746.73242	36017.93092
13839	13757	0.04191	2072.67188	86.86567849
13839	29921	0.01426	2059.72852	29.3717287
13840	13779	0.04017	233.23332	9.368982464
13840	13872	0.02176	964.29669	20.98309597
13842	13773	0.04295	1340.38074	57.56935278
13842	13875	0.01897	1954.14966	37.07021905
13845	13722	0.12404	2234.31006	277.1438198
13845	13862	0.01315	1208.85547	15.89644943
13848	14148	0.20134	2757.70435	555.2361938
13849	13621	0.15729	1700.31519	267.4425762
13849	14349	0.28148	1771.97205	498.7746926
13858	77	4.50000	250.65425	1127.944125
13858	13860	0.14410	245.72313	35.40870303
13860	13858	0.14410	250.65425	36.11927743
13860	13863	0.85633	245.72313	210.4200879
13861	132	0.23292	0.00000	0
13861	4441	0.14617	334.30286	48.86504905
13861	4531	0.10808	326.85474	35.3264603
13862	29929	0.00534	3312.19873	17.68714122
13863	13860	0.85633	250.65425	214.6427539
13863	13876	0.49850	245.72313	122.4929803
13865	13870	0.06413	762.38904	48.89200914
13865	13882	0.00488	662.39148	3.232470422
13866	14386	0.01560	1950.24487	30.42381997
13866	20755	0.02016	1871.87732	37.73704677
13867	13873	0.07264	1291.82190	93.83794282
13867	13901	0.06413	459.10889	29.44265312
13867	14025	0.06416	4731.61328	303.580308
13868	13869	0.04624	471.10019	21.78367279
13868	13881	0.08139	504.84680	41.08948105
13869	1278	0.11089	47.22412	5.236682667
13869	1280	0.14229	205.54257	29.24665229
13869	13868	0.04624	504.84680	23.34411603
13869	13890	0.03011	220.50641	6.639448005
13870	13776	0.06194	504.40433	31.2428042
13870	13865	0.06413	662.39148	42.47916561
13870	13888	0.02326	939.42975	21.85113599
13870	14036	0.06807	196.93109	13.4050993

13871	1279	0.10531	279.22968	29.4056776
13871	1281	0.13109	252.84180	33.14503156
13871	13875	0.10756	788.33844	84.79368261
13871	13881	0.10963	471.10019	51.64671383
13872	13840	0.02176	233.23332	5.075157043
13872	13888	0.03682	1081.47571	39.81993564
13872	13892	0.02571	842.94122	21.67201877
13872	14168	0.13110	327.64023	42.95363415
13873	13778	0.06276	5686.78320	356.9025136
13873	13867	0.07264	1373.69873	99.78547575
13873	13880	0.06412	517.68109	33.19371149
13874	1315	0.13993	31.10931	4.353125748
13874	13875	0.06274	692.47308	43.44576104
13874	13882	0.05793	762.38904	44.16519709
13875	13842	0.01897	1340.38074	25.42702264
13875	13871	0.10756	734.58154	79.01159044
13875	13874	0.06274	793.49835	49.78408648
13875	14022	0.06750	1877.75073	126.7481743
13876	13863	0.49850	250.65425	124.9511436
13876	13900	0.50056	245.72313	122.99917
13878	13783	0.06248	11.43395	0.714393196
13878	13880	0.05999	1552.40210	93.12860198
13878	13892	0.03917	528.21204	20.69006561
13878	14023	0.06529	125.27644	8.179298768
13879	13749	0.06805	0.00000	0
13880	1317	0.12640	232.61078	29.40200259
13880	13873	0.06412	1479.89832	94.89108028
13880	13878	0.05999	414.77438	24.88231506
13881	13868	0.08139	471.10019	38.34284446
13881	13871	0.10963	504.84680	55.34635468
13882	13865	0.00488	762.38904	3.720458515
13882	13874	0.05793	662.39148	38.37233844
13883	14001	0.04498	40031.53906	1800.618627
13884	13795	0.05133	26758.60156	1373.519018
13885	13576	0.20096	9429.32422	1894.916995
13886	13939	0.12648	1106.06396	139.8949697
13886	13977	0.09151	28276.22461	2587.557314
13887	13534	0.22205	317.57153	70.51675824
13887	13939	0.01738	8.83685	0.153584453
13888	1316	0.12854	198.68784	25.53933495
13888	13870	0.02326	1014.95038	23.60774584
13888	13872	0.03682	1011.48322	37.24281216
13889	13219	0.38580	728.89410	281.2073438
13889	13998	0.04169	718.16412	29.94026216
13890	13869	0.03011	222.47935	6.698853229
13890	13914	0.05386	220.50641	11.87647524
13891	13905	0.05449	767.87762	41.84165151
13891	13906	0.05588	459.10889	25.65500477
13892	1492	0.12765	127.60030	16.2881783
13892	13872	0.02571	481.30734	12.37441171
13892	13878	0.03917	891.86121	34.9342036
13894	13918	0.00837	2545.54419	21.30620487
13894	30132	0.00912	351.83664	3.208750157
13894	30135	0.00761	2833.69092	21.5643879

13896	13814	0.03672	2821.24707	103.5961924
13896	13960	0.02308	2624.30029	60.56885069
13898	2009	2.69177	615.40039	1656.516308
13898	13899	0.58108	153.51497	89.20447877
13898	13916	1.50305	30.62134	46.02540509
13898	14663	0.51612	1467.64417	757.480509
13899	2010	0.58776	17.03570	10.01290303
13899	13898	0.58108	877.06683	509.6459936
13899	13900	0.41246	171.72142	70.82821689
13900	9928	2.00474	969.04590	1942.685078
13900	13876	0.50056	250.65425	125.4674914
13900	13899	0.41246	894.10260	368.7815584
13900	14792	0.61122	14.71553	8.994426247
13901	13867	0.06413	767.87762	49.24399177
13901	13905	0.06345	459.10889	29.13045907
13902	13912	0.50056	30.62134	15.32781795
13902	13916	0.49511	29.39182	14.552184
13903	14315	0.25217	1693.54883	427.0622085
13903	30052	0.22597	1661.84778	375.5277428
13905	13891	0.05449	459.10889	25.01684342
13905	13901	0.06345	767.87762	48.72183499
13906	1350	0.15419	8.43140	1.300037566
13906	1473	0.09860	110.48702	10.89402017
13906	13891	0.05588	767.87762	42.90900141
13906	13907	0.11583	537.11139	62.2136123
13907	13906	0.11583	351.83664	40.75323801
13907	29916	0.06724	537.11139	36.11536986
13909	15382	0.01323	1522.61694	20.14422212
13909	20755	0.01914	1924.58740	36.83660284
13910	13829	0.07475	76.65115	5.729673463
13910	13932	0.02311	81.22758	1.877169374
13911	13721	0.11216	3593.50415	403.0474255
13911	13947	0.01283	2720.39087	34.90261486
13912	13902	0.50056	29.39182	14.71236942
13912	13920	0.50333	30.62134	15.41263906
13913	13914	0.04344	222.47935	9.664502964
13913	29920	0.05501	220.50641	12.13005761
13914	13890	0.05386	222.47935	11.98273779
13914	13913	0.04344	220.50641	9.57879845
13916	13898	1.50305	29.39182	44.17737505
13916	13902	0.49511	30.62134	15.16093165
13917	1870	0.62841	15.28956	9.6081124
13917	12976	0.50116	3496.78369	1752.448114
13917	14286	0.22273	3376.88867	752.1344135
13918	13894	0.00837	2932.96753	24.54893823
13918	29915	0.00320	1426.55225	4.5649672
13918	30133	0.02638	1791.11145	47.24952005
13919	641	0.12441	96.11381	11.9575191
13919	13766	0.07781	1101.28955	85.69133989
13919	14094	0.08413	1122.19592	94.41034275
13920	13912	0.50333	29.39182	14.79378476
13920	13921	0.16021	110.41206	17.68911613
13920	14550	0.41080	85.93647	35.30270188
13921	241	0.38681	52.24893	20.21040861

13921	13920	0.16021	109.22107	17.49830762
13921	13922	0.16937	126.52089	21.42884314
13922	13921	0.16937	123.72771	20.95576224
13922	13935	0.31081	52.52118	16.32410796
13922	14479	0.34729	73.99972	25.69936276
13923	13834	0.20107	27730.74023	5575.819938
13926	1871	0.60338	9.96227	6.011034473
13926	13535	0.23557	257.91974	60.75815315
13926	14623	0.48889	234.45177	114.6211258
13927	1878	0.73927	697.89673	515.9341156
13927	13496	0.25168	697.15015	175.4587498
13931	13740	0.09921	1351.24719	134.0572337
13931	13990	0.02200	1677.67358	36.90881876
13932	117	0.08859	81.22758	7.195951312
13932	13910	0.02311	76.65115	1.771408077
13932	13996	0.05232	0.00000	0
13933	1372	0.12276	4.63316	0.568766722
13933	1373	0.24558	477.53162	117.2722152
13933	13950	0.17585	1318.32361	231.8272068
13933	30133	0.22329	1342.85547	299.8461979
13935	238	0.20655	43.65203	9.016326797
13935	13922	0.31081	89.81675	27.91594407
13935	13948	0.36556	76.44107	27.94379755
13938	624	0.17733	305.41568	54.15936253
13938	631	0.19153	19.70177	3.773480008
13938	13817	0.05174	817.23730	42.2838579
13938	14107	0.08068	971.91724	78.41428292
13939	13887	0.01738	317.57153	5.519393191
13939	13972	0.07658	860.00507	65.85918826
13941	677	0.58014	82.29884	47.74484904
13941	678	0.21864	150.34431	32.87127994
13941	13714	0.12498	820.53534	102.5505068
13941	14195	0.12610	1102.95667	139.0828361
13942	13699	0.13270	1235.25989	163.9189874
13942	14396	0.27068	1199.31958	324.6318239
13944	15352	0.02154	2401.58301	51.73009804
13944	20755	0.02365	1982.43323	46.88454589
13945	13980	0.01784	1471.03943	26.24334343
13945	20755	0.01909	1566.58630	29.90613247
13947	13911	0.01283	3593.50415	46.10465824
13947	13950	0.07377	869.02655	64.10808859
13947	13951	0.09171	2591.70996	237.6857204
13947	14026	0.04689	1675.72375	78.57468664
13948	2008	0.99294	8.10020	8.043012588
13948	12229	1.00255	2221.74438	2227.409828
13948	13935	0.36556	113.90794	41.64018655
13948	14313	0.23462	2158.79614	506.4967504
13950	13933	0.17585	869.02655	152.8183188
13950	13947	0.07377	1318.32361	97.25273271
13951	13947	0.09171	2249.12500	206.2672538
13951	13955	0.10823	2591.70996	280.500769
13954	30052	0.22825	1796.68738	410.0938945
13954	30124	0.25928	1759.54114	456.2138268
13955	1396	0.18583	364.28864	67.69575797

13955	13951	0.10823	2249.12500	243.4227988
13955	13958	0.14692	2459.58887	361.3627968
13956	13957	0.05654	1698.54749	96.03587508
13956	13958	0.07446	1500.46631	111.7247214
13957	1397	0.11908	140.72459	16.75748418
13957	13956	0.05654	1500.46631	84.83636517
13957	13965	0.15313	1664.34875	254.8617241
13958	13955	0.14692	2120.45581	311.5373676
13958	13956	0.07446	1698.54749	126.4738461
13958	14265	0.18870	806.72034	152.2281282
13960	624	0.20196	257.12436	51.92883575
13960	13896	0.02308	2821.24707	65.11438238
13960	14099	0.07271	2367.17603	172.1173691
13961	13433	0.28790	117.06622	33.70336474
13961	14170	0.10656	93.43357	9.956281219
13965	1417	0.18583	202.44817	37.62094343
13965	13957	0.15313	1469.49097	225.0231522
13965	13975	0.38337	1461.90063	560.4488445
13966	13834	0.15818	1015.99225	160.7096541
13966	14046	0.17448	0.00000	0
13969	1222	0.05867	0.00000	0
13972	13989	0.06005	62.67578	3.763680589
13972	14062	0.30969	860.00507	266.3349701
13974	13975	0.02896	2167.32642	62.76577312
13974	30124	0.15702	2205.33740	346.2820785
13975	13965	0.38337	1271.91333	487.6134133
13975	13974	0.02896	2205.33740	63.8665711
13975	14245	0.15692	5848.94775	917.8168809
13975	30130	0.01202	8650.84277	103.9831301
13977	13994	0.02341	28276.22461	661.9464181
13980	13196	0.45758	1471.03943	673.1182224
13980	13945	0.01784	1566.58630	27.94789959
13987	631	0.18241	0.00000	0
13989	13939	0.03269	62.67578	2.048871248
13990	678	0.28917	483.54398	139.8264127
13990	13931	0.02200	1351.24719	29.72743818
13990	14179	0.10132	1357.19641	137.5111403
13994	14288	1.00492	28276.22461	28415.34364
13996	13932	0.05232	0.00000	0
13996	14049	0.07031	0.00000	0
13998	13889	0.04169	728.89410	30.38759503
13998	14144	0.06977	718.16412	50.10631065
14000	1898	0.50068	21.01849	10.52353757
14000	13020	0.52065	1559.71216	812.0641361
14000	14263	0.16729	1451.96643	242.8994641
14001	14276	0.17854	40031.53906	7147.230984
14003	12305	0.99828	2558.83105	2554.429861
14003	15334	0.97772	2213.78809	2164.464891
14011	12304	1.00369	3351.48877	3363.855764
14011	15922	0.94756	3278.24243	3106.331397
14012	13069	0.50494	104.43874	52.73529738
14012	13101	0.72070	794.20197	572.3813598
14012	15065	1.27147	942.42633	1198.266806
14016	1929	1.16982	90.57880	105.9608918

14016	14017	0.49920	472.93304	236.0881736
14016	15367	1.00304	516.65710	518.2277376
14017	1930	1.49247	137.83276	205.7112593
14017	12318	1.00402	1071.79761	1076.106236
14017	14016	0.49920	495.59259	247.3998209
14017	14030	0.24272	519.44470	126.0796176
14018	13583	0.25446	1224.68079	311.6322738
14018	14053	0.01393	1236.48389	17.22422059
14019	1927	0.97642	116.27322	113.5314975
14019	14030	0.77497	523.93488	406.033814
14019	15065	0.77506	637.15814	493.835788
14020	1281	0.06304	0.00000	0
14022	13875	0.06750	1311.25024	88.5093912
14022	14167	0.06525	1877.75073	122.5232351
14023	13878	0.06529	77.24741	5.043483399
14023	14171	0.06583	125.27644	8.246948045
14024	13873	0.06556	4806.44287	315.1103946
14025	14180	0.07417	4731.61328	350.943757
14026	13947	0.04689	2442.12500	114.5112413
14026	14050	0.00837	1675.72375	14.02580779
14030	14017	0.24272	523.93488	127.1694741
14030	14019	0.77497	519.44470	402.5540592
14036	13870	0.06807	305.11984	20.76950751
14036	14166	0.06304	196.93109	12.41453591
14041	13262	0.42927	856.81433	367.8046874
14041	13477	0.83479	8844.94336	7383.670267
14041	14132	0.20458	8119.33936	1661.054446
14041	14153	0.05401	932.37097	50.35735609
14042	13884	0.06919	26758.60156	1851.427642
14042	13885	0.06952	9429.32422	655.5266198
14046	13966	0.17448	1015.99225	177.2703278
14046	14064	0.04824	0.00000	0
14046	14140	0.04161	0.00000	0
14049	13996	0.07031	0.00000	0
14049	14092	0.04637	0.00000	0
14050	14026	0.00837	2442.12500	20.44058625
14050	14085	0.02066	1675.72375	34.62045268
14053	14018	0.01393	1224.68079	17.0598034
14053	14449	0.25915	1236.48389	320.4348001
14055	1222	0.04936	0.00000	0
14059	612	0.23474	0.00000	0
14062	2007	0.50770	78.91484	40.06506427
14062	13972	0.30969	62.67578	19.41006231
14062	14141	0.12310	1023.12732	125.9469731
14063	14067	0.47646	1946.12549	927.250951
14063	14071	0.99977	1951.48230	1951.033459
14064	14046	0.04824	697.90985	33.66717116
14064	14140	0.03364	0.00000	0
14064	14229	0.20697	0.00000	0
14066	1718	0.48579	113.24714	55.01432814
14066	1720	0.51580	91.04263	46.95978855
14066	14067	0.02927	1951.48230	57.11988692
14066	14069	0.30789	2080.41187	640.5380107
14067	14063	0.47646	1951.48230	929.8032567

14067	14066	0.02927	1946.12549	56.96309309
14069	14066	0.30789	2089.10278	643.2138549
14069	14073	0.16204	2080.41187	337.1099394
14071	1708	0.58616	223.80975	131.1883231
14071	1709	0.90580	124.88194	113.1180613
14071	14063	0.99977	1946.12549	1945.677881
14071	14088	0.50057	1664.96814	833.4331018
14072	612	0.24642	420.27664	103.5645696
14072	14074	0.11170	1599.76575	178.6938343
14072	14075	0.11101	2189.06860	243.0085053
14072	14481	0.26344	196.83057	51.85304536
14073	13649	0.24808	744.51886	184.7002388
14073	14069	0.16204	2089.10278	338.5182145
14073	14074	0.14135	1738.83398	245.7841831
14074	14072	0.11170	1738.83398	194.2277556
14074	14073	0.14135	1599.76575	226.1268888
14075	613	0.19486	420.90521	82.01758922
14075	14072	0.11101	2041.74817	226.6544644
14075	14077	0.08067	2423.69751	195.5196781
14076	615	0.12896	1050.51453	135.4743538
14076	616	0.12854	916.11340	117.7572164
14076	14079	0.02419	2255.74780	54.56653928
14076	14083	0.04063	3960.72949	160.9244392
14077	14075	0.08067	2285.68066	184.3858588
14077	14082	0.09446	2423.69751	228.9424668
14078	13826	0.12454	51.15353	6.370660626
14078	14079	0.15720	2393.39697	376.2420037
14078	14080	0.05171	2285.68066	118.1925469
14078	14215	0.06342	15.29037	0.969715265
14079	14076	0.02419	2393.39697	57.8962727
14079	14078	0.15720	2255.74780	354.6035542
14080	14078	0.05171	2423.69751	125.3293982
14080	14082	0.03723	2285.68066	85.09589097
14081	14087	0.04344	3843.38452	166.9566235
14081	14099	0.07728	3960.72949	306.085175
14082	14077	0.09446	2285.68066	215.9053951
14082	14080	0.03723	2423.69751	90.2342583
14083	14076	0.04063	3843.38452	156.156713
14083	14087	0.03241	3960.72949	128.3672428
14084	14086	0.07240	5023.59717	363.7084351
14084	14094	0.12480	5055.51660	630.9284717
14085	14050	0.02066	2442.12500	50.4543025
14085	14162	0.03573	1675.72375	59.87360959
14086	112	0.23810	52.14898	12.41667214
14086	14084	0.07240	5055.51660	366.0194018
14086	14092	0.06758	5074.84766	342.9582049
14087	14081	0.04344	3960.72949	172.054089
14087	14083	0.03241	3843.38452	124.5640923
14088	14071	0.50057	1660.57642	831.2347386
14088	14089	0.05930	1664.96814	98.7326107
14089	14088	0.05930	1660.57642	98.47218171
14089	14090	0.04758	1664.96814	79.2191841
14090	14089	0.04758	1660.57642	79.01022606
14090	14217	0.17055	1664.96814	283.9603163

14091	14092	0.13238	5017.04590	664.1565362
14091	14096	0.03587	4971.93018	178.3431356
14092	113	0.12255	770.88947	94.47250455
14092	14049	0.04637	0.00000	0
14092	14086	0.06758	5107.66553	345.1760365
14092	14091	0.13238	4971.93018	658.1841172
14094	13919	0.08413	1118.55444	94.10398504
14094	14084	0.12480	5023.59717	626.9449268
14094	14100	0.12468	5588.41064	696.7630386
14094	14281	0.13229	1673.12610	221.3378518
14096	14091	0.03587	5017.04590	179.9614364
14096	14114	0.05038	4971.93018	250.4858425
14099	13960	0.07271	2559.75391	186.1197068
14099	14081	0.07728	3843.38452	297.0167557
14099	14104	0.07240	4374.54199	316.7168401
14099	14231	0.07789	1377.12610	107.2643519
14100	634	0.12740	12.87729	1.640566746
14100	14094	0.12468	5499.29590	685.6522128
14100	14106	0.12807	5601.01416	717.3218835
14101	14102	0.01724	1664.96814	28.70405073
14101	14138	0.12774	1660.57642	212.1220319
14102	14101	0.01724	1660.57642	28.62833748
14102	14110	0.11446	1664.96814	190.5722533
14103	14104	0.05654	4465.01953	252.4522042
14103	14108	0.02936	4374.54199	128.4365528
14104	14099	0.07240	4465.01953	323.267414
14104	14103	0.05654	4374.54199	247.3366041
14105	14109	0.06275	4646.10010	291.5427813
14105	14113	0.06068	4676.08936	283.7451024
14105	14275	0.12336	62.43248	7.701670733
14106	14100	0.12807	5512.17334	705.9440397
14106	14117	0.15267	5601.01416	855.1068318
14107	13938	0.08068	970.76544	78.3213557
14107	14109	0.06205	4755.18408	295.0591722
14107	14115	0.12480	5479.95166	683.8979672
14108	624	0.08083	137.56790	11.11961336
14108	625	0.13324	320.82932	42.7472986
14108	14103	0.02936	4465.01953	131.0929734
14108	14113	0.03272	4591.97119	150.2492973
14109	626	0.11781	365.87573	43.10381975
14109	14105	0.06275	4730.90088	296.8640302
14109	14107	0.06205	4668.10693	289.656035
14110	14102	0.11446	1660.57642	190.069577
14110	14123	0.24201	1664.96814	402.9389396
14111	631	0.06644	36.07152	2.396591789
14111	633	0.14422	188.53484	27.19049462
14111	14115	0.06895	5565.87695	383.7672157
14111	14117	0.02276	5512.17334	125.4570652
14113	14105	0.06068	4591.97119	278.6408118
14113	14108	0.03272	4676.08936	153.0016439
14114	14096	0.05038	5017.04590	252.7587724
14114	14118	0.01794	4971.93018	89.19642743
14115	14107	0.12480	5565.87695	694.6214434
14115	14111	0.06895	5479.95166	377.842667

14117	14106	0.15267	5512.17334	841.5435038
14117	14111	0.02276	5601.01416	127.4790823
14118	117	0.04530	339.67294	15.38718418
14118	14114	0.01794	5017.04590	90.00580345
14118	14130	0.06623	5141.56396	340.5257811
14118	14227	0.07182	196.59625	14.11954268
14119	120	0.20101	80.83588	16.24882024
14119	14120	0.14962	9191.81934	1375.28001
14119	14124	0.08343	9085.83398	758.031129
14120	12831	0.67805	542.25848	367.6783624
14120	14119	0.14962	9067.57324	1356.690308
14120	14125	0.49713	7915.94238	3935.252435
14120	14177	0.03961	975.29718	38.6315213
14121	14122	0.01862	9061.79688	168.7306579
14121	14124	0.02621	9187.11719	240.7943415
14122	14121	0.01862	9187.11719	171.0641221
14122	14128	0.12894	9061.79688	1168.42809
14123	14110	0.24201	1660.57642	401.8760994
14123	14133	0.49713	1664.96814	827.7056114
14124	116	0.58413	35.64781	20.82295526
14124	14119	0.08343	9211.52148	768.5172371
14124	14121	0.02621	9061.79688	237.5096962
14125	14120	0.49713	7876.70508	3915.746396
14125	14127	0.25856	7915.94238	2046.746062
14127	14125	0.25856	7876.70508	2036.600865
14127	14131	0.24477	7915.94238	1937.585216
14128	14122	0.12894	9187.11719	1184.58689
14128	14130	0.02551	9061.79688	231.1664384
14130	118	0.24934	561.76398	140.0702308
14130	13829	0.14558	3904.23950	568.3791864
14130	14118	0.06623	5178.65967	342.9826299
14130	14128	0.02551	9187.11719	234.3633595
14131	1752	0.74334	242.63429	180.3597731
14131	14127	0.24477	7876.70508	1927.981102
14131	14134	0.50333	8155.94922	4105.133921
14131	14147	0.01449	0.00000	0
14132	14041	0.20458	8155.94922	1668.544091
14132	14135	0.04275	8119.33936	347.1017576
14133	14123	0.49713	1660.57642	825.5223557
14133	14144	0.49966	1664.96814	831.9179808
14134	14131	0.50333	8119.33936	4086.70708
14134	14135	0.25373	8155.94922	2069.408996
14135	14132	0.04275	8155.94922	348.6668292
14135	14134	0.25373	8119.33936	2060.119976
14138	14101	0.12774	1664.96814	212.6830302
14138	14176	0.07746	1660.57642	128.6282495
14140	14046	0.04161	318.08240	13.23540866
14140	14064	0.03364	0.00000	0
14140	14424	0.21195	0.00000	0
14141	14062	0.12310	141.59062	17.42980532
14141	14070	0.01576	0.00000	0
14141	14366	0.16319	1023.12732	166.9641474
14144	1703	1.79300	989.20648	1773.647219
14144	13998	0.06977	728.89410	50.85494136

14144	14133	0.49966	1660.57642	829.723614
14146	29959	0.09910	2777.60864	275.2610162
14146	29962	0.00918	0.00000	0
14147	14131	0.01449	0.00000	0
14148	1222	0.08203	73.12465	5.99841504
14148	14146	0.15765	2754.49341	434.2458861
14148	29965	0.00899	23.81242	0.214073656
14151	1317	0.06475	106.02808	6.86531818
14151	14024	0.05405	4806.44287	259.7882371
14153	14041	0.05401	927.35602	50.08649864
14153	14827	0.51560	932.37097	480.7304721
14154	14155	0.04551	3112.18604	141.6355867
14155	29965	0.03177	3112.18604	98.87415049
14162	14085	0.03573	2442.12500	87.25712625
14162	14216	0.02790	1675.72375	46.75269263
14166	1315	0.10475	107.17062	11.22612245
14166	1316	0.02539	0.14921	0.003788442
14166	14036	0.06304	305.11984	19.23475471
14166	14342	0.13222	169.14595	22.36447751
14167	1281	0.10705	0.31540	0.03376357
14167	1315	0.08505	16.40779	1.39548254
14167	14022	0.06525	1311.25024	85.55907816
14167	14311	0.13675	1895.19409	259.1677918
14168	1316	0.03531	92.63522	3.270949618
14168	13872	0.13110	28.20321	3.697440831
14168	14258	0.07197	421.10538	30.3069542
14170	13961	0.10656	117.06622	12.4745764
14170	14244	0.05384	93.43357	5.030463409
14171	1317	0.06114	24.93774	1.524693424
14171	14023	0.06583	77.24741	5.085197
14171	14257	0.07085	156.54175	11.09098299
14176	14138	0.07746	1664.96814	128.9684321
14176	14199	0.02463	1660.57642	40.89999722
14177	14120	0.03961	889.13464	35.21862309
14177	14409	0.16428	975.29718	160.2218207
14179	13990	0.10132	1416.13757	143.4830586
14179	14355	0.12668	1357.19641	171.9296412
14180	1350	0.22590	572.04462	129.2248797
14180	14316	0.11497	4435.25049	509.9207488
14186	1350	0.20798	330.39661	68.71588695
14186	14357	0.12554	1096.15564	137.611379
14186	29915	0.12738	2262.23145	288.1630421
14195	13941	0.12610	977.96686	123.321621
14195	14363	0.12554	1102.95667	138.4651804
14197	1467	0.22561	94.05955	21.22077508
14197	11246	0.11262	612.24506	68.95103866
14197	11249	0.08315	3813.00171	317.0510922
14197	11292	0.00469	3679.39087	17.25634318
14199	14176	0.02463	1664.96814	41.00816529
14199	14212	0.01787	1660.57642	29.67450063
14211	1245	0.18711	412.88077	77.25412087
14211	1280	0.17103	122.73943	20.99212471
14211	14330	0.10654	3025.36499	322.322386
14211	29918	0.11586	4245.87549	491.9271343

14212	14199	0.01787	1664.96814	29.75298066
14212	14220	0.01085	1660.57642	18.01725416
14215	14078	0.06342	15.01638	0.95233882
14215	14278	0.06802	15.29037	1.040050967
14216	14162	0.02790	2442.12500	68.1352875
14216	14249	0.03292	1675.72375	55.16482585
14217	14090	0.17055	1660.57642	283.2113084
14217	14221	0.02866	1664.96814	47.71798689
14220	14212	0.01085	1664.96814	18.06490432
14220	14223	0.08917	1660.57642	148.0735994
14221	14217	0.02866	1660.57642	47.5921202
14221	14223	0.01458	1664.96814	24.27523548
14223	14220	0.08917	1664.96814	148.465209
14223	14221	0.01458	1660.57642	24.2112042
14227	14118	0.07182	192.59467	13.8321492
14227	14279	0.05470	196.59625	10.75381488
14229	2011	0.30549	0.00000	0
14229	14064	0.20697	697.90985	144.4464017
14229	14366	0.30073	0.00000	0
14231	14099	0.07789	1361.88184	106.0769765
14231	14248	0.01446	1377.12610	19.91324341
14238	14343	0.08374	2761.11499	231.2157693
14239	29960	0.03849	3135.30127	120.6777459
14244	14170	0.05384	117.06622	6.302845285
14244	14255	0.01404	93.43357	1.311807323
14245	1417	0.29939	130.30391	39.01168761
14245	13975	0.15692	6737.65967	1057.273555
14245	14324	0.07239	5748.95264	416.1666816
14248	14231	0.01446	1361.88184	19.69281141
14248	14277	0.03290	1377.12610	45.30744869
14249	14216	0.03292	2442.12500	80.394755
14249	14284	0.03851	1675.72375	64.53212161
14255	14244	0.01404	117.06622	1.643609729
14255	14289	0.17551	93.43357	16.39852587
14257	14171	0.07085	102.18515	7.239817878
14257	14345	0.06026	156.54175	9.433205855
14258	14168	0.07197	120.83843	8.696741807
14258	14347	0.06025	421.10538	25.37159915
14263	14000	0.16729	1580.73071	264.4404405
14263	14299	0.03297	1451.96643	47.8713332
14265	1397	0.16272	34.23544	5.570790797
14265	1398	0.12501	62.04494	7.756237949
14265	13958	0.18870	665.66846	125.6116384
14265	14378	0.06306	778.43195	49.08791877
14275	625	0.13399	16.52838	2.214637636
14275	626	0.06894	14.75527	1.017228314
14275	14105	0.12336	61.74990	7.617467664
14275	14387	0.06063	68.28008	4.13982125
14276	14293	0.01730	40031.53906	692.5456257
14277	616	0.19287	86.96099	16.77216614
14277	625	0.11741	340.92276	40.02774125
14277	14248	0.03290	1361.88184	44.80591254
14277	14438	0.10899	1220.21472	132.9912023
14278	616	0.18113	9.11942	1.651800545

14278	14215	0.06802	15.01638	1.021414168
14278	14453	0.11173	24.53231	2.740994996
14279	113	0.23412	45.00600	10.53680472
14279	14227	0.05470	192.59467	10.53492845
14279	14388	0.05609	241.56166	13.54919351
14281	113	0.26611	30.19006	8.033876867
14281	634	0.12190	28.90754	3.523829126
14281	14094	0.13229	1726.67993	228.4224879
14281	14478	0.12485	1679.89929	209.7354264
14284	14249	0.03851	2442.12500	94.04623375
14284	14359	0.03750	1675.72375	62.83964063
14285	626	0.05657	2.51673	0.142371416
14285	633	0.18814	2.55242	0.480212299
14286	1513	1.00532	85.78592	86.24230109
14286	1871	0.55683	14.81222	8.247888463
14286	13917	0.22273	3495.16626	778.4783811
14286	14637	0.27439	3466.52148	951.1788289
14287	14289	0.02424	28159.15820	682.5779948
14288	14255	0.06581	117.06622	7.704127938
14288	14287	0.19747	28159.15820	5560.58897
14289	14644	1.46149	28252.59180	41290.88039
14293	14325	0.02120	40031.53906	848.6686281
14299	14263	0.03297	1580.73071	52.11669151
14299	14373	0.02962	1451.96643	43.00724566
14301	14305	0.12550	582.02313	73.04390282
14301	14326	0.01953	721.43628	14.08965055
14302	13923	1.12444	27730.74023	31181.55354
14303	14302	0.19755	27730.74023	5478.207732
14303	14379	0.13861	339.71927	47.08848801
14304	633	0.18893	0.15154	0.028630452
14304	634	0.13047	0.15490	0.020209803
14305	1280	0.14343	103.02522	14.7769073
14305	14301	0.12550	721.43628	90.54025314
14305	14309	0.15577	681.97955	106.2319545
14309	1281	0.12850	143.98462	18.50202367
14309	1282	0.12415	548.25537	68.06590419
14309	14305	0.15577	820.15277	127.755197
14309	14310	0.03797	1051.69678	39.93292674
14310	14309	0.03797	1184.49072	44.97511264
14310	14311	0.05240	1051.69678	55.10891127
14311	14167	0.13675	1327.34338	181.5142072
14311	14310	0.05240	1184.49072	62.06731373
14311	14314	0.12304	154.15858	18.96767168
14311	14522	0.13965	1150.63806	160.6866051
14312	14303	0.02429	28070.45898	681.8314486
14313	238	0.36024	471.60696	169.8916913
14313	13948	0.23462	2193.41333	514.6186355
14313	14694	0.27872	2636.22192	734.7677735
14314	1315	0.11975	0.22996	0.02753771
14314	1318	0.12993	84.69038	11.00382107
14314	14311	0.12304	157.64587	19.39674784
14314	14323	0.05861	69.69830	4.085017363
14315	1450	0.23102	9.00149	2.07952422
14315	13903	0.25217	1661.84778	419.0681547

14315	14618	0.24798	1705.85132	423.0170103
14316	14319	0.06344	614.93109	39.01122835
14316	14320	0.07043	606.08044	42.68624539
14316	14507	0.12386	4465.93311	553.150475
14318	14319	0.06067	411.37369	24.95804177
14318	14332	0.06043	614.93109	37.16028577
14319	14316	0.06344	411.37369	26.09754689
14319	14318	0.06067	614.93109	37.30786923
14320	14151	0.13678	4731.22266	647.1366354
14320	14316	0.07043	840.32037	59.18376366
14320	14329	0.06326	605.05603	38.27584446
14323	14314	0.05861	78.68443	4.611694442
14323	14342	0.06148	69.69830	4.285051484
14324	1437	0.20908	38.46286	8.041814769
14324	14245	0.07239	6640.95850	480.7389858
14324	14385	0.01964	5786.39014	113.6447023
14325	14604	0.23112	40031.53906	9252.089308
14326	1493	0.11928	416.58923	49.69076335
14326	14301	0.01953	582.02313	11.36691173
14326	14330	0.11410	563.11487	64.25140667
14327	1437	0.23524	0.10024	0.023580458
14327	1450	0.20266	0.09951	0.020166697
14329	1317	0.13454	1.26168	0.169746427
14329	1319	0.12748	272.70642	34.76461442
14329	14320	0.06326	435.01538	27.51907294
14329	14345	0.06517	333.61777	21.74187007
14330	14211	0.10654	4046.21533	431.0837813
14330	14326	0.11410	424.82745	48.47281205
14330	14333	0.15996	747.48370	119.5674927
14330	14434	0.06694	2602.64258	174.2208943
14331	14335	0.07098	763.82446	54.21626017
14331	14339	0.08481	889.72205	75.45732706
14332	14318	0.06043	411.37369	24.85931209
14332	14341	0.03769	614.93109	23.17675278
14333	1245	0.13050	44.19798	5.76783639
14333	1246	0.11830	99.73466	11.79861028
14333	14330	0.15996	749.85907	119.9474568
14333	14334	0.05240	763.82446	40.0244017
14334	14333	0.05240	889.72205	46.62143542
14334	14339	0.12824	763.82446	97.95284875
14335	1242	0.15966	423.17770	67.56455158
14335	1243	0.13106	229.64105	30.09675601
14335	14331	0.07098	889.72205	63.15247111
14335	14338	0.03177	161.61551	5.134524753
14338	14335	0.03177	345.82257	10.98678305
14338	14348	0.01658	161.61551	2.679585156
14339	14331	0.08481	763.82446	64.77995245
14339	14334	0.12824	889.72205	114.0979557
14341	1350	0.10464	384.54874	40.23918015
14341	1351	0.16876	105.69469	17.83703588
14341	14332	0.03769	411.37369	15.50467438
14341	14350	0.06991	578.58258	40.44870817
14342	14166	0.13222	275.47903	36.42383735
14342	14323	0.06148	78.68443	4.837518756

14342	14344	0.02257	293.85532	6.632314572
14342	14529	0.13835	387.47720	53.60747062
14343	14348	0.07739	345.82257	26.76320869
14343	14417	0.04943	2576.90796	127.3765605
14344	1316	0.13394	34.79673	4.660674016
14344	14342	0.02257	302.94043	6.837365505
14344	14347	0.03882	259.05856	10.0566533
14345	14257	0.06026	102.18515	6.157677139
14345	14329	0.06517	336.96677	21.9601244
14345	14346	0.03379	414.45120	14.00430605
14345	14412	0.04296	122.00689	5.241415994
14346	1492	0.13478	75.47301	10.17225229
14346	14345	0.03379	384.24930	12.98378385
14346	14347	0.03033	382.84341	11.61164063
14347	14258	0.06025	120.83843	7.280515408
14347	14344	0.03882	264.18201	10.25554563
14347	14346	0.03033	350.55447	10.63231708
14347	14428	0.06082	366.14896	22.26917975
14348	14338	0.01658	345.82257	5.733738211
14348	14343	0.07739	161.61551	12.50742432
14349	1501	0.54493	37.57853	20.47766835
14349	1797	0.50634	89.32463	45.22863315
14349	13849	0.28148	1700.31519	478.6047197
14349	14648	0.25046	1724.62134	431.9486608
14350	14341	0.06991	501.81262	35.08172026
14350	14357	0.14002	578.58258	81.01313285
14355	14179	0.12668	1416.13757	179.3963074
14355	14942	0.48185	1357.19641	653.9650902
14357	1373	0.28700	267.51703	76.77738761
14357	14186	0.12554	1898.35632	238.3196524
14357	14350	0.14002	501.81262	70.26380305
14357	14524	0.12498	1073.55811	134.1732926
14359	1373	0.21451	450.35220	96.60505042
14359	1396	0.14961	120.88470	18.08555997
14359	14284	0.03750	2442.12500	91.5796875
14359	14415	0.04095	1493.23132	61.14782255
14363	14195	0.12554	977.96686	122.7739596
14363	14662	0.24829	1102.95667	273.8531116
14366	14141	0.16319	141.59062	23.10617328
14366	14229	0.30073	269.58960	81.07368041
14366	14374	0.45737	93.92574	42.9588157
14366	14674	0.25068	953.88837	239.1207366
14373	14299	0.02962	1580.73071	46.82124363
14373	14408	0.02963	1451.96643	43.02176532
14374	14366	0.45737	396.94125	181.5490195
14374	14376	0.06036	93.92574	5.669357666
14376	14377	0.01931	276.38721	5.337037025
14376	14400	0.01907	93.92574	1.791163862
14377	14374	0.02552	396.94125	10.1299407
14378	14265	0.06306	639.50684	40.32730133
14378	14530	0.12728	778.43195	99.0788186
14379	14376	0.01173	276.38721	3.242021973
14379	14400	0.02320	63.33205	1.46930356
14385	14324	0.01964	6679.00830	131.175723

14385	14549	0.14304	5786.39014	827.6852456
14386	13866	0.01560	1871.87732	29.20128619
14386	21109	0.42279	1950.24487	824.5440286
14387	14275	0.06063	67.54741	4.095399468
14387	14464	0.06343	68.28008	4.331005474
14388	14279	0.05609	237.60066	13.32702102
14388	14471	0.06568	241.56166	15.86576983
14396	1784	0.58068	48.72270	28.29229744
14396	1797	0.50080	24.80836	12.42402669
14396	13942	0.27068	1235.25989	334.360147
14396	14649	0.22549	1188.05237	267.8939289
14400	14376	0.01907	0.00000	0
14400	14377	0.02773	120.55405	3.342963807
14400	14437	0.03646	157.25780	5.733619388
14408	14373	0.02963	1580.73071	46.83705094
14408	14668	0.21795	1451.96643	316.4560834
14409	120	0.15587	7.28971	1.136247098
14409	14177	0.16428	889.13464	146.0670387
14409	15411	0.79751	982.68579	783.7017444
14412	14345	0.04296	101.20118	4.347602693
14412	14426	0.01675	122.00689	2.043615408
14414	14312	0.32370	28070.45898	9086.407572
14415	14359	0.04095	2286.77319	93.64336213
14415	14442	0.02353	1493.23132	35.13573296
14417	14494	0.07036	2576.90796	181.3112441
14418	29958	0.05170	3135.30127	162.0950757
14424	14140	0.21195	318.08240	67.41756468
14424	14527	0.07794	0.00000	0
14426	14412	0.01675	101.20118	1.695119765
14426	14486	0.03626	122.00689	4.423969831
14428	14347	0.06082	38.71650	2.35473753
14428	14514	0.06081	366.14896	22.26551826
14434	14330	0.06694	3482.83032	233.1406616
14434	14521	0.06282	2602.64258	163.4980069
14437	14400	0.03646	120.55405	4.395400663
14437	14485	0.02748	157.25780	4.321444344
14438	14277	0.10899	1203.21313	131.138199
14438	14459	0.01168	1220.21472	14.25210793
14442	14415	0.02353	2286.77319	53.80777316
14442	14558	0.10968	1493.23132	163.7776112
14449	1783	1.00515	35.30615	35.48797667
14449	14053	0.25915	1224.68079	317.3760267
14449	14747	0.23953	1206.42322	288.9745539
14451	14452	0.05585	43.09995	2.407132208
14451	14458	0.06728	42.10947	2.833125142
14452	14451	0.05585	42.10947	2.3518139
14452	14456	0.03936	43.09995	1.696414032
14453	613	0.19493	53.67262	10.46240382
14453	14278	0.11173	24.13580	2.696692934
14453	14457	0.15652	58.71586	9.190206407
14456	616	0.11557	3.19243	0.368949135
14456	617	0.13331	19.82841	2.643325337
14456	14452	0.03936	42.10947	1.657428739
14456	14457	0.02340	59.44706	1.391061204

14457	14453	0.15652	59.44706	9.304653831
14457	14456	0.02340	58.71586	1.373951124
14458	14451	0.06728	43.09995	2.899764636
14458	14459	0.03326	42.10947	1.400560972
14459	14438	0.01168	1203.21313	14.05352936
14459	14458	0.03326	43.09995	1.433504337
14459	14480	0.01224	1241.95203	15.20149285
14460	625	0.11857	0.00000	0
14464	627	0.13602	68.28008	9.287456482
14464	14387	0.06343	67.54741	4.284532216
14466	626	0.12951	0.00000	0
14468	633	0.10631	0.00000	0
14471	118	0.10031	11.32370	1.135880347
14471	14388	0.06568	237.60066	15.60561135
14471	14547	0.07457	230.23798	17.16884617
14474	634	0.12355	0.00000	0
14476	113	0.13119	0.00000	0
14478	14281	0.12485	1733.98389	216.4878887
14478	14593	0.12007	1679.89929	201.7055078
14479	238	0.28550	301.47934	86.07235157
14479	241	0.24283	502.22348	121.9549276
14479	13922	0.34729	33.91096	11.7769373
14479	14538	0.05966	810.88495	48.37739612
14480	14459	0.01224	1225.94080	15.00551539
14480	14596	0.12230	1241.95203	151.8907333
14481	613	0.21240	6.40979	1.361439396
14481	14072	0.26344	192.87048	50.80979925
14481	14768	0.23890	203.14204	48.53063336
14485	2012	0.76691	93.92574	72.03258926
14485	14437	0.02748	120.55405	3.312825294
14485	14670	0.16264	63.33205	10.30032461
14486	14426	0.03626	101.20118	3.669554787
14486	14512	0.02566	122.00689	3.130696797
14487	14320	0.10266	5135.50293	527.2107308
14494	14543	0.04549	2576.90796	117.2235431
14497	14418	0.06868	3135.30127	215.3324912
14507	14545	0.03961	4465.93311	176.8956105
14512	1319	0.06190	122.00689	7.552226491
14512	14486	0.02566	101.20118	2.596822279
14514	14428	0.06081	38.71650	2.354350365
14514	14574	0.07755	366.14896	28.39485185
14515	1319	0.06836	188.85626	12.91021393
14515	14487	0.02708	5135.50293	139.0694193
14521	1246	0.15749	828.88251	130.5407065
14521	1493	0.12592	80.27303	10.10797994
14521	14434	0.06282	3482.83032	218.7914007
14521	14633	0.11513	2437.80200	280.6641443
14522	1282	0.10900	253.26544	27.60593296
14522	1318	0.13489	2.02518	0.27317653
14522	14311	0.13965	712.09393	99.44391732
14522	14634	0.11529	1408.70679	162.4098058
14524	14357	0.12498	1803.22729	225.3673467
14524	14570	0.06864	1073.55811	73.68902867
14527	14424	0.07794	318.08240	24.79134226

14527	14555	0.04200	0.00000	0
14529	1318	0.10980	173.33719	19.03242346
14529	14342	0.13835	493.71130	68.30495836
14529	14639	0.10823	214.14001	23.17637328
14530	1398	0.10992	21.08699	2.317881941
14530	1418	0.35978	409.95923	147.4951318
14530	14378	0.12728	639.50684	81.3964306
14530	14954	0.35871	389.16193	139.5962759
14538	14479	0.05966	807.60651	48.18180439
14538	14562	0.03190	810.88495	25.86722991
14543	1243	0.13094	17.16682	2.247823411
14543	14544	0.00758	359.59778	2.725751172
14543	14614	0.08534	2676.48682	228.4113852
14544	1223	0.22822	497.30869	113.4957892
14544	14497	0.04498	3135.30127	141.0258511
14544	14543	0.00758	412.09317	3.123666229
14545	1351	0.24407	149.61806	36.5172799
14545	14636	0.08974	4316.31494	387.3461027
14547	14471	0.07457	226.43091	16.88495296
14547	14590	0.04899	230.23798	11.27935864
14549	1418	0.31785	354.55627	112.6957104
14549	14385	0.14304	6679.00830	955.3653472
14549	14665	0.09587	5585.86328	535.5167127
14550	244	0.27735	85.93647	23.83447995
14550	13920	0.41080	85.89793	35.28686964
14550	14643	0.08694	0.00000	0
14555	2011	0.25200	17.28199	4.35506148
14555	14527	0.04200	318.08240	13.3594608
14555	14568	0.02024	16.85508	0.341146819
14558	14442	0.10968	2286.77319	250.8132835
14558	14669	0.07981	1493.23132	119.1747916
14562	14538	0.03190	807.60651	25.76264767
14562	14738	0.12014	810.88495	97.41971789
14568	14555	0.02024	335.36438	6.787775051
14568	14677	0.06336	16.85508	1.067937869
14570	14524	0.06864	1803.22729	123.7735212
14570	14627	0.04408	1073.55811	47.32244149
14574	14514	0.07755	38.71650	3.002464575
14574	14661	0.05523	366.14896	20.22240706
14590	114	0.25150	170.41663	42.85978245
14590	118	0.15804	41.87924	6.61859509
14590	14547	0.04899	226.43091	11.09285028
14590	14645	0.04174	132.80127	5.54312501
14593	114	0.25017	209.59911	52.43540935
14593	635	0.27848	37.02270	10.3100815
14593	14478	0.12007	1733.98389	208.1994457
14593	15074	0.36665	1466.75232	537.7847381
14596	617	0.18646	119.93056	22.36225222
14596	627	0.24792	61.03004	15.13056752
14596	14480	0.12230	1225.94080	149.9325598
14596	15092	0.37540	1104.89563	414.7778195
14603	14042	0.42189	36187.92578	15267.32401
14604	14619	0.01245	40031.53906	498.3926613
14605	1845	0.70762	29.01119	20.52889827

14605	14622	0.44515	29.25014	13.02069982
14606	1501	0.29538	102.94748	30.40862664
14606	1502	0.39956	368.96890	147.4252137
14606	14610	0.46461	1318.11292	612.4084438
14606	14611	0.11355	946.66632	107.4939606
14607	14611	0.10550	961.43475	101.4313661
14607	14648	0.48192	946.66632	456.2174329
14609	14610	0.04721	1330.21277	62.79934487
14609	14612	0.05516	1342.48901	74.05169379
14610	1236	0.38151	28.21268	10.76341955
14610	14606	0.46461	1305.89990	606.7341525
14610	14609	0.04721	1342.48901	63.37890616
14611	14606	0.11355	961.43475	109.1709159
14611	14607	0.10550	946.66632	99.87329676
14612	14609	0.05516	1330.21277	73.37453639
14612	14615	0.15376	1342.48901	206.4211102
14614	14615	0.00758	3309.31421	25.08460171
14614	14620	0.07999	2845.13110	227.5820367
14614	14822	0.12884	1107.76074	142.7238937
14615	14544	0.08534	3200.23022	273.107647
14615	14612	0.15376	1330.21277	204.5335155
14615	14614	0.00758	1315.47302	9.971285492
14618	14315	0.24798	1670.84924	414.3371945
14618	15267	0.50960	1705.85132	869.3018327
14619	14675	0.01930	40031.53906	772.6087039
14620	1244	0.12098	71.05029	8.595664084
14620	14614	0.07999	3270.24609	261.5869847
14620	14621	0.07324	2880.90332	210.9973592
14621	1243	0.12147	90.97943	11.05127136
14621	14620	0.07324	3312.52075	242.6090197
14621	14625	0.16534	2976.58374	492.1483556
14622	1846	0.51130	104.92468	53.64798888
14622	14605	0.44515	29.01119	12.91433123
14622	14637	0.49713	139.99097	69.59371092
14623	1878	0.53080	509.04736	270.2023387
14623	13926	0.48889	249.82756	122.1381958
14623	14637	1.13969	283.49268	323.0937725
14625	14621	0.16534	3403.29614	562.7009838
14625	14628	0.09266	3121.55859	289.2436189
14625	14718	0.04072	229.25143	9.33511823
14626	14629	0.12960	4843.89502	627.7687946
14626	14630	0.12151	6044.51563	734.4690942
14627	14570	0.04408	1803.22729	79.48625894
14627	14808	0.11775	1073.55811	126.4114675
14628	1246	0.12684	49.55622	6.285710945
14628	1247	0.13911	192.54964	26.78558042
14628	14625	0.09266	3562.39990	330.0919747
14628	14631	0.11420	2894.63599	330.5674301
14629	1282	0.13183	109.07489	14.37934275
14629	1494	0.11318	252.76663	28.60812718
14629	14626	0.12960	6044.51563	783.3692256
14629	14634	0.11862	4845.71338	574.7985211
14630	1283	0.11316	638.55463	72.25884193
14630	1493	0.12841	162.88664	20.91627344

14630	14626	0.12151	4843.89502	588.5816839
14630	14632	0.11984	5251.21924	629.3061137
14631	14628	0.11420	3265.60889	372.9325352
14631	14633	0.05309	2894.63599	153.6762247
14632	14630	0.11984	4037.98169	483.9117257
14632	14633	0.00965	5251.21924	50.67426567
14633	14521	0.11513	3303.04614	380.2797021
14633	14631	0.05309	3265.60889	173.371176
14633	14632	0.00965	4037.98169	38.96652331
14633	14796	0.10956	3116.39258	341.4319711
14634	14522	0.11529	963.22308	111.0499889
14634	14629	0.11862	6058.58936	718.6698699
14634	14638	0.14344	5062.14600	726.1142222
14634	14825	0.12865	894.13983	115.0310891
14635	14515	0.12024	5021.79395	603.8205045
14636	14664	0.01245	4316.31494	53.738121
14637	14286	0.27439	3582.02515	982.8718809
14637	14622	0.49713	133.14784	66.1917857
14637	14623	1.13969	279.01373	317.9891579
14637	15809	1.00119	3614.12354	3618.424347
14638	1318	0.12427	175.18738	21.77053571
14638	1320	0.12761	1143.76318	145.9556194
14638	14634	0.14344	6307.86523	904.8001886
14638	14639	0.09859	5131.55859	505.9203614
14639	14529	0.10823	310.86023	33.64440269
14639	14638	0.09859	6832.14160	673.5808403
14639	14661	0.06417	5067.72607	325.1959819
14640	1450	0.25600	0.00211	0.00054016
14640	1692	0.25649	0.00211	0.000541194
14642	14603	0.02039	36187.92578	737.8718067
14643	14550	0.08694	0.00000	0
14643	14909	0.20931	0.00000	0
14644	14691	0.13851	2310.05884	319.9662499
14644	14715	0.10227	25942.53320	2653.14287
14645	14590	0.04174	133.05827	5.55385219
14645	15185	0.41951	132.80127	55.71146078
14646	13497	0.74927	8978.16113	6727.06679
14646	14658	0.49722	107.18446	53.2942572
14646	30051	0.44944	9188.65820	4129.750541
14648	14349	0.25046	1659.01599	415.5171449
14648	14607	0.48192	961.43475	463.3346347
14648	14657	0.49125	885.82690	435.1624646
14648	15570	0.74271	1410.12915	1047.317021
14649	14396	0.22549	1224.69580	276.1566559
14649	14657	0.51884	93.94307	48.74142244
14649	14696	0.66904	1047.76685	700.9979333
14649	15389	0.57649	555.86115	320.4483944
14650	14705	0.09327	2804.29468	261.5565648
14653	1437	0.25343	0.10389	0.026328843
14653	1438	0.24737	0.10361	0.025630006
14654	1871	0.27749	0.03302	0.00916272
14654	1872	0.48639	0.03352	0.016303793
14655	1319	0.12712	50.61021	6.433569895
14655	14660	0.07566	4723.26855	357.3624985

14656	14665	0.00957	3468.18481	33.19052863
14657	1798	0.64051	786.39185	503.6918438
14657	14648	0.49125	893.79846	439.0784935
14657	14649	0.51884	99.43506	51.59088653
14658	1898	0.49582	82.43819	40.87450337
14658	1899	0.50676	87.86837	44.52817518
14658	14646	0.49722	108.49537	53.94606787
14658	14668	0.50346	113.27077	57.02730186
14659	14655	0.03762	4538.26611	170.7295711
14660	14635	0.01060	5021.79395	53.23101587
14660	14664	0.08624	4455.07666	384.2058112
14660	14683	0.11337	6987.36426	792.1574862
14660	14836	0.13111	4854.24951	636.4406533
14661	14574	0.05523	38.71650	2.138312295
14661	14639	0.06417	6865.02979	440.5289616
14661	14659	0.08327	4538.26611	377.901419
14661	14842	0.13344	898.70123	119.9226921
14662	14363	0.24829	977.96686	242.8193917
14662	14913	0.20653	1102.95667	227.7936411
14663	2010	0.58211	16.76229	9.757496632
14663	13898	0.51612	740.26367	382.0648854
14663	15257	0.48328	1450.88184	701.1821756
14664	14650	0.03946	2804.29468	110.6574681
14664	14660	0.08624	11944.69629	1030.110608
14664	14811	0.11358	5106.65479	580.013851
14665	14549	0.09587	6484.69873	621.6880672
14665	14673	0.00957	2380.66162	22.7829317
14665	14898	0.18923	3239.34204	612.9806942
14668	14408	0.21795	1580.73071	344.5202582
14668	14658	0.50346	114.14629	57.46809116
14668	15901	1.00256	1393.51245	1397.079842
14669	14558	0.07981	2286.77319	182.5073683
14669	14815	0.10733	1493.23132	160.2685176
14670	14485	0.16264	28.49949	4.635157054
14670	14982	0.24789	63.33205	15.69938187
14673	14719	0.19500	2380.66162	464.2290159
14674	14366	0.25068	38.92574	9.757904503
14674	14773	0.07552	953.88837	72.0376497
14675	14858	0.17114	7179.72314	1228.737818
14675	15042	0.29475	32851.81641	9683.072887
14677	14568	0.06336	335.36438	21.24868712
14677	14993	0.24952	16.85508	4.205679562
14679	14642	0.01346	36187.92578	487.089481
14683	1321	0.11470	785.66248	90.11548646
14683	14661	0.08429	6489.89258	547.0330456
14688	14414	1.13341	28070.45898	31815.33891
14691	14701	0.03120	2310.05884	72.07383581
14694	14313	0.27872	2665.02051	742.7945165
14694	14729	0.02132	2636.22192	56.20425133
14695	14679	0.01080	36187.92578	390.8295984
14696	1784	0.24332	8.61678	2.09663491
14696	1786	0.88767	119.07551	105.699758
14696	14649	0.66904	1090.89709	729.8537891
14696	14714	0.29799	1019.81885	303.8958191

14701	14706	0.03834	0.00000	0
14701	14727	0.08169	2310.05884	188.7087066
14702	14656	0.19930	3468.18481	691.2092326
14702	14719	0.00984	0.00000	0
14705	1351	0.14657	215.17592	31.53833459
14705	14723	0.00825	174.71054	1.441361955
14705	14794	0.13167	2698.62378	355.3277931
14706	14691	0.01590	0.00000	0
14714	14696	0.29799	1048.01587	312.2982491
14714	14731	0.99145	1019.81885	1011.099399
14715	14736	0.04658	25942.53320	1208.403196
14718	14625	0.04072	215.12260	8.759792272
14718	14781	0.06032	229.25143	13.82844626
14719	14702	0.00984	0.00000	0
14719	14734	0.03945	2380.66162	93.91710091
14723	14664	0.12764	4420.11719	564.1837581
14723	14705	0.00825	56.64850	0.467350125
14727	2008	1.16302	67.45610	78.45279342
14727	14701	0.08169	0.00000	0
14727	14763	0.14707	2485.90771	365.6024469
14729	14694	0.02132	2665.02051	56.81823727
14729	14763	0.03983	2636.22192	105.0007191
14731	1783	0.25726	137.39954	35.34740566
14731	1785	2.12568	817.78113	1738.340992
14731	14714	0.99145	1048.01587	1039.055334
14731	14741	0.70411	550.13995	387.3590402
14733	14688	0.10872	28070.45898	3051.8203
14734	14795	0.07689	2380.66162	183.049072
14736	14777	0.09134	21469.71484	1961.043753
14736	14835	0.24110	4472.81787	1078.396388
14738	14562	0.12014	807.60651	97.02584611
14738	14788	0.04935	810.88495	40.01717228
14741	14731	0.70411	559.93982	394.2592267
14741	14747	0.30340	550.13995	166.9124608
14747	14449	0.23953	1194.93213	286.2220931
14747	14741	0.30340	559.93982	169.8857414
14747	14751	0.73227	127.93226	93.68095603
14747	15057	0.25073	753.57855	188.9447498
14748	14733	0.03829	28070.45898	1074.817874
14751	14747	0.73227	129.12521	94.55451753
14751	14752	0.01310	127.93226	1.675912606
14752	14751	0.01310	129.12521	1.691540251
14752	14753	0.30234	127.93226	38.67903949
14753	1772	0.25484	191.08107	48.69509988
14753	14752	0.30234	129.12521	39.03971599
14753	14772	0.94774	73.08907	69.2694352
14763	14727	0.14707	67.45610	9.920768627
14763	14729	0.03983	2665.02051	106.1477669
14763	14789	0.07570	387.75375	29.35295888
14763	14817	0.03591	2921.83374	104.9230496
14768	1720	0.61617	144.41634	88.98501622
14768	14481	0.23890	199.28026	47.60805411
14768	15388	0.49465	98.62913	48.78689915
14772	14753	0.94774	73.37685	69.54217582

14772	14809	1.40606	73.08907	102.7676178
14773	2011	0.27839	619.93756	172.5844173
14773	14674	0.07552	38.92574	2.939671885
14773	14973	0.16899	480.50330	81.20025267
14777	14868	0.17058	21469.71484	3662.303957
14781	1461	0.09974	245.03749	24.44003925
14781	14718	0.06032	215.12260	12.97619523
14781	14782	0.05656	28.94920	1.637366752
14782	1247	0.09670	14.24252	1.377251684
14782	14781	0.05656	21.24298	1.201502949
14782	14866	0.06587	35.95715	2.368497471
14784	1418	0.19734	185.79797	36.6653714
14784	14702	0.11744	3468.18481	407.3036241
14784	14795	0.00825	181.20740	1.49496105
14788	14738	0.04935	807.60651	39.85538127
14788	14852	0.04386	810.88495	35.56541391
14789	14763	0.07570	165.52705	12.53039769
14789	14797	0.01892	387.75375	7.33630095
14792	2010	0.42004	0.13342	0.056041737
14792	13900	0.61122	955.01434	583.7238649
14792	15255	0.38609	22.17293	8.560746544
14794	14800	0.00957	2682.70313	25.67346895
14794	30078	0.01358	15.92077	0.216204057
14795	1419	0.18910	5.30500	1.0031755
14795	14784	0.00825	5.31994	0.043889505
14795	14896	0.16723	2556.56396	427.534191
14796	1247	0.13194	1083.26514	142.9260026
14796	1283	0.12572	214.44389	26.95988585
14796	14633	0.10956	3139.37207	343.949604
14796	14911	0.10687	2340.17749	250.0947684
14797	14789	0.01892	165.52705	3.131771786
14797	14845	0.19084	387.75375	73.99892565
14798	14748	0.09815	28070.45898	2755.115549
14800	14808	0.17060	2682.70313	457.669154
14805	14723	0.13339	4302.05518	573.8511405
14807	14834	0.11388	3445.07397	392.3250237
14808	14627	0.11775	1803.22729	212.3300134
14808	14807	0.01586	3445.07397	54.63887316
14808	14820	0.00781	1070.83228	8.363200107
14809	14772	1.40606	73.37685	103.1722537
14809	14827	0.59654	73.08907	43.60055382
14811	14664	0.11358	6664.13721	756.9127043
14811	14861	0.04351	5106.65479	222.1905499
14815	1399	0.20627	203.03226	41.87946427
14815	14669	0.10733	2286.77319	245.4393665
14815	14981	0.14043	1461.87146	205.2906091
14817	14763	0.03591	754.40735	27.09076794
14817	14846	0.02132	2921.83374	62.29349534
14819	1352	0.09574	1497.38025	143.3591851
14819	14805	0.06368	4302.05518	273.9548739
14820	14808	0.00781	2562.87231	20.01603274
14820	14821	0.02965	5767.63379	171.0103419
14820	14904	0.08216	574.64587	47.21290468
14821	14819	0.09101	5767.63379	524.9123512

14822	1244	0.08252	0.74343	0.061347844
14822	14823	0.00827	95.62112	0.790786662
14822	14953	0.12270	1031.09863	126.5158019
14823	1224	0.08214	112.28114	9.22277284
14823	14615	0.12885	1194.11279	153.861433
14823	14822	0.00827	18.90788	0.156368168
14825	1320	0.15113	101.05987	15.27317815
14825	1494	0.13044	20.00031	2.608840436
14825	14634	0.12865	415.81277	53.49431286
14825	15912	0.10210	1034.37585	105.6097743
14827	14153	0.51560	927.35602	478.1447639
14827	14809	0.59654	73.37685	43.7722261
14827	15418	0.47389	891.42621	422.4379667
14834	14897	0.07161	3445.07397	246.701747
14835	14846	0.02377	4472.81787	106.3188808
14836	14660	0.13111	4650.51953	609.7296156
14836	14860	0.02714	3446.14819	93.52846188
14836	14862	0.01953	1408.10144	27.50022112
14842	1320	0.15356	303.90448	46.66757195
14842	1321	0.09989	358.35400	35.79598106
14842	14661	0.13344	416.94562	55.63722353
14842	14961	0.10868	1328.79956	144.4139362
14845	247	0.03906	225.65805	8.814203433
14845	14797	0.19084	165.52705	31.58918222
14845	14879	0.18375	304.32532	55.91977755
14846	14817	0.02132	754.40735	16.0839647
14846	14851	0.00830	508.26654	4.218612282
14846	14857	0.01292	7231.76807	93.43444346
14849	14820	0.12590	5042.16406	634.8084552
14851	14920	0.23342	508.26654	118.6395758
14852	14788	0.04386	807.60651	35.42162153
14852	14892	0.04577	810.88495	37.11420416
14857	14846	0.01292	1099.79053	14.20929365
14857	14900	0.04658	7231.76807	336.8557567
14858	14861	0.00843	7179.72314	60.52506607
14858	15042	0.17422	4476.41895	779.8817095
14860	14695	0.14820	6664.75049	987.7160226
14861	1352	0.15541	4500.90381	699.4854611
14861	14811	0.04351	6664.13721	289.95661
14861	14858	0.00843	4476.41895	37.73621175
14861	14887	0.02755	1506.97449	41.5171472
14862	1321	0.10305	394.93063	40.69760142
14862	14836	0.01953	4650.51953	90.82464642
14862	14860	0.01738	3218.60254	55.93931215
14862	14963	0.09261	1945.80994	180.2014585
14866	14782	0.06587	27.44925	1.808082098
14866	14947	0.08255	35.95715	2.968262733
14868	14876	0.02449	21469.71484	525.7933164
14876	14920	0.22105	21469.71484	4745.880465
14879	14845	0.18375	87.18196	16.01968515
14879	14892	0.08781	304.32532	26.72280635
14883	14798	0.16885	21265.10547	3590.613059
14887	14861	0.02755	583.74957	16.08230065
14887	15175	0.23572	1506.97449	355.2240268

14888	14784	0.16526	3648.66284	602.9780209
14888	14896	0.00984	0.00000	0
14890	14883	0.02130	21265.10547	452.9467465
14892	14852	0.04577	807.60651	36.96414996
14892	14879	0.08781	87.18196	7.655447908
14892	14906	0.09110	233.36003	21.25909873
14892	14936	0.03767	641.39478	24.16134136
14896	14888	0.00984	0.00000	0
14896	14969	0.20619	2556.56396	527.1379229
14897	14849	0.06719	5042.16406	338.7830032
14897	14972	0.10653	3445.07397	367.00373
14898	1419	0.28359	327.64871	92.91789767
14898	14665	0.18923	3050.65381	577.2752205
14898	14965	0.05426	2912.96802	158.0576448
14900	14857	0.04658	1099.79053	51.22824289
14900	14907	0.00729	7231.76807	52.71958923
14902	14798	0.17902	6805.35400	1218.294473
14904	1352	0.21442	316.74484	67.91642859
14904	14820	0.08216	2792.15552	229.4034975
14904	15142	0.17730	1014.17798	179.8137559
14906	14892	0.09110	32.38866	2.950606926
14906	14923	0.08974	233.36003	20.94172909
14907	14900	0.00729	1099.79053	8.017472964
14907	14902	0.01425	6805.35400	96.9762945
14907	14950	0.03534	5214.77539	184.2901623
14909	14643	0.20931	0.00000	0
14909	15049	0.52033	0.00000	0
14911	14796	0.10687	2324.38110	248.4066082
14911	14946	0.03012	2340.17749	70.486146
14913	679	0.22670	1141.40662	258.7568808
14913	680	0.25868	96.34392	24.92224523
14913	14662	0.20653	977.96686	201.9794956
14913	15327	0.29508	304.87250	89.9617773
14920	14933	0.03445	21977.98047	757.1414272
14923	14906	0.08974	32.38866	2.906558348
14923	14937	0.03784	233.36003	8.830343535
14924	1283	0.11298	111.24617	12.56859229
14924	14925	0.13031	6.41349	0.835741882
14924	14930	0.08067	102.90079	8.301006729
14925	1286	0.19416	6.41349	1.245243218
14925	14924	0.13031	6.31897	0.823424981
14930	14924	0.08067	104.92720	8.464477224
14930	14946	0.04775	102.90079	4.913512723
14933	15009	0.26515	21977.98047	5827.461522
14935	1494	0.11891	0.00000	0
14936	251	0.21937	135.92776	29.81847271
14936	14892	0.03767	621.94434	23.42864329
14936	14994	0.03534	840.44781	29.70142561
14937	251	0.03254	29.90495	0.973107073
14937	14923	0.03784	32.38866	1.225586894
14937	14956	0.09896	247.29555	24.47236763
14939	14890	0.22038	21265.10547	4686.403943
14942	680	0.25473	52.80366	13.45067631
14942	683	0.50817	239.36429	121.6377512

14942	14355	0.48185	1416.13757	682.3658881
14942	15294	0.26587	1177.94189	313.1794103
14943	14907	0.26720	341.96295	91.37250024
14943	14939	0.04222	21265.10547	897.8127529
14944	1248	0.15942	254.89728	40.63572438
14944	14946	0.13859	439.19498	60.86803228
14944	14947	0.08343	192.51608	16.06161655
14945	1438	0.22941	0.00267	0.000612525
14945	1692	0.22333	0.00267	0.000596291
14946	14911	0.03012	2324.38110	70.01035873
14946	14930	0.04775	104.92720	5.0102738
14946	14944	0.13859	432.84613	59.98814516
14946	15168	0.16034	2058.03149	329.9847691
14947	14866	0.08255	27.44925	2.265935588
14947	14944	0.08343	204.52501	17.06352158
14947	14948	0.05102	182.46797	9.309515829
14948	14947	0.05102	185.96899	9.48813787
14948	14951	0.22615	44.84773	10.14231414
14948	15082	0.10405	219.67125	22.85679356
14949	14823	0.12216	1119.41589	136.7478451
14949	14953	0.00967	0.00000	0
14950	236	0.25174	645.65045	162.5360443
14950	14907	0.03534	5546.18848	196.0023009
14950	15004	0.13811	2855.46533	394.3683167
14950	15096	0.10323	1994.29663	205.8712411
14951	1244	0.12951	4.05582	0.525269248
14951	1462	0.10479	46.60807	4.884059655
14951	14948	0.22615	52.18264	11.80110404
14951	14952	0.04688	85.08081	3.988588373
14952	14951	0.04688	89.93755	4.216272344
14952	14953	0.03172	85.08081	2.698763293
14953	14949	0.00967	85.08081	0.822731433
14953	14952	0.03172	89.93755	2.852819086
14953	15210	0.29248	941.16113	275.2708073
14954	14530	0.35871	259.30093	93.0138366
14954	14888	0.20471	3648.66284	746.91777
14954	14969	0.00988	1827.39832	18.0546954
14956	14937	0.09896	4.94654	0.489509598
14956	15002	0.14268	247.29555	35.28412907
14958	14954	0.01433	4757.68750	68.17766188
14959	14960	0.06274	402.17426	25.23241307
14959	14961	0.08550	970.26111	82.95732491
14960	1320	0.12381	5.30537	0.65685786
14960	1323	0.18742	294.75424	55.24283966
14960	14959	0.06274	970.26111	60.87418204
14960	14962	0.15513	112.57156	17.4632261
14961	14842	0.10868	706.44696	76.77665561
14961	14959	0.08550	402.17426	34.38589923
14961	14964	0.07655	1396.57800	106.9080459
14961	15242	0.22745	860.71906	195.7705502
14962	14960	0.15513	658.90564	102.2160319
14962	15205	0.18620	1108.11731	206.3314431
14962	15912	0.02262	531.71515	12.02739669
14963	1322	0.10038	379.85757	38.13010288

14963	14862	0.09261	2916.89771	270.1338969
14963	14964	0.12135	1282.87891	155.6773557
14963	15171	0.15595	301.77634	47.06202022
14964	1321	0.12496	49.99227	6.247034059
14964	1324	0.24038	822.07104	197.6094366
14964	14961	0.07655	574.94623	44.01213391
14964	14963	0.12135	2295.03711	278.5027533
14965	1438	0.21828	111.17166	24.26654994
14965	14898	0.05426	2733.12109	148.2991503
14965	15252	0.23543	2847.81543	670.4611867
14967	14970	0.14550	4535.25195	659.8791587
14967	14992	0.03421	0.00000	0
14968	14967	0.02551	4535.25195	115.6942772
14968	14989	0.00837	0.00000	0
14969	14954	0.00988	588.51276	5.814506069
14969	14978	0.01433	3192.28198	45.74540077
14969	15158	0.14835	2183.84546	323.973474
14970	1399	0.12189	82.57407	10.06495339
14970	14958	0.07485	4757.68750	356.1129094
14970	14998	0.00893	1.05398	0.009412041
14972	1374	0.13898	521.01398	72.41052294
14972	1375	0.12771	321.61426	41.07335714
14972	14897	0.10653	5042.16406	537.1417373
14972	14974	0.02419	2946.76563	71.28226059
14973	14773	0.16899	8.37181	1.414752172
14973	15316	0.25067	480.50330	120.4477622
14974	14972	0.02419	4531.22070	109.6102287
14974	14975	0.04827	2946.76563	142.240377
14975	14974	0.04827	4531.22070	218.7220232
14975	14977	0.03379	2946.76563	99.57121064
14977	14975	0.03379	4531.22070	153.1099475
14977	14979	0.11722	2946.76563	345.4198671
14978	14998	0.07752	3192.28198	247.4656991
14979	14977	0.11722	4531.22070	531.1496905
14979	14981	0.04827	2946.76563	142.240377
14981	14815	0.14043	2261.01514	317.5143561
14981	14968	0.10779	4535.25195	488.8548077
14981	14979	0.04827	4531.22070	218.7220232
14981	15143	0.12555	3288.64746	412.8896886
14982	14670	0.24789	28.49949	7.064738576
14982	15319	0.24900	63.33205	15.76968045
14985	14992	0.06054	3237.82666	196.018026
14989	14968	0.00837	0.00000	0
14989	14981	0.10758	3237.82666	348.3253921
14991	252	0.10886	115.46655	12.56968863
14991	15000	0.00787	94.41525	0.743048018
14991	15021	0.09896	948.45868	93.85947097
14992	14989	0.05654	3237.82666	183.0667194
14993	14677	0.24952	335.36438	83.6801201
14993	15313	0.24447	16.85508	4.120561408
14994	14936	0.03534	757.87213	26.78320107
14994	15084	0.07767	840.44781	65.2775814
14998	1400	0.12277	143.83905	17.65912017
14998	14970	0.00893	223.22942	1.993438721

14998	14985	0.05401	3237.82666	174.8750179
15000	14991	0.00787	1063.92529	8.373092032
15000	15002	0.09804	94.41525	9.25647111
15002	14956	0.14268	4.94654	0.705772327
15002	15000	0.09804	1063.92529	104.3072354
15002	15046	0.04209	89.46871	3.765738004
15004	239	0.14016	207.87231	29.13538297
15004	14950	0.13811	2995.49048	413.7071902
15004	15027	0.11599	2647.59302	307.0943144
15009	15012	0.01960	21977.98047	430.7684172
15012	15081	0.30815	21977.98047	6772.514682
15021	14991	0.09896	94.41525	9.34333314
15021	15030	0.05832	948.45868	55.31411022
15026	14943	0.25730	21607.06836	5559.498689
15027	15004	0.11599	2742.40576	318.0916441
15027	15045	0.09188	1964.35706	180.4851267
15027	15103	0.06269	1225.38171	76.8191794
15028	15026	0.01960	21607.06836	423.4985399
15030	15021	0.05832	94.41525	5.50629738
15030	15055	0.12190	967.72192	117.965302
15042	15582	0.44995	37328.23828	16795.84081
15045	15027	0.09188	2066.59692	189.878925
15045	15052	0.03222	1964.35706	63.29158447
15046	251	0.24759	117.07726	28.9871588
15046	15002	0.04209	816.62970	34.37194407
15046	15071	0.01964	304.30313	5.976513473
15049	14909	0.52033	0.00000	0
15052	246	0.09414	788.30798	74.21131324
15052	15045	0.03222	2066.59692	66.58575276
15052	15068	0.05831	1611.86206	93.98767672
15055	15030	0.12190	0.00000	0
15055	15060	0.03299	967.72192	31.92514614
15057	14747	0.25073	750.69440	188.2216069
15057	15224	0.13627	753.57855	102.690149
15060	15075	0.02454	0.00000	0
15060	15105	0.20185	967.72192	195.3346696
15063	14695	0.29822	29523.17383	8804.4009
15063	14862	0.19431	4679.58057	909.2893006
15065	1902	2.81622	208.22856	586.4174352
15065	14012	1.27147	894.91492	1137.857473
15065	14019	0.77506	640.20807	496.1996667
15065	15366	0.23280	1371.10413	319.1930415
15068	15052	0.05831	1749.71912	102.0261219
15068	15084	0.09100	1611.86206	146.6794475
15071	15046	0.01964	799.84552	15.70896601
15071	15157	0.07016	304.30313	21.3499076
15074	115	0.28528	17.69416	5.047789965
15074	636	0.25183	19.77040	4.978779832
15074	14593	0.36665	1523.58960	558.6241268
15074	15404	0.25581	1433.29614	366.6514856
15075	15055	0.03024	0.00000	0
15081	15102	0.09391	21977.98047	2063.952146
15082	1248	0.10162	46.38475	4.713618295
15082	14948	0.10405	215.83737	22.45787835

15082	15111	0.03112	181.67841	5.653832119
15084	14994	0.07767	757.87213	58.86392834
15084	15068	0.09100	1749.71912	159.2244399
15084	15104	0.09120	944.24835	86.11544952
15084	15177	0.07657	690.37933	52.8623453
15092	618	0.25247	144.58070	36.50228933
15092	640	0.25078	43.63388	10.94250443
15092	14596	0.37540	1091.44775	409.7294854
15092	15405	0.24293	925.01123	224.7129781
15095	15105	0.16336	21635.32227	3534.346246
15096	14950	0.10323	2189.72998	226.0458258
15096	15162	0.05105	1994.29663	101.808843
15101	15028	0.31873	21607.06836	6886.820898
15102	15106	0.05511	21977.98047	1211.206504
15103	15027	0.06269	1217.95447	76.35356572
15103	15169	0.05281	1225.38171	64.71240811
15104	15084	0.09120	1003.79498	91.54610218
15104	15109	0.02767	944.24835	26.12735184
15105	15427	1.42198	22603.04297	32141.07504
15106	15108	0.02075	342.65912	7.11017674
15106	15121	0.02219	21635.32227	480.0878012
15108	15046	0.12547	342.65912	42.99343979
15109	242	0.07305	131.37785	9.597151943
15109	249	0.06944	179.20824	12.44422019
15109	15104	0.02767	1003.79498	27.7750071
15109	15124	0.06287	763.77716	48.01867005
15111	15082	0.03112	180.17110	5.606924632
15111	15140	0.02882	181.67841	5.235971776
15113	15095	0.18116	21635.32227	3919.454982
15114	15126	0.18249	22242.41016	4059.01743
15119	15101	0.08547	21036.76563	1798.012358
15121	15113	0.25737	21635.32227	5568.282893
15124	15109	0.06287	827.53949	52.02740774
15124	15136	0.03580	763.77716	27.34322233
15126	15135	0.25941	21036.76563	5457.147372
15126	15184	0.25620	1205.64417	308.8860364
15128	15114	0.15949	22242.41016	3547.441996
15131	15119	0.05618	21036.76563	1181.845493
15135	15131	0.01951	21036.76563	410.4272974
15136	15124	0.03580	827.53949	29.62591374
15136	15145	0.03502	763.77716	26.74747614
15140	1462	0.10707	213.76088	22.88737742
15140	15111	0.02882	180.17110	5.192531102
15140	15153	0.02080	61.32180	1.27549344
15142	1375	0.29103	30.09926	8.759787638
15142	14904	0.17730	1382.77356	245.1657522
15142	15307	0.12610	984.07867	124.0923203
15143	14981	0.12555	6969.67139	875.042243
15143	15170	0.02172	3288.64746	71.42942283
15145	15136	0.03502	827.53949	28.98043294
15145	15151	0.03163	760.50916	24.05490473
15145	15216	0.06471	827.31519	53.53556594
15151	15145	0.03163	1096.86072	34.69370457
15151	15156	0.03434	760.50916	26.11588455

15152	1236	0.19591	0.11591	0.022707928
15152	1502	0.36477	0.11434	0.041707802
15153	15140	0.02080	62.40109	1.297942672
15153	15178	0.02873	61.32180	1.761775314
15156	15151	0.03434	1096.86072	37.66619712
15156	15167	0.02933	760.50916	22.30573366
15157	15071	0.07016	799.84552	56.11716168
15157	15101	0.15550	570.30145	88.68187548
15157	15174	0.01347	234.38747	3.157199221
15158	1419	0.33425	674.92474	225.5935943
15158	14969	0.14835	1580.67798	234.4935783
15158	15326	0.11755	1760.47717	206.9440913
15162	236	0.28798	73.15566	21.06736697
15162	239	0.12598	8.84661	1.114495928
15162	15096	0.05105	2189.72998	111.7857155
15162	15219	0.05274	2056.98462	108.4853689
15167	250	0.04740	177.92308	8.433553992
15167	15156	0.02933	1096.86072	32.17092492
15167	15172	0.02888	714.59906	20.63762085
15168	1248	0.20968	68.42779	14.34793901
15168	1286	0.24861	293.94989	73.07888215
15168	14946	0.16034	2037.91284	326.7589448
15168	15225	0.05107	2005.98560	102.4456846
15169	239	0.10383	110.33264	11.45583801
15169	15103	0.05281	1217.95447	64.32017556
15169	15288	0.10049	1189.23376	119.5061005
15170	1375	0.22352	222.34557	49.69868181
15170	1400	0.23755	347.60394	82.57331595
15170	15143	0.02172	6969.67139	151.3812626
15170	15217	0.04251	2841.51855	120.7929536
15171	1322	0.06979	124.72242	8.704377692
15171	14963	0.15595	290.00412	45.22614251
15171	15368	0.14901	465.54617	69.37103479
15172	15167	0.02888	1055.66296	30.48754628
15172	15176	0.02736	714.59906	19.55143028
15174	15157	0.01347	1300.23120	17.51411426
15174	15199	0.01740	234.38747	4.078341978
15175	1353	0.20935	317.03787	66.37187808
15175	14887	0.23572	583.74957	137.6014486
15175	15299	0.09290	1248.40906	115.9772017
15176	15172	0.02736	1055.66296	28.88293859
15176	15179	0.03153	714.59906	22.53130836
15177	246	0.14411	102.40383	14.75741594
15177	249	0.11864	4.93928	0.585996179
15177	15084	0.07657	686.11414	52.5357597
15177	15282	0.08775	789.91412	69.31496403
15178	15153	0.02873	62.40109	1.792783316
15178	15210	0.03755	61.32180	2.30263359
15179	15176	0.03153	1055.66296	33.28505313
15179	15199	0.05201	714.59906	37.16629711
15184	15199	0.02027	1205.64417	24.43840733
15185	115	0.25022	14.86149	3.718642028
15185	119	0.13291	10.00777	1.330132711
15185	14645	0.41951	133.05827	55.81927485

15185	15664	0.42983	115.16940	49.5032632
15199	15174	0.01740	1300.23120	22.62402288
15199	15179	0.05201	1055.66296	54.90503055
15199	15221	0.02413	410.29407	9.900395909
15201	15063	0.11188	34202.75391	3826.604107
15205	1286	0.25220	858.55457	216.5274626
15205	1323	0.15236	191.16165	29.12538899
15205	14962	0.18620	1151.79065	214.463419
15205	29911	0.13800	645.21899	89.04022062
15210	15178	0.03755	62.40109	2.34316093
15210	15214	0.00834	0.00000	0
15210	15247	0.04996	1002.48291	50.08404618
15214	14949	0.29907	1034.33508	309.3385924
15214	15210	0.00834	62.40109	0.520425091
15216	249	0.13312	3.23710	0.430922752
15216	250	0.09706	20.80304	2.019143062
15216	15145	0.06471	554.72607	35.89632399
15216	15280	0.05341	849.39886	45.36639311
15217	15170	0.04251	6815.00635	289.7059199
15217	15311	0.05803	2841.51855	164.8933215
15219	15162	0.05274	2254.33887	118.893832
15219	15295	0.05386	2056.98462	110.7891916
15221	15199	0.02413	611.55762	14.75688537
15221	15233	0.01012	410.29407	4.152175988
15224	1772	1.00616	81.33236	81.83336734
15224	15057	0.13627	750.69440	102.2971259
15224	15588	0.30281	762.07507	230.7639519
15225	15168	0.05107	1992.84595	101.7746427
15225	15360	0.08925	2005.98560	179.0342148
15233	250	0.14727	0.00000	0
15233	15221	0.01012	611.55762	6.188963114
15233	15272	0.03760	410.29407	15.42705703
15242	1323	0.15988	173.10437	27.67592668
15242	1324	0.07617	439.37024	33.46683118
15242	14961	0.22745	491.91138	111.8852434
15242	15415	0.11788	598.74841	70.58046257
15247	15378	0.08640	1002.48291	86.61452342
15248	15250	0.49918	186.84590	93.26973636
15248	15254	0.99631	187.20624	186.515449
15249	15214	0.04433	1096.73621	48.61831619
15250	15248	0.49918	187.20624	93.44961088
15250	15255	0.49918	186.84590	93.26973636
15251	2010	0.40800	351.52164	143.4208291
15251	15255	0.43825	1.24592	0.54602444
15251	15257	0.55942	385.08411	215.4237528
15252	14965	0.23543	2670.22144	628.6502336
15252	15261	0.13525	150.25818	20.32241885
15252	15332	0.02289	2981.24414	68.24067836
15254	76	4.50000	187.20624	842.42808
15254	15248	0.99631	186.84590	186.1564386
15255	14792	0.38609	955.14777	368.7730025
15255	15250	0.49918	187.20624	93.44961088
15255	15251	0.43825	38.37632	16.81842224
15255	15764	0.48013	14.32885	6.879710751

15257	14663	0.48328	723.55341	349.678892
15257	15251	0.55942	352.76755	197.3452228
15257	15615	0.29420	1835.96594	540.1411795
15261	15252	0.13525	154.58362	20.90743461
15261	15264	0.09726	150.25818	14.61411059
15262	1692	0.23951	0.00356	0.000852656
15262	1693	0.25864	0.00356	0.000920758
15264	1419	0.20544	113.93530	23.40686803
15264	1420	0.24972	8.41660	2.101793352
15264	15261	0.09726	154.58362	15.03480288
15264	15266	0.06065	44.72831	2.712772002
15265	15266	0.10963	46.95572	5.147755584
15265	15326	0.14425	44.72831	6.452058718
15266	15264	0.06065	46.95572	2.847864418
15266	15265	0.10963	44.72831	4.903564625
15267	1845	0.46828	105.34234	49.32971098
15267	14618	0.50960	1670.84924	851.4647727
15267	15549	0.23689	1672.92590	396.2994165
15269	1438	0.24607	0.06261	0.015406443
15269	1439	0.24242	0.06210	0.015054282
15271	2016	0.57352	47.32364	27.14105401
15271	15277	0.26062	48.05279	12.52351813
15272	15233	0.03760	611.55762	22.99456651
15272	15273	0.06481	12.59448	0.816248249
15272	15274	0.12549	45.96828	5.768559457
15272	15348	0.03536	381.12305	13.47651105
15273	15272	0.06481	12.48543	0.809180718
15273	15275	0.03103	12.59448	0.390806714
15274	15272	0.12549	46.66197	5.855610615
15274	15277	0.13100	45.96828	6.02184468
15275	15273	0.03103	12.48543	0.387422893
15275	15276	0.03034	12.59448	0.382116523
15276	250	0.05603	4.31803	0.241939221
15276	253	0.34742	2.13274	0.740956531
15276	15275	0.03034	12.48543	0.378807946
15276	15278	0.05860	10.43871	0.611708406
15277	245	0.25396	1.39082	0.353212647
15277	15271	0.26062	47.32364	12.33348706
15277	15274	0.13100	46.66197	6.11271807
15278	15276	0.05860	10.38616	0.608628976
15278	15279	0.03516	10.43871	0.367025044
15279	15278	0.03516	10.38616	0.365177386
15279	15280	0.03034	10.43871	0.316710461
15280	15216	0.05341	577.33649	30.83554193
15280	15279	0.03034	10.38616	0.315116094
15280	15281	0.03792	342.87805	13.00193566
15280	15374	0.06621	626.88776	41.50623859
15281	15280	0.03792	329.61145	12.49886618
15281	15283	0.03241	342.87805	11.1126776
15282	15177	0.08775	783.63184	68.76369396
15282	15286	0.07585	374.00726	28.36845067
15282	15287	0.04000	21.09016	0.8436064
15282	15448	0.12573	1185.91846	149.105528
15283	15281	0.03241	329.61145	10.68270709

15283	15284	0.08343	342.87805	28.60631571
15284	243	0.32895	4.71564	1.551209778
15284	249	0.07945	49.14956	3.904932542
15284	15283	0.08343	329.61145	27.49948327
15284	15285	0.01517	383.40259	5.81621729
15285	15284	0.01517	374.00726	5.673690134
15285	15286	0.00621	383.40259	2.380930084
15286	15282	0.07585	383.40259	29.08108645
15286	15285	0.00621	374.00726	2.322585085
15287	15282	0.04000	28.83302	1.1533208
15287	15293	0.06137	21.09016	1.294303119
15288	15169	0.10049	1230.34363	123.6372314
15288	15289	0.14203	28.83302	4.095153831
15288	15290	0.07170	248.24265	17.79899801
15288	15353	0.03366	990.65851	33.34556545
15289	248	0.32388	0.00000	0
15289	15288	0.14203	21.09016	2.995435425
15289	15293	0.04068	28.83302	1.172927254
15290	15288	0.07170	274.46005	19.67878559
15290	15291	0.02978	248.24265	7.392666117
15291	239	0.09629	44.34227	4.269717178
15291	240	0.17343	308.94119	53.57967058
15291	15290	0.02978	274.46005	8.173420289
15291	15292	0.05848	458.17084	26.79383072
15292	15291	0.05848	502.10519	29.36311151
15292	15295	0.05171	458.17084	23.69201414
15293	15287	0.06137	28.83302	1.769482437
15293	15289	0.04068	21.09016	0.857947709
15294	14942	0.26587	1191.48694	316.7806327
15294	15327	0.49643	75.97592	37.71672597
15294	15873	0.50109	1217.36621	610.0100342
15295	15219	0.05386	2254.33887	121.4186915
15295	15292	0.05171	502.10519	25.96385937
15295	15296	0.12066	77.44344	9.34432547
15295	15408	0.08303	2024.62561	168.1046644
15296	15295	0.12066	271.39261	32.74623232
15296	15297	0.04826	77.44344	3.737420414
15297	15296	0.04826	271.39261	13.09740736
15297	15300	0.05033	77.44344	3.897728335
15298	15301	0.06205	320.53586	19.88925011
15298	15305	0.06551	467.90509	30.65246245
15299	15175	0.09290	348.00995	32.33012436
15299	15303	0.09997	255.16005	25.5083502
15299	15499	0.18440	993.24896	183.1551082
15300	15297	0.05033	271.39261	13.65919006
15300	15310	0.27110	77.44344	20.99491658
15301	15298	0.06205	467.90509	29.03351083
15301	15302	0.01793	320.53586	5.74720797
15302	15301	0.01793	467.90509	8.389538264
15302	15307	0.07999	320.53586	25.63966344
15303	15299	0.09997	0.00000	0
15303	15304	0.05930	255.16005	15.13099097
15304	15303	0.05930	0.00000	0
15304	15309	0.05379	255.16005	13.72505909

15305	15298	0.06551	320.53586	20.99830419
15305	15306	0.02275	467.90509	10.6448408
15306	1375	0.13720	74.10618	10.1673679
15306	1376	0.22476	295.66284	66.45317992
15306	15305	0.02275	320.53586	7.292190815
15306	15312	0.04209	694.14642	29.21662282
15307	15142	0.12610	1382.77356	174.3677459
15307	15302	0.07999	467.90509	37.42772815
15307	15317	0.15513	531.35681	82.42938194
15307	15541	0.22265	1039.93994	231.5426276
15308	1353	0.12672	120.94984	15.32676372
15308	1354	0.25478	423.22775	107.8299661
15308	15309	0.00827	0.00000	0
15308	15317	0.06344	977.76532	62.0294319
15309	15304	0.05379	0.00000	0
15309	15308	0.00827	255.16005	2.110173614
15310	236	0.34444	18.74029	6.454905488
15310	237	0.49637	5.81682	2.887294943
15310	15300	0.27110	271.39261	73.57453657
15310	15330	0.50524	91.92751	46.44545515
15311	15217	0.05803	6815.00635	395.4748185
15311	15315	0.04965	528.63666	26.24681017
15311	15323	0.10001	857.23993	85.7325654
15311	15487	0.16629	1962.76160	326.3876265
15312	15306	0.04209	528.63666	22.25031702
15312	15320	0.05105	694.14642	35.43617474
15313	2013	1.74274	404.05051	704.1549858
15313	14993	0.24447	335.36438	81.98652998
15313	15314	0.35295	79.86279	28.18757173
15314	2011	0.55218	0.00000	0
15314	15313	0.35295	387.19543	136.660627
15314	15316	0.14623	79.86279	11.67833578
15315	15311	0.04965	694.14642	34.46436975
15315	15325	0.07379	528.63666	39.00809914
15316	14973	0.25067	8.37181	2.098561613
15316	15314	0.14623	387.19543	56.61958773
15316	15319	0.49987	246.24467	123.0903232
15317	15307	0.15513	977.76532	151.6807341
15317	15308	0.06344	531.35681	33.70927603
15319	14982	0.24900	28.49949	7.09637301
15319	15316	0.49987	81.44582	40.71232204
15319	15329	0.69794	246.24467	171.864005
15320	15312	0.05105	528.63666	26.98690149
15320	15325	0.04759	694.14642	33.03442813
15323	15311	0.10001	1158.92444	115.9040332
15323	15331	0.11584	857.23993	99.30267349
15324	15331	0.05861	577.12628	33.82537127
15324	15333	0.06276	600.15747	37.66588282
15325	15315	0.07379	694.14642	51.22106433
15325	15320	0.04759	528.63666	25.15781865
15326	15158	0.11755	1169.74402	137.5034096
15326	15265	0.14425	46.95572	6.77336261
15326	15335	0.01500	577.12628	8.6568942
15326	15501	0.18341	1311.72778	240.5839921

15327	14913	0.29508	317.86319	93.79507011
15327	15294	0.49643	77.15832	38.3037048
15327	15336	0.49780	257.97864	128.421767
15328	1846	0.52302	0.41559	0.217361882
15328	1872	0.53123	0.41432	0.220099214
15329	2012	0.34603	59.75424	20.67675967
15329	2014	0.52721	52.47717	27.6664888
15329	15319	0.69794	46.61327	32.53326566
15329	15330	0.30043	290.51196	87.27850814
15330	15310	0.50524	290.51196	146.7782627
15330	15329	0.30043	91.92751	27.61778183
15331	1400	0.13192	141.71823	18.6954689
15331	1401	0.25212	1009.74078	254.5758455
15331	15323	0.11584	1158.92444	134.2498071
15331	15324	0.05861	600.15747	35.17522932
15332	15252	0.02289	2799.32446	64.07653689
15332	15464	0.14120	2981.24414	420.9516726
15333	15324	0.06276	577.12628	36.22044533
15333	15335	0.09243	600.15747	55.47255495
15334	1969	1.13464	1377.00134	1562.4008
15334	14003	0.97772	2558.83105	2501.820294
15334	15354	0.02564	1745.65125	44.75849805
15335	15326	0.01500	600.15747	9.00236205
15335	15333	0.09243	577.12628	53.34378206
15336	15327	0.49780	272.15173	135.4771312
15336	15340	0.99698	257.97864	257.1995445
15338	15339	0.49917	564.53058	281.7967296
15338	15340	0.49642	578.75336	287.304743
15339	13056	1.49181	1288.49451	1922.188995
15339	15338	0.49917	578.75336	288.8963147
15339	16220	0.99211	1463.62256	1452.074578
15340	1994	1.07842	337.11838	363.5552034
15340	15336	0.99698	272.15173	271.3298318
15340	15338	0.49642	564.53058	280.2442705
15342	1969	0.89619	96.55540	86.53198393
15342	16227	0.99249	100.29943	99.54618128
15348	15272	0.03536	581.80194	20.5725166
15348	15373	0.03198	381.12305	12.18831514
15352	13944	0.02154	1982.43323	42.70161177
15352	20406	0.48650	2401.58301	1168.370134
15353	15288	0.03366	1013.29388	34.107472
15353	15397	0.04731	990.65851	46.86805411
15354	15334	0.02564	2077.25537	53.26082769
15354	15916	0.49885	1745.65125	870.8181261
15360	15225	0.08925	1992.84595	177.861501
15360	15391	0.03774	2005.98560	75.70589654
15364	15128	0.96316	22242.41016	21422.99977
15366	15065	0.23280	1325.37610	308.5475561
15366	15913	0.48320	1371.10413	662.5175156
15367	14016	1.00304	497.53702	499.0495325
15367	15918	0.48419	516.65710	250.1602012
15368	1324	0.13867	4.37612	0.60683656
15368	15171	0.14901	414.72653	61.79840024
15368	15422	0.04938	461.17004	22.77257658

15373	15348	0.03198	581.80194	18.60602604
15373	15445	0.05892	381.12305	22.45577011
15374	15280	0.06621	368.03946	24.36789265
15374	15440	0.05835	626.88776	36.5789008
15378	1249	0.19256	14.51377	2.794771551
15378	15567	0.17586	987.96918	173.74426
15382	13909	0.01323	1924.58740	25.4622913
15382	20756	0.22568	1522.61694	343.624191
15388	14768	0.49465	97.17073	48.06550159
15388	15425	0.25902	98.62913	25.54691725
15389	14649	0.57649	543.88245	313.5427936
15389	15463	0.07039	555.86115	39.12706635
15391	1249	0.18174	106.87804	19.42401499
15391	15360	0.03774	1992.84595	75.21000615
15391	15433	0.04104	1957.77979	80.34728258
15397	15353	0.04731	1013.29388	47.93893346
15397	15438	0.04165	990.65851	41.26092694
15399	618	0.23734	27.62121	6.555617981
15399	15405	0.24917	273.62244	68.17850337
15399	15425	0.26128	276.30859	72.1939084
15401	628	0.41028	25.89976	10.62615353
15401	640	0.24930	33.43628	8.335664604
15401	15403	0.25382	663.24292	168.344318
15401	15405	0.24882	642.83350	159.9498315
15402	636	0.25214	3.54645	0.894201903
15402	1734	0.50458	103.32179	52.1341088
15402	15403	0.24245	672.71112	163.098811
15402	15404	0.25537	684.19141	174.7219604
15403	15401	0.25382	672.71112	170.7475365
15403	15402	0.24245	663.24292	160.803246
15404	15074	0.25581	1490.29272	381.2317807
15404	15402	0.25537	693.58911	177.121851
15404	15661	0.25881	946.86389	245.0578434
15405	15092	0.24293	915.45319	222.3910434
15405	15399	0.24917	279.01614	69.5224516
15405	15401	0.24882	633.68732	157.674079
15405	15662	0.25982	1106.69556	287.5416404
15408	15295	0.08303	2071.96484	172.0352407
15408	15451	0.04488	2024.62561	90.86519738
15411	121	0.14781	17.69250	2.615128425
15411	1753	0.77686	284.37903	220.9226932
15411	14409	0.79751	894.17297	713.1118853
15411	15944	0.48711	686.72321	334.5097428
15415	15242	0.11788	332.90594	39.24295221
15415	15476	0.07921	598.74841	47.42686156
15418	1753	1.22837	334.56531	410.9699898
15418	14827	0.47389	886.69897	420.1977749
15418	15434	0.02171	743.38611	16.13891245
15422	15368	0.04938	410.36627	20.26388641
15422	15644	0.22948	461.17004	105.8293008
15425	15388	0.25902	97.17073	25.16916248
15425	15399	0.26128	271.36697	70.90276192
15425	15654	0.22810	319.71896	72.92789478
15427	15497	0.35773	22603.04297	8085.786562

15433	1496	0.29669	0.08190	0.024298911
15433	15391	0.04104	1943.41211	79.75763299
15433	15482	0.04905	1957.69788	96.02508101
15434	15418	0.02171	742.81580	16.12653102
15434	15726	0.30961	743.38611	230.1597735
15438	15397	0.04165	1013.29388	42.2036901
15438	15488	0.04951	990.65851	49.04750283
15440	15374	0.05835	368.03946	21.47510249
15440	15500	0.06229	626.88776	39.04883857
15445	15373	0.05892	581.80194	34.2797703
15445	15503	0.06285	381.12305	23.95358369
15448	15282	0.12573	1162.49792	146.1608635
15448	15581	0.12408	1185.91846	147.1487625
15451	15408	0.04488	2071.96484	92.98978202
15451	15542	0.09706	2024.62561	196.5101617
15454	15364	0.46106	22242.41016	10255.08563
15460	1496	0.20763	2.33079	0.483941928
15460	15557	0.08632	644.13110	55.60139655
15460	29911	0.07594	693.36609	52.65422087
15463	1798	0.46159	272.07349	125.5864022
15463	15389	0.07039	543.88245	38.28388566
15463	15566	0.09242	523.99792	48.42788777
15464	15332	0.14120	2799.32446	395.2646138
15464	15560	0.08651	2981.24414	257.9074306
15476	15415	0.07921	332.90594	26.36947951
15476	15511	0.04189	598.74841	25.08157089
15482	15433	0.04905	1943.34631	95.32113651
15482	15551	0.06304	1957.69788	123.4132744
15487	15311	0.16629	5469.05518	909.4491859
15487	15597	0.09570	1962.76160	187.8362851
15488	15438	0.04951	1013.29388	50.16818
15488	15590	0.08307	990.65851	82.29400243
15497	15512	0.14808	3213.76294	475.8940162
15497	15547	0.13508	19389.28125	2619.104111
15499	15299	0.18440	348.00995	64.17303478
15499	15589	0.06799	993.24896	67.53099679
15500	15440	0.06229	368.03946	22.92517796
15500	15577	0.06061	626.88776	37.99566713
15501	1420	0.32167	627.53796	201.8601356
15501	15326	0.18341	700.19092	128.4220166
15501	15847	0.31295	684.18988	214.1172229
15503	15445	0.06285	581.80194	36.56625193
15503	15558	0.04744	381.12305	18.08047749
15510	15454	0.35474	22242.41016	7890.27258
15511	1324	0.21005	652.47571	137.0525229
15511	1326	0.16276	119.58463	19.46359438
15511	15476	0.04189	332.90594	13.94542983
15511	15595	0.09077	1152.03381	104.5701089
15512	15521	0.03310	3213.76294	106.3755533
15521	15524	0.01708	0.00000	0
15521	15630	0.47624	3213.76294	1530.522463
15524	15512	0.03176	0.00000	0
15541	15307	0.22265	1139.59570	253.7309826
15541	15608	0.05412	1039.93994	56.28154955

15542	15451	0.09706	2071.96484	201.1049074
15542	15587	0.02581	2024.62561	52.25558699
15547	15657	0.23752	19389.28125	4605.342083
15549	1693	0.25371	43.47130	11.02910352
15549	15267	0.23689	1637.57251	387.9245519
15549	15782	0.26986	1629.45447	439.7245833
15551	15482	0.06304	1943.34631	122.5085514
15551	15552	0.04551	39.38464	1.792394966
15551	15557	0.50264	10.85728	5.457303219
15551	15692	0.14950	1999.84045	298.9761473
15552	15551	0.04551	40.01772	1.821206437
15552	15553	0.05102	39.38464	2.009404333
15553	15552	0.05102	40.01772	2.041704074
15553	15554	0.05240	39.38464	2.063755136
15554	15553	0.05240	40.01772	2.096928528
15554	15555	0.05378	39.38464	2.118105939
15555	1249	0.17414	0.54826	0.095473996
15555	1495	0.14722	0.52883	0.077854353
15555	15554	0.05378	40.01772	2.152152982
15555	15556	0.05378	50.80867	2.732490273
15556	15555	0.05378	40.04584	2.153665275
15556	15559	0.05793	50.80867	2.943346253
15557	15460	0.08632	692.26202	59.75605757
15557	15551	0.50264	5.72558	2.877905531
15557	15629	0.07204	640.13306	46.11518564
15558	245	0.24785	357.93866	88.71509688
15558	253	0.16279	170.17552	27.7028729
15558	15503	0.04744	581.80194	27.60068403
15558	15573	0.01149	126.15273	1.449494868
15559	15556	0.05793	40.04584	2.319855511
15559	15567	0.04500	50.80867	2.28639015
15560	1420	0.19125	484.62924	92.68534215
15560	1439	0.22604	73.54189	16.62340882
15560	15464	0.08651	2799.32446	242.169559
15560	15633	0.08432	2751.75146	232.0276831
15564	1502	0.36141	1.01280	0.366036048
15564	1503	0.26337	1.01693	0.267828854
15565	15510	0.13109	22242.41016	2915.757548
15566	15463	0.09242	513.54437	47.46177068
15566	15584	0.01003	523.99792	5.255699138
15567	15559	0.04500	40.04584	1.8020628
15567	15575	0.00957	50.40122	0.482339675
15567	15637	0.08759	948.72687	83.09898654
15568	15570	0.50470	0.00000	0
15570	1798	0.55131	258.51877	142.5239831
15570	14648	0.74271	1351.32068	1003.639382
15570	15568	0.50470	0.00000	0
15570	16016	0.49601	1669.24036	827.959911
15573	15558	0.01149	133.22217	1.530722733
15573	15627	0.05948	126.15273	7.50356438
15575	15249	0.26349	1096.73621	288.979024
15575	15567	0.00957	0.39608	0.003790486
15577	243	0.14780	201.22182	29.740585
15577	253	0.16275	457.06500	74.38732875

15577	15500	0.06061	368.03946	22.30687167
15577	15602	0.03087	0.00000	0
15580	15201	0.32068	34202.75391	10968.13912
15581	243	0.14945	771.80615	115.3464291
15581	248	0.14367	839.17328	120.5640251
15581	15448	0.12408	1162.49792	144.2427419
15581	15852	0.25073	326.29776	81.81263736
15582	15665	0.10201	10946.49512	1116.651967
15582	15738	0.19411	26381.74219	5120.959977
15584	15566	0.01003	513.54437	5.150850031
15584	15596	0.01226	523.99792	6.424214499
15587	240	0.15806	49.72173	7.859016644
15587	15542	0.02581	2071.96484	53.47741252
15587	15868	0.24910	2077.90527	517.6062028
15588	15224	0.30281	759.77008	230.0659779
15588	15939	0.30774	762.07507	234.520982
15589	1354	0.19235	934.77655	179.8042694
15589	15499	0.06799	348.00995	23.6611965
15589	15605	0.02750	1019.48547	28.03585043
15590	240	0.13563	40.66546	5.51545634
15590	248	0.14863	1030.15674	153.1121963
15590	15488	0.08307	1013.29388	84.17432261
15595	15511	0.09077	869.52234	78.9265428
15595	15644	0.08459	1152.03381	97.45053999
15596	15584	0.01226	513.54437	6.296053976
15596	15866	0.23807	523.99792	124.7481848
15597	1376	0.29314	110.73629	32.46123605
15597	1401	0.23064	679.81897	156.7934472
15597	15487	0.09570	5469.05518	523.3885807
15597	15647	0.07172	2353.76294	168.8118781
15601	1325	0.08038	0.01033	0.000830325
15601	1497	0.07558	0.01065	0.000804927
15602	15577	0.03087	0.00000	0
15605	15685	0.09424	1019.48547	96.07631069
15608	1354	0.28391	16.93892	4.809128777
15608	1376	0.22410	783.80615	175.6509582
15608	15541	0.05412	1139.59570	61.67491928
15608	15740	0.16799	666.04816	111.8894304
15615	15257	0.29420	1076.32092	316.6536147
15615	15620	0.00954	1835.96594	17.51511507
15620	15615	0.00954	1076.32092	10.26810158
15620	15630	0.01347	1835.96594	24.73046121
15623	15560	0.06317	2579.88208	162.971151
15627	15573	0.05948	133.22217	7.924054672
15627	15835	0.19191	126.15273	24.20997041
15629	1287	0.27682	78.76884	21.80479029
15629	1497	0.06546	82.59454	5.406638588
15629	15557	0.07204	683.13232	49.21285233
15629	15846	0.19253	558.70367	107.5672176
15630	15521	0.47624	0.00000	0
15630	15620	0.01347	1076.32092	14.49804279
15630	15708	0.50704	156.93085	79.57021818
15630	15719	0.11173	4305.32031	481.0334382
15633	15776	0.16077	2751.75146	442.3990822

15637	15639	0.00829	0.00000	0
15637	15689	0.04809	948.72687	45.62427518
15639	15575	0.08465	1046.73108	88.60578592
15639	15637	0.00829	0.00000	0
15644	15422	0.22948	410.36627	94.17085164
15644	15595	0.08459	869.52234	73.55289474
15644	15684	0.04322	1613.20386	69.72267083
15647	15597	0.07172	6240.33740	447.5569983
15647	15863	0.16351	2353.76294	384.8637783
15654	15425	0.22810	313.31894	71.46805021
15654	15704	0.05389	319.71896	17.22965475
15657	15766	0.59505	19389.28125	11537.59181
15661	15404	0.25881	1013.25824	262.2413651
15661	15959	0.24490	946.86389	231.8869667
15662	15405	0.25982	1093.38513	284.0833245
15662	15682	0.02392	1106.69556	26.4721578
15664	15185	0.42983	115.43545	49.61761947
15664	15964	0.24104	115.16940	27.76043218
15665	15685	0.04032	2127.16235	85.76718595
15665	15713	0.05279	8819.33301	465.5725896
15666	15565	0.23328	22242.41016	5188.709442
15682	619	0.28815	238.63023	68.76130077
15682	15662	0.02392	1093.38513	26.15377231
15682	15927	0.18082	945.13464	170.8992456
15684	1326	0.12191	495.67859	60.42817691
15684	15644	0.04322	1279.88855	55.31678313
15684	15722	0.05631	1597.18115	89.93727056
15685	15605	0.09424	0.00000	0
15685	15697	0.01150	3146.64771	36.18644867
15686	1463	0.03975	38.74902	1.540273545
15686	15639	0.04693	1046.73108	49.12308958
15686	15689	0.00760	22.34144	0.169794944
15689	1495	0.16915	82.77415	14.00124747
15689	15686	0.00760	94.86877	0.721002652
15689	15744	0.07315	874.24469	63.95099907
15692	1287	0.23734	120.97043	28.71112186
15692	1495	0.17956	176.78540	31.74358642
15692	15551	0.14950	1989.98755	297.5031387
15692	15797	0.10712	1772.17407	189.8352864
15697	15685	0.01150	0.00000	0
15697	15713	0.03840	999.06104	38.36394394
15697	15821	0.10937	2147.58691	234.8815803
15704	1721	0.75757	294.90643	223.4122642
15704	15654	0.05389	313.31894	16.88475768
15704	15934	0.16037	28.86035	4.62833433
15708	15630	0.50704	0.00000	0
15708	15730	0.20716	156.93085	32.50979489
15713	15815	0.08921	9818.39355	875.8988886
15719	15630	0.11173	488.84308	54.61843733
15719	15752	0.03610	4305.32031	155.4220632
15722	15684	0.05631	1467.95203	82.66037881
15722	15813	0.06551	1597.18115	104.6313371
15725	15666	0.32762	18310.86133	5999.004389
15726	15434	0.30961	742.81580	229.9831998

15726	15973	0.16873	743.38611	125.4315383
15728	11220	0.01051	4688.51660	49.27630947
15730	15708	0.20716	0.00000	0
15730	15794	0.29639	156.93085	46.51273463
15738	16044	0.32691	26381.74219	8624.455339
15739	15580	0.19794	34202.75391	6770.093109
15740	15608	0.16799	769.37543	129.2473785
15740	15841	0.04910	666.04816	32.70296466
15741	15686	0.07312	974.99213	71.29142455
15744	15795	0.03849	874.24469	33.64967812
15752	15666	0.33430	3931.54907	1314.316854
15752	15719	0.03610	488.84308	17.64723519
15752	15994	0.21279	2997.54395	637.8473771
15764	15255	0.48013	984.79443	472.8293497
15764	15794	0.02040	14.32885	0.29230854
15766	15906	0.61242	19389.28125	11874.38362
15774	1693	0.23706	89.41071	21.19570291
15774	1701	0.24831	111.78307	27.75685411
15774	15779	0.12489	1873.48962	233.9801186
15774	15781	0.29979	2184.73413	654.9614448
15775	15725	0.27578	18310.86133	5049.769338
15775	15752	0.27305	226.84163	61.93910707
15776	15778	0.03172	1844.18152	58.49743781
15776	15805	0.00949	3259.87476	30.93621147
15777	15623	0.18199	2579.88208	469.5127397
15777	15776	0.00758	2352.30469	17.83046955
15778	15786	0.17943	1844.18152	330.9014901
15779	15774	0.12489	2081.02197	259.8988338
15779	15782	0.07930	1873.48962	148.5677269
15780	1845	0.51178	11.25962	5.762448324
15780	1847	1.53526	106.79640	163.9602411
15780	15784	0.47983	5517.45166	2647.43883
15780	15787	0.14622	5577.21533	815.5004256
15781	15774	0.29979	1975.94910	592.3697807
15781	15783	0.21316	2184.73413	465.6979272
15782	15549	0.26986	1599.48804	431.6378425
15782	15779	0.07930	2081.02197	165.0250422
15782	15784	0.04209	3405.73535	143.3474009
15783	1439	0.24654	11.74254	2.895005812
15783	1440	0.25536	121.12900	30.93150144
15783	15781	0.21316	1975.94910	421.1933102
15783	15786	0.02416	2052.89478	49.59793788
15784	15780	0.47983	5462.35107	2620.999914
15784	15782	0.04209	3583.30127	150.8211505
15784	16013	0.25392	1967.93115	499.6970776
15785	15788	0.07585	5564.54346	422.0706214
15786	15783	0.02416	1844.18152	44.55542552
15786	15804	0.17873	2052.89478	366.913884
15787	15780	0.14622	5632.50146	823.5843635
15787	15792	0.25442	5577.21533	1418.955124
15788	15790	0.01725	5564.54346	95.98837469
15789	15791	0.02690	5564.54346	149.6862191
15790	15789	0.03999	5564.54346	222.526093
15791	15808	0.07798	6018.32275	469.308808

15792	15787	0.25442	5632.50146	1433.021021
15792	15802	0.53504	5577.21533	2984.03329
15793	1250	0.25726	449.87674	115.7352901
15793	1495	0.10988	466.44907	51.25342381
15793	15798	0.08362	851.08276	71.16754039
15793	15799	0.02947	974.99213	28.73301807
15794	15730	0.29639	0.00000	0
15794	15764	0.02040	984.79443	20.08980637
15794	15908	0.16672	171.25969	28.55241552
15795	15796	0.00689	974.99213	6.717695776
15795	15799	0.13515	874.24469	118.1541699
15796	15741	0.03904	974.99213	38.06369276
15796	15795	0.00689	0.00000	0
15797	15692	0.10712	1738.13330	186.1888391
15797	15785	0.01071	5564.54346	59.59626046
15797	15798	0.10204	981.77399	100.1802179
15797	15900	0.02231	6637.62744	148.0854682
15798	15793	0.08362	981.77399	82.09594104
15798	15797	0.10204	851.08276	86.84448483
15799	15793	0.02947	874.24469	25.76399101
15799	15795	0.13515	974.99213	131.7701864
15801	1873	0.85587	5.10325	4.367718578
15801	1878	0.92581	5.01380	4.641826178
15802	1846	0.48821	221.80714	108.2884638
15802	1848	0.99166	233.23940	231.2941834
15802	15792	0.53504	5632.50146	3013.613581
15802	15809	0.54262	5360.25098	2908.579387
15804	15805	0.03241	2052.89478	66.53431982
15805	15806	0.00758	2013.71814	15.2639835
15805	15925	0.05582	3299.05151	184.1530553
15806	15777	0.00949	2621.58301	24.87882276
15806	15845	0.23310	2831.66284	660.060608
15807	1287	0.18430	338.09979	62.3117913
15807	15826	0.12208	6249.14111	762.8951467
15807	15836	0.00669	1.68993	0.011305632
15808	15807	0.00758	6018.32275	45.61888645
15809	14637	1.00119	3718.30518	3722.729963
15809	15802	0.54262	5421.24219	2941.674437
15809	15812	0.50167	1445.73474	725.281747
15809	16554	1.00883	2731.98804	2756.111494
15810	15797	0.01087	5905.24463	64.19000913
15811	15813	0.05585	7347.77734	410.3733644
15811	15858	0.00725	69.59054	0.504531415
15812	1872	0.50628	78.37496	39.67967475
15812	15809	0.50167	1415.83606	710.2824762
15812	15827	0.54014	1406.89697	759.9213294
15813	15722	0.06551	1467.95203	96.16553749
15813	15818	0.02000	6174.93213	123.4986426
15813	15856	0.00673	4528.94775	30.47981836
15814	1420	0.26265	174.26508	45.77072326
15814	15777	0.25675	2310.60376	593.2475154
15814	15867	0.00837	412.91226	3.456075616
15815	15821	0.04206	5964.60449	250.8712648
15815	15854	0.00614	10028.72168	61.57635112

15816	15815	0.01586	6174.93213	97.93442358
15817	15816	0.01724	6174.93213	106.4558299
15818	15817	0.00689	6174.93213	42.54528238
15819	1326	0.13327	61.03826	8.13456891
15819	15811	0.05087	7417.36816	377.3215183
15820	15810	0.07587	5905.24463	448.0309101
15821	15697	0.10937	0.00000	0
15821	15831	0.23995	6027.66895	1446.339165
15821	15862	0.00725	2102.32739	15.24187358
15822	15819	0.02016	7200.00439	145.1520885
15823	15824	0.03999	5905.24463	236.1507328
15824	15820	0.01725	5905.24463	101.8654699
15826	15832	0.04282	6249.14111	267.5882223
15827	15812	0.54014	1376.51880	743.5128646
15827	15843	0.38612	1406.89697	543.2310581
15828	1288	0.25746	481.69348	124.0168034
15828	15791	0.02984	453.77936	13.5407761
15828	15823	0.05380	5905.24463	317.7021611
15831	1354	0.25363	701.68073	177.9672835
15831	15833	0.06206	5007.59961	310.7716318
15831	15879	0.00837	1473.54834	12.33359961
15832	15846	0.08346	6249.14111	521.553317
15833	15840	0.05586	5007.59961	279.7245142
15833	15882	0.00903	0.00000	0
15835	15627	0.19191	133.22217	25.56666664
15835	15852	0.49849	126.15273	62.88587438
15836	15807	0.00669	364.29181	2.437112209
15836	15837	0.00758	6386.93799	48.41298996
15837	15828	0.05107	6386.93799	326.1809231
15838	15822	0.18762	7200.00439	1350.864824
15838	15884	0.00838	54.90718	0.460122168
15840	15842	0.04896	5007.59961	245.1720769
15840	15885	0.00837	0.00000	0
15841	15740	0.04910	769.37543	37.77633361
15841	15853	0.20272	4010.75537	813.0603286
15841	15888	0.00837	1164.21777	9.744502735
15842	15841	0.05309	5007.59961	265.8534633
15843	15827	0.38612	1376.51880	531.5014391
15843	15860	0.61502	1406.89697	865.2697745
15844	15838	0.05168	6283.47656	324.7300686
15845	15867	0.02384	2831.66284	67.50684211
15846	15629	0.19253	479.93427	92.401745
15846	15844	0.08756	6283.47656	550.1812076
15846	15887	0.00781	368.49695	2.87796118
15847	15501	0.31295	80.03393	25.04661839
15847	15814	0.24482	2725.89526	667.3536776
15847	15891	0.00837	23.76667	0.198927028
15848	15847	0.00896	2065.47192	18.5066284
15849	1401	0.24040	184.79982	44.42587673
15849	15848	0.22960	2065.47192	474.2323528
15850	15849	0.02344	1857.76062	43.54590893
15850	15894	0.02676	110.31120	2.951927712
15851	15850	0.03654	1968.07178	71.91334284
15852	15581	0.25073	342.68301	85.9209111

15852	15835	0.49849	133.22217	66.40991952
15852	15868	0.49849	399.24225	199.0182692
15853	29935	0.03572	4010.75537	143.2641818
15854	15855	0.01586	11101.31836	176.0669092
15854	16044	0.26767	4005.90381	1072.260273
15855	15861	0.02036	11101.31836	226.0228418
15856	15813	0.00673	3226.87378	21.71686054
15856	15858	0.05516	7571.29785	417.6327894
15856	15921	0.04045	8572.64551	346.7635109
15857	1377	0.24566	432.42004	106.228307
15857	15895	0.03763	2609.73999	98.20451582
15858	15811	0.00725	0.00000	0
15858	29936	0.04903	7640.88867	374.6327715
15859	15851	0.11376	1968.07178	223.8878457
15860	15843	0.61502	1376.51880	846.5865924
15860	15870	0.59433	1406.89697	836.1610762
15861	15856	0.02448	11101.31836	271.7602735
15862	15821	0.00725	17.80461	0.129083423
15862	15854	0.04209	5078.50049	213.7540856
15862	15997	0.17508	2102.32739	368.0754794
15863	15647	0.16351	6240.33740	1020.357568
15863	15859	0.07448	1968.07178	146.5819862
15863	15898	0.00781	2743.55615	21.42717353
15866	15596	0.23807	513.54437	122.2595082
15866	16034	0.25032	523.99792	131.1671593
15867	1421	0.26476	247.05928	65.41141497
15867	15814	0.00837	2.99528	0.025070494
15867	15891	0.24481	3236.67188	792.3696429
15868	237	0.49345	88.11444	43.48007042
15868	15587	0.24910	2121.68677	528.5121744
15868	15852	0.49849	422.69693	210.7101926
15868	16025	0.24458	2419.42847	591.7438152
15869	15880	0.12139	7638.44336	927.2306395
15870	15860	0.59433	1376.51880	818.1064184
15870	15874	0.20892	1406.89697	293.928915
15873	1994	1.65569	150.20938	248.7001684
15873	15294	0.50109	1229.72888	616.2048445
15873	16712	1.49879	1067.15686	1599.44403
15874	15870	0.20892	1376.51880	287.5823077
15874	15875	0.21925	1406.89697	308.4621607
15875	15874	0.21925	1376.51880	301.8017469
15875	15890	0.49155	866.20062	425.7809148
15875	16556	0.75886	8591.64160	6519.853145
15875	30051	0.55293	8748.78516	4837.465779
15878	29937	0.04683	7320.02930	342.7969721
15879	1355	0.24285	1906.05029	462.8843129
15879	15831	0.00837	992.61383	8.308177757
15879	15862	0.23997	3900.59912	936.0267708
15880	15884	0.06675	7638.44336	509.8660943
15882	15833	0.00903	0.00000	0
15882	15879	0.06071	2804.00610	170.2312103
15883	15885	0.04964	2804.00610	139.1908628
15884	15838	0.00838	971.43488	8.140624294
15884	15886	0.05047	7275.59521	367.1992902

15884	15978	0.13331	391.01389	52.12606168
15885	15840	0.00837	0.00000	0
15885	15882	0.05723	2804.00610	160.4732691
15886	15887	0.08825	7275.59521	642.0712773
15887	15846	0.00781	324.06277	2.530930234
15887	15878	0.08346	7320.02930	610.9296454
15888	15841	0.00837	270.70065	2.265764441
15888	15883	0.05240	2804.00610	146.9299196
15888	16037	0.24862	841.01660	209.0935471
15890	1899	0.50536	138.53667	70.01089155
15890	1900	0.74310	11.38086	8.457117066
15890	15875	0.49155	881.67444	433.387071
15890	15901	0.50860	766.16382	389.6709189
15891	15847	0.00837	80.03393	0.669883994
15891	15893	0.00896	3180.40479	28.49642692
15892	15849	0.02832	184.79982	5.233530902
15892	15894	0.02482	2995.60474	74.35090965
15893	15892	0.20477	3180.40479	651.2514888
15894	1402	0.24721	153.03688	37.8322471
15894	15896	0.05999	3103.34741	186.1698111
15895	15888	0.20410	2609.73999	532.647932
15896	15897	0.11376	3103.34741	353.0368014
15897	15898	0.07446	3103.34741	231.0752481
15898	15857	0.25958	2273.03296	590.0338958
15898	15863	0.00781	4587.44727	35.82796318
15898	16017	0.23157	1891.32251	437.9735536
15899	1879	0.74539	1.37520	1.025060328
15899	1880	0.74156	1.39972	1.037976363
15900	15797	0.02231	6393.57666	142.6406953
15900	15960	0.07643	6637.62744	507.3138652
15901	14668	1.00256	1523.15222	1527.05149
15901	15890	0.50860	757.06104	385.0412449
15901	15903	0.50127	1477.07275	740.4122574
15901	16418	0.73356	631.91577	463.5481322
15903	15901	0.50127	1492.54639	748.1687289
15903	15905	0.50126	1477.07275	740.3974867
15904	11249	0.02661	4076.71338	108.481343
15904	15728	0.02855	3840.18628	109.6373183
15905	15903	0.50126	1492.54639	748.1538035
15905	15909	0.50543	1477.07275	746.55688
15906	15794	0.12860	984.79443	126.6445637
15906	15908	0.27722	18404.48633	5102.0917
15908	16059	1.56362	18575.74609	29045.4081
15909	15905	0.50543	1492.54639	754.3777219
15909	15910	0.49920	1477.07275	737.3547168
15910	1902	1.06539	1881.53674	2004.570427
15910	15909	0.49920	1492.54639	745.0791579
15910	15914	0.49715	214.77222	106.7740092
15910	16732	1.49993	597.64240	896.421765
15912	14825	0.10210	531.71515	54.28811682
15912	14962	0.02262	1034.37585	23.39758173
15913	15366	0.48320	1325.37610	640.4217315
15913	15919	1.00179	194.73268	195.0812515
15913	15928	0.01622	1325.30481	21.49644402

15914	15910	0.49715	194.73268	96.81135186
15914	15919	0.50401	214.77222	108.2473466
15915	15775	0.61394	18537.70313	11381.03746
15916	15354	0.49885	2077.25537	1036.238841
15916	16247	0.50110	1745.65125	874.7458414
15918	1930	0.68572	35.52079	24.35731612
15918	15367	0.48419	497.53702	240.9024497
15918	16272	0.52052	559.47430	291.2175626
15919	15913	1.00179	214.77222	215.1566623
15919	15914	0.50401	194.73268	98.14721805
15920	15915	0.27728	18537.70313	5140.134324
15921	15856	0.04045	3740.55054	151.3052693
15921	15954	0.04422	8572.64551	379.0823845
15922	1968	1.45993	943.37238	1377.257639
15922	14011	0.94756	3351.48877	3175.736699
15922	16575	1.55523	2812.73950	4374.456853
15925	15986	0.10092	3299.05151	332.9402784
15926	15806	0.05582	3439.52759	191.9944301
15927	628	0.23377	2.09464	0.489663993
15927	15682	0.18082	936.59454	169.3550247
15927	16081	0.28878	946.21118	273.2468646
15928	1930	0.82456	206.26683	170.0793773
15928	15913	0.01622	1259.53723	20.42969387
15928	16643	1.23374	1119.03796	1380.601893
15934	619	0.26638	28.86035	7.687820033
15934	15704	0.16037	28.29961	4.538408456
15939	15588	0.30774	759.77008	233.8116444
15939	16597	1.01242	762.07507	771.5400424
15941	16014	0.17186	0.00000	0
15944	15411	0.48711	599.57526	292.0591049
15944	15963	0.01503	686.72321	10.32144985
15945	15739	0.13881	8217.74121	1140.704657
15954	15921	0.04422	3740.55054	165.4071449
15954	15945	0.02445	8217.74121	200.9237726
15954	15975	0.04646	1871.33179	86.94207496
15959	15661	0.24490	1013.25824	248.146943
15959	16061	0.21483	946.86389	203.4147695
15960	15900	0.07643	6393.57666	488.6610641
15960	16022	0.15733	6637.62744	1044.297925
15963	15944	0.01503	599.57526	9.011616158
15963	16312	0.50186	686.72321	344.6389102
15964	15664	0.24104	115.43545	27.82456087
15964	16053	0.20027	115.16940	23.06497574
15969	1763	0.83454	0.00000	0
15971	15954	0.04178	3447.32983	144.0294403
15973	15726	0.16873	742.81580	125.3353099
15973	15977	0.02672	743.38611	19.86327686
15975	15954	0.04646	1809.64819	84.07625491
15975	16019	0.12856	1871.33179	240.5784149
15977	15973	0.02672	742.81580	19.84803818
15977	16050	0.15144	743.38611	112.5783925
15978	15988	0.03284	0.00000	0
15978	15990	0.03053	391.01389	11.93765406
15986	15926	0.10078	3439.52759	346.6355905

15986	16000	0.03795	3299.05151	125.1990048
15988	15884	0.16018	944.69336	151.3209824
15990	16035	0.11764	391.01389	45.99887402
15994	15752	0.21279	2885.77417	614.0638856
15994	16001	0.03024	2997.54395	90.64572905
15997	15862	0.17508	1195.70618	209.344238
15997	16024	0.07141	2102.32739	150.1271989
16000	15986	0.03795	3439.52759	130.530072
16000	16036	0.06921	3299.05151	228.327355
16001	2017	0.51006	238.42271	121.6098875
16001	15994	0.03024	2885.77417	87.2658109
16001	16194	0.30047	2820.14819	847.3699266
16011	1440	0.24701	1.44653	0.357307375
16011	1701	0.30655	1.41544	0.433903132
16012	15920	1.13792	18537.70313	21094.42315
16013	1701	0.24219	46.39715	11.23692576
16013	15784	0.25392	2090.39673	530.7935377
16013	16155	0.24496	1949.26599	477.4921969
16014	2017	0.50551	39.50799	19.97168402
16014	15941	0.17186	0.00000	0
16014	16188	0.25661	40.04197	10.27516992
16016	1503	0.80378	136.79083	109.9497333
16016	15570	0.49601	1609.83948	798.4964805
16016	16199	0.25785	1669.55652	430.4951487
16017	15898	0.23157	2904.89893	672.6874452
16017	16045	0.02662	1891.32251	50.34700522
16019	15975	0.12856	1809.64819	232.6483713
16019	16064	0.06323	1871.33179	118.3243091
16022	1250	0.21300	3048.07104	649.2391315
16022	1288	0.13100	172.15546	22.55236526
16022	15960	0.15733	6393.57666	1005.901416
16022	16175	0.24487	3525.87988	863.3822062
16024	1355	0.23743	575.94580	136.7468113
16024	15997	0.07141	1195.70618	85.38537831
16024	16179	0.24548	1563.68518	383.853438
16025	2015	0.50402	36.17995	18.2354184
16025	15868	0.24458	2487.48950	608.3901819
16025	16189	0.25024	2399.42822	600.4329178
16028	15988	0.11827	944.69336	111.7288837
16034	15866	0.25032	513.54437	128.5504267
16034	16219	0.25534	523.99792	133.7976289
16035	16071	0.08609	391.01389	33.66238579
16036	1421	0.22713	158.47121	35.99356593
16036	1440	0.20442	722.04065	147.5995497
16036	16000	0.06921	3439.52759	238.0497045
16036	16180	0.23972	2743.94019	657.7773423
16037	1355	0.24170	29.08164	7.029032388
16037	1377	0.24970	784.70819	195.941635
16037	15888	0.24862	141.76537	35.24570629
16037	16218	0.25082	85.65831	21.48481731
16042	1402	0.23836	0.42084	0.100311422
16042	1421	0.28013	0.42239	0.118324111
16044	16342	0.35437	30387.64453	10768.46959
16045	1377	0.25035	159.49600	39.9298236

16045	1402	0.24694	22.42936	5.538706158
16045	16017	0.02662	2904.89893	77.32840952
16045	16100	0.10004	2051.47070	205.2291288
16047	15739	0.32567	25985.01367	8462.539402
16047	15971	0.17660	3447.32983	608.798448
16050	15977	0.15144	742.81580	112.4920248
16050	16269	0.27226	743.38611	202.3943023
16053	1735	0.22537	29.80515	6.717186656
16053	15964	0.20027	115.43545	23.11825757
16053	16309	0.30007	85.36425	25.6152505
16059	16132	0.32936	18575.74609	6118.107732
16061	1735	0.26566	39.58303	10.51562775
16061	15959	0.21483	1013.25824	217.6782677
16061	16306	0.28847	913.99921	263.6613521
16064	16019	0.06323	1809.64819	114.4240551
16064	16067	0.00831	1871.33179	15.55076717
16067	1328	0.21215	1321.40845	280.3368027
16067	16064	0.00831	1809.64819	15.03817646
16067	16094	0.05031	549.92328	27.66664022
16068	16012	0.42654	18537.70313	7907.071893
16070	1289	0.13342	11.87389	1.584214404
16070	16028	0.08670	944.69336	81.90491431
16070	16071	0.00792	22.30938	0.17669029
16071	1455	0.05338	113.93809	6.082015244
16071	16070	0.00792	103.24236	0.817679491
16071	16151	0.15865	308.22574	48.90001365
16081	620	0.24859	105.85396	26.31423592
16081	15927	0.28878	937.62616	270.7676825
16081	16300	0.25148	904.45453	227.4522252
16094	16067	0.05031	542.14050	27.27508856
16094	16335	0.24827	549.92328	136.5294527
16100	16045	0.10004	2629.14868	263.0200339
16100	16215	0.13728	2051.47070	281.6258977
16132	75	35.00000	18575.74609	650151.1132
16137	11235	0.00664	652.26605	4.331046572
16138	16068	0.32450	18537.70313	6015.484666
16151	16152	0.00733	0.00000	0
16151	29934	0.11433	308.22574	35.23944885
16152	16070	0.16605	299.07697	49.66173087
16152	16151	0.00733	0.00000	0
16155	16013	0.24496	2071.63647	507.4680697
16155	16415	0.25912	1949.26599	505.0938033
16159	2018	0.17856	839.97968	149.9867717
16159	16164	0.43650	421.43674	183.957137
16159	16174	0.31055	1258.78296	390.9150482
16163	1700	0.25790	0.00000	0
16163	1701	0.25930	0.00000	0
16164	74	35.00000	421.43674	14750.2859
16164	16159	0.43650	411.10275	179.4463504
16166	16167	0.02476	2960.83008	73.31015278
16166	16175	0.15309	2749.78247	420.9641983
16167	1250	0.24750	374.02502	92.57119245
16167	1251	0.25059	508.78214	127.4957165
16167	16166	0.02476	2749.78247	68.08461396

16167	16169	0.06220	2597.44702	161.5612046
16169	16167	0.06220	2401.00562	149.3425496
16169	16171	0.08973	2497.83472	224.1307094
16169	16297	0.10737	99.61238	10.69538124
16171	1498	0.10683	10.11350	1.080425205
16171	16169	0.08973	2304.29785	206.7646461
16171	16173	0.05231	2507.78394	131.1821779
16173	16171	0.05231	2314.41138	121.0668593
16173	16176	0.09653	2507.78394	242.0763837
16174	16159	0.31055	1253.21924	389.187235
16174	16188	0.99802	842.54901	840.880763
16174	16547	0.50212	416.23395	208.999391
16175	16022	0.24487	3177.04492	777.9629896
16175	16166	0.15309	2960.83008	453.2734769
16175	16186	0.18522	690.10992	127.8221594
16175	16402	0.24487	990.43732	242.5283865
16176	1236	1.16321	4.71367	5.482988081
16176	16173	0.09653	2314.41138	223.4101305
16176	16183	0.63639	2505.65820	1594.575822
16178	1440	0.25246	0.00000	0
16178	1478	0.24706	0.00000	0
16179	16024	0.24548	1222.02319	299.9822527
16179	16203	0.22964	1199.12109	275.3661671
16179	16354	0.14454	400.22162	57.84803295
16180	16036	0.23972	2901.16797	695.4679858
16180	16421	0.25175	2743.94019	690.7869428
16181	16182	0.23505	4.92747	1.158201824
16181	16185	0.99354	10.12911	10.06367595
16182	2016	0.51352	11.81400	6.06672528
16182	16181	0.23505	10.12911	2.380847306
16182	16184	0.26344	9.32557	2.456728161
16183	16176	0.63639	2312.98975	1471.963547
16183	16195	0.61019	2505.65820	1528.927577
16184	16182	0.26344	14.41592	3.797729965
16184	16187	0.51021	9.32557	4.75799907
16185	16181	0.99354	4.92747	4.895638544
16185	16194	1.00043	10.12911	10.13346552
16186	16175	0.18522	681.15894	126.1642589
16186	16200	0.07211	690.10992	49.76382633
16187	16184	0.51021	14.41592	7.355146543
16187	16191	0.49851	9.32557	4.648889901
16188	16014	0.25661	39.50799	10.13814531
16188	16174	0.99802	861.50415	859.7983718
16188	16193	0.30613	751.32697	230.0037253
16188	16549	0.49754	88.79391	44.17852198
16189	16025	0.25024	2467.56714	617.4840011
16189	16191	0.49924	14.41592	7.197003901
16189	16551	0.50044	2407.47681	1204.797695
16190	2017	0.36595	0.00000	0
16190	16193	0.15317	770.24084	117.9777895
16190	16194	0.54182	751.32697	407.0839789
16191	16187	0.49851	14.41592	7.186480279
16191	16189	0.49924	9.32557	4.655697567
16193	16188	0.30613	770.24084	235.7938283

16193	16190	0.15317	751.32697	115.080752
16194	16001	0.30047	2705.74243	812.9944279
16194	16185	1.00043	4.92747	4.929588812
16194	16190	0.54182	770.24084	417.3318919
16194	16550	0.49688	2055.41992	1021.29705
16195	16183	0.61019	2312.98975	1411.363216
16195	16199	0.26752	2505.65820	670.3136817
16199	16016	0.25785	1610.93079	415.3785042
16199	16195	0.26752	2312.98975	618.7710179
16199	16219	0.99289	327.34732	325.0198806
16199	16545	0.49179	3370.71924	1657.686015
16200	16186	0.07211	681.15894	49.11837116
16200	16238	0.08557	690.10992	59.05270585
16202	1421	0.23485	0.03854	0.009051119
16202	1477	0.24718	0.03898	0.009635076
16203	1355	0.25437	185.98312	47.30852623
16203	1356	0.23658	844.62537	199.82147
16203	16179	0.22964	1011.80103	232.3499885
16203	16205	0.02705	960.04602	25.96924484
16205	16203	0.02705	799.29083	21.62081695
16205	16216	0.13039	960.04602	125.1804005
16206	1402	0.24842	0.56050	0.13923941
16206	1403	0.23199	0.56009	0.129935279
16206	16211	0.12135	0.00000	0
16208	16209	0.04206	869.69543	36.57938979
16208	16210	0.07033	974.34357	68.52558328
16209	16208	0.04206	974.34357	40.98089055
16209	16218	0.12343	869.69543	107.3465069
16210	1377	0.25104	32.98238	8.279896675
16210	1378	0.22755	623.13452	141.79426
16210	16208	0.07033	869.69543	61.16567959
16210	16214	0.10825	340.76779	36.88811327
16211	16206	0.12135	0.00000	0
16211	16212	0.03447	0.00000	0
16212	16211	0.03447	0.00000	0
16212	16215	0.09653	0.00000	0
16214	16210	0.10825	256.70514	27.78833141
16214	16215	0.15100	340.76779	51.45593629
16215	16100	0.13728	2629.14868	360.9295308
16215	16212	0.09653	0.00000	0
16215	16214	0.15100	256.70514	38.76247614
16215	16358	0.21208	2059.13110	436.7005237
16216	16205	0.13039	799.29083	104.2195313
16216	16218	0.09653	960.04602	92.67324231
16218	16037	0.25082	141.76537	35.5575901
16218	16209	0.12343	974.34357	120.2632268
16218	16216	0.09653	799.29083	77.15554382
16218	16336	0.10788	0.00000	0
16219	1786	0.83930	171.90794	144.282334
16219	16034	0.25534	513.54437	131.1284194
16219	16199	0.99289	308.21829	306.026858
16219	16568	0.50231	527.06671	264.7508791
16220	1994	1.40813	191.25414	269.3106922
16220	15339	0.99211	1223.57751	1213.923483

16220	16717	0.99884	1656.50012	1654.57858
16227	15342	0.99249	96.55540	95.83026895
16227	16725	0.99753	100.29943	100.0516904
16237	16276	0.06013	4036.25073	242.6997564
16238	1289	0.31249	53.11139	16.59677826
16238	1457	0.25183	379.07114	95.46148519
16238	16200	0.08557	681.15894	58.2867705
16238	29932	0.12211	869.48883	106.173281
16247	15916	0.50110	2077.25537	1040.912666
16247	16573	0.49606	1745.65125	865.9477591
16266	16237	0.06369	4036.25073	257.068809
16269	16050	0.27226	742.81580	202.2390297
16269	16325	0.05289	743.38611	39.31769136
16272	15918	0.52052	533.05780	277.4672461
16272	16752	0.99577	559.47430	557.1077237
16276	10581	0.05872	4036.25073	237.0086429
16297	1498	0.08204	99.61238	8.172199655
16297	16169	0.10737	96.70786	10.38352293
16297	16398	0.14815	0.00000	0
16300	1722	0.82479	110.65020	91.26317846
16300	16081	0.25148	895.17426	225.1184229
16300	16302	0.22639	146.83946	33.24298535
16300	16662	0.75334	877.62787	661.1521796
16302	628	0.59606	4.02434	2.3987481
16302	1736	0.91044	32.17380	29.29231447
16302	16300	0.22639	148.20145	33.55132627
16302	16304	0.27487	182.77722	50.23997446
16304	16302	0.27487	184.24889	50.64449239
16304	16310	0.25537	182.77722	46.67581867
16306	1738	0.42855	49.18560	21.07848888
16306	16061	0.28847	980.68939	282.8994683
16306	16307	0.27735	1010.11078	280.1542248
16306	16308	0.02139	196.01526	4.192766411
16307	1735	0.30151	12.32148	3.715049435
16307	1738	0.41745	36.93471	15.41839469
16307	16306	0.27735	1077.63940	298.8832876
16307	16309	0.21151	1058.42297	223.8670424
16308	16306	0.02139	194.73799	4.165445606
16308	16310	0.23764	196.01526	46.58106639
16309	16053	0.30007	86.17569	25.8587393
16309	16307	0.21151	1125.92175	238.1437093
16309	16312	0.50595	1123.97070	568.6729757
16310	1734	0.50389	22.95705	11.56782792
16310	16304	0.25537	184.24889	47.05163904
16310	16308	0.23764	194.73799	46.27753594
16312	15963	0.50186	599.57526	300.90284
16312	16309	0.50595	1192.28101	603.234577
16312	16313	0.49406	1766.05847	872.5388477
16313	1753	1.08392	28.97019	31.40136834
16313	1754	1.38763	154.68820	214.649987
16313	16312	0.49406	1747.22070	863.231859
16313	16316	0.07491	1607.78186	120.4389391
16316	16313	0.07491	1588.80969	119.0177339
16316	16320	0.42750	1607.78186	687.3267452

16320	16316	0.42750	1588.80969	679.2161425
16320	16322	0.49781	1607.78186	800.3698877
16322	16320	0.49781	1588.80969	790.9253518
16322	16325	0.49577	1607.78186	797.0900127
16325	1763	0.81376	587.67023	478.2225264
16325	16269	0.05289	742.81580	39.28752766
16325	16322	0.49577	1588.80969	787.68418
16325	16344	0.02172	2062.66357	44.80105274
16335	16094	0.24827	542.14050	134.5972219
16335	16406	0.12721	549.92328	69.95574045
16336	16218	0.10788	0.00000	0
16336	16419	0.13456	0.00000	0
16341	16347	0.01613	649.20355	10.47165326
16341	29934	0.07096	646.17218	45.85237789
16342	16431	0.14294	30387.64453	4343.609909
16344	16325	0.02172	2044.68945	44.41065485
16344	16663	0.72995	2062.66357	1505.641273
16347	16341	0.01613	646.17218	10.42275726
16347	16376	0.10340	649.20355	67.12764707
16354	16179	0.14454	245.87975	35.53945907
16354	16408	0.10488	400.22162	41.97524351
16358	1378	0.24669	542.35010	133.7923462
16358	1403	0.23915	427.08487	102.1373467
16358	16215	0.21208	2552.74609	541.3863908
16358	16446	0.09226	1435.88745	132.4749761
16376	16347	0.10340	646.17218	66.81420341
16376	16391	0.09435	649.20355	61.25235494
16391	1328	0.28801	92.10278	26.52652167
16391	1456	0.14782	843.20264	124.6422142
16391	16376	0.09435	646.17218	60.96634518
16391	16394	0.02024	1065.80530	21.57189927
16394	16391	0.02024	1050.63025	21.26475626
16394	16396	0.05371	1065.80530	57.24440266
16396	16394	0.05371	1050.63025	56.42935073
16396	16410	0.09857	1065.80530	105.0564284
16398	16297	0.14815	0.00000	0
16402	16175	0.24487	861.60077	210.9801805
16402	16477	0.13109	990.43732	129.8364283
16405	1403	0.23952	0.05521	0.013223899
16405	1477	0.24906	0.05604	0.013957322
16406	16335	0.12721	542.14050	68.96569301
16406	16413	0.08419	1050.63025	88.45256075
16406	16426	0.01174	531.41272	6.238785333
16408	1356	0.24122	184.72461	44.55927042
16408	16354	0.10488	245.87975	25.78786818
16408	16580	0.30296	585.93268	177.5141647
16410	16396	0.09857	1050.63025	103.5606237
16410	16413	0.04896	1065.80530	52.18182749
16413	16406	0.08419	1065.80530	89.73014821
16413	16410	0.04896	1050.63025	51.43885704
16415	1700	0.25518	2.29119	0.584665864
16415	16155	0.25912	2071.63647	536.8024421
16415	16537	0.24013	1946.97473	467.5270419
16416	1478	0.22861	0.00000	0

16416	1700	0.29985	0.00000	0
16418	1900	0.49524	84.11118	41.65522078
16418	15901	0.73356	736.97913	540.6184106
16418	16566	0.26342	575.79865	151.6768804
16419	1356	0.26755	7.67262	2.052809481
16419	1378	0.22812	7.85712	1.792366214
16419	16336	0.13456	0.00000	0
16419	16471	0.11775	0.00000	0
16421	1477	0.26105	10.39233	2.712917747
16421	1478	0.21198	1.97919	0.419548696
16421	16180	0.25175	2901.16797	730.3690364
16421	16480	0.13420	2731.58691	366.5789633
16426	16406	0.01174	508.45486	5.969260056
16426	16463	0.09987	531.41272	53.07218835
16431	16581	0.27996	30387.64453	8507.324963
16446	16358	0.09226	1949.81494	179.8899264
16446	16564	0.19866	1435.88745	285.2534008
16463	16426	0.09987	508.45486	50.77938687
16463	16583	0.19360	531.41272	102.8815026
16467	16047	0.59081	29432.34375	17388.92301
16471	16419	0.11775	0.00000	0
16477	1251	0.21271	82.90200	17.63408442
16477	1457	0.27404	23.70591	6.496367576
16477	16402	0.13109	861.60077	112.9472449
16477	16527	0.12064	1013.94788	122.3226722
16480	16421	0.13420	2891.65601	388.0602365
16480	16535	0.10381	2731.58691	283.5660371
16527	16477	0.12064	967.06287	116.6664646
16527	16587	0.07306	1013.94788	74.07903211
16533	1478	0.24690	0.28644	0.070722036
16533	16535	0.20805	2300.96289	478.7153293
16533	16540	0.22950	2450.07422	562.2920335
16534	16266	0.04200	4036.25073	169.5225307
16535	16480	0.10381	2891.65601	300.1828104
16535	16533	0.20805	2449.75732	509.6720104
16535	16541	0.25564	537.36981	137.3732182
16535	16630	0.20987	4192.64746	879.9109224
16536	16538	0.12480	2069.34521	258.2542822
16536	16540	0.12373	1946.97473	240.8991833
16537	16415	0.24013	2069.34497	496.9118076
16537	16538	0.31095	1946.97473	605.4117923
16538	1700	0.24717	0.00009	2.22453E-05
16538	16536	0.12480	1946.97473	242.9824463
16538	16537	0.31095	2069.34497	643.4628184
16539	1504	0.26414	674.71368	178.2188714
16539	16545	0.86736	657.70520	570.4671823
16540	1847	0.78653	382.27332	300.6694344
16540	16533	0.22950	2301.24927	528.1367075
16540	16536	0.12373	2069.34521	256.0400828
16541	1477	0.24261	13.36125	3.241572863
16541	16535	0.25564	766.58624	195.9701064
16541	16548	0.24988	548.47211	137.0522108
16543	1290	0.27111	0.00000	0
16545	1799	0.55535	19.63063	10.90187037

16545	16199	0.49179	3138.55420	1543.50957
16545	16539	0.86736	674.71368	585.2196575
16545	16829	1.00483	2888.82715	2902.780185
16547	16174	0.50212	391.71503	196.6879509
16547	16640	0.24826	416.23395	103.3342404
16548	1833	0.50603	0.47574	0.240738712
16548	16541	0.24988	775.44617	193.768489
16548	16555	0.23923	548.91437	131.3167847
16549	16188	0.49754	88.30118	43.9333691
16549	16695	0.50090	88.79391	44.47686952
16550	16194	0.49688	1954.72620	971.2643543
16550	16697	0.50081	2055.41992	1029.37485
16551	16189	0.50044	2480.70605	1241.444536
16551	16698	0.49820	2407.47681	1199.404947
16554	15809	1.00883	2927.05957	2952.905506
16554	16702	0.49924	2731.98804	1363.917709
16555	1403	0.26543	141.95467	37.67902806
16555	16548	0.23923	775.89069	185.6163298
16555	16564	0.24706	507.41232	125.3612878
16556	1880	0.50975	222.39531	113.3660093
16556	1900	0.49959	266.60876	133.1950704
16556	15875	0.75886	8383.54980	6361.940601
16556	16715	0.73965	8379.04199	6197.558408
16560	1848	0.49116	3.29419	1.61797436
16560	1873	1.15325	3.28468	3.78805721
16563	1508	0.51352	0.00000	0
16564	16446	0.19866	1949.81494	387.350236
16564	16555	0.24706	743.84198	183.7735996
16564	16694	0.48733	1594.33081	776.9652336
16566	16418	0.26342	680.46381	179.2477768
16566	16723	0.50519	575.79865	290.88772
16567	1378	0.27886	0.00000	0
16568	16219	0.50231	516.52606	259.4562052
16568	16642	0.24533	527.06671	129.305276
16573	16247	0.49606	2077.25537	1030.443299
16573	16737	0.50334	1745.65125	878.6561002
16575	15922	1.55523	2947.65161	4584.276213
16575	16740	0.50044	2812.73950	1407.607355
16580	16408	0.30296	430.60434	130.4558908
16580	29910	0.33933	585.93268	198.8245363
16581	16673	0.33889	30387.64453	10298.06885
16583	16463	0.19360	508.45486	98.4368609
16583	16646	0.25511	531.41272	135.568699
16584	16467	0.18650	29432.34375	5489.132109
16587	16527	0.07306	967.06287	70.65361328
16587	16654	0.30110	1013.94788	305.2997067
16596	1356	0.33419	0.00000	0
16597	15939	1.01242	759.77008	769.2064244
16597	16648	0.23847	762.07507	181.7320419
16606	16609	0.06738	0.00000	0
16609	16606	0.06738	0.00000	0
16624	16584	0.08871	29432.34375	2610.943214
16630	16535	0.20987	4272.29443	896.626432
16630	16692	0.29904	4192.64746	1253.769296

16640	16547	0.24826	391.71503	97.24717335
16640	16691	0.25162	416.23395	104.7327865
16642	16568	0.24533	516.52606	126.7193383
16642	16720	0.25534	527.06671	134.5812137
16643	15928	1.23374	1055.83801	1302.629586
16643	16750	0.26509	1119.03796	296.6457728
16645	1290	0.55338	3.87581	2.144795738
16645	16646	0.07229	3.87216	0.279918446
16646	16583	0.25511	508.45486	129.7119193
16646	16645	0.07229	3.87581	0.280182305
16646	16676	0.11001	527.53693	58.03433767
16648	1773	0.98662	247.45778	244.1467949
16648	1785	1.15694	75.33363	87.15648989
16648	16597	0.23847	759.77008	181.182371
16648	16756	0.25184	803.91827	202.4587771
16654	1290	0.59671	0.12700	0.07578217
16654	16587	0.30110	967.06287	291.1826302
16654	16733	0.21731	1013.82086	220.3134111
16655	16690	0.06013	4266.53564	256.546788
16662	16300	0.75334	866.80988	653.002555
16662	16709	0.15938	877.62787	139.8763299
16663	1764	0.99764	130.88219	130.573308
16663	16344	0.72995	2044.68945	1492.521064
16663	16768	0.26982	2060.16992	555.8750478
16673	16770	0.26374	30387.64453	8014.437368
16675	16624	0.26418	29432.34375	7775.436572
16676	16646	0.11001	504.58270	55.50914283
16676	16706	0.09071	527.53693	47.85287492
16690	16731	0.03130	4266.53564	133.5425655
16691	16640	0.25162	391.71503	98.56333585
16691	16819	0.49987	416.23395	208.0628646
16692	1833	0.49100	87.32861	42.87834751
16692	16630	0.29904	4272.29443	1277.586926
16692	16826	0.50270	4179.75977	2101.165236
16694	1508	0.50998	186.75758	95.24263065
16694	1833	0.50401	94.63313	47.69604385
16694	16564	0.48733	2344.68799	1142.636798
16694	16851	0.51322	1315.18384	674.9786504
16695	16549	0.50090	88.30118	44.23006106
16695	16823	0.49866	88.79391	44.27797116
16696	1290	0.23629	0.41699	0.098530567
16696	1507	0.39910	57.16183	22.81328635
16696	16706	0.62494	34.56813	21.60300716
16696	16733	0.68163	125.83409	85.77229077
16697	16550	0.50081	1954.72620	978.9464282
16697	16820	0.49746	2055.41992	1022.489193
16698	2013	2.66431	116.08630	309.28989
16698	16551	0.49820	2480.70605	1235.887754
16698	17071	1.00256	2443.84424	2450.100481
16702	16554	0.49924	2927.05957	1461.30522
16702	16713	0.99769	966.44818	964.2156847
16702	16830	0.49814	2731.45068	1360.644842
16703	1873	0.71920	489.60022	352.1204782
16703	1874	0.88643	51.75744	45.87934754

16703	16708	0.14860	938.17432	139.412704
16703	16713	0.35403	975.93011	345.5085368
16705	16707	0.24890	942.95715	234.7020346
16705	16710	0.50194	938.17432	470.9072182
16706	16676	0.09071	504.58270	45.77069672
16706	16696	0.62494	92.43342	57.76534149
16706	16782	0.25440	547.82513	139.3667131
16707	16705	0.24890	938.17432	233.5115882
16707	16708	0.24959	942.95715	235.3526751
16708	16703	0.14860	942.95715	140.1234325
16708	16707	0.24959	938.17432	234.1589285
16709	1710	2.77630	155.40144	431.4410179
16709	1722	0.86582	8.58478	7.43287422
16709	1736	0.27133	32.79861	8.899246851
16709	16662	0.15938	866.80988	138.1521587
16709	16763	0.08987	725.83710	65.23098018
16710	16705	0.50194	942.95715	473.3079119
16710	16715	0.50265	938.17432	471.5733219
16711	1994	1.14653	73.47825	84.24501797
16711	16712	0.99628	208.64058	207.864437
16711	16719	1.49482	129.76483	193.9750632
16712	2013	2.36361	196.88448	465.3581258
16712	15873	1.49879	1083.40173	1623.791679
16712	16711	0.99628	203.24307	202.4870058
16712	17413	1.52401	1223.96863	1865.340432
16713	16702	0.99769	975.93011	973.6757114
16713	16703	0.35403	966.44818	342.1516492
16714	1508	0.46979	383.24948	180.0467732
16714	16802	0.40477	302.00610	122.2430091
16714	29910	0.11873	430.60434	51.12565329
16715	16556	0.73965	8197.67676	6063.411616
16715	16710	0.50265	942.95715	473.9774114
16715	16718	0.50088	812.13757	406.7834661
16715	17038	0.97688	8284.08398	8092.555958
16717	16220	0.99884	1414.83167	1413.190465
16717	16719	0.49711	131.68875	65.46379451
16717	16725	0.99284	1786.26501	1773.475353
16718	1900	0.74852	0.00000	0
16718	16715	0.50088	720.84473	361.0567084
16718	16721	0.26448	812.13757	214.7941445
16719	16711	1.49482	131.68875	196.8509773
16719	16717	0.49711	129.76483	64.50739464
16720	16642	0.25534	516.52606	131.8897642
16720	16724	0.25443	49.31737	12.54781845
16720	16786	0.24758	477.74936	118.2811865
16721	16718	0.26448	720.84473	190.6490142
16721	16723	0.23375	812.13757	189.837157
16722	1880	0.75965	0.74259	0.564108494
16722	1881	0.95164	0.74622	0.710132801
16723	1901	0.70224	127.85145	89.78240225
16723	16566	0.50519	680.46381	343.7635122
16723	16721	0.23375	720.84473	168.4974556
16723	16730	1.00324	1066.60803	1070.06384
16724	16720	0.25443	48.31799	12.2935462

16724	16787	0.25460	49.31737	12.5562024
16725	16227	0.99753	96.55540	96.31690816
16725	16717	0.99284	1546.52039	1535.447304
16725	16727	0.87625	276.27829	242.0888516
16725	16975	0.75565	1843.38684	1392.955266
16727	1969	2.10667	7.47975	15.75736493
16727	1971	2.39026	7.56647	18.08583058
16727	16725	0.87625	285.14996	249.8626525
16727	16728	0.12141	276.27829	33.54294719
16728	16727	0.12141	285.14996	34.62005664
16728	16737	1.01704	276.27829	280.9860721
16730	16723	1.00324	1079.16174	1082.658224
16730	16732	0.99975	1066.60803	1066.341378
16731	16803	0.01474	4266.53564	62.88873533
16732	15910	1.49993	599.25488	898.8403722
16732	16730	0.99975	1079.16174	1078.89195
16732	16735	0.99975	954.53876	954.3001253
16732	16809	0.43494	830.78064	361.3397316
16733	1505	0.18368	151.57529	27.84134927
16733	16654	0.21731	966.93585	210.1248296
16733	16696	0.68163	77.02940	52.50554992
16733	16801	0.42082	876.08008	368.6720193
16734	16655	0.05472	4266.53564	233.4648302
16735	1931	1.74652	591.75977	1033.520274
16735	16732	0.99975	892.97565	892.7524061
16735	16750	1.00908	691.24957	697.5261161
16737	16573	0.50334	2077.25537	1045.565718
16737	16728	1.01704	285.14996	290.0089153
16737	16739	0.50024	467.66290	233.9436891
16737	17125	0.99889	1514.16541	1512.484686
16739	1970	1.24426	0.00000	0
16739	16737	0.50024	457.12415	228.6717848
16739	16740	0.49259	467.66290	230.3660679
16740	16575	0.50044	2947.65161	1475.122772
16740	16739	0.49259	457.12415	225.174785
16740	16742	0.72739	840.09412	611.0760619
16740	17127	0.99697	2747.58228	2739.257106
16742	16740	0.72739	515.43042	374.9189332
16742	16744	0.27234	840.09412	228.7912326
16744	16742	0.27234	515.43042	140.3723206
16744	16745	0.47206	840.09412	396.5748303
16745	1628	0.93584	151.33258	141.6230817
16745	1968	2.06981	216.09303	447.2715144
16745	16744	0.47206	515.43042	243.3140841
16745	16746	0.52491	979.85370	514.3350057
16746	16745	0.52491	648.76337	340.5423805
16746	16747	0.46815	1096.47974	513.3169903
16746	16875	0.49579	1272.20227	630.7451634
16747	16746	0.46815	1132.15002	530.0160319
16747	16748	0.03172	1096.47974	34.78033735
16748	1626	0.91490	122.63430	112.1981211
16748	16747	0.03172	1132.15002	35.91179863
16748	16749	0.04284	1231.55322	52.75973994
16749	16748	0.04284	1254.78442	53.75496455

16749	16752	0.95482	1231.55322	1175.911646
16750	16643	0.26509	1055.83801	279.8920981
16750	16735	1.00908	834.23212	841.8069476
16750	16751	0.50815	1020.52722	518.5809068
16750	16877	0.49774	835.01385	415.6197937
16751	1930	1.55029	91.40940	141.7110787
16751	1932	2.41723	297.37857	718.8324008
16751	16750	0.50815	1018.06561	517.3300397
16751	16755	0.49229	757.25873	372.7909002
16752	16272	0.99577	533.05780	530.8029655
16752	16749	0.95482	1254.78442	1198.09326
16752	16754	0.12411	760.44409	94.37871601
16754	16752	0.12411	757.25873	93.98338098
16754	16755	0.37783	760.44409	287.3185905
16755	16751	0.49229	760.44409	374.3590211
16755	16754	0.37783	757.25873	286.115066
16756	16648	0.25184	799.47174	201.338963
16756	16891	0.50425	803.91827	405.3757876
16763	16709	0.08987	714.72333	64.23218567
16763	16790	0.24873	725.83710	180.5374619
16768	16663	0.26982	2041.35205	550.7976101
16768	16780	0.12472	2060.16992	256.9443924
16769	16675	0.24748	29432.34375	7283.916431
16770	16773	0.09173	25478.67773	2337.159108
16770	16802	0.27248	4908.96680	1337.595274
16772	471	0.24749	39.93607	9.883777964
16772	474	0.15769	0.10015	0.015792654
16772	16861	0.31707	39.22787	12.43798074
16773	16853	0.27359	25478.67773	6970.71144
16774	16769	0.09400	29432.34375	2766.640313
16780	16768	0.12472	2041.35205	254.5974277
16780	16788	0.05514	2060.16992	113.5977694
16782	16706	0.25440	582.73621	148.2480918
16782	16804	0.17302	547.82513	94.78470399
16786	478	0.27030	6.02827	1.629441381
16786	486	0.13086	57.22142	7.487995021
16786	16720	0.24758	468.20804	115.9189465
16786	16799	0.12818	439.60461	56.34851891
16787	474	0.12594	71.73512	9.034321013
16787	486	0.12154	6.95397	0.845185514
16787	16724	0.25460	48.31799	12.30176025
16787	16858	0.24670	28.95978	7.144377726
16788	1765	0.27654	118.61086	32.80064722
16788	16780	0.05514	2041.35205	112.560152
16788	16792	0.04955	1941.55908	96.20425241
16790	1723	0.26394	40.55608	10.70437176
16790	1739	0.36525	41.22581	15.0577271
16790	16763	0.24873	714.72333	177.7731339
16790	16943	0.37777	653.19312	246.7567649
16792	16788	0.04955	1926.18286	95.44236071
16792	16800	0.04121	1941.55908	80.01164969
16799	16786	0.12818	431.51514	55.31161065
16799	16849	0.12153	439.60461	53.42514825
16800	16792	0.04121	1926.18286	79.37799566

16800	16897	0.18654	1941.55908	362.1784308
16801	16733	0.42082	779.64105	328.0885467
16801	16933	0.28111	876.08008	246.2748713
16802	16714	0.40477	207.69208	84.06752322
16802	16853	0.15406	753.88940	116.144201
16802	16857	0.11962	4969.41016	594.4408433
16803	11235	0.01383	4266.53564	59.0061879
16804	16782	0.17302	582.73621	100.8250191
16804	16806	0.01558	0.00000	0
16804	16807	0.01964	547.82513	10.75928555
16806	16774	0.19700	5462.61475	1076.135106
16807	16804	0.01964	582.73621	11.44493916
16807	16806	0.02005	5462.61475	109.5254257
16807	16846	0.05914	547.82513	32.39837819
16809	16732	0.43494	906.51001	394.2774637
16809	17414	1.06389	830.78064	883.8592151
16810	16811	0.44128	877.40796	387.1825846
16810	16812	0.30098	884.16626	266.1163609
16811	394	0.50084	359.53195	180.0679818
16811	16810	0.44128	884.16626	390.1648872
16811	16815	0.56267	679.82568	382.5175154
16812	388	0.41338	17.73802	7.332542708
16812	1847	0.62520	197.27872	123.3386557
16812	16810	0.30098	877.40796	264.0822478
16812	16826	0.68711	969.75519	666.3284886
16815	16811	0.56267	683.28265	384.4626487
16815	16817	0.33302	679.82568	226.395548
16817	1848	1.02251	85.40923	87.33179177
16817	1849	0.52131	144.85844	75.51615336
16817	16815	0.33302	683.28265	227.5467881
16817	16830	0.67364	609.37866	410.5018405
16819	16691	0.49987	391.71503	195.806592
16819	17046	0.49987	416.23395	208.0628646
16820	16697	0.49746	1954.72620	972.3980955
16820	17055	0.50026	2055.41992	1028.244369
16823	16695	0.49866	88.30118	44.03226642
16823	17051	0.49810	88.79391	44.22824657
16826	16692	0.50270	4260.38623	2141.696158
16826	16812	0.68711	940.54535	646.2581154
16826	16833	0.26107	1623.48633	423.8435762
16826	16951	0.24453	4922.39453	1203.673134
16829	1506	0.70620	205.59900	145.1940138
16829	16545	1.00483	2673.68652	2686.600426
16829	16834	0.29720	3508.05444	1042.59378
16829	16979	0.28074	577.01630	161.9915561
16830	1874	1.10721	122.32935	135.4442796
16830	16702	0.49814	2917.04053	1453.09457
16830	16817	0.67364	614.55804	413.9908781
16830	16954	0.25129	2281.65601	573.3573388
16833	382	0.24432	196.91292	48.10976461
16833	16826	0.26107	1395.05042	364.2058131
16833	16838	0.26157	1816.49731	475.1412014
16834	482	0.26206	174.22269	45.65679814
16834	1799	0.50958	9.19803	4.687132127

16834	16829	0.29720	3285.43384	976.4309372
16834	16840	0.12963	3449.46436	447.154065
16838	16833	0.26157	1591.96338	416.4098613
16838	16839	0.08857	1816.49731	160.8871667
16839	379	0.29113	144.94627	42.19820759
16839	1833	0.51256	49.98204	25.61879442
16839	16838	0.08857	1591.96338	141.0001966
16839	16845	0.23206	1745.61353	405.0870758
16840	16834	0.12963	3247.39014	420.9591838
16840	16841	0.06550	3449.46436	225.9399156
16841	16840	0.06550	3247.39014	212.7040542
16841	16842	0.05999	3449.46436	206.933367
16842	16841	0.05999	3247.39014	194.8109345
16842	16843	0.12480	3333.23999	415.9883508
16842	16922	0.13857	116.55427	16.15092519
16843	16842	0.12480	3141.07031	392.0055747
16843	16844	0.09211	3333.23999	307.0247355
16844	478	0.25369	52.20438	13.24372916
16844	479	0.13158	353.28015	46.48460214
16844	16843	0.09211	3141.07031	289.3239863
16844	16849	0.22161	3129.32959	693.4907304
16845	16839	0.23206	1501.73645	348.4929606
16845	16847	0.06206	1745.61353	108.3327757
16846	1507	0.61922	401.08170	248.3578103
16846	16807	0.05914	6045.35107	357.5220623
16846	16857	0.08088	1442.74622	116.6893143
16846	16871	0.03414	2308.57178	78.81464057
16847	16845	0.06206	1501.73645	93.19776409
16847	16851	0.09998	1745.61353	174.5264407
16849	16799	0.12153	431.51514	52.44203496
16849	16844	0.22161	2945.81274	652.8215613
16849	16854	0.13594	2604.77246	354.0927682
16849	16921	0.13381	1707.33423	228.4583933
16850	1661	0.31256	443.99240	138.7742645
16850	16851	0.22416	3268.74731	732.722397
16850	16855	0.27709	3535.58472	979.6751701
16851	16694	0.51322	2038.75476	1046.329718
16851	16847	0.09998	1501.73645	150.1436103
16851	16850	0.22416	3339.39771	748.5593907
16851	16874	0.03407	2682.68848	91.39919651
16852	16774	0.27142	23969.72852	6505.863715
16853	16992	0.31610	26232.56641	8292.114242
16854	476	0.25729	55.13547	14.18580508
16854	486	0.24950	0.38425	0.095870375
16854	16849	0.13594	2575.44971	350.1066336
16854	16858	0.11233	2659.11548	298.6984419
16855	1508	0.49030	249.09903	122.1332544
16855	16850	0.27709	3459.56494	958.6108492
16855	16856	0.10674	3596.64160	383.9055244
16856	396	0.37909	33.52942	12.71066783
16856	16855	0.10674	3506.49365	374.2831322
16856	16857	0.32902	3563.11206	1172.33513
16857	16802	0.11962	720.01837	86.12859742
16857	16846	0.08088	6295.53516	509.1828837

16857	16856	0.32902	3465.22778	1140.129244
16857	16983	0.27777	216.89001	60.24553808
16858	16787	0.24670	29.13480	7.18755516
16858	16854	0.11233	2630.21118	295.4516218
16858	16859	0.12679	2326.54248	294.982321
16858	16941	0.20242	423.05490	85.63477286
16859	474	0.21505	15.07442	3.241754021
16859	475	0.22050	0.88550	0.19525275
16859	16858	0.12679	2310.30835	292.9239957
16859	16860	0.07679	2340.65234	179.7386932
16860	16859	0.07679	2324.52173	178.5000236
16860	16861	0.05143	2340.65234	120.3797498
16861	16772	0.31707	39.83461	12.63035979
16861	16860	0.05143	2324.52173	119.5501526
16861	16863	0.06541	2322.45581	151.9118345
16861	16908	0.08782	483.54639	42.46504397
16863	16861	0.06541	2327.20386	152.2224045
16863	16864	0.06965	2322.45581	161.7590472
16864	16863	0.06965	2327.20386	162.0897488
16864	16866	0.11001	2322.45581	255.4933637
16866	472	0.25017	22.38770	5.600730909
16866	16864	0.11001	2327.20386	256.0156966
16866	16868	0.23894	2345.06592	560.3300509
16868	16866	0.23894	2349.59155	561.411405
16868	16879	0.49859	2345.06592	1169.226417
16871	16846	0.03414	2939.89502	100.368016
16871	16888	0.02514	2308.57178	58.03749455
16874	16851	0.03407	3233.03247	110.1494163
16874	16904	0.06082	2682.68848	163.1611134
16875	16746	0.49579	905.44153	448.9088562
16875	17024	0.39345	1272.20227	500.5479831
16877	16750	0.49774	917.25806	456.5560268
16877	17415	0.98094	835.01385	819.098486
16879	16868	0.49859	2349.59155	1171.482851
16879	16881	0.43729	2345.06592	1025.473876
16881	1785	0.88961	753.51477	670.3342745
16881	1787	0.99293	575.59271	571.5232695
16881	16879	0.43729	2349.59155	1027.452889
16881	16884	0.06058	1307.66882	79.21857712
16884	16881	0.06058	1302.41638	78.9003843
16884	16890	0.99498	1307.66882	1301.104323
16886	16871	0.02743	821.72894	22.54002482
16886	16888	0.01925	0.00000	0
16888	16871	0.02514	2118.16602	53.25069374
16888	16960	0.19038	2308.57178	439.5058955
16890	16884	0.99498	1302.41638	1295.87825
16890	16891	0.00689	1307.66882	9.00983817
16891	16756	0.50425	799.47174	403.1336249
16891	16890	0.00689	1302.41638	8.973648858
16891	16894	0.49511	662.25348	327.8883205
16894	16891	0.49511	652.55457	323.0862932
16894	16898	0.50136	662.25348	332.0274047
16897	16800	0.18654	1926.18286	359.3101507
16897	16916	0.04067	1941.55908	78.96320778

16898	16894	0.50136	652.55457	327.1647592
16898	16899	0.24755	662.25348	163.940849
16899	16898	0.24755	652.55457	161.5398838
16899	16901	0.72880	662.25348	482.6503362
16901	16899	0.72880	652.55457	475.5817706
16901	16906	1.01701	662.25348	673.5184117
16903	1773	0.99280	1.65665	1.64472212
16903	1775	1.23362	1.67253	2.063266459
16904	16874	0.06082	3233.03247	196.6330348
16904	16929	0.05859	2682.68848	157.178718
16906	16901	1.01701	652.55457	663.6545232
16906	16909	0.57924	662.25348	383.6037058
16908	16861	0.08782	463.27472	40.68478591
16908	16926	0.03236	483.54639	15.64756118
16909	16906	0.57924	652.55457	377.9857091
16909	16910	0.06343	662.25348	42.00673824
16910	16909	0.06343	652.55457	41.39153638
16910	16912	0.03172	662.25348	21.00668039
16911	1764	0.51592	2.72305	1.404875956
16911	1774	1.75406	2.72713	4.783549648
16912	16910	0.03172	652.55457	20.69903096
16912	16913	0.10757	662.25348	71.23860684
16913	1765	0.31953	183.71011	58.70089145
16913	1766	0.25243	87.02554	21.96785706
16913	16912	0.10757	652.55457	70.19529509
16913	16914	0.07104	522.04858	37.08633112
16914	16913	0.07104	516.72974	36.70848073
16914	16915	0.02620	522.04858	13.6776728
16915	16914	0.02620	516.72974	13.53831919
16915	16916	0.09862	522.04858	51.48443096
16916	1754	1.43305	169.27850	242.5845544
16916	16897	0.04067	1926.18286	78.33785692
16916	16915	0.09862	516.72974	50.95988696
16916	16938	0.06403	1688.05591	108.0862199
16921	479	0.22175	0.00000	0
16921	16849	0.13381	1545.05066	206.7432288
16921	16969	0.12269	1707.33423	209.4728367
16922	479	0.21783	0.00000	0
16922	16842	0.13857	106.64967	14.77844477
16922	16961	0.11737	116.55427	13.67997467
16926	16908	0.03236	463.27472	14.99156994
16926	16977	0.12605	483.54639	60.95102246
16929	16904	0.05859	3233.03247	189.4233724
16929	16946	0.05916	2682.68848	158.7078505
16933	16801	0.28111	779.64105	219.1648956
16933	16940	0.04146	876.08008	36.32228012
16938	16916	0.06403	1667.90161	106.7957401
16938	17004	0.18457	1688.05591	311.5644793
16940	1506	0.81404	579.05688	471.3754626
16940	16933	0.04146	779.64105	32.32391793
16940	16957	0.03512	1140.89844	40.06835321
16941	16858	0.20242	410.55991	83.10553698
16941	16953	0.03402	423.05490	14.3923277
16943	16790	0.37777	642.41998	242.6869958

16943	17190	0.42897	653.19312	280.2002527
16946	16929	0.05916	3233.03247	191.2662009
16946	16982	0.06138	2682.68848	164.6634189
16951	382	0.25578	129.62709	33.15601708
16951	388	0.56836	96.86129	55.05208278
16951	16826	0.24453	5202.24707	1272.105476
16951	17040	0.24607	4829.77490	1188.46271
16953	16941	0.03402	410.55991	13.96724814
16953	16973	0.02460	423.05490	10.40715054
16954	16830	0.25129	2478.06226	622.7122653
16954	17006	0.12512	2281.65601	285.4808
16957	16940	0.03512	1047.20703	36.77791089
16957	16958	0.72950	2928.51440	2136.351255
16957	17025	0.21537	3378.31836	727.5884252
16958	16957	0.72950	3104.34985	2264.623216
16958	16959	0.11791	2928.51440	345.3011329
16959	1507	0.36544	54.05070	19.75228781
16959	1660	0.59458	235.02643	139.7420147
16959	16958	0.11791	3104.34985	366.0338908
16959	16960	0.67451	3080.62036	2077.909239
16960	16888	0.19038	2118.16602	403.2564469
16960	16959	0.67451	3255.65186	2195.969736
16960	17135	0.31134	993.19116	309.2201358
16961	482	0.27770	63.35835	17.5946138
16961	16922	0.11737	106.64967	12.51747177
16961	16968	0.12486	290.64554	36.29000212
16961	17016	0.13536	247.14136	33.45305449
16963	16964	0.06206	420.84448	26.11760843
16963	16965	0.03103	313.05350	9.714050105
16964	16963	0.06206	313.05350	19.42810021
16964	16967	0.05102	420.84448	21.47148537
16965	16963	0.03103	420.84448	13.05880421
16965	16969	0.03172	313.05350	9.93005702
16966	479	0.12659	113.50045	14.36802197
16966	480	0.13232	255.21616	33.77020229
16966	16967	0.05102	313.05350	15.97198957
16966	16968	0.08688	386.10544	33.54484063
16967	16964	0.05102	313.05350	15.97198957
16967	16966	0.05102	420.84448	21.47148537
16968	16961	0.12486	386.10544	48.20912524
16968	16966	0.08688	290.64554	25.25128452
16969	476	0.12630	326.05994	41.18137042
16969	16921	0.12269	1545.05066	189.5622655
16969	16965	0.03172	420.84448	13.34918691
16969	16993	0.06321	1457.75989	92.14500265
16973	475	0.10780	393.97705	42.47072599
16973	16953	0.02460	410.55991	10.09977379
16973	16986	0.05207	249.08870	12.97004861
16975	16725	0.75565	1591.02661	1202.259258
16975	17109	0.25486	1843.38684	469.80557
16977	472	0.24373	134.73621	32.83925646
16977	475	0.12415	82.59635	10.25433685
16977	16926	0.12605	463.27472	58.39577846
16977	16998	0.06244	377.46152	23.56869731

16979	482	0.28259	195.19617	55.16048568
16979	16829	0.28074	586.72577	164.7173927
16979	17095	0.24652	787.52106	194.1396917
16982	16946	0.06138	3233.03247	198.443533
16982	17000	0.05751	2682.68848	154.2814145
16983	396	0.25795	193.97643	50.03622012
16983	16857	0.27777	722.40271	200.6618008
16983	17163	0.31498	71.63235	22.5627576
16986	16973	0.05207	244.99054	12.75665742
16986	16996	0.02955	249.08870	7.360571085
16991	16852	0.31555	23969.72852	7563.647834
16991	16886	0.26569	821.72894	218.3251621
16992	17200	0.34760	26232.56641	9118.440084
16993	16969	0.06321	1407.39221	88.96126159
16993	17008	0.06246	1457.75989	91.05168273
16996	16986	0.02955	244.99054	7.239470457
16996	17015	0.06188	249.08870	15.41360876
16998	16977	0.06244	357.49500	22.3219878
16998	17020	0.06355	377.46152	23.9876796
17000	379	0.27328	365.34500	99.8414816
17000	1661	0.26856	111.15839	29.85269722
17000	16982	0.05751	3233.03247	185.9316973
17000	17072	0.15848	2532.10010	401.2872238
17004	1766	0.20870	9.10852	1.900948124
17004	16938	0.18457	1667.90161	307.8446002
17004	17187	0.26758	1697.16919	454.1285319
17006	16954	0.12512	2478.06226	310.05515
17006	17027	0.07876	2281.65601	179.7032273
17008	480	0.21919	33.25480	7.289119612
17008	16993	0.06246	1407.39221	87.90571744
17008	17012	0.10759	120.97093	13.01526236
17008	17036	0.08084	1546.10193	124.98688
17012	17008	0.10759	120.23167	12.93572538
17012	17013	0.03449	120.97093	4.172287376
17013	476	0.12573	21.58243	2.713558924
17013	485	0.06967	70.40774	4.905307246
17013	17012	0.03449	120.23167	4.146790298
17013	17014	0.01103	199.13078	2.196412503
17014	17013	0.01103	197.56570	2.179149671
17014	17015	0.08837	199.13078	17.59718703
17015	16996	0.06188	244.99054	15.16001462
17015	17014	0.08837	197.56570	17.45888091
17015	17017	0.08550	25.77129	2.203445295
17015	17030	0.06523	100.77177	6.573342557
17016	480	0.21865	0.00000	0
17016	16961	0.13536	140.86876	19.06799535
17016	17104	0.12895	247.14136	31.86887837
17017	17015	0.08550	25.94642	2.21841891
17017	17018	0.04927	25.77129	1.269751458
17018	475	0.16072	2.38428	0.383201482
17018	484	0.06170	2.32230	0.14328591
17018	17017	0.04927	25.94642	1.278380113
17018	17019	0.03787	25.77129	0.975958752
17019	17018	0.03787	25.94642	0.982590925

17019	17020	0.08769	25.77129	2.25988442
17020	16998	0.06355	357.49500	22.71880725
17020	17019	0.08769	25.94642	2.27524157
17020	17033	0.06411	391.40778	25.09315278
17024	1626	0.42227	130.76733	55.21912044
17024	1628	0.52239	188.37602	98.40574909
17024	16875	0.39345	905.44153	356.24597
17024	17429	0.60259	1180.84155	711.5633096
17025	16957	0.21537	3108.79150	669.5404254
17025	17034	0.02448	3378.31836	82.70123345
17026	1849	0.26118	0.00000	0
17027	17006	0.07876	2478.06226	195.1721836
17027	17382	0.54059	2281.65601	1233.440422
17030	484	0.12898	47.42448	6.11680943
17030	485	0.11559	15.01371	1.735434739
17030	17015	0.06523	94.93342	6.192506987
17030	17092	0.06189	68.76183	4.255669659
17033	484	0.13099	37.63925	4.930365358
17033	17020	0.06411	371.61639	23.82432676
17033	17108	0.06245	360.04465	22.48478839
17034	17025	0.02448	3108.79150	76.10321592
17034	17061	0.16208	3304.75439	535.6345915
17034	17069	0.10259	197.11789	20.22232434
17036	485	0.12541	391.51141	49.09944593
17036	17008	0.08084	1496.94263	121.0128422
17036	17052	0.02176	1756.17651	38.21440086
17038	1881	0.50288	110.12715	55.38074119
17038	1901	0.89310	59.84324	53.44599764
17038	16715	0.97688	8198.79395	8009.237834
17038	17199	0.17976	8299.25488	1491.874057
17039	11258	0.00746	4533.40771	33.81922152
17039	17151	0.03335	385.39404	12.85289123
17040	16951	0.24607	5113.18213	1258.200727
17040	17054	0.00726	4829.77490	35.06416577
17041	1506	0.54159	9.20628	4.986029185
17041	1811	0.68107	144.64397	98.51266865
17041	17042	0.10757	3194.64868	343.6483585
17041	17045	0.18619	3051.54028	568.1662847
17042	17041	0.10757	2942.73633	316.550147
17042	17062	0.15863	3194.64868	506.7671201
17043	17047	0.50332	161.84496	81.45980527
17043	17086	0.02416	162.36063	3.922632821
17044	17049	0.04827	340.72369	16.44673252
17044	17050	0.04896	342.15829	16.75206988
17045	17041	0.18619	3304.75439	615.3122199
17045	17059	0.10622	3051.54028	324.1346085
17046	16819	0.49987	391.71503	195.806592
17046	17047	0.49642	162.36063	80.59906394
17046	17053	0.50745	103.46474	52.50318231
17046	17362	0.49145	471.63962	231.7872912
17047	17043	0.50332	162.36063	81.71935229
17047	17046	0.49642	161.84496	80.34307504
17048	403	0.13063	340.72369	44.50873562
17048	17049	0.02551	342.15829	8.728457978

17049	17044	0.04827	342.15829	16.51598066
17049	17048	0.02551	340.72369	8.691861332
17050	17044	0.04896	340.72369	16.68183186
17050	17054	0.12755	342.15829	43.64228989
17051	16823	0.49810	88.30118	43.98281776
17051	17053	0.49366	106.45353	52.55184962
17051	17055	1.00042	173.10535	173.1780542
17051	17384	0.50259	18.61431	9.355366063
17052	17036	0.02176	1701.91394	37.03364733
17052	17089	0.02676	1756.17651	46.99528341
17053	17046	0.50745	106.45353	54.0198438
17053	17051	0.49366	103.46474	51.07640355
17054	17040	0.00726	5113.18213	37.12170226
17054	17050	0.12755	340.72369	43.45930666
17054	17118	0.03404	4692.21924	159.7231429
17055	16820	0.50026	1954.72620	977.8713288
17055	17051	1.00042	176.28918	176.3632215
17055	17057	1.00249	7.97225	7.992100903
17055	17397	0.50530	2021.13391	1021.278965
17056	2019	1.03497	1149.51538	1189.713933
17056	17058	0.47160	8.35401	3.939751116
17056	17063	0.49918	1175.48291	586.777559
17057	17055	1.00249	8.35401	8.374811485
17057	17058	0.52262	7.97225	4.166457295
17058	17056	0.47160	7.97225	3.7597131
17058	17057	0.52262	8.35401	4.365972706
17059	17045	0.10622	3304.75439	351.0310113
17059	17061	0.01656	3051.54028	50.53350704
17061	17034	0.16208	3051.54028	494.5936486
17061	17059	0.01656	3304.75439	54.7267327
17062	17042	0.15863	2942.73633	466.806264
17062	17065	0.05383	3194.64868	171.9679384
17063	17056	0.49918	1157.86951	577.985302
17063	17064	0.49918	1175.48291	586.777559
17064	17063	0.49918	1157.86951	577.985302
17064	17066	0.49987	1175.48291	587.5886422
17065	17062	0.05383	2942.73633	158.4074966
17065	17095	0.61066	3194.64868	1950.844163
17066	17064	0.49987	1157.86951	578.784232
17066	17071	0.50057	1175.48291	588.4114803
17069	17034	0.10259	180.80559	18.54884548
17069	17322	0.41926	197.11789	82.64364656
17071	16698	1.00256	2514.12207	2520.558222
17071	17066	0.50057	1157.86951	579.5947406
17071	17361	0.48473	1301.19067	630.7261535
17072	17000	0.15848	3084.98560	488.9085179
17072	17145	0.08091	2532.10010	204.8722191
17078	11333	0.00769	4904.12891	37.71275132
17086	72	4.50000	162.36063	730.622835
17086	17043	0.02416	161.84496	3.910174234
17087	485	0.05760	0.00000	0
17087	17088	0.03309	632.44421	20.92757891
17087	17090	0.11032	639.54272	70.55435287
17088	17087	0.03309	639.54272	21.1624686

17088	17092	0.08690	632.44421	54.95940185
17089	17052	0.02676	1701.91394	45.54321703
17089	17090	0.00965	632.44421	6.103086627
17089	17114	0.00669	2395.71924	16.02736172
17090	17087	0.11032	632.44421	69.77124525
17090	17089	0.00965	639.54272	6.171587248
17092	477	0.25528	66.86285	17.06874835
17092	17030	0.06189	64.90146	4.016751359
17092	17088	0.08690	639.54272	55.57626237
17092	17099	0.06208	638.57562	39.64277449
17095	16979	0.24652	781.92194	192.7593966
17095	17065	0.61066	2942.73633	1797.011367
17095	17098	0.28680	2412.72681	691.9700491
17098	482	0.26332	2.07319	0.545912391
17098	17095	0.28680	2155.21533	618.1157566
17098	17107	0.16553	2414.73755	399.7115067
17099	17092	0.06208	645.64099	40.08139266
17099	17101	0.02345	638.57562	14.97459829
17101	17099	0.02345	645.64099	15.14028122
17101	17102	0.03172	638.57562	20.25561867
17102	484	0.06602	147.71812	9.752350282
17102	17101	0.03172	645.64099	20.4797322
17102	17105	0.05585	490.85751	27.41439193
17103	17104	0.09308	1883.70044	175.334837
17103	17113	0.06280	2250.10083	141.3063321
17104	483	0.24023	159.72588	38.37094815
17104	17016	0.12895	140.86876	18.1650266
17104	17103	0.09308	2250.10083	209.4393853
17104	17107	0.10894	2157.28857	235.0150168
17105	17102	0.05585	498.15613	27.82201986
17105	17108	0.08687	490.85751	42.64079189
17106	17078	0.03329	370.72150	12.34131874
17107	17098	0.16553	2157.28857	357.095977
17107	17104	0.10894	2414.73755	263.0615087
17108	6090	0.22532	0.00000	0
17108	17033	0.06245	340.57251	21.26875325
17108	17105	0.08687	498.15613	43.27482301
17108	17133	0.03457	777.02386	26.86171484
17109	16975	0.25486	1591.02661	405.4890418
17109	17381	0.46600	1843.38684	859.0182674
17110	17111	0.06137	1483.46240	91.04008749
17110	17112	0.02346	1846.36902	43.31581721
17111	17110	0.06137	1846.36902	113.3116668
17111	17116	0.10895	1483.46240	161.6232285
17112	17110	0.02346	1483.46240	34.8020279
17112	17115	0.02069	1846.36902	38.20137502
17113	17103	0.06280	1883.70044	118.2963876
17113	17116	0.05033	2250.10083	113.2475748
17114	17089	0.00669	2334.35815	15.61685602
17114	17115	0.01862	1483.46240	27.62206989
17114	17128	0.01171	1549.86841	18.14895908
17115	17112	0.02069	1483.46240	30.69283706
17115	17114	0.01862	835.98639	15.56606658
17115	17128	0.02170	1010.38263	21.92530307

17116	480	0.13115	546.19092	71.63293916
17116	17111	0.10895	1846.36902	201.1619047
17116	17113	0.05033	1883.70044	94.80664315
17118	17054	0.03404	4974.19189	169.3214919
17118	17139	0.04968	4692.21924	233.1094518
17125	16737	0.99889	1865.17993	1863.10958
17125	17244	0.23179	1514.16541	350.9684004
17126	6090	0.26633	0.00000	0
17127	16740	0.99697	3196.61938	3186.933623
17127	29906	0.23291	2747.58228	639.9393888
17128	17114	0.01171	2135.98315	25.01236269
17128	17172	0.08476	2560.25098	217.0068731
17133	17108	0.03457	764.85040	26.44087833
17133	17156	0.03010	777.02386	23.38841819
17135	16960	0.31134	977.81683	304.4334919
17135	17242	0.20068	993.19116	199.313602
17139	17118	0.04968	4974.19189	247.1178531
17139	17184	0.05916	4692.21924	277.5916902
17145	398	0.20743	666.20459	138.1908181
17145	17072	0.08091	3084.98560	249.6061849
17145	17205	0.11273	2136.69873	240.8700478
17151	17246	0.18940	385.39404	72.99363118
17156	17133	0.03010	764.85040	23.02199704
17156	17171	0.03290	777.02386	25.56408499
17163	16983	0.31498	582.72766	183.5475583
17163	17273	0.25307	71.63235	18.12799881
17171	17156	0.03290	764.85040	25.16357816
17171	17191	0.02621	777.02386	20.36579537
17172	17128	0.08476	2135.98315	181.0459318
17172	17248	0.15356	2560.25098	393.1521405
17184	402	0.17736	151.91248	26.94319745
17184	17139	0.05916	4974.19189	294.2731922
17184	17185	0.08274	207.77768	17.19152524
17184	17219	0.09434	4404.04102	415.4772298
17185	17184	0.08274	199.41611	16.49968894
17185	17186	0.03034	207.77768	6.303974811
17186	17185	0.03034	199.41611	6.050284777
17186	17188	0.16135	207.77768	33.52492867
17187	17004	0.26758	1677.01013	448.7343706
17187	17300	0.23498	1697.16919	398.8008163
17188	17186	0.16135	199.41611	32.17578935
17188	17207	0.05358	207.77768	11.13272809
17190	16943	0.42897	642.41998	275.5788988
17190	17277	0.19863	653.19312	129.7437494
17191	17171	0.02621	764.85040	20.04672898
17191	17247	0.12658	777.02386	98.3556802
17199	17038	0.17976	8210.17480	1475.861022
17199	17575	0.77609	8299.25488	6440.96872
17200	17270	0.15455	21250.62695	3284.284395
17200	17299	0.20829	4981.93945	1037.688168
17201	16991	0.34983	24791.45703	8672.795413
17205	17145	0.11273	2706.47607	305.1010474
17205	17214	0.00893	2136.69873	19.08071966
17207	17188	0.05358	199.41611	10.68471517

17207	17230	0.05304	207.77768	11.02052815
17214	17205	0.00893	2706.47607	24.16883131
17214	17234	0.04745	2136.69873	101.3863547
17219	17184	0.09434	4698.17432	443.2257653
17219	17221	0.24839	259.90433	64.55763653
17219	17261	0.06921	4148.54443	287.12076
17221	17219	0.24839	253.20921	62.89463567
17221	17262	0.06698	259.90433	17.40839202
17225	17227	0.12825	67.71220	8.68408965
17225	17294	0.12070	66.99320	8.08607924
17227	17225	0.12825	66.99320	8.5918779
17227	17228	0.04068	67.71220	2.754532296
17228	17227	0.04068	66.99320	2.725283376
17228	17229	0.06551	67.71220	4.435826222
17229	380	0.11829	4.43674	0.524821975
17229	399	0.13082	467.55667	61.16576357
17229	17228	0.06551	66.99320	4.388724532
17229	17231	0.07447	386.07614	28.75109015
17230	17207	0.05304	199.41611	10.57703047
17230	17263	0.05358	207.77768	11.13272809
17231	17229	0.07447	395.27789	29.43634447
17231	17232	0.02689	386.07614	10.3815874
17232	17231	0.02689	395.27789	10.62902246
17232	17233	0.06964	386.07614	26.88634239
17233	17232	0.06964	395.27789	27.52715226
17233	17234	0.05033	386.07614	19.43121213
17234	17214	0.04745	2706.47607	128.4222895
17234	17233	0.05033	395.27789	19.8943362
17234	17237	0.08900	0.00000	0
17234	17289	0.11273	1821.60364	205.3493783
17237	17234	0.08900	0.00000	0
17237	17238	0.05378	0.00000	0
17238	17237	0.05378	0.00000	0
17238	17239	0.05102	0.00000	0
17239	397	0.11832	1.57815	0.186726708
17239	398	0.18488	1.61519	0.298616327
17239	17238	0.05102	0.00000	0
17242	17135	0.20068	977.81683	196.2282814
17242	30023	0.09584	993.19116	95.18744077
17244	1970	0.47216	193.02362	91.13803242
17244	17125	0.23179	1865.17993	432.330056
17244	17412	0.26043	1559.08459	406.0323998
17245	376	0.05663	305.21442	17.2842926
17245	17401	0.17582	310.01047	54.50604084
17246	11248	0.02433	774.23175	18.83705848
17247	473	0.22648	552.85352	125.2102652
17247	477	0.24762	58.35837	14.45069958
17247	17191	0.12658	764.85040	96.81476363
17247	17416	0.25252	180.07080	45.47147842
17248	477	0.25242	256.80057	64.82159988
17248	481	0.21830	27.89552	6.089592016
17248	17172	0.15356	2135.98315	328.0015725
17248	17418	0.25489	2358.42944	601.14008
17261	383	0.14916	261.57700	39.01682532

17261	17219	0.06921	4449.37305	307.9411088
17261	17274	0.03516	3898.73926	137.0796724
17262	404	0.12481	358.52969	44.74809061
17262	17221	0.06698	253.20921	16.95995289
17262	17295	0.06586	97.01889	6.389664095
17263	383	0.12460	387.82336	48.32279066
17263	400	0.11427	216.03391	24.6861949
17263	17230	0.05358	199.41611	10.68471517
17263	17282	0.05302	95.89670	5.084443034
17270	17316	0.07868	21250.62695	1671.999328
17271	17201	0.15512	24791.45703	3845.650814
17273	395	0.12997	741.73053	96.40271698
17273	17163	0.25307	582.72766	147.4708889
17273	29983	0.03260	271.95975	8.86588785
17274	389	0.12984	531.14996	68.96451081
17274	17261	0.03516	3926.84570	138.0678948
17274	17340	0.11051	3367.58936	372.1523002
17277	17190	0.19863	642.41998	127.6038806
17277	17451	0.24816	653.19312	162.0964047
17282	17263	0.05302	379.49338	20.12073901
17282	17303	0.03069	95.89670	2.943069723
17289	380	0.22824	553.70349	126.3772846
17289	397	0.21096	359.36295	75.81120793
17289	17234	0.11273	2400.58276	270.6176945
17289	17318	0.04578	1306.93823	59.83163217
17294	380	0.22803	263.53470	60.09381764
17294	17225	0.12070	67.71220	8.17286254
17294	17333	0.05961	277.68146	16.55259183
17295	389	0.12129	2.68584	0.325765534
17295	17262	0.06586	98.62540	6.495468844
17295	17357	0.13867	94.33305	13.08116404
17299	17319	0.05822	1526.86328	88.89398016
17299	29985	0.03159	4981.93945	157.3794672
17300	17187	0.23498	1677.01013	394.0638403
17300	17466	0.25335	1697.16919	429.9778143
17301	17302	0.02276	1897.76465	43.19312343
17301	17323	0.03515	30.73684	1.080399926
17301	30023	0.03342	977.81683	32.67863846
17302	17301	0.02276	300.22144	6.833039974
17302	26342	0.01396	3803.36255	53.0949412
17302	30014	0.15863	1897.76465	301.0424064
17303	17282	0.03069	379.49338	11.64665183
17303	17328	0.03628	95.89670	3.479132276
17308	17271	0.07135	4209.35742	300.3376519
17311	17271	0.07254	20582.09961	1493.025506
17316	17332	0.01451	21250.62695	308.346597
17318	17289	0.04578	1847.24109	84.5666971
17318	17390	0.08762	1306.93823	114.5139277
17319	17336	0.01730	1526.86328	26.41473474
17320	17308	0.01004	4209.35742	42.2619485
17321	17311	0.01227	20582.09961	252.5423622
17322	1660	0.79132	44.48596	35.20262987
17322	1812	0.37828	42.98586	16.26069112
17322	17069	0.41926	180.80559	75.80455166

17322	17625	0.59628	142.96875	85.24940625
17323	17301	0.03515	1612.90576	56.69363746
17323	17338	0.01853	3834.09937	71.04586133
17328	17303	0.03628	379.49338	13.76801983
17328	17369	0.06642	95.89670	6.369458814
17332	17388	0.07256	21250.62695	1541.945491
17333	17294	0.05961	331.24689	19.74562711
17333	17379	0.06585	277.68146	18.28532414
17336	17388	0.06820	1526.86328	104.1320757
17338	17323	0.01853	1612.90576	29.88714373
17338	17341	0.04685	4209.35742	197.2083951
17338	17620	0.58826	966.25323	568.4081251
17340	17274	0.11051	3403.03467	376.0693614
17340	17360	0.03796	3367.58936	127.8336921
17341	17320	0.06661	4209.35742	280.3852977
17341	17338	0.04685	1554.88965	72.8465801
17346	17347	0.25198	1294.68091	326.2336957
17346	17348	0.42735	1366.72656	584.0705954
17347	388	0.63274	11.04765	6.990290061
17347	393	0.28413	53.05961	15.07582699
17347	17346	0.25198	1366.72656	344.3877586
17347	17351	0.24239	1316.02393	318.9910404
17348	394	0.50112	205.11374	102.7865974
17348	1851	0.98088	157.53789	154.5257655
17348	17346	0.42735	1294.68091	553.2818869
17348	17358	0.37803	1225.52478	463.2851326
17349	17350	0.04137	1316.02393	54.44390998
17349	17351	0.04346	1388.39502	60.33964757
17350	17349	0.04137	1388.39502	57.43790198
17350	17354	0.06689	1316.02393	88.02884068
17351	17347	0.24239	1388.39502	336.5330689
17351	17349	0.04346	1316.02393	57.1944
17352	17354	0.03103	1417.99585	44.00041123
17352	17355	0.05033	1341.28955	67.50710305
17353	30011	0.00465	473.88562	2.203568133
17354	391	0.17443	79.27641	13.8281842
17354	405	0.05273	174.40179	9.196206387
17354	17350	0.06689	1388.39502	92.86974289
17354	17352	0.03103	1341.28955	41.62021474
17355	17352	0.05033	1417.99585	71.36773113
17355	17356	0.04137	1341.28955	55.48914868
17356	17355	0.04137	1417.99585	58.66248831
17356	17357	0.04068	1341.28955	54.56365889
17357	17295	0.13867	95.87263	13.2946576
17357	17356	0.04068	1417.99585	57.68407118
17357	17359	0.08360	1371.48523	114.6561652
17358	17348	0.37803	1149.95813	434.7186719
17358	17363	0.19652	1225.52478	240.8401298
17359	389	0.13950	276.40051	38.55787115
17359	390	0.08415	13.07367	1.100149331
17359	17357	0.08360	1449.73108	121.1975183
17359	17360	0.10464	1453.51331	152.0956328
17360	17340	0.03796	3403.03467	129.1791961
17360	17359	0.10464	1531.92883	160.3010328

17360	17364	0.07446	2262.65454	168.477257
17360	17432	0.06083	3632.78735	220.9824545
17361	17071	0.48473	1353.85522	656.2542408
17361	17589	0.49987	1301.19067	650.4261802
17362	17046	0.49145	444.64758	218.5220532
17362	17602	0.50829	471.63962	239.7297024
17363	17358	0.19652	1149.95813	225.9897717
17363	17366	0.09515	1225.52478	116.6086828
17364	17360	0.07446	2264.60815	168.6227228
17364	17365	0.05102	2262.65454	115.4406346
17365	383	0.18843	140.62750	26.49843983
17365	385	0.28101	775.38855	217.8919364
17365	17364	0.05102	2264.60815	115.5403078
17365	17368	0.08344	2909.43652	242.7633832
17366	17363	0.09515	1149.95813	109.4185161
17366	17370	0.37980	1225.52478	465.4543114
17368	17365	0.08344	2899.56421	241.9396377
17368	17369	0.06481	2909.43652	188.5605809
17369	17328	0.06642	379.49338	25.2059503
17369	17368	0.06481	2899.56421	187.9207565
17369	17371	0.06758	3051.84204	206.2434851
17369	17435	0.06809	311.70602	21.2240629
17370	1849	0.50344	47.87396	24.10166642
17370	1852	0.96631	138.72566	134.0519925
17370	17366	0.37980	1149.95813	436.7540978
17370	17382	0.52898	1189.50427	629.2239687
17371	17369	0.06758	3331.03589	225.1114054
17371	17372	0.03241	3051.84204	98.91020052
17372	400	0.18568	701.56604	130.2667823
17372	407	0.10138	344.56897	34.93240218
17372	17371	0.03241	3331.03589	107.9588732
17372	17377	0.03310	3543.85449	117.3015836
17375	17377	0.06688	3818.21045	255.3619149
17375	17378	0.03999	3857.23853	154.2509688
17375	17437	0.06920	329.44748	22.79776562
17377	17372	0.03310	3818.21045	126.3827659
17377	17375	0.06688	3543.85449	237.0129883
17378	17375	0.03999	4139.20313	165.5267332
17378	17379	0.02827	3857.23853	109.0441332
17379	384	0.22079	280.69110	61.97378797
17379	17333	0.06585	331.24689	21.81260771
17379	17378	0.02827	4139.20313	117.0152725
17379	17383	0.13516	3255.68799	440.0387887
17381	17109	0.46600	1591.02661	741.4184003
17381	17601	0.50018	1843.38684	922.0252296
17382	17027	0.54059	2478.06226	1339.615677
17382	17370	0.52898	1115.33984	589.9924686
17382	17396	0.71365	2469.97827	1762.699992
17382	17876	1.94343	767.75519	1492.078469
17383	17379	0.13516	3583.06519	484.2870911
17383	17385	0.02827	3255.68799	92.03829948
17384	17051	0.50259	17.92652	9.009689687
17384	17611	0.50202	18.61431	9.344755906
17385	17383	0.02827	3583.06519	101.2932529

17385	17386	0.15375	3517.16699	540.7644247
17385	17487	0.18694	457.40927	85.50808893
17386	408	0.18395	179.89500	33.09168525
17386	17385	0.15375	3854.00488	592.5532503
17386	17390	0.14204	3710.32593	527.0146951
17388	17455	0.10656	22777.49023	2427.169359
17389	17321	0.07978	20582.09961	1642.039907
17390	17318	0.08762	1847.24109	161.8552643
17390	17386	0.14204	4033.90015	572.9751773
17390	17391	0.03587	3559.26904	127.6709805
17390	17510	0.24330	1097.50647	267.0233242
17391	17390	0.03587	4365.79932	156.6012216
17391	17394	0.07724	3559.26904	274.9179406
17392	10176	0.08381	935.52832	78.4066285
17392	17577	0.01906	4312.09082	82.18845103
17394	17391	0.07724	4365.79932	337.2143395
17394	17395	0.08067	3559.26904	287.1262335
17395	378	0.24574	76.72421	18.85420737
17395	17394	0.08067	4365.79932	352.1890311
17395	17398	0.09791	3482.54468	340.9759496
17396	1874	0.73748	66.65905	49.15971619
17396	17382	0.71365	2532.79712	1807.530665
17396	17439	0.31527	2467.80151	778.0237821
17397	17055	0.50530	1923.24243	971.8143999
17397	17612	0.49912	2021.13391	1008.788357
17398	17395	0.09791	4259.53125	417.0507047
17398	17400	0.08274	3482.54468	288.1457468
17400	17398	0.08274	4259.53125	352.4336156
17400	17401	0.03241	4041.90552	130.9981579
17400	17514	0.24886	729.27094	181.4863661
17401	17245	0.17582	305.21442	53.66279932
17401	17400	0.03241	4809.14746	155.8644692
17401	17402	0.06274	4134.86230	259.4212607
17402	17401	0.06274	4897.30811	307.2571108
17402	17403	0.11675	4134.86230	482.7451735
17403	17402	0.11675	4897.30811	571.7607218
17403	17404	0.06528	4134.86230	269.9238109
17404	17403	0.06528	4897.30811	319.6962734
17404	17405	0.07130	4134.86230	294.815682
17405	377	0.19468	185.48749	36.11070455
17405	395	0.19967	162.55792	32.45793989
17405	17404	0.07130	4897.30811	349.1780682
17405	30012	0.15047	4082.47778	614.2904316
17407	17353	0.10723	0.00000	0
17412	17244	0.26043	1905.69873	496.3011203
17412	17641	0.50642	1559.08459	789.5516181
17413	16712	1.52401	1245.78064	1898.582153
17413	17839	1.50328	1223.96863	1839.967562
17414	16809	1.06389	906.51001	964.4269345
17414	17615	0.47352	830.78064	393.3912487
17415	16877	0.98094	917.25806	899.7751214
17415	17653	0.52011	835.01385	434.2990535
17416	1800	0.54895	180.07080	98.84986566
17416	17247	0.25252	179.17229	45.24458667

17418	17248	0.25489	1935.86523	493.4326885
17418	17521	0.23695	2358.42944	558.8298558
17429	17024	0.60259	762.34033	459.3786595
17429	17501	0.17571	1180.84155	207.4856688
17432	17360	0.06083	3744.69458	227.7897713
17432	17447	0.04770	3632.78735	173.2839566
17435	17369	0.06809	306.23645	20.85163988
17435	17443	0.03400	311.70602	10.59800468
17437	17375	0.06920	321.83884	22.27124773
17437	17445	0.03246	329.44748	10.6938652
17439	17396	0.31527	2522.84888	795.3785664
17439	17457	0.05783	2467.80151	142.7129613
17443	407	0.11142	70.81162	7.8898307
17443	17435	0.03400	306.23645	10.4120393
17443	17464	0.03076	383.68427	11.80212815
17445	407	0.08838	3.69137	0.326243281
17445	17437	0.03246	321.83884	10.44688875
17445	17465	0.03175	333.29871	10.58223404
17447	390	0.08035	134.06276	10.77194277
17447	17432	0.04770	3744.69458	178.6219315
17447	17477	0.06337	3561.14404	225.6696978
17451	1741	0.55114	125.06637	68.92907916
17451	17277	0.24816	642.41998	159.4229422
17451	17541	0.24928	557.58362	138.9944448
17454	17341	0.15666	1554.88965	243.5890126
17454	17389	0.10600	20582.09961	2181.702559
17455	17916	1.92235	22777.49023	43786.30834
17457	17439	0.05783	2522.84888	145.8963507
17457	17472	0.07631	2467.80151	188.3179332
17464	17443	0.03076	377.04807	11.59799863
17464	17488	0.06195	383.68427	23.76924053
17465	17445	0.03175	325.53018	10.33558322
17465	17490	0.06083	333.29871	20.27456053
17466	17300	0.25335	1677.01013	424.8705164
17466	17496	0.07725	1697.16919	131.1063199
17472	17457	0.07631	2522.84888	192.518598
17472	17492	0.09739	2467.80151	240.3391891
17477	391	0.27506	320.16766	88.06531656
17477	17447	0.06337	3672.26904	232.7116891
17477	17506	0.06530	3324.43872	217.0858484
17487	384	0.11645	361.85468	42.13797749
17487	408	0.11673	98.51682	11.4998684
17487	17385	0.18694	447.94858	83.73950755
17488	17464	0.06195	377.04807	23.35812794
17488	17511	0.06027	383.68427	23.12465095
17490	401	0.20518	333.29871	68.38622932
17490	17465	0.06083	325.53018	19.80200085
17492	17472	0.09739	2522.84888	245.7002524
17492	17497	0.04467	2467.80151	110.2366935
17496	17466	0.07725	1677.01013	129.5490325
17496	17684	0.42221	1697.16919	716.5618037
17497	17492	0.04467	2522.84888	112.6956595
17497	17563	0.33887	2467.80151	836.2638977
17501	17429	0.17571	762.34033	133.9508194

17501	17529	0.06939	1180.84155	81.93859515
17506	17477	0.06530	3442.81567	224.8158633
17506	17519	0.03684	3324.43872	122.4723224
17510	17390	0.24330	1154.85278	280.9756814
17510	17548	0.12919	1097.50647	141.7868609
17511	17488	0.06027	377.04807	22.72468718
17511	17522	0.02844	383.68427	10.91198064
17514	378	0.19600	225.99266	44.29456136
17514	17400	0.24886	739.01550	183.9113973
17514	17515	0.04275	507.95288	21.71498562
17515	17514	0.04275	550.04987	23.51463194
17515	17524	0.04062	507.95288	20.63304599
17519	385	0.13339	690.91400	92.16101846
17519	17506	0.03684	3442.81567	126.8333293
17519	17539	0.08483	3205.46460	271.919562
17521	1801	0.48994	18.23843	8.935736394
17521	17418	0.23695	1935.86523	458.7032662
17521	17632	0.25562	2351.58984	601.1133949
17522	385	0.14151	22.59685	3.197680244
17522	401	0.14415	207.19716	29.86747061
17522	17511	0.02844	377.04807	10.72324711
17522	17546	0.08322	308.62689	25.68392979
17524	406	0.09046	324.64194	29.36710989
17524	17515	0.04062	550.04987	22.34302572
17524	17618	0.22122	274.42767	60.70888916
17529	1627	0.12022	962.87396	115.7567075
17529	17501	0.06939	762.34033	52.8987955
17529	17544	0.06547	684.14813	44.79117807
17539	17519	0.08483	3337.56055	283.1252615
17539	17564	0.07703	3205.46460	246.9169381
17541	17451	0.24928	546.67651	136.2755204
17541	17591	0.14077	557.58362	78.49104619
17544	17529	0.06547	288.08691	18.86105
17544	17559	0.06101	684.14813	41.73987741
17546	17522	0.08322	306.49878	25.50682847
17546	17560	0.05692	308.62689	17.56704258
17548	378	0.21902	45.10043	9.877896179
17548	381	0.15866	1220.89441	193.7071071
17548	17510	0.12919	1154.85278	149.1954306
17548	17600	0.12304	546.05444	67.1865383
17559	17544	0.06101	288.08691	17.57618238
17559	17649	0.12758	684.14813	87.28361843
17560	17546	0.05692	306.49878	17.44591056
17560	17573	0.02066	308.62689	6.376231547
17563	17497	0.33887	2522.84888	854.9178
17563	17566	0.03424	478.59787	16.38719107
17563	17569	0.14561	2279.83032	331.9660929
17564	17539	0.07703	3337.56055	257.0922892
17564	17578	0.04105	3205.46460	131.5843218
17566	1875	1.37521	478.59787	658.1725768
17566	17563	0.03424	481.32962	16.48072619
17567	1881	1.07511	52.24725	56.17154095
17567	17569	0.34611	2332.14600	807.1790521
17567	17575	0.99790	2227.58301	2222.905086

17569	17563	0.14561	2332.14600	339.5837791
17569	17567	0.34611	2279.83032	789.0720721
17573	17560	0.02066	306.49878	6.332264795
17573	17616	0.06977	308.62689	21.53289812
17575	17199	0.77609	8210.17480	6371.834561
17575	17567	0.99790	2281.71484	2276.923239
17575	17579	0.02421	10216.95703	247.3525297
17577	10192	0.00565	142.86536	0.807189284
17577	10583	0.19429	4169.22510	810.0387447
17578	392	0.23049	46.06684	10.61794595
17578	17564	0.04105	3337.56055	137.0068606
17578	17588	0.02258	3179.17505	71.78577263
17579	1903	1.72689	268.27670	463.2843505
17579	17575	0.02421	10182.00977	246.5064565
17579	17693	0.22166	10086.74023	2235.826839
17584	2019	2.06909	0.00000	0
17584	17589	0.02382	0.00000	0
17588	17578	0.02258	3311.79321	74.78029068
17588	17659	0.08539	3179.17505	271.4697575
17589	17361	0.49987	1353.85522	676.7516088
17589	17584	0.02382	0.00000	0
17589	17805	1.00312	1301.19067	1305.250385
17591	17541	0.14077	546.67651	76.95565231
17591	17613	0.01446	557.58362	8.062659145
17600	17548	0.12304	602.17139	74.09116783
17600	17618	0.43939	212.41039	93.33100126
17600	17780	0.75732	712.74408	539.7753467
17601	17381	0.50018	1591.02661	795.7996898
17601	17723	0.50408	1843.38684	929.2144383
17602	17362	0.50829	444.64758	226.0099184
17602	17729	0.50606	471.63962	238.6779461
17605	17607	0.02207	650.41815	14.35472857
17605	17626	0.35537	1066.75562	379.0929447
17607	1802	1.59691	433.46371	692.2025331
17607	17605	0.02207	1066.75562	23.54329653
17607	17609	0.01656	531.46375	8.8010397
17609	17607	0.01656	937.76672	15.52941688
17609	17630	0.56878	531.46375	302.2859517
17611	17384	0.50202	17.92652	8.99947157
17611	17728	0.50034	18.61431	9.313483865
17612	2019	1.89912	192.28242	365.1673895
17612	17397	0.49912	1923.24243	959.9287617
17612	17722	0.49688	1828.85144	908.7197035
17613	17591	0.01446	546.67651	7.904942335
17613	17663	0.08351	557.58362	46.56380811
17615	17414	0.47352	906.51001	429.2506199
17615	17701	0.24934	916.40967	228.4975871
17616	17573	0.06977	306.49878	21.38441988
17616	17662	0.08224	308.62689	25.38147543
17618	1662	0.74794	106.00209	79.28320319
17618	17524	0.22122	315.81985	69.86566722
17618	17600	0.43939	169.15685	74.32582832
17619	17622	0.44247	1189.50391	526.3197951
17619	17625	0.50402	720.64160	363.2177792

17619	17705	0.25213	65.42004	16.49435469
17620	17338	0.58826	1399.52698	823.2857413
17620	17623	0.39714	966.25323	383.7378078
17622	1660	0.67962	60.89496	41.38543272
17622	1826	0.88089	210.92583	185.8024544
17622	17619	0.44247	757.62476	335.2262276
17622	17623	0.13257	1399.52698	185.5352917
17623	17620	0.39714	1399.52698	555.8081448
17623	17622	0.13257	966.25323	128.0961907
17624	1812	0.44969	14.31136	6.435675478
17624	1814	1.04947	220.27248	231.1693596
17624	17625	0.34093	1230.76685	419.6053422
17624	17627	0.03076	673.60004	20.71993723
17625	17322	0.59628	126.73680	75.5706191
17625	17619	0.50402	1152.58447	580.9256246
17625	17624	0.34093	815.05591	277.8770114
17626	1811	0.55452	16.54194	9.172836569
17626	1813	0.39336	79.23683	31.16859945
17626	17605	0.35537	650.41815	231.139098
17626	17637	0.16033	1089.72961	174.7163484
17627	17624	0.03076	1089.72961	33.5200828
17627	17638	0.37796	673.60004	254.5938711
17628	10179	0.00882	4066.78467	35.86904079
17630	1801	0.23872	29.46071	7.032860691
17630	17609	0.56878	937.76672	533.382955
17630	17633	0.25305	502.00305	127.0318718
17631	17632	0.04206	502.00305	21.11424828
17631	17633	0.25098	908.44977	228.0027233
17632	17521	0.25562	1929.33984	493.1778499
17632	17631	0.04206	908.44977	38.20939733
17632	17741	0.58751	2628.37476	1544.196455
17633	17630	0.25305	908.44977	229.8832143
17633	17631	0.25098	502.00305	125.9927255
17637	17626	0.16033	673.60004	107.9982944
17637	17638	0.14151	1089.72961	154.2076371
17638	17627	0.37796	1089.72961	411.8742034
17638	17637	0.14151	673.60004	95.32114166
17641	17412	0.50642	1905.69873	965.0839508
17641	17710	0.33912	1559.08459	528.7167662
17643	17846	1.00312	2738.57227	2747.116615
17643	29906	0.76297	3182.41846	2428.089812
17649	17559	0.12758	288.08691	36.75412798
17649	17845	0.99831	684.14813	682.9919197
17653	17415	0.52011	917.25806	477.0750896
17653	17657	0.00783	835.01385	6.538158446
17657	17653	0.00783	917.25806	7.18213061
17657	17757	0.49943	835.01385	417.0309671
17659	17588	0.08539	3311.79321	282.7940222
17659	17660	0.12758	198.85138	25.36945906
17659	17687	0.08651	3225.59741	279.0464319
17660	386	0.04529	199.95479	9.055952439
17660	17659	0.12758	194.09232	24.76229819
17660	17661	0.03395	246.14058	8.356472691
17661	17660	0.03395	246.92284	8.383030418

17661	17662	0.09594	246.14058	23.61472725
17662	17616	0.08224	306.49878	25.20645967
17662	17661	0.09594	246.92284	23.68977727
17662	17689	0.08316	61.70404	5.131307966
17663	17613	0.08351	546.67651	45.65295535
17663	17666	0.00621	557.58362	3.46259428
17666	17663	0.00621	546.67651	3.394861127
17666	17673	0.01022	557.58362	5.698504596
17669	17670	0.07791	546.67651	42.59156689
17669	17680	0.03389	557.58362	18.89650888
17670	17669	0.07791	557.58362	43.44133983
17670	17671	0.02827	546.67651	15.45454494
17671	17670	0.02827	557.58362	15.76288894
17671	17672	0.17032	546.67651	93.10994318
17672	17671	0.17032	557.58362	94.96764216
17672	17675	0.25100	546.67651	137.215804
17673	17666	0.01022	546.67651	5.587033932
17673	17678	0.02145	557.58362	11.96016865
17674	17675	0.01379	557.58362	7.68907812
17674	17676	0.04413	546.67651	24.12483439
17675	17672	0.25100	557.58362	139.9534886
17675	17674	0.01379	546.67651	7.538669073
17676	17674	0.04413	557.58362	24.60616515
17676	17678	0.03242	546.67651	17.72325245
17678	17673	0.02145	546.67651	11.72621114
17678	17676	0.03242	557.58362	18.07686096
17680	17669	0.03389	546.67651	18.52686692
17680	17685	0.04149	557.58362	23.13414439
17684	17496	0.42221	1677.01013	708.050447
17684	17761	0.43602	1697.16919	739.9997102
17685	17680	0.04149	546.67651	22.6816084
17685	17686	0.01602	557.58362	8.932489592
17686	17685	0.01602	546.67651	8.75775769
17686	17697	0.10565	557.58362	58.90870945
17687	17659	0.08651	3362.97461	290.9309335
17687	17688	0.13056	86.49091	11.29225321
17687	17695	0.03963	3256.42944	129.0522987
17688	386	0.03980	41.70200	1.6597396
17688	17687	0.13056	84.47350	11.02886016
17688	17689	0.12539	45.03675	5.647158083
17689	387	0.14093	106.74079	15.04297953
17689	17662	0.08316	60.35819	5.01938708
17689	17688	0.12539	43.51897	5.456843648
17693	17579	0.22166	10120.98730	2243.418045
17693	17773	0.49113	10086.74023	4953.900729
17695	17687	0.03963	3395.82422	134.5765138
17695	17715	0.23218	3256.42944	756.0777874
17697	17686	0.10565	546.67651	57.75637328
17697	17708	0.51969	557.58362	289.7706315
17701	17615	0.24934	906.51001	226.0292059
17701	17724	0.24599	969.48676	238.4840481
17705	17619	0.25213	65.35638	16.47830409
17705	17912	1.24728	65.42004	81.59710749
17707	10137	0.00642	765.94464	4.917364589

17707	17816	0.01092	3154.04663	34.4421892
17708	1724	0.62660	164.85669	103.299202
17708	17697	0.51969	546.67651	284.1023155
17708	17943	1.68691	461.96979	779.3014584
17710	1971	1.04443	240.12321	250.7918842
17710	17641	0.33912	1905.69873	646.2605533
17710	17841	0.66055	1608.53577	1062.518303
17712	10178	0.00921	0.00000	0
17712	17392	0.02046	1315.21472	26.90929317
17714	18176	0.00629	2485.23804	15.63214727
17714	19763	0.11729	848.21423	99.48704704
17715	17695	0.23218	3395.82422	788.4424674
17715	17782	0.35955	3256.42944	1170.849205
17722	17612	0.49688	1741.69751	865.4146588
17722	17819	0.50532	1828.85144	924.1552097
17723	1971	0.94806	67.46828	63.96397754
17723	17601	0.50408	1591.02661	802.0046936
17723	17731	0.50332	232.80296	117.1743858
17723	17820	0.50464	1636.15161	825.6675485
17724	17701	0.24599	887.55621	218.3299521
17724	17906	1.00517	969.48676	974.4990065
17728	17611	0.50034	17.92652	8.969355017
17728	17822	0.50314	18.61431	9.365603933
17729	17602	0.50606	444.64758	225.0183543
17729	17813	0.49988	471.63962	235.7632132
17731	17723	0.50332	235.16881	118.3651654
17731	17735	0.49799	232.80296	115.9335461
17732	17712	0.01312	549.27002	7.206422662
17735	17731	0.49799	235.16881	117.1117157
17735	17827	0.50083	232.80296	116.5947065
17741	1800	0.45994	70.21141	32.29303592
17741	17632	0.58751	2612.57153	1534.9119
17741	17742	0.15860	808.48297	128.225399
17741	17788	0.44544	2367.26099	1054.472735
17742	17741	0.15860	797.48505	126.4811289
17742	17744	0.49029	808.48297	396.3911154
17743	1787	1.08095	188.21803	203.4542795
17743	1788	1.45785	43.75599	63.78967002
17743	17744	0.99914	804.99091	804.2986178
17743	17747	0.99986	706.43329	706.3343893
17744	1800	0.70516	7.50585	5.292825186
17744	17742	0.49029	797.48505	390.9989452
17744	17743	0.99914	815.89014	815.1884745
17747	17743	0.99986	707.71936	707.6202793
17747	17748	0.50194	706.43329	354.5871256
17748	1775	0.90519	150.70929	136.4205422
17748	17747	0.50194	707.71936	355.2326556
17748	17754	0.49436	616.60455	304.8246253
17749	17750	0.12343	499.54572	61.65892822
17749	17753	0.49987	502.40433	251.1368524
17750	1774	0.50977	389.65500	198.6344294
17750	17749	0.12343	502.40433	62.01176645
17750	17751	0.89295	616.38171	550.3980479
17751	17750	0.89295	616.60455	550.5970329

17751	17752	0.22962	616.38171	141.5335683
17752	17751	0.22962	616.60455	141.5847368
17752	17754	0.25442	616.38171	156.8198347
17753	6048	0.23878	502.40433	119.9641059
17753	17749	0.49987	499.54572	249.7079191
17754	17748	0.49436	616.38171	304.7144622
17754	17752	0.25442	616.60455	156.8765296
17757	17657	0.49943	917.25806	458.1061929
17757	17934	0.99102	1077.91736	1068.237662
17760	9900	0.04841	3154.04663	152.6873974
17761	1742	2.18581	338.57138	740.0527081
17761	17684	0.43602	1677.01013	731.2099569
17761	17765	0.05255	1774.23828	93.23622161
17762	6048	0.23880	401.49744	95.87758867
17762	17765	0.47532	404.30240	192.1730168
17765	17761	0.05255	1756.21826	92.28926956
17765	17762	0.47532	401.49744	190.8397632
17765	17769	0.01171	1427.22180	16.71276728
17769	17765	0.01171	1406.39685	16.46890711
17769	17856	0.49166	1427.22180	701.7078702
17773	17693	0.49113	10120.98730	4970.720493
17773	17863	0.59404	10086.74023	5991.927166
17780	1662	0.50598	20.55787	10.40187106
17780	1663	0.48599	100.33038	48.75956138
17780	17600	0.75732	812.11450	615.0305531
17780	17902	0.75165	632.66290	475.5410688
17782	1663	0.50819	87.18967	44.3089184
17782	1664	0.46712	51.41584	24.01736718
17782	17715	0.35955	3395.82422	1220.968598
17782	17792	0.15622	3238.43652	505.9085532
17788	17741	0.44544	2362.02808	1052.141788
17788	17942	0.81458	2367.26099	1928.323457
17792	17782	0.15622	3376.49927	527.476716
17792	17862	0.23531	3238.43652	762.0364975
17795	17797	0.29444	482.59283	142.0946329
17795	17799	0.20616	476.76920	98.29073827
17796	2013	3.26295	24.18370	78.91020392
17796	2020	1.01183	361.25668	365.5303465
17796	17798	0.31948	476.76920	152.318224
17796	17800	0.18109	145.38411	26.32760848
17797	17795	0.29444	476.76920	140.3799232
17797	17798	0.50055	482.59283	241.5618411
17798	17796	0.31948	482.59283	154.1787573
17798	17797	0.50055	476.76920	238.6468231
17799	17795	0.20616	482.59283	99.49133783
17799	17839	0.99412	476.76920	473.9657971
17800	17796	0.18109	137.77104	24.94895763
17800	17801	0.49987	145.38411	72.67315507
17801	17800	0.49987	137.77104	68.86760976
17801	17803	0.49711	145.38411	72.27189492
17802	17803	0.50883	137.77104	70.10203828
17802	17804	0.49918	145.38411	72.57284003
17803	17801	0.49711	137.77104	68.48736169
17803	17802	0.50883	145.38411	73.97579669

17804	17802	0.49918	137.77104	68.77254775
17804	17805	0.49712	145.38411	72.27334876
17805	17589	1.00312	1353.85522	1358.079248
17805	17804	0.49712	137.77104	68.4887394
17805	17806	0.50195	773.28253	388.1491659
17805	17892	0.49875	1945.10645	970.1218419
17806	17805	0.50195	782.16254	392.606487
17806	17807	0.24753	773.28253	191.4106247
17807	17806	0.24753	782.16254	193.6086935
17807	17808	0.25097	773.28253	194.0707166
17808	17807	0.25097	782.16254	196.2993327
17808	17809	0.48884	773.28253	378.011432
17809	17808	0.48884	782.16254	382.3523361
17809	17810	0.24821	773.28253	191.9364568
17810	17809	0.24821	782.16254	194.1405641
17810	17811	0.25097	773.28253	194.0707166
17811	2019	0.97554	1036.24219	1010.895706
17811	17810	0.25097	782.16254	196.2993327
17811	17815	0.99630	269.94446	268.9456655
17813	17729	0.49988	444.64758	222.2704323
17813	17814	0.50125	81.92303	41.06391879
17813	17818	0.50264	123.86329	62.25864409
17813	17905	0.50268	511.68536	257.2139968
17814	17813	0.50125	82.81860	41.51282325
17814	17822	0.49711	81.92303	40.72475744
17815	17811	0.99630	266.05197	265.0675777
17815	17819	1.00253	269.94446	270.6274195
17816	17760	0.03431	3154.04663	108.2153399
17817	17818	0.00827	123.78729	1.023720888
17817	17824	0.18823	123.86329	23.31478708
17818	17813	0.50264	123.78729	62.22044345
17818	17817	0.00827	123.86329	1.024349408
17819	17722	0.50532	1741.69751	880.1145858
17819	17815	1.00253	266.05197	266.7250815
17819	17821	0.49849	82.66716	41.20875259
17819	17904	0.49968	2042.74707	1020.719856
17820	17723	0.50464	1381.67432	697.2481288
17820	17900	0.49736	1636.15161	813.7563647
17821	17819	0.49849	81.77802	40.76552519
17821	17822	0.50056	82.66716	41.37987361
17822	17728	0.50314	17.92652	9.019549273
17822	17814	0.49711	82.81860	41.16995425
17822	17821	0.50056	81.77802	40.93480569
17822	17907	0.50092	18.46287	9.24842084
17823	70	4.50000	123.86329	557.384805
17823	17824	0.30268	123.78729	37.46793694
17824	17817	0.18823	123.78729	23.3004816
17824	17823	0.30268	123.86329	37.49094062
17825	17454	1.40169	22136.99023	31029.19784
17827	1995	1.52969	181.15419	277.1097529
17827	17735	0.50083	235.16881	117.7795951
17827	17911	0.49803	51.64876	25.72263194
17832	17941	0.00656	1307.26501	8.575658466
17832	19757	0.10445	1305.77112	136.3877935

17833	1814	0.51333	1.85044	0.949886365
17833	1826	0.50960	1.80787	0.921290552
17839	17413	1.50328	1245.78064	1872.75712
17839	17799	0.99412	482.59283	479.7551842
17839	17864	0.24158	1059.09033	255.8550419
17841	17710	0.66055	1953.34351	1290.281056
17841	17925	0.49998	1608.53577	804.2357143
17845	17649	0.99831	288.08691	287.6000431
17845	17931	0.51001	684.14813	348.9223878
17846	17643	1.00312	3182.41846	3192.347606
17846	17972	0.70556	2738.57227	1932.227051
17856	1767	0.72517	96.99138	70.33523903
17856	17769	0.49166	1406.39685	691.4690753
17856	17945	0.50003	1398.18457	699.1342305
17862	1850	0.29356	76.27797	22.39216087
17862	17792	0.23531	3376.49927	794.5240432
17862	17887	0.27154	3162.15845	858.6525055
17863	1875	1.63424	227.43068	371.6763145
17863	17773	0.59404	10120.98730	6012.271296
17863	17875	0.16641	10315.13965	1716.542389
17864	1995	1.56827	395.24655	619.853307
17864	17839	0.24158	1086.72595	262.531255
17864	17926	0.26064	916.06946	238.7643441
17871	17832	0.00648	1305.77112	8.461396858
17871	17941	0.00492	1003.41663	4.93680982
17875	17863	0.16641	10348.41797	1722.080234
17875	17999	0.49572	10315.13965	5113.421027
17876	1855	0.56602	20.06693	11.35828372
17876	1875	1.34493	2.06924	2.782982953
17876	17382	1.94343	827.17847	1607.563454
17876	18000	0.49761	749.79559	373.1057835
17877	1671	0.48146	64.42091	31.01609133
17877	1851	0.98529	37.56738	37.01476384
17877	17878	0.52747	89.42466	47.16882541
17877	17879	0.21540	188.01686	40.49883164
17878	1852	1.10089	29.82713	32.83638915
17878	1855	0.70148	60.25152	42.26523625
17878	17877	0.52747	88.78388	46.83083318
17879	17877	0.21540	188.84850	40.6779669
17879	17880	0.31854	188.01686	59.89089058
17880	17879	0.31854	188.84850	60.15580119
17880	17881	0.21220	188.01686	39.89717769
17881	1854	0.12426	39.87402	4.954745725
17881	17880	0.21220	188.84850	40.0736517
17881	17882	0.22562	226.49850	51.10259157
17882	17881	0.22562	227.96022	51.43238484
17882	17884	0.22386	226.49850	50.70395421
17884	1850	0.30154	139.43327	42.04470824
17884	1853	0.14127	92.09715	13.01056438
17884	17882	0.22386	227.96022	51.03117485
17884	17885	0.05607	452.10785	25.34968715
17885	17884	0.05607	453.55704	25.43094323
17885	17886	0.07791	452.10785	35.22372259
17886	17885	0.07791	453.55704	35.33662899

17886	17887	0.14549	452.10785	65.7771711
17887	17862	0.27154	3306.50073	897.8472082
17887	17886	0.14549	453.55704	65.98801375
17887	17889	0.50397	2581.92261	1301.211538
17887	17939	0.13888	5786.74512	803.6631623
17889	1663	0.67007	15.52095	10.40012297
17889	1665	0.24476	119.61480	29.27691845
17889	17887	0.50397	3013.85620	1518.893109
17889	17902	0.49075	2661.64331	1306.201454
17892	2020	2.71900	205.95526	559.9923519
17892	17805	0.49875	1981.27783	988.1623177
17892	18024	0.50212	1739.15112	873.2625604
17900	17820	0.49736	1381.67432	687.1895398
17900	18037	0.50352	1636.15161	823.8350587
17902	17780	0.75165	733.29883	551.1840656
17902	17889	0.49075	3093.67920	1518.223067
17902	17914	0.51459	4401.26123	2264.845016
17902	17973	0.24403	2048.02710	499.7800532
17904	17819	0.49968	1952.58972	975.6700313
17904	18031	0.49969	2042.74707	1020.740283
17905	17813	0.50268	483.87375	243.2336567
17905	18038	0.50155	511.68536	256.6357923
17906	17724	1.00517	887.55621	892.1448756
17906	18214	1.00126	969.48676	970.7083133
17907	17822	0.50092	17.78151	8.907113989
17907	18036	0.49921	18.46287	9.216849333
17911	17827	0.49803	51.66143	25.72894198
17911	18039	0.49801	51.64876	25.72159897
17912	17705	1.24728	65.35638	81.51770565
17912	17974	0.24934	65.42004	16.31183277
17914	1662	0.76618	8.03131	6.153429096
17914	1834	0.57896	148.28619	85.85177256
17914	17902	0.51459	4538.77588	2335.60868
17914	17915	0.39508	4554.11865	1799.241196
17915	17914	0.39508	4694.42627	1854.673931
17915	17916	0.09171	4554.11865	417.6582214
17916	17915	0.09171	4694.42627	430.5258332
17916	17917	0.00967	4412.45361	42.66842641
17916	17976	0.24606	18366.72070	4519.315295
17917	17825	0.52177	22136.99023	11550.41739
17917	17916	0.00967	141.99109	1.37305384
17925	17841	0.49998	1953.34351	976.6326881
17925	18054	0.49494	1608.53577	796.128694
17926	17864	0.26064	938.12158	244.5120086
17926	18052	0.49100	916.06946	449.7901049
17931	17845	0.51001	288.08691	146.927205
17931	17966	0.16724	684.14813	114.4169333
17934	17757	0.99102	917.25806	909.0210826
17934	17937	0.00951	1077.91736	10.25099409
17937	17934	0.00951	917.25806	8.723124151
17937	18262	0.99213	1077.91736	1069.43415
17939	1853	0.25551	0.00000	0
17939	17887	0.13888	5500.60303	763.9237488
17939	17965	0.11006	5786.74512	636.8891679

17941	18062	0.00843	2310.68164	19.47904623
17942	1788	0.97918	323.84451	317.1020673
17942	17788	0.81458	2362.02808	1924.060833
17942	17982	0.21841	1686.94556	368.4457798
17942	18245	0.93195	603.67279	562.5928566
17943	17708	1.68691	451.28183	761.2718318
17943	17970	0.12679	461.96979	58.57314967
17945	17856	0.50003	1376.33704	688.2098101
17945	18083	0.50243	1398.18457	702.4898735
17954	1671	0.61835	8.94774	5.532835029
17954	17955	0.04563	8.95065	0.40841816
17955	17954	0.04563	8.94774	0.408285376
17955	17956	0.21936	8.95065	1.963414584
17956	314	0.39279	196.69212	77.25869781
17956	1854	0.13123	15.68608	2.058484278
17956	17955	0.21936	8.94774	1.962776246
17956	17962	0.21778	217.67628	47.40554026
17958	17964	0.07378	230.25140	16.98794829
17958	17965	0.11516	229.99667	26.48641652
17960	17961	0.02965	209.47281	6.210868817
17960	17962	0.19029	209.08340	39.78648019
17961	17960	0.02965	209.08340	6.19932281
17961	17963	0.07653	209.47281	16.03095415
17962	17956	0.21778	217.59157	47.38709211
17962	17960	0.19029	209.47281	39.86058101
17962	18002	0.24416	16.29313	3.978130621
17963	17961	0.07653	209.08340	16.0011526
17963	17964	0.01793	209.47281	3.755847483
17964	304	0.40978	0.90662	0.371514744
17964	1853	0.12805	33.62193	4.305288137
17964	17958	0.07378	229.99667	16.96915431
17964	17963	0.01793	209.08340	3.748865362
17965	1665	0.50629	46.27478	23.42845837
17965	17939	0.11006	5500.60303	605.3963695
17965	17958	0.11516	230.25140	26.51575122
17965	17997	0.20431	5674.93164	1159.445283
17966	17931	0.16724	288.08691	48.17965483
17966	17985	0.08868	684.14813	60.67025617
17970	1704	4.47126	8.67856	38.80409819
17970	1711	2.21049	27.42229	60.61669782
17970	17943	0.12679	451.28183	57.21802323
17970	17993	0.17970	451.52316	81.13871185
17972	1973	0.70688	151.57596	107.1460146
17972	17846	0.70556	3182.41846	2245.387169
17972	18056	0.28916	2633.50562	761.5044851
17973	1665	0.48889	2.62600	1.28382514
17973	1834	0.60264	16.37600	9.86883264
17973	17902	0.24403	2443.18457	596.2103306
17973	18032	0.25653	2034.29871	521.8586481
17974	17912	0.24934	65.35638	16.29595979
17974	18112	0.53914	65.42004	35.27056037
17975	17917	0.24493	17866.52734	4376.048541
17976	18841	1.75147	18366.72070	32168.7603
17982	17942	0.21841	1804.21802	394.0592577

17982	18055	0.28158	1686.94556	475.0101308
17985	1629	0.54104	57.75586	31.24823049
17985	1972	0.46551	42.31455	19.69784617
17985	17966	0.08868	288.08691	25.54754718
17985	18060	0.24316	647.25470	157.3864529
17993	17970	0.17970	440.74533	79.2019358
17993	18090	0.40939	451.52316	184.8490665
17997	17965	0.20431	5389.06250	1101.039359
17997	18007	0.04521	5674.93164	256.5636594
17999	1904	0.49934	76.67390	38.28634523
17999	17875	0.49572	10348.41797	5129.917756
17999	18152	0.50834	10311.59961	5241.798546
18000	17876	0.49761	809.08929	402.6109216
18000	18150	0.50149	749.79559	376.0149904
18002	17962	0.24416	16.59780	4.052518848
18002	18006	0.12838	16.29313	2.091712029
18006	18002	0.12838	16.59780	2.130825564
18006	18074	0.14248	16.29313	2.321445162
18007	17997	0.04521	5389.06250	243.6395156
18007	18059	0.09153	5674.93164	519.426493
18024	17892	0.50212	1769.76465	888.6342261
18024	18509	0.99865	1739.15112	1736.803266
18031	17904	0.49969	1952.58972	975.6895572
18031	18204	0.49239	2042.74707	1005.82823
18032	17973	0.25653	2429.40552	623.215398
18032	18100	0.24155	2034.29871	491.3848534
18036	17907	0.49921	17.78151	8.876707607
18036	18207	0.49584	18.46287	9.154629461
18037	1975	1.01340	30.73230	31.14411282
18037	17900	0.50352	1381.67432	695.7006536
18037	18536	1.00707	1605.41931	1616.769625
18038	17905	0.50155	483.87375	242.6868793
18038	18216	0.50155	511.68536	256.6357923
18039	17911	0.49801	51.66143	25.72790875
18039	18217	0.50084	51.64876	25.86776496
18052	17926	0.49100	938.12158	460.6176958
18052	18240	0.50670	916.06946	464.1723954
18054	17925	0.49494	1953.34351	966.7878368
18054	18184	0.44893	1608.53577	722.1199632
18055	17982	0.28158	1804.21802	508.0317101
18055	18110	0.29981	1686.94556	505.7631483
18056	17972	0.28916	3069.36621	887.5379333
18056	18246	0.50297	2633.50562	1324.574322
18059	18007	0.09153	5389.06250	493.2608906
18059	18085	0.10010	5674.93164	568.0606572
18060	17985	0.24316	190.21941	46.25375174
18060	18538	0.96973	647.25470	627.6623002
18062	18070	0.00467	920.37207	4.298137567
18062	30214	0.00618	1390.30957	8.592113143
18070	18175	0.00924	1421.39087	13.13365164
18074	304	0.18856	84.97253	16.02242026
18074	314	0.33727	103.80682	35.01092618
18074	18006	0.14248	16.59780	2.364854544
18074	18115	0.20932	197.34988	41.30927688

18083	17945	0.50243	1376.33704	691.513019
18083	18101	0.12218	1398.18457	170.8301908
18085	291	0.24261	2088.48999	506.6885565
18085	304	0.18716	358.52066	67.10072673
18085	18059	0.10010	5389.06250	539.4451563
18085	18094	0.06567	4856.62744	318.934724
18090	17993	0.40939	440.74533	180.4367306
18090	18092	0.04830	64.53014	3.116805762
18090	18123	0.23473	415.94748	97.63535198
18092	1712	1.50321	64.53014	97.00235175
18092	18090	0.04830	63.71193	3.077286219
18094	18085	0.06567	4558.14404	299.3333191
18094	18109	0.07319	4856.62744	355.4565623
18100	1666	0.24387	77.04031	18.7878204
18100	1834	0.52154	46.78860	24.40212644
18100	18032	0.24155	2429.40552	586.8229034
18100	18209	0.25905	2003.69165	519.0563219
18101	18083	0.12218	1376.33704	168.1608595
18101	18114	0.05290	1398.18457	73.96396375
18109	18094	0.07319	4558.14404	333.6105623
18109	18137	0.14068	4856.62744	683.2303483
18110	18055	0.29981	1804.21802	540.9226046
18110	18248	0.28728	1686.94556	484.6257205
18112	17974	0.53914	65.35638	35.23623871
18112	18116	0.02374	65.42004	1.55307175
18114	18101	0.05290	1376.33704	72.80822942
18114	18136	0.12717	1398.18457	177.8071318
18115	18074	0.20932	194.66408	40.74708523
18115	18138	0.12504	197.34988	24.676629
18116	1737	0.51622	65.42004	33.77113305
18116	18112	0.02374	65.35638	1.551560461
18123	18090	0.23473	405.98785	95.29752803
18123	18257	0.32547	415.94748	135.3784263
18136	18114	0.12717	1376.33704	175.0287814
18136	18174	0.04707	1398.18457	65.81254771
18137	18109	0.14068	4558.14404	641.2397035
18137	18170	0.03014	4856.62744	146.378751
18138	18115	0.12504	194.66408	24.34079656
18138	18147	0.01116	197.34988	2.202424661
18141	18143	0.24890	493.30478	122.7835597
18141	18145	0.46200	443.93265	205.0968843
18143	18141	0.24890	443.93265	110.4948366
18143	18146	0.75291	493.30478	371.4141019
18145	18141	0.46200	493.30478	227.9068084
18145	18149	0.24480	443.93265	108.6747127
18146	1875	1.18521	158.73283	188.1317374
18146	18143	0.75291	443.93265	334.2413315
18146	18148	0.24547	654.69336	160.7075791
18147	18138	0.01116	194.66408	2.172451133
18147	18171	0.01820	197.34988	3.591767816
18148	18146	0.24547	602.66547	147.9362929
18148	18150	0.75221	654.69336	492.4668923
18149	18145	0.24480	493.30478	120.7610101
18149	18152	0.25726	443.93265	114.2061135

18150	18000	0.50149	809.08929	405.750188
18150	18148	0.75221	602.66547	453.3309932
18150	18448	0.50096	440.39090	220.6182253
18150	30201	0.51911	1281.10010	665.0318729
18152	17999	0.50834	10345.02441	5258.789709
18152	18149	0.25726	493.30478	126.9075877
18152	18178	0.99657	498.55463	496.8445876
18152	18457	0.50367	10023.55176	5048.562315
18154	1671	0.57987	44.25945	25.66472727
18154	18155	0.20629	1344.85315	277.4297563
18154	18156	0.29151	1331.36035	388.1048556
18155	18154	0.20629	1361.91919	280.9503097
18155	30201	0.48545	1344.85315	652.8589617
18156	18154	0.29151	1314.25952	383.1197927
18156	18159	0.12481	1331.36035	166.1670853
18157	1904	0.49308	0.26161	0.128994659
18157	1905	0.51060	0.26353	0.134558418
18158	1670	0.24709	2.83663	0.700902907
18158	18161	0.15961	1328.52380	212.0456837
18158	18164	0.07896	1314.25952	103.7739317
18159	18156	0.12481	1314.25952	164.0327307
18159	18164	0.11449	1331.36035	152.4274465
18160	314	0.35843	159.73587	57.25412788
18160	315	0.22077	159.46794	35.20573711
18160	18163	0.20277	894.10291	181.2972471
18160	18167	0.03099	651.70734	20.19641047
18161	18158	0.15961	1311.44666	209.3200014
18161	18162	0.02276	1328.52380	30.23720169
18162	18161	0.02276	1311.44666	29.84852598
18162	18163	0.07791	889.88678	69.33107903
18162	18234	0.07537	496.06577	37.38847708
18163	18160	0.20277	889.88678	180.4423424
18163	18162	0.07791	894.10291	69.65955772
18164	18158	0.07896	1331.36035	105.1242132
18164	18159	0.11449	1314.25952	150.4695724
18165	18169	0.02620	1663.33447	43.57936311
18165	18170	0.12755	1632.30615	208.2006494
18166	18167	0.06619	655.10370	43.3613139
18166	18168	0.12480	651.70734	81.33307603
18167	18160	0.03099	655.10370	20.30166366
18167	18166	0.06619	651.70734	43.13650883
18168	18166	0.12480	655.10370	81.75694176
18168	18171	0.13238	1261.98926	167.0621382
18168	18188	0.03238	714.45923	23.13418987
18169	304	0.34296	10.46982	3.590729467
18169	305	0.20397	39.21283	7.998240935
18169	18165	0.02620	1632.30615	42.76642113
18169	18172	0.11308	1707.93530	193.1333237
18170	18137	0.03014	4558.14404	137.3824614
18170	18165	0.12755	1663.33447	212.1583116
18170	18173	0.14159	1489.29895	210.8698383
18170	18307	0.19648	3932.66968	772.6909387
18171	306	0.16812	681.08698	114.5043431
18171	18147	0.01820	194.66408	3.542886256

18171	18168	0.13238	1285.86633	170.2229848
18171	18172	0.09928	1690.54822	167.8376273
18172	18169	0.11308	1676.04785	189.5274909
18172	18171	0.09928	1720.87354	170.8483251
18172	18229	0.06309	29.80227	1.880225214
18173	294	0.17805	411.98660	73.35421413
18173	18170	0.14159	1132.06445	160.2890055
18173	18177	0.03799	1631.72937	61.98939877
18174	18136	0.04707	1376.33704	64.78418447
18174	18239	0.08663	1398.18457	121.1247293
18175	17714	0.00641	848.21423	5.437053214
18175	18176	0.00421	573.17670	2.413073907
18176	18495	0.01078	3058.41479	32.96971144
18177	18173	0.03799	1281.79871	48.69553299
18177	18179	0.06972	1631.72937	113.7641717
18178	18152	0.99657	538.54913	536.7019065
18178	18190	1.00783	498.55463	502.4583128
18179	291	0.32805	281.34091	92.29388553
18179	18177	0.06972	1281.79871	89.36700606
18179	18180	0.05656	2075.66821	117.399794
18179	18271	0.09712	552.77057	53.68507776
18180	18179	0.05656	1728.85193	97.78386516
18180	18181	0.10905	2075.66821	226.3516183
18181	18180	0.10905	1728.85193	188.531303
18181	18185	0.08503	2075.66821	176.4940679
18184	696	0.53237	204.70586	108.9792587
18184	1975	1.05693	211.86156	223.9228386
18184	18054	0.44893	1953.34351	876.9145019
18184	18433	0.41944	1502.42285	630.1762402
18185	18181	0.08503	1728.85193	147.0042796
18185	18201	0.25430	2075.66821	527.8424258
18188	18168	0.03238	693.97864	22.47102836
18188	18230	0.03352	714.45923	23.94867339
18190	1906	0.45519	137.04630	62.3821053
18190	18178	1.00783	538.54913	542.7659697
18190	18203	0.50070	427.24847	213.9233089
18201	292	0.12988	125.22746	16.2645425
18201	1666	0.25236	37.28946	9.410368126
18201	18185	0.25430	1728.85193	439.6470458
18201	18209	0.24268	2060.10986	499.9474608
18203	18190	0.50070	468.50177	234.5788362
18203	18214	0.49792	427.24847	212.7355582
18204	18031	0.49239	1952.58972	961.4356522
18204	18519	0.50193	2042.74707	1025.316037
18207	18036	0.49584	17.78151	8.816783918
18207	18520	0.50034	18.46287	9.237712376
18209	18100	0.25905	2400.94238	621.9641235
18209	18201	0.24268	1713.62512	415.8625441
18209	18300	0.12277	801.03619	98.34321305
18214	17906	1.00126	887.55621	888.6745308
18214	18203	0.49792	468.50177	233.2764013
18214	18224	0.24691	307.02353	75.80717979
18214	18531	0.50147	933.82806	468.2867572
18216	18038	0.50155	483.87375	242.6868793

18216	18530	0.49931	511.68536	255.4896171
18217	18039	0.50084	51.66143	25.8741106
18217	18535	0.50420	51.64876	26.04130479
18224	18214	0.24691	307.41461	75.90374136
18224	18231	0.25311	307.02353	77.71072568
18229	18172	0.06309	28.24009	1.781667278
18229	18280	0.07312	29.80227	2.179141982
18230	18188	0.03352	693.97864	23.26216401
18230	18250	0.02344	714.45923	16.74692435
18231	18224	0.25311	307.41461	77.80971194
18231	18233	0.24895	307.02353	76.43350779
18233	18231	0.24895	307.41461	76.53086716
18233	18238	0.24831	307.02353	76.23701273
18234	18162	0.07537	474.77252	35.78360483
18234	18327	0.17305	496.06577	85.8441815
18238	1933	0.51344	45.16603	23.19004644
18238	18233	0.24831	307.41461	76.33412181
18238	18260	0.69731	342.02713	238.498938
18239	18174	0.08663	1376.33704	119.2320778
18239	18242	0.07307	1398.18457	102.1653465
18240	2020	2.38306	668.58093	1593.268471
18240	18052	0.50670	938.12158	475.3462046
18240	18556	0.49381	1606.46252	793.287257
18242	18239	0.07307	1376.33704	100.5689475
18242	18252	0.25241	1398.18457	352.9157673
18245	17942	0.93195	479.58270	446.9470973
18245	18823	0.96929	603.67279	585.1339986
18246	696	0.47104	1072.42346	505.1543466
18246	18056	0.50297	3069.36621	1543.799123
18246	18569	0.49852	2998.22583	1494.675541
18248	18110	0.28728	1804.21802	518.3157528
18248	18600	0.58920	1686.94556	993.948324
18250	18230	0.02344	693.97864	16.26685932
18250	18277	0.03740	714.45923	26.7207752
18252	18242	0.25241	1376.33704	347.4012323
18252	18255	0.23169	1398.18457	323.945383
18255	18252	0.23169	1376.33704	318.8835288
18255	18261	0.13289	1398.18457	185.8047475
18257	18123	0.32547	405.98785	132.1368655
18257	18282	0.10949	415.94748	45.54208959
18260	18238	0.69731	352.58063	245.8579991
18260	18262	0.30409	342.02713	104.00703
18261	18255	0.13289	1376.33704	182.9014292
18261	18281	0.06418	1398.18457	89.7354857
18262	17937	0.99213	917.25806	910.0392391
18262	18260	0.30409	352.58063	107.2162438
18262	18597	0.49271	1310.49084	645.6919418
18271	18179	0.09712	542.54596	52.69206364
18271	18356	0.18479	552.77057	102.1464736
18277	18250	0.03740	693.97864	25.95480114
18277	18283	0.01675	714.45923	11.9671921
18280	18229	0.07312	28.24009	2.064915381
18280	18312	0.07034	29.80227	2.096291672
18281	18261	0.06418	1376.33704	88.33331123

18281	18552	0.50216	1398.18457	702.1123637
18282	18257	0.10949	405.98785	44.4516097
18282	18326	0.23859	415.94748	99.24090925
18283	18277	0.01675	693.97864	11.62414222
18283	18305	0.04579	714.45923	32.71508814
18300	292	0.24312	17.56726	4.270952251
18300	18209	0.12277	851.80206	104.5757389
18300	18351	0.11348	818.96338	92.93596436
18305	306	0.11582	193.06688	22.36100604
18305	315	0.21332	693.68842	147.9776138
18305	18283	0.04579	693.97864	31.77728193
18305	18335	0.06084	252.94968	15.38945853
18307	294	0.14191	162.58722	23.07275239
18307	305	0.15128	264.37399	39.99449721
18307	18170	0.19648	4022.44897	790.3307736
18307	18324	0.03291	3938.06885	129.6018459
18312	305	0.11702	3.95303	0.462583571
18312	306	0.12509	102.89742	12.87143827
18312	18280	0.07034	28.24009	1.986407931
18312	18397	0.14233	119.16331	16.96051391
18324	18307	0.03291	4036.48218	132.8406285
18324	18355	0.06643	3938.06885	261.6059137
18326	18282	0.23859	405.98785	96.86464113
18326	18627	0.90619	415.94748	376.9274469
18327	315	0.29145	0.47965	0.139793993
18327	1670	0.18824	21.39828	4.028012227
18327	18234	0.17305	474.77252	82.15938459
18327	18380	0.08097	491.95386	39.83350404
18335	18305	0.06084	251.95923	15.32919955
18335	18364	0.06030	252.94968	15.2528657
18351	18300	0.11348	869.36932	98.65603043
18351	18413	0.11032	818.96338	90.34804008
18355	18324	0.06643	4036.48218	268.1435112
18355	18368	0.01953	3938.06885	76.91048464
18356	18271	0.18479	542.54596	100.2570679
18356	18401	0.05581	552.77057	30.85012551
18364	18335	0.06030	251.95923	15.19314157
18364	18396	0.03965	252.94968	10.02945481
18368	18355	0.01953	4036.48218	78.83249698
18368	18399	0.03519	3938.06885	138.5806428
18380	18327	0.08097	470.83823	38.12377148
18380	18473	0.17084	491.95386	84.04539744
18391	306	0.18197	95.22211	17.32756736
18391	18392	0.05973	114.99531	6.868669866
18391	18393	0.05081	105.68413	5.369810645
18391	18421	0.07146	106.84106	7.634862148
18392	326	0.07430	81.31532	6.041728276
18392	18391	0.05973	112.32901	6.709411767
18392	18396	0.07404	33.67999	2.49366646
18393	325	0.07127	10.56858	0.753222697
18393	18391	0.05081	108.30367	5.502909473
18393	18397	0.04986	95.11555	4.742461323
18395	305	0.14633	50.01744	7.319051995
18395	324	0.07579	21.15507	1.603342755

18395	18397	0.10135	215.75858	21.86713208
18395	18398	0.09860	144.85223	14.28242988
18396	18364	0.03965	251.95923	9.99018347
18396	18392	0.07404	33.40659	2.473423924
18396	18419	0.05080	219.54308	11.15278846
18397	18312	0.14233	127.17458	18.10075797
18397	18393	0.04986	97.82027	4.877318662
18397	18395	0.10135	213.21684	21.60952673
18397	18422	0.07033	182.09767	12.80692913
18398	18395	0.09860	148.69376	14.66120474
18398	18399	0.06619	144.85223	9.587769104
18399	18368	0.03519	4036.48218	142.0438079
18399	18398	0.06619	148.69376	9.842039974
18399	18400	0.11514	243.91977	28.08492232
18399	18404	0.02401	3866.12744	92.82571983
18400	294	0.16717	6.59301	1.102153482
18400	319	0.10616	246.37744	26.15542903
18400	18399	0.11514	237.09251	27.2988316
18400	18401	0.13927	315.59879	43.95344348
18401	293	0.16514	562.09363	92.82414206
18401	18356	0.05581	542.54596	30.27949003
18401	18400	0.13927	313.12109	43.6083742
18401	18428	0.07088	0.00000	0
18404	18399	0.02401	3975.20947	95.44477937
18404	18426	0.04746	3866.12744	183.4864083
18413	295	0.25596	93.18999	23.85290984
18413	18351	0.11032	869.36932	95.90882338
18413	18527	0.15422	725.77338	111.9287707
18419	18396	0.05080	218.27924	11.08858539
18419	18420	0.01786	219.54308	3.921039409
18420	326	0.07027	17.19918	1.208586379
18420	18419	0.01786	218.27924	3.898467226
18420	18464	0.07870	202.34390	15.92446493
18421	325	0.05126	13.93848	0.714486485
18421	326	0.06310	0.07671	0.004840401
18421	18391	0.07146	99.14375	7.084812375
18421	18452	0.07312	120.49023	8.810245618
18422	324	0.12791	0.27841	0.035611423
18422	325	0.05010	47.99944	2.404771944
18422	18397	0.07033	190.27191	13.38182343
18422	18442	0.03461	134.38541	4.65107904
18426	324	0.13686	181.61226	24.8554539
18426	18404	0.04746	3975.20947	188.6634414
18426	18463	0.07423	3687.52930	273.7252999
18428	18401	0.07088	0.00000	0
18433	18184	0.41944	1851.58386	776.6283342
18433	18586	0.13999	1502.42285	210.3241748
18442	18422	0.03461	143.93613	4.981629459
18442	18456	0.03963	134.38541	5.325693798
18448	1856	0.52509	32.54656	17.08987319
18448	18150	0.50096	465.69949	233.2968165
18448	18750	0.49763	407.84436	202.9555889
18450	18451	0.04257	585.07623	24.90669511
18450	18464	0.03271	572.96411	18.74165604

18451	308	0.11636	32.87855	3.825748078
18451	326	0.07031	42.98143	3.022024343
18451	18450	0.04257	572.96411	24.39108216
18451	18452	0.06017	570.68835	34.33831802
18452	18421	0.07312	113.00533	8.26294973
18452	18451	0.06017	560.19342	33.70683808
18452	18453	0.05411	331.41110	17.93265462
18452	18492	0.03315	351.79901	11.66213718
18453	325	0.07351	11.15629	0.820098878
18453	18452	0.05411	328.94482	17.79920421
18453	18454	0.02381	342.29602	8.150068236
18454	18453	0.02381	340.10110	8.097807191
18454	18456	0.02138	342.29602	7.318288908
18456	307	0.06519	27.08198	1.765474276
18456	18442	0.03963	143.93613	5.704188832
18456	18454	0.02138	340.10110	7.271361518
18456	18458	0.10135	350.90329	35.56404844
18457	1905	0.50052	46.17839	23.11320776
18457	18152	0.50367	10066.35449	5070.120766
18457	18732	0.45791	9978.50781	4569.258511
18458	324	0.07898	96.67851	7.63566872
18458	18456	0.10135	358.74997	36.35930946
18458	18459	0.05585	248.73364	13.89177379
18458	18485	0.02517	422.08569	10.62389682
18459	18458	0.05585	250.76900	14.00544865
18459	18462	0.04138	248.73364	10.29259802
18462	327	0.03185	16.06282	0.511600817
18462	18459	0.04138	250.76900	10.37682122
18462	18463	0.06826	264.79968	18.07522616
18463	319	0.13761	122.41364	16.845341
18463	18426	0.07423	3799.28418	282.0208647
18463	18462	0.06826	266.83182	18.21394003
18463	18511	0.04772	3539.95410	168.9266097
18464	18420	0.07870	201.26923	15.8398884
18464	18450	0.03271	585.07623	19.13784348
18464	18476	0.05501	526.01794	28.93624688
18464	18573	0.08875	273.47147	24.27059296
18465	18466	0.03026	384.89670	11.64697414
18465	18467	0.05585	366.35699	20.46103789
18466	315	0.28297	319.19968	90.32393345
18466	316	0.12905	177.82596	22.94844014
18466	18465	0.03026	366.35699	11.08596252
18466	18468	0.02631	538.27991	14.16214443
18467	18465	0.05585	384.89670	21.4964807
18467	18471	0.05654	366.35699	20.71382421
18468	18466	0.02631	526.01794	13.839532
18468	18469	0.05654	538.27991	30.43434611
18469	18468	0.05654	526.01794	29.74105433
18469	18472	0.03103	538.27991	16.70282561
18470	18471	0.05309	384.89670	20.4341658
18470	18473	0.05723	366.35699	20.96661054
18471	18467	0.05654	384.89670	21.76205942
18471	18470	0.05309	366.35699	19.4498926
18472	18469	0.03103	526.01794	16.32233668

18472	18475	0.02625	538.27991	14.12984764
18473	18380	0.17084	470.83823	80.43800321
18473	18470	0.05723	384.89670	22.02763814
18473	18618	0.12283	375.91055	46.17309286
18475	18472	0.02625	526.01794	13.80797093
18475	18476	0.05447	538.27991	29.3201067
18476	18464	0.05501	538.27991	29.61077785
18476	18475	0.05447	526.01794	28.65219719
18485	18458	0.02517	428.44110	10.78386249
18485	18507	0.02021	422.08569	8.530351795
18488	18489	0.05103	174.74110	8.917038333
18488	18532	0.09458	134.93279	12.76194328
18489	320	0.04005	8.06467	0.322990034
18489	18488	0.05103	134.93279	6.885620274
18489	18490	0.06688	175.38826	11.72996683
18490	18489	0.06688	135.79396	9.081900045
18490	18497	0.16910	450.02957	76.10000029
18490	18566	0.05968	272.13327	16.24091355
18492	18452	0.03315	336.28546	11.147863
18492	18592	0.07246	351.79901	25.49135626
18495	18526	0.00436	1200.11108	5.232484309
18495	30213	0.00709	1858.30359	13.17537245
18497	18490	0.16910	407.30075	68.87455683
18497	18502	0.09112	450.02957	41.00669442
18500	18501	0.50193	348.06619	174.7048627
18500	18503	0.50193	355.06323	178.216887
18501	18500	0.50193	355.06323	178.216887
18501	18506	0.50060	348.06619	174.2419347
18502	18497	0.09112	407.30075	37.11324434
18502	18513	0.10272	450.02957	46.22703743
18503	2020	1.01016	169.89862	171.62479
18503	18500	0.50193	348.06619	174.7048627
18503	18505	1.49408	513.58862	767.3424854
18504	18505	0.00758	517.96484	3.926173487
18504	18509	0.99698	513.58862	512.0375824
18505	18503	1.49408	517.96484	773.8809081
18505	18504	0.00758	513.58862	3.89300174
18506	18501	0.50060	355.06323	177.7446529
18506	18554	0.92670	348.06619	322.5529383
18507	307	0.09403	154.44357	14.52232889
18507	327	0.07281	7.91412	0.576227077
18507	18485	0.02021	428.44110	8.658794631
18507	18585	0.05541	346.00540	19.17215921
18509	18024	0.99865	1769.76465	1767.375468
18509	18504	0.99698	517.96484	516.4005862
18509	18512	1.00042	600.25378	600.5058866
18509	19018	0.99471	1390.30481	1382.950098
18511	18463	0.04772	3653.88403	174.3633459
18511	18525	0.03168	3539.95410	112.1457459
18512	18509	1.00042	604.24139	604.4951714
18512	18515	0.97629	600.25378	586.0217629
18513	295	0.15280	40.25906	6.151584368
18513	296	0.24918	113.03330	28.16563769
18513	18502	0.10272	407.30075	41.83793304

18513	18527	0.27004	561.34100	151.5845236
18514	2022	1.05973	677.87775	718.367388
18514	18515	0.16374	604.24139	98.9384852
18514	18516	0.83531	264.11023	220.6139162
18515	18512	0.97629	604.24139	589.9148266
18515	18514	0.16374	600.25378	98.28555394
18516	18514	0.83531	265.43594	221.721295
18516	18517	0.49989	264.11023	132.0260629
18517	18516	0.49989	265.43594	132.688772
18517	18519	0.50125	264.11023	132.3852528
18519	18204	0.50193	1952.58972	980.0633582
18519	18517	0.50125	265.43594	133.0497649
18519	18520	1.00043	444.61343	444.8046138
18519	19033	1.00275	1507.28784	1511.432882
18520	18207	0.50034	17.78151	8.896800713
18520	18519	1.00043	438.35779	438.5462838
18520	18524	0.49781	463.07632	230.5240229
18524	18520	0.49781	456.13928	227.070695
18524	18529	0.25167	463.07632	116.5424175
18525	327	0.04099	4.43812	0.181918539
18525	18511	0.03168	3653.88403	115.7550461
18525	18548	0.04377	2370.48511	103.7561333
18525	18607	0.04943	1173.84033	58.02292751
18526	17871	0.00989	2309.18774	22.83786675
18527	18413	0.15422	778.78729	120.1045759
18527	18513	0.27004	497.66974	134.3907366
18527	18682	0.24072	279.27081	67.22606938
18528	18529	0.03861	456.13928	17.6115376
18528	18530	0.21099	463.07632	97.70447276
18529	18524	0.25167	456.13928	114.7965726
18529	18528	0.03861	463.07632	17.87937672
18530	18216	0.49931	483.87375	241.6030021
18530	18528	0.21099	456.13928	96.24082669
18530	18533	0.49506	642.65149	318.1510466
18530	18822	0.49877	957.11761	477.3815503
18531	1906	0.95187	78.69778	74.91005585
18531	1933	0.91401	127.55286	116.5845896
18531	18214	0.50147	892.75977	447.6922419
18531	18824	0.49979	885.43158	442.5298494
18532	297	0.07450	0.04114	0.00306493
18532	18488	0.09458	174.74110	16.52701324
18532	18568	0.05889	134.89163	7.943768091
18533	18530	0.49506	640.90936	317.2885878
18533	18540	0.49299	642.65149	316.8207581
18535	18217	0.50420	51.66143	26.04769301
18535	18536	1.00179	444.15216	444.9471924
18535	18541	0.51435	1186.81494	610.4382644
18535	19050	1.01118	664.01721	671.4409224
18536	18037	1.00707	1350.97424	1360.525628
18536	18535	1.00179	458.93213	459.7536185
18536	18539	0.49918	521.94720	260.5456033
18536	19049	1.00877	1568.49475	1582.250449
18538	18060	0.96973	190.21941	184.4614685
18538	18595	0.04691	647.25470	30.36271798

18538	18598	0.02966	0.00000	0
18539	18536	0.49918	541.01776	270.0652454
18539	18543	0.50538	521.94720	263.7816759
18540	68	4.50000	642.65149	2891.931705
18540	18533	0.49299	640.90936	315.9619054
18541	18535	0.51435	1085.19373	558.169395
18541	18545	0.49160	1186.81494	583.4382245
18543	1975	0.93795	34.62113	32.47288888
18543	1978	1.06203	53.76554	57.10061645
18543	18539	0.50538	541.01776	273.4195555
18543	18565	0.71185	513.34564	365.4250938
18545	18541	0.49160	1085.19373	533.4812377
18545	18546	0.19719	1186.81494	234.028038
18546	1995	1.53554	590.29437	906.4206169
18546	18545	0.19719	1085.19373	213.9893516
18546	18551	0.80463	596.52051	479.978298
18548	328	0.04049	161.90630	6.555586087
18548	18525	0.04377	2440.58618	106.8244571
18548	18585	0.04445	2311.26831	102.7358764
18551	18546	0.80463	491.35974	395.3627876
18551	18556	1.00459	596.52051	599.2585391
18552	18281	0.50216	1376.33704	691.141408
18552	18677	0.22344	1398.18457	312.4103603
18554	18506	0.92670	355.06323	329.0370952
18554	18556	0.06898	1269.41992	87.56458608
18554	18658	0.14874	1333.53235	198.3496017
18556	18240	0.49381	1606.70251	793.4057665
18556	18551	1.00459	491.35974	493.6150812
18556	18554	0.06898	1374.34070	94.80202149
18565	697	0.38041	87.60034	33.32404534
18565	18543	0.71185	532.63281	379.1546658
18565	18570	0.17576	563.38843	99.02115046
18566	18490	0.05968	275.26776	16.42797992
18566	18614	0.02699	272.13327	7.344876957
18568	18532	0.05889	174.69894	10.28802058
18568	18624	0.12458	134.89163	16.80479927
18569	18246	0.49852	3446.30103	1718.049989
18569	18571	0.08205	948.24274	77.80331682
18569	18572	0.12479	477.07147	59.53374874
18569	18739	0.38494	2797.42651	1076.841361
18570	18565	0.17576	583.31909	102.5241633
18570	18586	0.08621	563.38843	48.56971655
18571	18569	0.08205	1059.26001	86.91228382
18571	18576	0.25028	948.24274	237.326193
18572	18569	0.12479	445.77768	55.62859669
18572	18575	0.12617	477.07147	60.19210737
18573	18464	0.08875	272.24692	24.16191415
18573	18617	0.03469	273.47147	9.486725294
18575	18572	0.12617	445.77768	56.24376989
18575	18577	0.06068	477.07147	28.9486968
18576	18571	0.25028	1059.26001	265.1115953
18576	18583	0.17827	948.24274	169.0432333
18577	18575	0.06068	445.77768	27.04978962
18577	18582	0.17719	477.07147	84.53229377

18578	1629	1.15582	134.29115	155.216397
18578	18591	0.35349	1734.27795	613.0499125
18578	18595	0.41528	1039.21619	431.5656994
18579	18580	0.09101	789.94690	71.89306737
18579	18584	0.12686	811.76385	102.980362
18580	18579	0.09101	811.76385	73.87862799
18580	18581	0.03103	789.94690	24.51205231
18581	18580	0.03103	811.76385	25.18903227
18581	18582	0.01517	789.94690	11.98349447
18582	696	0.50847	377.02402	191.7054034
18582	1976	0.38334	120.42010	46.16184113
18582	18577	0.17719	445.77768	78.98734712
18582	18581	0.01517	811.76385	12.3144576
18583	1973	1.25231	370.96136	464.5586207
18583	1974	0.89995	47.18717	42.46609364
18583	18576	0.17827	1059.26001	188.834282
18583	18589	0.48708	908.38470	442.4560197
18584	18579	0.12686	789.94690	100.2126637
18584	18588	0.13308	811.76385	108.0295332
18585	18507	0.05541	355.91608	19.72130999
18585	18548	0.04445	2378.06274	105.7048888
18585	18619	0.09331	1861.06543	173.6560153
18585	18622	0.04449	766.75012	34.11271284
18586	18433	0.13999	1851.58386	259.2032246
18586	18570	0.08621	583.31909	50.28793875
18586	18587	0.02344	789.94690	18.51635534
18586	18628	0.05711	1683.37366	96.13746972
18587	18586	0.02344	811.76385	19.02774464
18587	18588	0.09860	789.94690	77.88876434
18588	18584	0.13308	789.94690	105.1261335
18588	18587	0.09860	811.76385	80.03991561
18589	18583	0.48708	1016.31354	495.0259991
18589	18591	0.19167	1346.88525	258.1574959
18589	18874	0.50315	1139.69287	573.4364675
18591	1630	0.43180	496.79416	214.5157183
18591	18578	0.35349	1118.18286	395.2664592
18591	18589	0.19167	1954.25977	374.5729701
18592	307	0.09161	32.87048	3.011264673
18592	308	0.09119	180.69333	16.47742476
18592	18492	0.07246	336.28546	24.36724443
18592	18638	0.07608	559.71082	42.58279919
18593	1972	1.11896	86.22292	96.47999856
18593	18599	0.45703	1196.91138	547.024408
18593	18610	0.51307	1006.92767	516.6243796
18595	18578	0.41528	1653.94666	686.850969
18595	18598	0.03240	1039.21619	33.67060456
18596	18597	0.02413	457.05701	11.02878565
18596	18613	0.97646	1327.39575	1296.148854
18596	18616	0.03602	552.16931	19.88913855
18597	1933	1.08252	29.58197	32.02307416
18597	18262	0.49271	1160.38501	571.7332983
18597	18596	0.02413	1327.39575	32.03005945
18597	18616	0.02349	845.63019	19.86385316
18598	18538	0.02966	0.00000	0

18598	18595	0.03240	1006.69196	32.6168195
18598	18599	0.03034	1039.21619	31.5298192
18599	18538	0.04415	190.21941	8.398186952
18599	18593	0.45703	1039.21619	474.9529753
18599	18598	0.03034	1006.69196	30.54303407
18600	18248	0.58920	1804.21802	1063.045257
18600	18690	0.26149	1686.94556	441.1193945
18607	18525	0.04943	1217.73584	60.19268257
18607	18624	0.03829	1173.84033	44.94634624
18610	18593	0.51307	1224.31030	628.1568856
18610	18612	0.50953	1006.92767	513.0598557
18612	1932	2.69803	288.74802	779.0508204
18612	1936	0.97256	334.60101	325.4195583
18612	18610	0.50953	1224.31030	623.8228272
18612	18613	0.49229	1009.22638	496.8320546
18613	18596	0.97646	1009.22638	985.469191
18613	18612	0.49229	1327.39575	653.4636538
18614	297	0.18405	162.37627	29.88535249
18614	18566	0.02699	275.26776	7.429476842
18614	18629	0.03832	109.75700	4.20588824
18616	18597	0.02349	1559.92322	36.64259644
18616	18858	0.46922	1397.79956	655.8755095
18617	308	0.08627	37.40934	3.227303762
18617	316	0.24308	1.19602	0.290728542
18617	18573	0.03469	272.24692	9.444245655
18617	18641	0.04849	309.92520	15.02827295
18618	316	0.26073	0.00000	0
18618	18473	0.12283	373.33463	45.8566926
18618	18666	0.12676	375.91055	47.65042132
18619	307	0.07608	0.66991	0.050966753
18619	329	0.04258	60.27964	2.566707071
18619	18585	0.09331	1917.45398	178.9176309
18619	18638	0.09161	1849.18054	169.4034293
18622	18585	0.04449	787.06683	35.01660327
18622	18640	0.04062	766.75012	31.14538987
18624	18568	0.12458	174.69894	21.76399395
18624	18607	0.03829	1217.73584	46.62710531
18624	18634	0.04639	586.09863	27.18911545
18624	18650	0.07432	1174.64063	87.29929162
18627	18326	0.90619	405.98785	367.9021298
18627	18683	0.27152	415.94748	112.9380598
18628	18586	0.05711	2030.64819	115.9703181
18628	18648	0.05487	1683.37366	92.36671272
18629	18614	0.03832	115.25792	4.416683494
18629	18645	0.04633	109.75700	5.08504181
18634	298	0.07386	372.01782	27.47723619
18634	328	0.04614	48.58424	2.241676834
18634	18624	0.04639	628.56854	29.15929457
18634	18640	0.04372	394.18268	17.23366677
18638	18592	0.07608	548.52783	41.73199731
18638	18619	0.09161	1903.99255	174.4247575
18638	18647	0.08978	1803.21802	161.8929138
18638	18651	0.04610	468.65652	21.60506557
18639	297	0.09142	0.00000	0

18640	18622	0.04062	787.06683	31.97065463
18640	18634	0.04372	416.66376	18.21653959
18640	18652	0.09120	245.31693	22.37290402
18640	18663	0.07635	438.11353	33.44996802
18641	18617	0.04849	308.43701	14.95611061
18641	18668	0.08262	309.92520	25.60602002
18642	18643	0.02995	346.61487	10.38111536
18642	18646	0.02813	337.55991	9.495560268
18643	18642	0.02995	337.55991	10.1099193
18643	18644	0.04828	346.61487	16.73456592
18644	18643	0.04828	337.55991	16.29739245
18644	18645	0.04766	346.61487	16.5196647
18645	18629	0.04633	115.25792	5.339899434
18645	18644	0.04766	337.55991	16.08810531
18645	18675	0.07819	418.46036	32.71941555
18646	297	0.07502	116.38655	8.731318981
18646	299	0.09159	5.67200	0.51949848
18646	18642	0.02813	346.61487	9.750276293
18646	18662	0.09416	391.28467	36.84336453
18647	308	0.09670	0.30823	0.029805841
18647	330	0.05312	25.39729	1.349104045
18647	18638	0.08978	1872.46265	168.1096967
18647	18668	0.13623	1797.78406	244.9121225
18648	18628	0.05487	2030.64819	111.4216662
18648	18656	0.00672	1683.37366	11.312271
18650	297	0.18113	129.29796	23.41973949
18650	298	0.04706	337.45346	15.88055983
18650	18624	0.07432	1215.87341	90.36371183
18650	18673	0.07302	1368.88635	99.95608128
18651	18638	0.04610	443.04105	20.42419241
18651	18665	0.04097	468.65652	19.20085762
18652	309	0.07693	86.62011	6.663685062
18652	329	0.04305	22.80636	0.981813798
18652	18640	0.09120	265.01480	24.16934976
18652	18665	0.08931	324.29407	28.96270339
18656	18648	0.00672	2030.64819	13.64595584
18656	18672	0.05823	1683.37366	98.02284822
18658	18554	0.14874	1235.60864	183.7844291
18658	18807	0.31935	1333.53235	425.863556
18662	18646	0.09416	399.66788	37.63272758
18662	18673	0.08459	391.28467	33.09877024
18663	298	0.04397	214.72401	9.44141472
18663	309	0.08994	440.63312	39.63054281
18663	18640	0.07635	461.21341	35.21364385
18663	18686	0.07454	727.18695	54.20451525
18665	18651	0.04097	443.04105	18.15139182
18665	18652	0.08931	340.70593	30.42844661
18665	18678	0.09395	88.07156	8.274323062
18665	18688	0.07632	429.89462	32.8095574
18666	1669	0.20493	39.67492	8.130581356
18666	18618	0.12676	373.33463	47.3238977
18666	18667	0.26915	2042.50256	549.739564
18666	18670	0.01286	1947.19690	25.04095213
18667	316	0.12301	106.60035	13.11290905

18667	333	0.12803	105.99765	13.57087913
18667	18666	0.26915	1974.02612	531.3091302
18667	18668	0.23624	2101.36841	496.4272732
18668	18641	0.08262	308.43701	25.48306577
18668	18647	0.13623	1866.63269	254.2913714
18668	18667	0.23624	2025.26453	478.4484926
18668	18687	0.05639	407.22089	22.96318599
18670	18666	0.01286	2013.73889	25.89668213
18670	18765	0.23669	1947.19690	460.8820343
18672	18656	0.05823	2030.64819	118.2446441
18672	18693	0.06663	1683.37366	112.163187
18673	18650	0.07302	1428.31531	104.2955839
18673	18662	0.08459	399.66788	33.80790597
18673	18679	0.04793	292.13602	14.00207944
18673	18694	0.07994	1160.55872	92.77506408
18675	296	0.31328	587.91321	184.1814504
18675	299	0.14304	30.53907	4.368308573
18675	18645	0.07819	414.90631	32.44152438
18675	18706	0.08535	390.96106	33.36852647
18677	18552	0.22344	1376.33704	307.5287482
18677	18701	0.07695	1398.18457	107.5903027
18678	18665	0.09395	89.67921	8.42536178
18678	18680	0.04211	88.07156	3.708693392
18679	298	0.07768	9.26954	0.720057867
18679	300	0.07585	89.29898	6.773327633
18679	18673	0.04793	317.97952	15.24075839
18679	18686	0.04384	211.68155	9.280119152
18680	310	0.08276	72.77065	6.022498994
18680	330	0.04276	10.59599	0.453084532
18680	18678	0.04211	89.67921	3.776391533
18680	18689	0.04747	47.68414	2.263566126
18682	296	0.31051	2.66273	0.826804292
18682	1835	0.34461	45.18237	15.57029653
18682	18527	0.24072	268.61346	64.66063209
18682	18819	0.25818	271.81671	70.17763819
18683	18627	0.27152	405.98785	110.233821
18683	18733	0.16484	415.94748	68.5647826
18686	18663	0.07454	726.91394	54.18416509
18686	18679	0.04384	234.66396	10.28766801
18686	18695	0.09268	479.06113	44.39938553
18686	18709	0.07743	504.52975	39.06573854
18687	18668	0.05639	398.47751	22.47014679
18687	18700	0.03965	407.22089	16.14630829
18688	309	0.09205	4.38676	0.403801258
18688	310	0.15195	90.78329	13.79452092
18688	18665	0.07632	419.08334	31.98444051
18688	18711	0.07557	513.41064	38.79844206
18689	18680	0.04747	50.63504	2.403645349
18689	18700	0.08607	47.68414	4.10417393
18690	18600	0.26149	1804.21802	471.78497
18690	18850	0.25986	1379.85925	358.5702247
18690	18852	0.30499	767.01849	233.9329693
18693	18672	0.06663	2030.64819	135.3020889
18693	18736	0.12933	1683.37366	217.7107154

18694	299	0.15299	262.02579	40.08732561
18694	300	0.05301	145.08377	7.690890648
18694	18673	0.07994	1202.52734	96.13003556
18694	18713	0.07399	1042.92090	77.16571739
18695	309	0.07398	143.82944	10.64050197
18695	311	0.07608	89.89539	6.839241271
18695	18686	0.09268	484.94357	44.94457007
18695	18711	0.08977	537.02216	48.2084793
18700	18687	0.03965	398.47751	15.79963327
18700	18689	0.08607	50.63504	4.358157893
18700	18725	0.08373	415.53284	34.79256469
18701	18677	0.07695	1376.33704	105.9091352
18701	18720	0.07017	1398.18457	98.11061128
18702	299	0.06790	277.15399	18.81875592
18702	301	0.08718	2.12506	0.185262731
18702	18703	0.02402	540.83795	12.99092756
18702	18708	0.05804	398.73035	23.14230951
18703	18702	0.02402	575.81995	13.8311952
18703	18704	0.04691	540.83795	25.37070823
18704	18703	0.04691	575.81995	27.01171385
18704	18706	0.04967	540.83795	26.86342098
18706	18675	0.08535	362.83258	30.9677607
18706	18704	0.04967	575.81995	28.60097692
18706	18714	0.05415	261.32623	14.15081535
18708	18702	0.05804	369.68530	21.45653481
18708	18713	0.08741	398.73035	34.85301989
18709	300	0.03902	100.83881	3.934730366
18709	311	0.09139	16.40488	1.499241983
18709	18686	0.07743	521.35675	40.36865315
18709	18728	0.07426	455.15314	33.79967218
18711	18688	0.07557	505.27090	38.18332191
18711	18695	0.08977	537.41986	48.24418083
18711	18718	0.09075	725.59692	65.84792049
18711	18729	0.07381	419.99271	30.99966193
18713	18694	0.07399	1084.08594	80.2115187
18713	18708	0.08741	369.68530	32.31419207
18713	18724	0.05264	551.59113	29.03575708
18713	18741	0.07562	1330.41162	100.6057267
18714	301	0.11139	11.65449	1.298193641
18714	18706	0.05415	268.17972	14.52193184
18714	18798	0.11111	257.14322	28.57118317
18718	331	0.05409	392.97458	21.25599503
18718	18711	0.09075	730.96936	66.33546942
18718	18730	0.09161	766.21204	70.19268498
18720	18701	0.07017	1376.33704	96.5775701
18720	18882	0.17597	1398.18457	246.0385388
18724	300	0.07508	0.00000	0
18724	18713	0.05264	506.66797	26.67100194
18724	18728	0.03874	551.59113	21.36864038
18725	310	0.15083	28.64987	4.321259892
18725	333	0.25964	100.56532	26.11077968
18725	18700	0.08373	409.74033	34.30755783
18725	18771	0.06866	536.53180	36.83827339
18728	321	0.04961	41.35906	2.051822967

18728	18709	0.07426	470.09518	34.90926807
18728	18724	0.03874	506.66797	19.62831716
18728	18734	0.03762	546.63593	20.56444369
18729	311	0.08800	104.29235	9.1777268
18729	331	0.08031	342.41644	27.4994643
18729	18711	0.07381	406.87827	30.03168511
18729	18780	0.06166	658.54236	40.60572192
18730	310	0.07681	3.36364	0.258361188
18730	18718	0.09161	770.62854	70.59728055
18730	18752	0.08819	765.80841	67.53664368
18732	18457	0.45791	10021.43262	4588.914211
18732	18759	0.03749	9978.50781	374.0942578
18733	18683	0.16484	405.98785	66.92303719
18733	18744	0.02529	415.94748	10.51931177
18734	18728	0.03762	516.08856	19.41525163
18734	18748	0.05279	256.77985	13.55540828
18734	18785	0.04521	289.85611	13.10439473
18736	697	0.28992	110.27402	31.97064388
18736	1976	0.52583	58.30746	30.65981169
18736	18693	0.12933	2030.64819	262.6237304
18736	18853	0.11981	1845.02783	221.0527843
18739	1976	0.48170	101.02577	48.66411341
18739	18569	0.38494	3165.77832	1218.634707
18739	18861	0.11663	2896.91431	337.867116
18741	301	0.12000	71.75580	8.610696
18741	321	0.07536	28.93366	2.180440618
18741	18713	0.07562	1387.45471	104.9193252
18741	18791	0.03766	1310.11829	49.3390548
18742	18745	0.25097	8173.65967	2051.343367
18742	18746	0.58471	8393.62695	4907.837614
18744	18733	0.02529	405.98785	10.26743273
18744	18755	0.01561	415.94748	6.492940163
18745	18742	0.25097	8393.62695	2106.548556
18745	18751	1.24933	8173.65967	10211.59824
18746	1883	0.51990	122.03339	63.44515946
18746	18742	0.58471	8173.65967	4779.220546
18746	18747	0.11240	8367.34961	940.4900962
18747	18746	0.11240	8147.70264	915.8017767
18747	18759	0.50066	8367.34961	4189.197256
18748	311	0.07714	146.40001	11.29329677
18748	322	0.02377	5.28351	0.125589033
18748	18734	0.05279	225.01700	11.87864743
18748	18782	0.05781	257.01529	14.85805391
18748	18784	0.02305	145.47881	3.353286571
18750	18448	0.49763	433.56705	215.7559711
18750	18751	0.25028	8524.91406	2133.615491
18750	18753	0.25097	8420.75000	2113.355628
18750	18998	0.50261	497.22406	249.9097848
18751	1882	0.70878	131.28682	93.05347228
18751	18745	1.24933	8393.62695	10486.40996
18751	18750	0.25028	8305.41113	2078.678298
18752	18730	0.08819	770.29877	67.93264853
18752	18772	0.03636	765.80841	27.84479379
18753	18750	0.25097	8589.26270	2155.64726

18753	18758	0.24686	8420.75000	2078.746345
18755	18744	0.01561	405.98785	6.337470339
18755	18836	0.13142	415.94748	54.66381782
18758	1856	0.47924	82.18102	39.38443202
18758	1857	0.49265	97.77625	48.16946956
18758	18753	0.24686	8589.26270	2120.34539
18758	18762	1.00250	8499.61816	8520.867205
18759	18732	0.03749	10021.43262	375.7035089
18759	18747	0.50066	8147.70264	4079.228804
18759	18760	0.14780	5764.16113	851.943015
18759	18908	0.14975	12485.72949	1869.737991
18760	1907	0.47963	62.53824	29.99521605
18760	18759	0.14780	5598.56885	827.468476
18760	18773	0.35357	5701.62305	2015.922862
18762	18758	1.00250	8666.87598	8688.54317
18762	18763	0.24752	8499.61816	2103.825487
18763	18762	0.24752	8666.87598	2145.225143
18763	18764	0.05361	8499.61816	455.6645296
18764	1668	0.50706	118.48424	60.07861873
18764	1669	0.25687	9.51301	2.443606879
18764	18763	0.05361	8666.87598	464.6312213
18764	18765	0.20085	8567.92676	1720.86809
18765	18670	0.23669	2013.73889	476.6318579
18765	18764	0.20085	8734.87012	1754.398664
18765	18767	0.02414	6690.03906	161.4975429
18766	18767	0.09997	6923.52441	692.1447353
18766	18769	0.16066	6669.05029	1071.44962
18766	18900	0.13423	32.54076	4.367946215
18767	18765	0.02414	6923.52441	167.1338793
18767	18766	0.09997	6690.03906	668.8032048
18768	18769	0.02896	6854.69727	198.5120329
18768	18770	0.06068	6657.13281	403.9548189
18769	317	0.13270	269.23096	35.72694839
18769	333	0.12819	58.23133	7.464674193
18769	18766	0.16066	6902.53027	1108.960513
18769	18768	0.02896	6657.13281	192.7905662
18770	18768	0.06068	6854.69727	415.9430303
18770	18771	0.12755	6657.13281	849.1172899
18771	18725	0.06866	536.12842	36.81057732
18771	18770	0.12755	6854.69727	874.3166368
18771	18772	0.02620	6927.33838	181.4962656
18771	18847	0.07487	465.67899	34.86538598
18772	18752	0.03636	770.29877	28.00806328
18772	18771	0.02620	7143.62793	187.1630518
18772	18774	0.05930	6159.99951	365.2879709
18773	1905	0.49522	54.44249	26.9610099
18773	18760	0.35357	5536.14697	1957.415484
18773	18788	0.24691	1005.34137	248.2288377
18773	18946	0.25314	5783.36426	1464.000829
18774	18772	0.05930	6380.77979	378.3802415
18774	18775	0.05723	6159.99951	352.536772
18775	18774	0.05723	6380.77979	365.1720274
18775	18776	0.02344	6159.99951	144.3903885
18776	18775	0.02344	6380.77979	149.5654783

18776	18777	0.00827	6159.99951	50.94319595
18777	18776	0.00827	6380.77979	52.76904886
18777	18778	0.04826	6159.99951	297.2815764
18778	18777	0.04826	6380.77979	307.9364327
18778	18779	0.02689	6159.99951	165.6423868
18779	312	0.16364	150.03761	24.5521545
18779	331	0.04618	21.91090	1.011845362
18779	18778	0.02689	6380.77979	171.5791686
18779	18780	0.11583	6052.60742	701.0735175
18780	18729	0.06166	652.51093	40.23382394
18780	18779	0.11583	6259.82227	725.0752135
18780	18781	0.00689	6655.97754	45.85968525
18781	18780	0.00689	6857.16113	47.24584019
18781	18782	0.02552	6655.97754	169.8605468
18782	18748	0.05781	225.17192	13.0171887
18782	18781	0.02552	6857.16113	174.994752
18782	18784	0.06137	6430.80566	394.6585434
18783	1906	0.52081	68.97569	35.92322911
18783	1908	1.29190	144.14978	186.2271008
18783	18808	0.03117	209.21811	6.521328489
18784	322	0.02182	3.75484	0.081930609
18784	18748	0.02305	146.29134	3.372015387
18784	18782	0.06137	6600.14551	405.0509299
18784	18785	0.03930	6580.03809	258.5954969
18785	18734	0.04521	291.07159	13.15934658
18785	18784	0.03930	6750.19189	265.2825413
18785	18786	0.06552	6455.12354	422.9396943
18785	18830	0.06084	1026.39307	62.44575438
18786	18785	0.06552	6628.89746	434.3253616
18786	18787	0.01896	6455.12354	122.3891423
18787	321	0.03514	3.49338	0.122757373
18787	18786	0.01896	6628.89746	125.6838958
18787	18790	0.03828	6451.62988	246.9683918
18788	18773	0.24691	940.37158	232.1871468
18788	18793	0.25103	1005.34137	252.3708441
18790	18787	0.03828	6624.91992	253.6019345
18790	18791	0.04563	6451.62988	294.3878714
18791	323	0.10308	1366.27161	140.8352776
18791	18741	0.03766	1366.25464	51.45314974
18791	18790	0.04563	6624.91992	302.2950959
18791	18794	0.07597	8337.70801	633.4156775
18793	18788	0.25103	940.37158	236.0614777
18793	18797	0.25172	1005.34137	253.0645297
18794	18791	0.07597	8563.78223	650.590536
18794	18795	0.00896	8337.70801	74.70586377
18795	18794	0.00896	8563.78223	76.73148878
18795	18796	0.01105	8337.70801	92.13167351
18796	301	0.07730	67.35120	5.20624776
18796	18795	0.01105	8563.78223	94.62979364
18796	18798	0.10495	7867.41162	825.6848495
18796	18864	0.07199	536.57416	38.62797378
18797	18793	0.25172	940.37158	236.7103341
18797	18799	0.24897	1005.34137	250.2998409
18798	302	0.14357	291.30966	41.82332789

18798	18714	0.11111	264.12784	29.3472443
18798	18796	0.10495	8140.36230	854.3310234
18798	18800	0.03589	8131.87354	291.8529414
18799	18797	0.24897	940.37158	234.1243123
18799	18804	0.25241	1005.34137	253.7582152
18800	18798	0.03589	8401.00781	301.5121703
18800	18802	0.06696	8131.87354	544.5102522
18802	18800	0.06696	8401.00781	562.531483
18802	18805	0.04831	8131.87354	392.8508107
18804	18799	0.25241	940.37158	237.3591905
18804	18808	0.25037	1005.34137	251.7073188
18805	18802	0.04831	8401.00781	405.8526873
18805	18806	0.03105	8131.87354	252.4946734
18806	18805	0.03105	8401.00781	260.8512925
18806	18809	0.07047	8131.87354	573.0531284
18807	18658	0.31935	1235.60864	394.5916192
18807	19409	1.54533	1333.53235	2060.747546
18808	18783	0.03117	207.84721	6.478597536
18808	18804	0.25037	940.37158	235.4408325
18808	18816	0.50068	871.04895	436.1167883
18809	18806	0.07047	8401.00781	592.0190204
18809	18812	0.06928	8131.87354	563.3761989
18812	296	0.25200	820.50079	206.7661991
18812	1667	0.54206	39.98483	21.67417695
18812	18809	0.06928	8401.00781	582.0218211
18812	18813	0.04459	8865.97461	395.3338079
18813	18812	0.04459	9182.52637	409.4488508
18813	18819	0.26226	8865.97461	2325.190501
18816	18808	0.50068	804.70831	402.9013567
18816	18824	0.50138	871.04895	436.7265226
18819	18682	0.25818	261.51266	67.51733856
18819	18813	0.26226	9182.52637	2408.209366
18819	18825	0.47902	9158.23340	4386.976963
18819	18964	0.25894	120.62273	31.23404971
18820	18821	0.00621	3691.72705	22.92562498
18820	18827	1.02691	3633.63501	3731.416128
18821	18820	0.00621	3633.63501	22.56487341
18821	18823	0.51435	3637.02930	1870.70602
18821	18835	0.01561	121.41347	1.895264267
18822	18530	0.49877	924.11108	460.9188834
18822	19039	0.50268	957.11761	481.1238802
18823	18245	0.96929	479.58270	464.8547153
18823	18821	0.51435	3579.03296	1840.875603
18823	18840	0.01672	3680.40845	61.53642928
18824	18531	0.49979	842.17969	420.9129873
18824	18816	0.50138	804.70831	403.4646525
18824	18828	0.25102	841.94574	211.3452197
18824	19204	1.00126	704.71564	705.6035817
18825	1835	0.38304	88.46880	33.88708915
18825	1836	0.50495	20.94600	10.5766827
18825	18819	0.47902	9465.78613	4534.300872
18825	18838	0.49894	9289.90918	4635.107286
18827	18820	1.02691	3691.72705	3791.071425
18827	18844	0.49320	3633.63501	1792.108787

18827	18857	0.02453	0.00000	0
18828	18824	0.25102	746.34637	187.3478658
18828	18831	0.24895	841.94574	209.602392
18830	18785	0.06084	1023.98871	62.29947312
18830	18898	0.06422	1026.39307	65.91496296
18831	18828	0.24895	746.34637	185.8029288
18831	18837	0.22563	841.94574	189.9682173
18835	1803	0.53220	81.23314	43.23227711
18835	1804	0.49368	40.67931	20.08256176
18835	18821	0.01561	121.31786	1.893771795
18836	18755	0.13142	405.98785	53.35492325
18836	18889	0.05448	415.94748	22.66081871
18837	1933	0.51997	204.84264	106.5120275
18837	1935	0.76083	86.14606	65.54250683
18837	18831	0.22563	746.34637	168.3981315
18837	18845	0.27503	849.62531	233.672449
18838	18825	0.49894	9532.70410	4756.247384
18838	18841	0.02480	9289.90918	230.3897477
18840	18823	0.01672	3498.32202	58.49194417
18840	18862	0.01505	3680.40845	55.39014717
18841	18838	0.02480	9532.70410	236.4110617
18841	18842	0.00896	13006.71875	116.5402
18841	18911	0.07822	6473.69287	506.3722563
18842	17975	1.75205	17866.52734	31303.04923
18842	18841	0.00896	1356.48511	12.15410659
18842	18843	0.07233	4960.94141	358.8248922
18843	18842	0.07233	4912.06152	355.2894097
18843	18865	0.41204	4960.94141	2044.106299
18844	1815	0.96388	895.25024	862.9138013
18844	1817	1.01779	273.21252	278.0729707
18844	18827	0.49320	3691.72705	1820.759781
18844	18854	0.33810	4143.72266	1400.992631
18845	18837	0.27503	755.10077	207.6753648
18845	18863	0.49453	849.62531	420.1652046
18847	18771	0.07487	446.55032	33.43322246
18847	18901	0.05750	465.67899	26.77654193
18850	18690	0.25986	1501.70178	390.2322246
18850	18875	0.01393	1379.85925	19.22143935
18852	18690	0.30499	762.44849	232.539165
18852	18877	0.01489	767.01849	11.42090532
18853	18736	0.11981	2194.84473	262.9643471
18853	19061	0.50110	1845.02783	924.5434456
18854	1816	1.10040	506.84341	557.7304884
18854	18844	0.33810	4189.30273	1416.403253
18854	18891	0.83469	4429.15186	3696.968766
18857	18827	0.02453	0.00000	0
18858	18616	0.46922	1559.92322	731.9471733
18858	18887	0.01510	1397.79956	21.10677336
18861	18739	0.11663	3266.80396	381.0073459
18861	19067	0.49932	2896.91431	1446.487253
18862	18840	0.01505	3498.32202	52.6497464
18862	18868	0.49643	283.72842	140.8512995
18862	19065	0.49607	3398.81812	1686.051705
18863	18845	0.49453	755.10077	373.4199838

18863	18866	0.06552	1531.06018	100.315063
18863	18967	0.24277	890.76361	216.2506816
18864	18796	0.07199	491.48654	35.38211601
18864	18912	0.06753	536.57416	36.23485302
18865	18843	0.41204	4912.06152	2023.965829
18865	18884	0.44963	4960.94141	2230.588086
18866	18863	0.06552	1361.77722	89.22364345
18866	18869	0.06278	1531.06018	96.1199581
18868	18862	0.49643	132.96504	66.00783481
18868	18870	0.27332	283.72842	77.54865175
18869	18866	0.06278	1361.77722	85.49237387
18869	18876	0.06001	1531.06018	91.8789214
18870	1592	0.54722	13.35247	7.306738633
18870	18868	0.27332	132.96504	36.34200473
18870	18872	0.12106	297.17328	35.97579728
18872	18870	0.12106	146.31752	17.71319897
18872	18873	0.01241	297.17328	3.687920405
18873	18872	0.01241	146.31752	1.815800423
18873	18875	0.09584	297.17328	28.48108716
18874	18589	0.50315	640.24725	322.1404038
18874	18982	0.34177	1139.69287	389.5128322
18875	18850	0.01393	1501.70178	20.9187058
18875	18873	0.09584	146.31752	14.02307112
18875	19073	0.49599	1233.54175	611.8243726
18876	18869	0.06001	1361.77722	81.72025097
18876	18881	0.05932	1531.06018	90.82248988
18877	18852	0.01489	762.44849	11.35285802
18877	19100	0.64928	767.01849	498.0097652
18881	1934	0.24607	285.08606	70.15112678
18881	18876	0.05932	1361.77722	80.78062469
18881	18890	0.24141	1559.92322	376.5810645
18882	18720	0.17597	1376.33704	242.1940289
18882	18936	0.12919	1398.18457	180.6314646
18884	1827	0.49981	286.86145	143.3762213
18884	1828	0.61995	316.73761	196.3614813
18884	18865	0.44963	4912.06152	2208.610221
18884	18886	0.04900	4473.10986	219.1823831
18886	18884	0.04900	4429.15186	217.0284411
18886	18891	0.84188	4473.10986	3765.821729
18887	18858	0.01510	0.00000	0
18887	18890	0.01242	1397.79956	17.36067054
18889	18836	0.05448	405.98785	22.11821807
18889	18924	0.13015	415.94748	54.13556452
18890	18858	0.02023	1559.92322	31.55724674
18890	18881	0.24141	1397.79956	337.4427918
18890	18887	0.01242	0.00000	0
18891	18854	0.83469	4473.10986	3733.660069
18891	18886	0.84188	4429.15186	3728.814368
18898	312	0.21167	396.83292	83.99762418
18898	323	0.14374	488.03503	70.15015521
18898	18830	0.06422	1023.98871	65.76055496
18898	18923	0.06477	385.48358	24.96777148
18900	317	0.18778	17.26676	3.242352193
18900	18766	0.13423	32.54592	4.368638842

18900	18951	0.13267	50.00310	6.633911277
18901	18847	0.05750	446.55032	25.6766434
18901	18914	0.02729	465.67899	12.70837964
18908	18759	0.14975	12474.60059	1868.071438
18908	19002	0.35257	12485.72949	4402.093646
18909	18842	0.06871	6265.17334	430.4800602
18911	19053	0.42282	6473.69287	2737.206819
18912	302	0.14015	37.73618	5.288725627
18912	18864	0.06753	491.48654	33.19008605
18912	18935	0.06814	530.14459	36.12405236
18914	312	0.29094	27.85793	8.104986154
18914	317	0.19152	226.05107	43.29330093
18914	18901	0.02729	446.55032	12.18635823
18914	18942	0.07598	312.72775	23.76105445
18922	18924	0.00909	189.30338	1.720767724
18922	18944	0.24076	184.83992	44.50205914
18923	18898	0.06477	392.34698	25.41231389
18923	18925	0.12842	0.00000	0
18923	18932	0.02464	385.48358	9.498315411
18924	18889	0.13015	405.98785	52.83931868
18924	18922	0.00909	184.83992	1.680194873
18924	19004	0.34528	530.73474	183.252091
18925	303	0.45384	7.04710	3.198255864
18925	323	0.09271	7.05822	0.654367576
18925	18923	0.12842	0.00000	0
18932	18923	0.02464	392.34698	9.667429587
18932	18956	0.05583	385.48358	21.52154827
18935	18912	0.06814	497.10602	33.8728042
18935	18952	0.04690	530.14459	24.86378127
18936	18882	0.12919	1376.33704	177.8089822
18936	19089	0.37647	1398.18457	526.3745451
18942	18914	0.07598	336.60776	25.5754576
18942	18948	0.02569	312.72775	8.033975898
18944	18922	0.24076	189.30338	45.57668177
18944	19115	0.85936	184.83992	158.8440337
18946	18773	0.25314	5683.36377	1438.686705
18946	18991	0.22308	5783.36426	1290.152899
18948	18942	0.02569	336.60776	8.647453354
18948	18953	0.00670	312.72775	2.095275925
18951	18900	0.13267	49.81268	6.608648256
18951	19006	0.24451	50.00310	12.22625798
18952	18935	0.04690	497.10602	23.31427234
18952	19014	0.26464	530.14459	140.2974643
18953	18948	0.00670	336.60776	2.255271992
18953	18962	0.03572	312.72775	11.17063523
18956	18932	0.05583	392.34698	21.90473189
18956	18960	0.01230	385.48358	4.741448034
18960	18956	0.01230	392.34698	4.825867854
18960	18961	0.01507	385.48358	5.809237551
18961	18960	0.01507	392.34698	5.912668989
18961	18962	0.50014	96.30882	48.16789323
18961	18977	0.08430	402.53378	33.93359765
18962	18953	0.03572	336.60776	12.02362919
18962	18961	0.50014	73.15173	36.58610624

18962	18974	0.05694	291.78448	16.61420829
18964	18819	0.25894	119.31796	30.89619256
18964	19038	0.24500	120.62273	29.55256885
18967	1934	0.25208	185.44734	46.74756547
18967	18863	0.24277	965.52191	234.3997541
18967	19059	0.24943	1071.79956	267.3389643
18974	332	0.24979	45.85028	11.45294144
18974	18962	0.05694	292.50739	16.65537079
18974	19108	0.32283	300.32101	96.95263166
18977	332	0.24945	75.80740	18.91015593
18977	18961	0.08430	432.55429	36.46432665
18977	18979	0.02958	345.19537	10.21087904
18978	18983	0.75785	184.83992	140.0809334
18978	19036	0.47642	189.30338	90.1879163
18979	18977	0.02958	374.17825	11.06819264
18979	18990	0.05246	345.19537	18.10894911
18982	1936	2.53072	265.92276	672.9760472
18982	1974	0.48548	85.51772	41.51714271
18982	18874	0.34177	640.24725	218.8173026
18982	19063	0.14911	1413.17029	210.7178219
18983	18978	0.75785	189.30338	143.4635665
18983	19092	0.67951	184.83992	125.600574
18990	18979	0.05246	374.17825	19.629391
18990	19010	0.04858	345.19537	16.76959107
18991	1907	0.27089	64.35891	17.43418513
18991	18946	0.22308	5683.36377	1267.84479
18991	19005	0.02564	5831.29199	149.5143266
18998	1857	0.45388	86.09133	39.07513286
18998	1882	0.75087	14.85319	11.15281478
18998	18750	0.50261	573.93658	288.4662645
18998	19149	0.41997	534.71820	224.5656025
19000	1668	0.75659	0.68089	0.515154565
19000	1857	0.56636	0.68640	0.388749504
19002	1883	0.71950	40.90591	29.43180225
19002	1907	0.23235	19.49583	4.529856101
19002	18908	0.35257	12474.60059	4398.16993
19002	19094	0.12348	12553.75684	1550.137895
19004	18924	0.34528	516.31171	178.2721072
19004	19102	0.72273	530.73474	383.5779186
19005	18991	0.02564	5731.24023	146.9489995
19005	19096	0.12573	5831.29199	733.1683419
19006	18951	0.24451	49.81268	12.17969839
19006	19032	0.03736	50.00310	1.868115816
19010	18990	0.04858	374.17825	18.17757939
19010	19103	0.14634	345.19537	50.51589045
19013	19016	0.13808	189.30338	26.13901071
19013	19035	0.13299	184.83992	24.58186096
19014	18952	0.26464	497.10602	131.5541371
19014	19192	0.51019	530.14459	270.4744684
19016	19013	0.13808	184.83992	25.52269615
19016	19043	0.69424	189.30338	131.4219785
19018	2022	2.11261	0.00000	0
19018	18509	0.99471	1421.30688	1413.788167
19018	19374	1.01546	1390.30481	1411.798922

19032	318	0.25651	9.99324	2.563365992
19032	1668	0.34776	2.11839	0.736691306
19032	19006	0.03736	49.81268	1.861001725
19032	19181	0.47069	38.47532	18.10994837
19033	18519	1.00275	1424.71191	1428.629868
19033	19091	0.06386	1507.28784	96.25540146
19035	19013	0.13299	189.30338	25.17545651
19035	19036	0.05472	184.83992	10.11444042
19036	18978	0.47642	184.83992	88.06143469
19036	19035	0.05472	189.30338	10.35868095
19038	1667	0.33923	102.52187	34.77849396
19038	1836	0.50093	0.40268	0.201714492
19038	18964	0.24500	119.31796	29.2329002
19038	19205	0.50393	18.51071	9.32810209
19039	18822	0.50268	924.11108	464.5321577
19039	19042	0.48613	257.52051	125.1884455
19039	19396	1.00989	986.64386	996.4017678
19040	19041	0.00689	261.86621	1.804258187
19040	19044	0.04001	257.52051	10.30339561
19041	19040	0.00689	257.52051	1.774316314
19041	19042	0.01034	261.86621	2.707696611
19042	19039	0.48613	261.86621	127.3010207
19042	19041	0.01034	257.52051	2.662762073
19043	19016	0.69424	184.83992	128.3232661
19043	19104	0.22321	189.30338	42.25440745
19044	19040	0.04001	261.86621	10.47726706
19044	19046	0.14894	257.52051	38.35510476
19046	19044	0.14894	261.86621	39.00235332
19046	19048	0.19790	257.52051	50.96330893
19048	67	4.50000	257.52051	1158.842295
19048	19046	0.19790	261.86621	51.82332296
19049	18536	1.00877	1309.75916	1321.245748
19049	19127	0.25484	1568.49475	399.7152021
19050	18535	1.01118	750.87103	759.2657681
19050	19126	0.25210	664.01721	167.3987386
19053	1836	0.50253	66.62782	33.48247838
19053	19211	0.50195	6415.75732	3220.389387
19059	18967	0.24943	1150.96924	287.0862575
19059	19231	0.51000	1071.79956	546.6177756
19061	1977	0.67280	30.67778	20.64001038
19061	1978	1.04661	2.29346	2.400358171
19061	18853	0.50110	2194.84473	1099.836694
19061	19420	1.00052	1813.16516	1814.108006
19063	18982	0.14911	925.90369	138.0614992
19063	19077	0.00784	1413.17029	11.07925507
19065	1592	0.54790	105.79099	57.96288342
19065	1804	0.48465	28.65643	13.8883388
19065	18862	0.49607	3367.49512	1670.513304
19065	19133	0.25584	3295.31812	843.0741878
19067	1974	0.52198	78.61772	41.03687749
19067	1977	0.61458	104.94069	64.49444926
19067	18861	0.49932	3266.80396	1631.180553
19067	19422	0.99585	2867.07520	2855.176838
19073	1592	0.45121	0.00000	0

19073	18875	0.49599	1204.52844	597.434061
19073	19113	0.13264	1233.54175	163.6169777
19075	19076	0.37072	708.60248	262.6931114
19075	19079	0.50126	706.97607	354.3788248
19076	1576	0.41195	43.29756	17.83642984
19076	1776	1.26733	388.06967	491.8123349
19076	19075	0.37072	706.97607	262.0901687
19076	19106	0.64113	1046.70398	671.0733227
19077	19063	0.00784	925.90369	7.25908493
19077	19418	1.03269	1413.17029	1459.366827
19079	19075	0.50126	708.60248	355.1940791
19079	19080	0.01448	706.97607	10.23701349
19079	19090	0.01399	740.47638	10.35926456
19080	19079	0.01448	1449.07886	20.98266189
19080	19083	0.48683	1433.41235	697.8281344
19083	19080	0.48683	1449.07886	705.4550614
19083	19084	0.12894	1433.41235	184.8241884
19084	19083	0.12894	1449.07886	186.8442282
19084	19085	0.05036	1433.41235	72.18664595
19085	1776	1.29046	97.94886	126.3990859
19085	1777	0.36026	41.98431	15.12526752
19085	19084	0.05036	1449.07886	72.97561139
19085	19086	0.05393	1509.79626	81.4233123
19086	19085	0.05393	1527.18030	82.36083358
19086	19098	0.07510	1509.79626	113.3856991
19089	18936	0.37647	1376.33704	518.1496054
19089	19117	0.15203	1398.18457	212.5660002
19090	19079	0.01399	0.00000	0
19090	19080	0.01954	726.43628	14.19456491
19090	19217	0.47183	740.47638	349.3789704
19091	2022	1.85719	206.73802	383.9517834
19091	19033	0.06386	1424.71191	90.98210257
19091	19384	0.94283	1718.30298	1620.067599
19092	18983	0.67951	189.30338	128.6335397
19092	19116	0.27130	184.83992	50.1470703
19093	19102	0.32738	516.31171	169.0301276
19093	19111	0.22652	530.73474	120.2220333
19094	19002	0.12348	12532.89746	1547.562178
19094	19137	0.25088	12553.75684	3149.486516
19096	19005	0.12573	5731.24023	720.5888341
19096	19143	0.25090	5831.29199	1463.07116
19098	19086	0.07510	1527.18030	114.6912405
19098	19101	0.02148	1509.79626	32.43042366
19099	303	0.14097	0.23573	0.033230858
19099	1667	0.38945	0.23568	0.091785576
19100	18877	0.64928	762.44849	495.0425556
19100	19107	0.04938	767.01849	37.87537304
19101	19098	0.02148	1527.18030	32.80383284
19101	19112	0.14880	1509.79626	224.6576835
19102	19004	0.72273	516.31171	373.1539622
19102	19093	0.32738	530.73474	173.7519392
19102	19110	0.03665	0.00000	0
19103	303	0.13789	89.38670	12.32553206
19103	313	0.27088	156.46774	42.38398141

19103	19010	0.14634	374.17825	54.75724511
19103	19198	0.37611	376.12784	141.4654419
19104	19043	0.22321	184.83992	41.25811854
19104	19119	0.55766	189.30338	105.5669229
19106	19076	0.64113	1051.56860	674.1921765
19106	19107	0.47640	730.42938	347.9765566
19106	19189	0.35749	947.26886	338.6391448
19107	1579	0.40186	32.41623	13.02678619
19107	19100	0.04938	762.44849	37.64970644
19107	19106	0.47640	734.60229	349.964531
19108	313	0.25791	31.36862	8.090280784
19108	318	0.21016	44.17116	9.283010986
19108	18974	0.32283	300.07111	96.87195644
19108	19186	0.34201	225.91830	77.26631778
19110	19102	0.03665	0.00000	0
19111	19093	0.22652	516.31171	116.9549285
19111	19132	0.22394	530.73474	118.8527377
19112	19101	0.14880	1527.18030	227.2444286
19112	19120	0.17813	1509.79626	268.9400078
19113	19073	0.13264	1204.52844	159.7686523
19113	19226	0.36614	1233.54175	451.6489763
19115	18944	0.85936	189.30338	162.6797526
19115	19119	0.12722	184.83992	23.51533462
19116	19092	0.27130	189.30338	51.35800699
19116	19139	0.14421	184.83992	26.65576486
19117	19089	0.15203	1376.33704	209.2445202
19117	19122	0.03064	1398.18457	42.84037522
19119	19104	0.55766	184.83992	103.0778298
19119	19115	0.12722	189.30338	24.083176
19120	19112	0.17813	1527.18030	272.0366268
19120	19121	0.06772	1509.79626	102.2434027
19121	19120	0.06772	1527.18030	103.4206499
19121	19122	0.31488	1509.79626	475.4046463
19122	19117	0.03064	1376.33704	42.17096691
19122	19121	0.31488	1527.18030	480.8785329
19122	19141	0.50758	189.30338	96.08660962
19125	18909	0.67620	6265.17334	4236.510213
19126	19050	0.25210	750.87103	189.2945867
19126	19215	0.25491	664.01721	169.264627
19127	1978	0.96356	20.38275	19.64000259
19127	19049	0.25484	1309.75916	333.7790243
19127	19218	0.25654	1588.74695	407.5771426
19130	1935	0.78692	2.70578	2.129232398
19130	1936	1.99647	2.66123	5.313065858
19132	19111	0.22394	516.31171	115.6228443
19132	19138	0.04197	530.73474	22.27493704
19133	19065	0.25584	3263.38403	834.9041702
19133	19223	0.24637	3295.31812	811.8675252
19136	1742	2.18170	0.04745	0.103521665
19136	1743	1.70011	0.04744	0.080653218
19137	19094	0.25088	12532.89746	3144.253315
19137	19168	0.13187	12553.75684	1655.463914
19138	19132	0.04197	516.31171	21.66960247
19138	19478	0.83841	530.73474	444.9733134

19139	19116	0.14421	189.30338	27.29944043
19139	19142	0.04766	184.83992	8.809470587
19140	19141	0.81949	184.83992	151.474466
19140	19142	0.53329	189.30338	100.9535995
19141	19122	0.50758	184.83992	93.82104659
19141	19140	0.81949	189.30338	155.1322269
19142	19139	0.04766	189.30338	9.022199091
19142	19140	0.53329	184.83992	98.57328094
19143	19096	0.25090	5731.24023	1437.968174
19143	19177	0.13132	5831.29199	765.7652641
19149	18998	0.41997	610.87573	256.5494803
19149	19162	0.08156	534.71820	43.61161639
19153	19154	0.12135	2293.89160	278.3637457
19153	19156	0.12689	2319.27905	294.2933187
19154	1883	0.53482	63.64516	34.03870447
19154	19153	0.12135	2319.27905	281.4445127
19154	19155	0.11101	1899.41943	210.8545509
19154	19266	0.19389	844.82281	163.8026946
19155	19154	0.11101	1912.76099	212.3355975
19155	19158	0.21929	1899.41943	416.5236868
19156	19153	0.12689	2293.89160	291.0719051
19156	19157	0.24821	2319.27905	575.668253
19157	1884	0.22064	82.47814	18.19797681
19157	19156	0.24821	2293.89160	569.366834
19157	30192	0.31733	2355.36597	747.4282833
19158	19155	0.21929	1912.76099	419.4493575
19158	19163	0.14150	1899.41943	268.7678493
19159	19160	0.32268	2197.59644	709.1204193
19159	30077	0.33702	2172.38770	732.1381027
19160	19159	0.32268	2172.38770	700.986063
19160	19162	0.17858	2197.59644	392.4467723
19162	19149	0.08156	610.87573	49.82302454
19162	19160	0.17858	2172.38770	387.9449955
19162	19165	0.25029	3717.41846	930.4326664
19162	19321	0.42763	2051.10693	877.1148565
19163	513	0.19589	86.12885	16.87178043
19163	19158	0.14150	1912.76099	270.6556801
19163	19168	0.46706	1885.83289	880.7971096
19164	5074	0.10112	8759.88086	885.7991526
19164	5207	0.02815	2362.76636	66.51187303
19165	19162	0.25029	3823.99634	957.1080439
19165	19166	0.24961	3717.41846	927.9048218
19166	1857	0.51691	19.02304	9.833199606
19166	1861	0.37107	101.11877	37.52214198
19166	19165	0.24961	3823.99634	954.5077264
19166	19167	0.25166	3791.07324	954.0614916
19167	19166	0.25166	3900.16724	981.5160876
19167	19169	0.24891	3791.07324	943.6360402
19168	19137	0.13187	12532.89746	1652.713188
19168	19163	0.46706	1898.90674	886.903382
19168	19174	0.24619	428.46393	105.4835349
19168	23458	0.18478	13646.39355	2521.5806
19169	19167	0.24891	3900.16724	970.7906277
19169	19170	0.01036	3791.07324	39.27551877

19170	19169	0.01036	3900.16724	40.40573261
19170	19171	0.01103	3791.07324	41.81553784
19171	19170	0.01103	3900.16724	43.01884466
19171	19172	0.01517	3791.07324	57.51058105
19172	19171	0.01517	3900.16724	59.16553703
19172	19175	0.44270	3898.60986	1725.914585
19172	19298	0.34605	231.94220	80.26359831
19174	522	0.23728	21.15899	5.020605147
19174	1907	0.53758	1.58138	0.85011826
19174	19168	0.24619	359.95419	88.61712204
19174	19177	0.25245	436.88077	110.2905504
19175	1860	0.49777	52.08959	25.92863521
19175	19172	0.44270	4008.44580	1774.538956
19175	19176	0.01724	3911.93237	67.44171406
19176	19175	0.01724	4021.20508	69.32557558
19176	19179	0.31175	3911.93237	1219.544916
19177	19143	0.13132	5731.24023	752.626467
19177	19174	0.25245	369.20804	93.2065697
19177	19279	0.24818	6021.17188	1494.334437
19179	1668	0.50864	53.81308	27.37148501
19179	1858	0.35575	85.74420	30.50349915
19179	19176	0.31175	4021.20508	1253.610684
19179	19181	0.31159	3797.64819	1183.3092
19181	19032	0.47069	38.21269	17.98633106
19181	19179	0.31159	3907.00439	1217.383498
19181	19183	0.16550	3777.70801	625.2106757
19182	19183	0.05930	4058.48999	240.6684564
19182	19186	0.15527	3945.39111	612.6008776
19183	318	0.28452	21.65619	6.161619179
19183	1858	0.36970	200.72377	74.20757777
19183	19181	0.16550	3886.80176	643.2656913
19183	19182	0.05930	3945.39111	233.9616928
19186	19108	0.34201	225.09555	76.98492906
19186	19182	0.15527	4058.48999	630.1617407
19186	19190	0.25324	3724.43628	943.1762435
19189	1576	0.61336	129.05927	79.15979385
19189	1579	0.47245	42.89841	20.2673538
19189	19106	0.35749	947.96069	338.8864671
19189	19304	0.30892	855.24536	264.2023966
19190	313	0.27372	63.70493	17.43731344
19190	19186	0.25324	3836.71240	971.6090482
19190	19198	0.24546	3662.13916	898.9086782
19192	19014	0.51019	497.10602	253.6185203
19192	19195	0.06620	3827.15430	253.3576147
19192	19201	0.18691	4216.41113	788.0894043
19195	19192	0.06620	3688.39380	244.1716696
19195	19197	0.11075	3827.15430	423.8573387
19197	303	0.38360	95.12434	36.48969682
19197	19195	0.11075	3688.39380	408.4896134
19197	19198	0.13747	3732.02979	513.0421352
19198	19103	0.37611	401.75378	151.1036142
19198	19190	0.24546	3772.93945	926.1057174
19198	19197	0.13747	3595.73145	494.3052024
19198	19515	0.66387	124.82732	82.86911293

19201	19192	0.18691	4322.13330	807.8499351
19201	19202	0.16816	4216.41113	709.0316956
19202	1667	0.47091	31.92723	15.03485188
19202	19201	0.16816	4322.13330	726.8099357
19202	19205	0.32934	4202.60352	1384.085443
19204	1935	0.73665	98.70539	72.71132554
19204	18824	1.00126	690.72253	691.5928404
19204	19385	0.49926	803.55475	401.1827445
19205	1837	0.35726	307.96667	110.0241725
19205	19038	0.50393	19.14344	9.646953719
19205	19202	0.32934	4307.74951	1418.714224
19205	19206	0.49336	4262.34570	2102.870875
19206	1836	0.49905	22.30001	11.12881999
19206	19205	0.49336	4365.45898	2153.742842
19206	19208	0.12308	4248.58936	522.9163784
19208	19206	0.12308	4360.17920	536.6508559
19208	19211	0.37240	4248.58936	1582.174678
19211	19208	0.37240	4360.17920	1623.730734
19211	19212	0.01103	3930.13013	43.34933533
19211	19260	0.05753	4444.22363	255.6761854
19212	19125	0.25792	6265.17334	1615.913508
19212	19211	0.01103	2070.18579	22.83414926
19212	19220	0.49993	1745.45264	872.6041383
19215	19126	0.25491	750.87103	191.4045343
19215	19296	0.24929	664.01721	165.5328503
19216	1740	1.01703	3.66456	3.726967457
19216	1828	0.56276	3.69987	2.082138841
19217	19090	0.47183	726.43628	342.75443
19217	19238	0.01463	740.47638	10.83316944
19218	19127	0.25654	1330.14197	341.234621
19218	19294	0.24645	1588.74695	391.5466858
19220	19212	0.49993	1736.71899	868.2379247
19220	19233	0.49994	1745.45264	872.6215928
19222	1587	0.20717	129.59422	26.84803456
19222	19223	0.37775	3263.38403	1232.743317
19222	19225	0.12213	3227.51172	394.1760064
19223	19133	0.24637	3263.38403	803.9999235
19223	19222	0.37775	3295.31812	1244.80642
19225	19222	0.12213	3192.71802	389.9266518
19225	19228	0.24936	3227.51172	804.8123225
19226	1579	0.52663	137.66893	72.50058861
19226	19113	0.36614	1204.52844	441.026043
19226	19229	0.12915	2774.06860	358.2709597
19226	19300	0.25068	3972.80957	995.903903
19228	1592	0.53515	63.26136	33.8543168
19228	19225	0.24936	3192.71802	796.1361655
19228	19229	0.12158	3046.39478	370.3806774
19228	19333	0.37284	267.06808	99.57366295
19229	1586	0.28627	246.50098	70.56583554
19229	19226	0.12915	2799.89380	361.6062843
19229	19228	0.12158	3018.50879	366.9902987
19231	19059	0.51000	1150.96924	586.9943124
19231	19436	0.49826	1071.79956	534.0348488
19233	19220	0.49994	1736.71899	868.2552919

19233	19243	0.24828	1745.45264	433.3609815
19235	19237	0.15794	734.96680	116.0806564
19235	19242	0.01154	748.93726	8.64273598
19236	1577	0.51962	8.46015	4.396063143
19236	19237	0.09763	748.93726	73.11874469
19236	19238	0.23333	743.34393	173.4444392
19237	19235	0.15794	748.93726	118.2871508
19237	19236	0.09763	734.96680	71.75480868
19238	1777	0.60655	16.90764	10.25532904
19238	19217	0.01463	726.43628	10.62776278
19238	19236	0.23333	757.39740	176.7235353
19242	19235	0.01154	734.96680	8.481516872
19242	19248	0.01244	748.93726	9.316779514
19243	19233	0.24828	1736.71899	431.1925908
19243	19249	0.49442	1745.45264	862.9866943
19248	19242	0.01244	734.96680	9.142986992
19248	19267	0.09801	748.93726	73.40334085
19249	19243	0.49442	1736.71899	858.668603
19249	19252	0.25514	1745.45264	445.3347866
19251	19252	0.11032	1736.71899	191.594839
19251	19254	0.14107	1745.45264	246.2310039
19252	19249	0.25514	1736.71899	443.1064831
19252	19251	0.11032	1745.45264	192.5583352
19254	19251	0.14107	1736.71899	244.9989479
19254	19258	0.01177	1745.45264	20.54397757
19258	19254	0.01177	1736.71899	20.44118251
19258	19276	0.11929	1745.45264	208.2150454
19260	19272	0.07548	4444.22363	335.4499996
19266	513	0.46477	0.57713	0.26823271
19266	1884	0.41472	59.09079	24.50613243
19266	19154	0.19389	865.04596	167.7237612
19266	19323	0.24863	903.89893	224.736391
19267	19248	0.09801	734.96680	72.03409607
19267	19306	0.24664	748.93726	184.7178858
19271	513	0.47458	49.53281	23.50728097
19271	522	0.24532	139.23991	34.15833472
19271	22665	0.00693	13590.24316	94.1803851
19271	22666	0.00646	13707.11816	88.54798331
19272	19212	0.13294	4413.96289	586.7922266
19272	19275	0.01841	4444.22363	81.81815703
19273	66	4.50000	1215.15112	5468.18004
19273	19277	0.06573	1207.58105	79.37430242
19275	19272	0.01841	4413.96289	81.2610568
19275	19335	0.24193	4444.22363	1075.191023
19276	19258	0.11929	1736.71899	207.1732083
19276	19706	0.77869	1745.45264	1359.166516
19277	19273	0.06573	1215.15112	79.87188312
19277	19289	0.11545	1207.58105	139.4152322
19279	19177	0.24818	5853.44775	1452.708663
19279	19292	0.06176	6021.17188	371.8675753
19287	1219	0.19160	216.36900	41.4563004
19287	1239	0.23842	337.37003	80.43576255
19287	11289	0.24848	1809.02979	449.5077222
19287	12088	0.15913	1626.19543	258.7764788

19289	19277	0.11545	1215.15112	140.2891968
19289	19291	0.03565	1207.58105	43.05026443
19291	19289	0.03565	1215.15112	43.32013743
19291	19299	0.03269	1207.58105	39.47582452
19292	522	0.27241	5.02878	1.36988996
19292	533	0.32880	283.66928	93.27045926
19292	19279	0.06176	5853.44775	361.508933
19292	19354	0.17744	5932.96191	1052.744761
19293	19302	0.01397	13590.24316	189.8556969
19293	23734	0.12251	13646.07520	1671.780673
19294	19218	0.24645	1330.14197	327.8134885
19294	19412	0.25316	1588.74695	402.2071779
19296	19215	0.24929	750.87103	187.1846391
19296	19413	0.25265	664.01721	167.7639481
19298	19172	0.34605	231.20039	80.00689496
19298	19352	0.16474	231.94220	38.21015803
19299	19291	0.03269	1215.15112	39.72329011
19299	19301	0.00942	1207.58105	11.37541349
19300	1586	0.13693	280.90082	38.46374928
19300	19226	0.25068	3916.66089	981.8285519
19300	19355	0.16061	4037.97559	648.5392595
19301	19299	0.00942	1215.15112	11.44672355
19301	19314	0.07551	1207.58105	91.18444509
19302	19293	0.01397	13646.07520	190.6356705
19302	19307	0.01117	11264.38574	125.8231887
19302	19312	0.03621	2856.82251	103.4455431
19304	19189	0.30892	855.57202	264.3033084
19304	19407	0.23513	855.24536	201.0938415
19306	19267	0.24664	734.96680	181.2722116
19306	19326	0.13017	748.93726	97.48916313
19307	19302	0.01117	11348.44727	126.762156
19307	19319	0.05765	11264.38574	649.3918379
19312	19302	0.03621	2828.59302	102.4233533
19312	19329	0.07884	2856.82251	225.2318867
19314	19301	0.07551	1215.15112	91.75606107
19314	19318	0.07638	1207.58105	92.2350406
19318	19314	0.07638	1215.15112	92.81324255
19318	19320	0.01597	1207.58105	19.28506937
19319	19307	0.05765	11348.44727	654.2379851
19319	19353	0.09585	11264.38574	1079.691373
19320	19318	0.01597	1215.15112	19.40596339
19320	19327	0.05710	1207.58105	68.95287796
19321	1861	0.35347	47.05218	16.63153406
19321	19162	0.42763	1995.47766	853.3261117
19321	19345	0.07058	2033.03125	143.4913456
19323	19266	0.24863	923.55658	229.6238725
19323	19324	0.45983	249.56854	114.7591017
19323	19340	0.05810	847.88147	49.26191341
19324	513	0.24561	44.14674	10.84288081
19324	19323	0.45983	255.83711	117.6415783
19324	19325	0.23892	281.36722	67.2242562
19325	517	0.15789	449.96835	71.04550278
19325	19324	0.23892	290.33170	69.36604976
19325	19330	0.19858	482.39966	95.79492448

19326	1576	0.43986	34.61569	15.2260574
19326	1577	0.47942	44.42659	21.29899578
19326	19306	0.13017	734.96680	95.67062836
19326	19720	0.82695	825.47247	682.6244591
19327	19320	0.05710	1215.15112	69.38512895
19327	19332	0.03602	1207.58105	43.49706942
19329	19312	0.07884	2828.59302	223.0062737
19329	19330	0.03378	494.92514	16.71857123
19329	19356	0.05771	2409.86890	139.0735342
19330	19325	0.19858	494.92514	98.2822343
19330	19329	0.03378	482.39966	16.29546051
19332	2023	0.37332	30.45336	11.36884836
19332	19327	0.03602	1215.15112	43.76974334
19332	19338	0.03837	1177.12769	45.16638947
19333	1586	0.14885	36.62228	5.451226378
19333	1587	0.50151	64.58956	32.39231024
19333	19228	0.37284	258.73218	96.46570599
19333	19439	0.12818	353.42480	45.30199086
19335	1837	0.95306	20.14045	19.19505728
19335	19275	0.24193	4413.96289	1067.870042
19335	19404	0.10623	4464.83984	474.2999362
19338	19332	0.03837	1185.89014	45.50260467
19338	19348	0.03775	1177.12769	44.4365703
19340	19323	0.05810	861.27057	50.03982012
19340	19377	0.07292	847.88147	61.82751679
19345	19321	0.07058	1976.93713	139.5322226
19345	19683	0.43923	2033.03125	892.9683159
19348	19338	0.03775	1185.89014	44.76735279
19348	19360	0.03714	1177.12769	43.71852241
19352	19298	0.16474	231.20039	38.08795225
19352	19687	0.49586	231.94220	115.0108593
19353	19319	0.09585	11348.44727	1087.748671
19353	19393	0.11550	11264.38574	1301.036553
19354	19292	0.17744	5767.31396	1023.352189
19354	21993	0.04557	5932.96191	270.3650742
19355	19300	0.16061	3987.17285	640.3798314
19355	19410	0.07969	4037.97559	321.7862748
19356	19329	0.05771	2394.16504	138.1672645
19356	19399	0.06929	2409.86890	166.9798161
19360	19348	0.03714	1185.89014	44.0439598
19360	19455	0.20845	1177.12769	245.372267
19366	19368	0.21718	1006.80676	218.6582921
19366	19374	1.00044	1005.32416	1005.766503
19368	19366	0.21718	1005.32416	218.3363011
19368	19369	0.24615	1006.80676	247.825484
19369	19368	0.24615	1005.32416	247.460542
19369	19370	0.25169	1006.80676	253.4031934
19370	19369	0.25169	1005.32416	253.0300378
19370	19372	0.25236	1006.80676	254.077754
19372	2022	0.95526	758.86694	724.9152331
19372	19370	0.25236	1005.32416	253.703605
19372	19376	0.99842	247.93980	247.5480551
19374	19018	1.01546	1421.30688	1443.280284
19374	19366	1.00044	1006.80676	1007.249755

19374	19379	0.99974	318.87946	318.7965513
19374	20377	1.53722	2011.57373	3092.231369
19376	19372	0.99842	232.05853	231.6918775
19376	19384	1.00320	247.93980	248.7332074
19377	1673	0.13748	16.45866	2.262736577
19377	19340	0.07292	861.27057	62.80384996
19377	19492	0.11816	833.25134	98.45697833
19378	1449	0.24730	0.18886	0.046705078
19378	1513	0.98974	0.18336	0.181478726
19379	19374	0.99974	472.65262	472.5297303
19379	19383	0.49987	318.87946	159.3982757
19383	19379	0.49987	472.65262	236.2648652
19383	19395	1.50121	318.87946	478.7050341
19384	19091	0.94283	1631.44983	1538.179843
19384	19376	1.00320	232.05853	232.8011173
19384	19396	1.99676	1867.61987	3729.188652
19384	20095	1.02352	89.47083	91.57518392
19385	19204	0.49926	789.42792	394.1297833
19385	19572	0.25271	803.55475	203.0663209
19393	19353	0.11550	11348.44727	1310.74566
19393	19427	0.04538	11322.62988	513.820944
19393	19620	0.31031	69.34959	21.51987127
19395	19383	1.50121	325.70480	488.9513028
19395	19403	0.99907	318.87946	318.5829021
19396	19039	1.00989	949.29163	958.6801242
19396	19384	1.99676	1798.10217	3590.378489
19396	19476	0.08257	2834.19849	234.0197693
19397	1936	0.99209	10.15049	10.07019962
19397	1940	1.23826	10.09094	12.49520736
19399	19356	0.06929	2394.16504	165.8916956
19399	19511	0.12243	2409.86890	295.0402494
19403	19395	0.99907	325.70480	325.4018945
19403	19409	0.99974	318.87946	318.7965513
19404	19335	0.10623	4434.10303	471.0347649
19404	19588	0.25007	4464.83984	1116.522499
19407	1580	0.47488	88.46834	42.0118453
19407	19304	0.23513	855.57202	201.1706491
19407	19444	0.01504	770.85687	11.59368732
19409	18807	1.54533	1235.60864	1909.4231
19409	19403	0.99974	325.70480	325.6201168
19409	19411	0.99835	515.97388	515.1225231
19409	19691	0.42262	1298.92126	548.9501029
19410	1580	0.52073	399.20325	207.8771084
19410	19355	0.07969	3987.17285	317.7378044
19410	19484	0.07524	3638.77246	273.7812399
19411	19409	0.99835	530.34467	529.4696013
19411	19414	1.00042	515.97388	516.190589
19412	19294	0.25316	1330.14197	336.7387411
19412	19413	0.99904	1218.16125	1216.991815
19412	19416	0.97805	221.07661	216.2239784
19412	20145	1.02386	2439.06641	2497.262535
19413	1996	1.81454	145.05295	263.2043799
19413	19296	0.25265	750.87103	189.7075657
19413	19412	0.99904	1119.37634	1118.301739

19413	19414	1.00110	530.34467	530.9280491
19414	19411	1.00042	530.34467	530.5674148
19414	19413	1.00110	515.97388	516.5414513
19415	1938	1.09678	14.20820	15.5832696
19415	19423	0.90480	136.04465	123.0931993
19415	19425	0.59066	79.38880	46.89178861
19416	1978	0.95966	92.60492	88.86923753
19416	1983	0.51715	36.02271	18.62914448
19416	19412	0.97805	232.27594	227.1774831
19416	19417	0.02099	315.61526	6.624764307
19417	19416	0.02099	325.99252	6.842582995
19417	19420	0.99559	315.61526	314.2233967
19418	19077	1.03269	925.90369	956.1714816
19418	19422	0.83425	920.88843	768.2511727
19418	19424	0.16479	1792.61755	295.4054461
19420	19061	1.00052	2164.54053	2165.666091
19420	19417	0.99559	325.99252	324.554893
19420	19421	0.50400	317.80133	160.1718703
19420	19801	0.52982	1781.33545	943.7871481
19421	1977	0.59898	266.36731	159.5486913
19421	1980	0.52296	17.86154	9.340870958
19421	19420	0.50400	260.00830	131.0441832
19421	19422	0.50055	436.44519	218.4626399
19422	19067	0.99585	3238.12964	3224.691402
19422	19418	0.83425	1180.69604	984.9956714
19422	19421	0.50055	380.42075	190.4196064
19422	19660	0.36609	2730.47266	999.5987361
19423	19415	0.90480	93.59701	84.68657465
19423	19429	0.50056	136.04465	68.09851
19424	19418	0.16479	1045.54333	172.2950854
19424	19425	0.49917	120.08389	59.94227537
19424	19821	0.55410	1675.82959	928.5771758
19425	19415	0.59066	120.08389	70.92875047
19425	19424	0.49917	79.38880	39.6285073
19427	523	0.26313	113.87892	29.96496022
19427	19393	0.04538	11407.47656	517.6712863
19427	20747	0.03887	11208.75098	435.6841506
19429	19423	0.50056	93.59701	46.85091933
19429	19430	0.50262	136.04465	68.37876198
19430	19429	0.50262	93.59701	47.04372917
19430	19431	0.99973	136.04465	136.0079179
19431	19430	0.99973	93.59701	93.57173881
19431	19453	0.01512	136.04465	2.056995108
19436	19231	0.49826	1150.96924	573.4819335
19436	19453	0.49591	93.59701	46.41569323
19436	19746	0.49770	1137.78638	566.2762813
19439	19333	0.12818	344.14642	44.11268812
19439	19539	0.12864	353.42480	45.46456627
19444	19407	0.01504	772.68939	11.62124843
19444	19480	0.06073	770.85687	46.81413772
19453	19431	0.01512	93.59701	1.415186791
19453	19436	0.49591	136.04465	67.46590238
19455	19360	0.20845	1185.89014	247.1987997
19455	19460	0.04297	1177.12769	50.58117684

19456	1974	1.11349	2.65021	2.950982333
19456	1979	0.43177	2.72174	1.17516568
19460	19455	0.04297	1185.89014	50.95769932
19460	19493	0.11788	1177.12769	138.7598121
19463	522	0.38419	197.85886	76.01539542
19463	19488	0.07400	11381.79883	842.2531134
19463	19595	0.20932	269.00397	56.307911
19463	20747	0.05214	11292.93750	588.8137613
19476	19396	0.08257	2727.32861	225.1955233
19476	19493	0.02190	2834.19849	62.06894693
19478	1712	2.12134	11.94237	25.33382718
19478	19138	0.83841	516.31171	432.8809008
19478	19540	0.46819	542.97583	254.2158538
19480	19444	0.06073	772.68939	46.92542665
19480	19538	0.06408	770.85687	49.39650823
19484	19410	0.07524	3597.93408	270.7085602
19484	19529	0.05963	3638.77246	216.9800018
19488	551	0.21334	719.67297	153.5350314
19488	19463	0.07400	11470.87207	848.8445332
19488	19496	0.06626	11392.17090	754.8452438
19492	19377	0.11816	846.01031	99.96457823
19492	19495	0.23585	198.05968	46.71237553
19492	19565	0.12295	700.50592	86.12720286
19493	19460	0.11788	1185.89014	139.7927297
19493	19476	0.02190	2727.32861	59.72849656
19493	19544	0.17617	2003.31921	352.9247452
19493	19547	0.07863	2349.13184	184.7122366
19495	549	0.15877	64.73206	10.27750917
19495	1673	0.15883	5.17690	0.822247027
19495	19492	0.23585	215.09041	50.7290732
19495	19497	0.20689	219.78670	45.47167036
19496	19520	0.06208	11392.17090	707.2259695
19497	19495	0.20689	237.24846	49.08433389
19497	19504	0.24902	219.78670	54.73128403
19504	19497	0.24902	237.24846	59.07961151
19504	19505	0.02483	219.78670	5.457303761
19505	517	0.13062	124.42493	16.25238436
19505	518	0.27462	196.62634	53.99752549
19505	19504	0.02483	237.24846	5.890879262
19505	19508	0.07584	343.20013	26.02829786
19507	19508	0.02689	360.96753	9.706416882
19507	19509	0.04828	343.20013	16.56970228
19508	19505	0.07584	360.96753	27.37577748
19508	19507	0.02689	343.20013	9.228651496
19509	19507	0.04828	360.96753	17.42751235
19509	19511	0.07658	343.20013	26.28226596
19511	550	0.11995	116.26792	13.946337
19511	19399	0.12243	2394.16504	293.1176258
19511	19509	0.07658	360.96753	27.64289345
19511	19579	0.12852	2376.90283	305.4795517
19512	19548	0.05983	5932.96191	354.9691111
19512	21861	0.12907	5767.31396	744.3872128
19515	19198	0.66387	124.95528	82.95406173
19515	19805	0.42408	124.82732	52.93676987

19518	19524	0.00836	0.00000	0
19520	19548	0.08367	11392.17090	953.1829392
19524	19518	0.00836	0.00000	0
19524	19525	0.02689	2668.57031	71.75785564
19524	19529	0.05999	1877.49988	112.6312178
19525	19524	0.02689	1877.49988	50.48597177
19525	19526	0.02689	2668.57031	71.75785564
19526	1582	0.18224	386.12009	70.3665252
19526	19525	0.02689	1877.49988	50.48597177
19526	19527	0.01172	2451.36841	28.73003777
19527	19526	0.01172	1663.54395	19.49673509
19527	19528	0.06481	2451.36841	158.8731867
19528	19527	0.06481	1663.54395	107.8142834
19528	19530	0.05861	2451.36841	143.6747025
19529	19484	0.05963	3597.93408	214.5448092
19529	19524	0.05999	2668.57031	160.0875329
19529	19580	0.10700	1003.32605	107.3558874
19530	19528	0.05861	1663.54395	97.50031091
19530	19531	0.12686	674.34540	85.54745744
19530	19561	0.07523	1924.37671	144.7708599
19531	19530	0.12686	667.45667	84.67355316
19531	19532	0.06205	674.34540	41.84313207
19532	1581	0.18458	343.06171	63.32233043
19532	19531	0.06205	667.45667	41.41568637
19532	19533	0.05999	1021.51013	61.2803927
19533	1580	0.13858	174.96407	24.24652082
19533	19532	0.05999	1010.51837	60.62099702
19533	19534	0.12273	932.04517	114.3899037
19534	19533	0.12273	924.89630	113.5125229
19534	19535	0.12618	384.83817	48.55888029
19534	19638	0.18332	547.20697	100.3139817
19535	19534	0.12618	373.55383	47.13502227
19535	19536	0.07984	384.83817	30.72547949
19536	1596	0.18377	266.42459	48.9608469
19536	19535	0.07984	373.55383	29.82453779
19536	19537	0.04496	642.84900	28.90249104
19537	19536	0.04496	639.97839	28.77342841
19537	19538	0.12480	642.84900	80.2275552
19538	19480	0.06408	772.68939	49.51393611
19538	19537	0.12480	639.97839	79.86930307
19538	19587	0.10475	148.21011	15.52500902
19539	1588	0.29288	143.09109	41.90851844
19539	19439	0.12864	344.14642	44.27099547
19539	19555	0.06029	360.65936	21.74415281
19540	19478	0.46819	528.25409	247.3232824
19540	19622	0.53621	542.97583	291.1490698
19544	19493	0.17617	1984.12073	349.542549
19544	19839	0.93307	2003.31921	1869.237055
19547	19493	0.07863	2270.22266	178.5076078
19547	19567	0.05070	2349.13184	119.1009843
19548	19512	0.05983	5767.31396	345.0583942
19548	19552	0.01789	2146.75342	38.40541868
19548	19566	0.08013	15760.15918	1262.861555
19552	19488	0.22001	11475.61621	2524.750322

19552	19548	0.01789	6349.09424	113.585296
19552	19570	0.03802	2382.03320	90.56490226
19555	19539	0.06029	354.52252	21.37416273
19555	19628	0.10812	360.65936	38.99449
19561	19530	0.07523	1143.44092	86.02106041
19561	19583	0.03232	1924.37671	62.19585527
19565	19492	0.12295	696.23419	85.60199366
19565	19675	0.18380	700.50592	128.7529881
19566	19623	0.18958	15760.15918	2987.810977
19567	2023	0.43349	1726.88049	748.5854236
19567	19547	0.05070	2270.22266	115.1002889
19567	19599	0.03862	1026.31018	39.63609915
19570	19552	0.03802	1950.30334	74.15053299
19570	19636	0.08559	2382.03320	203.8782216
19571	19552	0.07452	16109.68652	1200.493839
19572	19385	0.25271	789.42792	199.4963297
19572	19729	0.24767	803.55475	199.0164049
19579	19511	0.12852	2380.80884	305.9815521
19579	19689	0.17940	2376.90283	426.4163677
19580	19529	0.10700	1753.55823	187.6307306
19580	19626	0.06521	1003.32605	65.42689172
19583	19561	0.03232	1143.44092	36.95601053
19583	19619	0.03455	1924.37671	66.48721533
19587	19538	0.10475	147.17212	15.41627957
19587	19643	0.08023	148.21011	11.89089713
19588	19404	0.25007	4434.10303	1108.836145
19588	20041	0.68743	4464.83984	3069.264851
19595	523	0.05912	192.81836	11.39942144
19595	551	0.12836	11.09601	1.424283844
19595	19463	0.20932	261.13101	54.65994301
19595	19658	0.11090	201.55321	22.35225099
19599	19567	0.03862	992.03369	38.31234111
19599	19768	0.25050	1026.31018	257.0907001
19615	534	0.09201	444.73505	40.92007195
19615	19571	0.08979	16109.68652	1446.488753
19619	19583	0.03455	1143.44092	39.50588379
19619	19632	0.03121	1924.37671	60.05979712
19620	523	0.06975	47.00819	3.278821253
19620	550	0.10318	104.56721	10.78924473
19620	19393	0.31031	68.56453	21.2762593
19620	19692	0.12624	87.67133	11.0676287
19622	19540	0.53621	528.25409	283.2551256
19622	19819	0.54761	542.97583	297.3389943
19623	19655	0.09510	15760.15918	1498.791138
19626	19580	0.06521	1753.55823	114.3495322
19626	19645	0.01920	1003.32605	19.26386016
19628	19555	0.10812	354.52252	38.33097486
19628	19641	0.01449	360.65936	5.225954126
19632	19619	0.03121	1143.44092	35.68679111
19632	19646	0.01944	1924.37671	37.40988324
19636	534	0.13945	406.07245	56.62680315
19636	19570	0.08559	1950.30334	166.9264629
19636	19700	0.11689	1975.96057	230.970031
19638	1596	0.20637	686.74664	141.7239041

19638	19534	0.18332	551.34247	101.0721016
19638	19670	0.06185	372.00848	23.00872449
19641	19628	0.01449	354.52252	5.137031315
19641	19664	0.05239	360.65936	18.89494387
19643	19587	0.08023	147.17212	11.80761919
19643	19759	0.18610	148.21011	27.58190147
19645	1582	0.11811	104.74543	12.37148274
19645	19626	0.01920	1753.55823	33.66831802
19645	19656	0.02428	1109.07666	26.9283813
19646	1581	0.15443	1041.15210	160.7851188
19646	1582	0.13223	85.36388	11.28766585
19646	19632	0.01944	1143.44092	22.22849148
19646	19663	0.04689	969.73560	45.47090228
19655	20834	0.08927	15760.15918	1406.90941
19656	19645	0.02428	1858.30359	45.11961117
19656	19665	0.02452	1109.07666	27.1945597
19657	19615	0.19840	15718.34082	3118.518819
19658	19595	0.11090	193.58936	21.46906002
19658	19694	0.05869	201.55321	11.82915789
19660	1979	0.44722	401.40778	179.5175874
19660	19422	0.36609	3305.31055	1210.041139
19660	19918	0.37337	2874.51343	1073.257079
19663	19646	0.04689	191.93535	8.999848562
19663	19710	0.06576	969.73560	63.76981306
19664	19641	0.05239	354.52252	18.57343482
19664	19708	0.06520	360.65936	23.51499027
19665	19656	0.02452	1858.30359	45.56560403
19665	19682	0.03176	1109.07666	35.22427472
19670	19638	0.06185	372.87131	23.06209052
19670	19715	0.06074	372.00848	22.59579508
19673	1837	0.95741	3.55835	3.406799874
19673	1838	1.02258	3.65276	3.735239321
19675	514	0.29197	342.80630	100.0891554
19675	1672	0.34310	113.58416	38.9707253
19675	19565	0.18380	696.23419	127.9678441
19675	19861	0.24921	248.34929	61.89112656
19682	19665	0.03176	1858.30359	59.01972202
19682	19711	0.03400	1109.07666	37.70860644
19683	1885	0.83956	42.90450	36.02090202
19683	19345	0.43923	1976.93713	868.3300956
19683	19688	0.07015	1992.66748	139.7856237
19687	1860	0.62451	0.39914	0.249266921
19687	1862	0.47750	76.74328	36.6449162
19687	19352	0.49586	231.20039	114.6430254
19687	20051	0.53034	157.37869	83.46421445
19688	19683	0.07015	1937.34448	135.9047153
19688	19701	0.01342	1992.66748	26.74159758
19689	518	0.25062	184.87524	46.33343265
19689	19579	0.17940	2380.80884	427.1171059
19689	19690	0.06062	404.99231	24.55063383
19689	19829	0.15100	2634.70581	397.8405773
19690	550	0.21125	23.42837	4.949243163
19690	19689	0.06062	473.96265	28.73161584
19690	19692	0.06282	381.56393	23.96984608

19691	19409	0.42262	1193.45215	504.3767476
19691	19753	0.08632	1298.92126	112.1228832
19692	524	0.14876	5.38476	0.801036898
19692	19620	0.12624	88.43003	11.16340699
19692	19690	0.06282	450.75406	28.31637005
19692	19693	0.06093	373.77808	22.77429841
19693	523	0.15646	0.00000	0
19693	19692	0.06093	443.73129	27.0365475
19693	19694	0.06046	373.77808	22.59862272
19694	19658	0.05869	193.58936	11.36175954
19694	19693	0.06046	443.73129	26.82799379
19694	19697	0.12688	464.47272	58.93229871
19694	19734	0.06988	73.07148	5.106235022
19695	534	0.06670	475.02948	31.68446632
19695	19696	0.03622	175.86803	6.369940047
19695	19700	0.12165	498.68842	60.66544629
19696	19695	0.03622	173.51695	6.284783929
19696	19699	0.08310	175.86803	14.61463329
19697	530	0.14251	279.34689	39.80972529
19697	551	0.14711	336.67273	49.52792531
19697	19694	0.12688	525.65509	66.69511782
19697	19698	0.03518	569.73932	20.04342928
19698	19697	0.03518	632.40131	22.24787809
19698	19700	0.09447	569.73932	53.82327356
19699	535	0.26217	89.44006	23.44850053
19699	19696	0.08310	173.51695	14.41925855
19699	19824	0.13274	103.42767	13.72898892
19700	19636	0.11689	1950.30334	227.9709574
19700	19695	0.12165	447.10406	54.3902089
19700	19698	0.09447	632.40131	59.74295176
19700	19744	0.07265	2140.06665	155.4758421
19701	19688	0.01342	1937.34448	25.99916292
19701	19719	0.01342	1992.66748	26.74159758
19705	533	0.60320	172.86612	104.2728436
19705	1908	1.26635	113.77022	144.0729181
19705	19723	0.01509	532.70404	8.038503964
19705	19851	0.42396	15571.22949	6601.578455
19706	19276	0.77869	1736.71899	1352.36571
19706	19721	0.00948	1745.45264	16.54689103
19708	19664	0.06520	354.52252	23.1148683
19708	19756	0.06912	360.65936	24.92877496
19710	19663	0.06576	191.93535	12.62166862
19710	19758	0.06910	969.73560	67.00872996
19711	19682	0.03400	1858.30359	63.18232206
19711	30213	0.05247	1109.07666	58.19325235
19715	19670	0.06074	372.87131	22.64820337
19715	19772	0.06909	372.00848	25.70206588
19719	19701	0.01342	1937.34448	25.99916292
19719	20035	0.47664	1992.66748	949.7850277
19720	19326	0.82695	811.97388	671.4618001
19720	19759	0.09541	825.47247	78.75832836
19721	19706	0.00948	1736.71899	16.46409603
19721	19784	0.06775	1745.45264	118.2544164
19723	19705	0.01509	340.88229	5.143913756

19723	19885	0.21966	590.06152	129.6129135
19723	20754	0.12559	15718.34082	1974.066424
19729	19572	0.24767	789.42792	195.5176129
19729	20075	0.48979	803.55475	393.573081
19734	19694	0.06988	73.87849	5.162628881
19734	19826	0.07211	73.07148	5.269184423
19744	19700	0.07265	2125.48706	154.4166349
19744	19769	0.00782	2140.06665	16.7353212
19746	19436	0.49770	1174.50830	584.5527809
19746	19998	0.38810	1137.78638	441.5748941
19748	19749	0.07034	1606.56384	113.0057005
19748	19755	0.09309	1730.58630	161.1002787
19748	19818	0.04515	132.02545	5.960949068
19749	19748	0.07034	1603.31531	112.7771989
19749	19750	0.06205	1606.56384	99.68728627
19750	19749	0.06205	1603.31531	99.48571499
19750	19751	0.02290	1606.56384	36.79031194
19751	1588	0.37452	136.68590	51.19160327
19751	19750	0.02290	1603.31531	36.7159206
19751	19754	0.22187	1476.54395	327.6008062
19752	1589	0.47481	409.43414	194.403424
19752	19754	0.11721	1474.39575	172.8139259
19752	19756	0.13100	1425.39893	186.7272598
19753	19691	0.08632	1193.45215	103.0187896
19753	19875	0.15484	1298.92126	201.1249679
19754	19751	0.22187	1474.39575	327.1241851
19754	19752	0.11721	1476.54395	173.0657164
19755	19748	0.09309	1735.27759	161.5369909
19755	19761	0.09862	1730.58630	170.6704209
19756	19708	0.06912	354.52252	24.50459658
19756	19752	0.13100	1430.04199	187.3355007
19756	19757	0.12480	1307.26501	163.1466732
19757	17832	0.10445	1307.26501	136.5438303
19757	19756	0.12480	1305.77112	162.9602358
19758	19710	0.06910	191.93535	13.26273269
19758	19762	0.04068	1711.09900	69.60750732
19758	19763	0.12343	1733.67737	213.9877978
19758	19836	0.06966	715.91010	49.87029757
19759	19643	0.18610	147.17212	27.38873153
19759	19720	0.09541	811.97388	77.47042789
19759	19774	0.09058	923.70422	83.66912825
19761	19755	0.09862	1735.27759	171.1330759
19761	19775	0.07177	1730.58630	124.2041788
19762	19758	0.04068	1697.34229	69.04788436
19762	19764	0.08550	1711.09900	146.2989645
19763	1582	0.19409	67.49300	13.09971637
19763	1584	0.26148	66.41773	17.36690804
19763	17714	0.11729	2485.23804	291.4935697
19763	19758	0.12343	848.21423	104.6950824
19764	1581	0.19638	534.44995	104.9552812
19764	1583	0.24475	539.84277	132.126518
19764	19762	0.08550	1697.34229	145.1227658
19764	19765	0.04068	1049.84558	42.70771819
19765	19764	0.04068	1046.52502	42.57263781

19765	19766	0.08618	1049.84558	90.47569208
19766	19765	0.08618	1046.52502	90.18952622
19766	19767	0.01517	764.82990	11.60246958
19766	19815	0.03850	444.27707	17.1046672
19767	19766	0.01517	770.49933	11.68847484
19767	19772	0.10480	764.82990	80.15417352
19768	19599	0.25050	992.03369	248.5044393
19768	19825	0.05195	1026.31018	53.31681385
19769	19744	0.00782	2125.48706	16.62130881
19769	19804	0.02682	2140.06665	57.39658755
19770	19771	0.02275	1043.37402	23.73675896
19770	19773	0.09653	597.12103	57.64009303
19770	19877	0.15100	464.18381	70.09175531
19771	19770	0.02275	1061.30481	24.14468443
19771	19777	0.09722	1043.37402	101.4368222
19772	19715	0.06909	372.87131	25.76167881
19772	19767	0.10480	770.49933	80.74832978
19772	19773	0.03172	590.58881	18.73347705
19773	19770	0.09653	590.58881	57.00953783
19773	19772	0.03172	597.12103	18.94067907
19774	19759	0.09058	909.16760	82.35240121
19774	19777	0.03724	923.70422	34.39874515
19775	1658	0.53074	53.76002	28.53259301
19775	19761	0.07177	1735.27759	124.5408726
19775	19780	0.14172	1679.70190	238.0473533
19777	1593	0.23848	358.42911	85.47817415
19777	1596	0.19439	33.93132	6.595909295
19777	19771	0.09722	1061.30481	103.1800536
19777	19774	0.03724	909.16760	33.85740142
19780	1591	0.51935	84.37428	43.81978232
19780	19775	0.14172	1685.02417	238.8016254
19780	19790	0.21970	1603.91309	352.3797059
19784	19721	0.06775	1736.71899	117.6627116
19784	19793	0.00753	1745.45264	13.14325838
19788	4968	0.12635	35238.83594	4452.426921
19790	19780	0.21970	1607.73865	353.2201814
19790	19794	0.41328	1591.54321	657.7529778
19790	19904	0.20302	461.10022	93.61256666
19793	19784	0.00753	1736.71899	13.07749399
19793	19795	0.01105	1823.44116	20.14902482
19793	19802	0.01475	75.78932	1.11789247
19794	1591	0.72772	86.28484	62.79120376
19794	19790	0.41328	1601.90100	662.0336453
19794	19797	0.08669	1677.84180	145.4521056
19795	19793	0.01105	1812.50830	20.02821672
19795	19798	0.12485	1823.44116	227.6566288
19797	19794	0.08669	1688.18591	146.3488365
19797	19799	0.11174	1677.84180	187.4820427
19798	19795	0.12485	1812.50830	226.2916613
19798	19807	0.46630	1823.44116	850.2706129
19799	19797	0.11174	1688.18591	188.6378936
19799	19800	0.06074	1677.84180	101.9121109
19800	1818	0.15516	31.58238	4.900322081
19800	1819	0.48856	88.25366	43.11720813

19800	19799	0.06074	1688.18591	102.5404122
19800	19806	0.55447	1774.20923	983.7457918
19801	1980	0.50206	34.11462	17.12758612
19801	1983	0.99217	67.10397	66.57854591
19801	19420	0.52982	2200.88110	1166.070824
19801	20164	0.51719	1881.70349	973.198228
19802	1740	1.12939	75.78932	85.59570011
19802	19793	0.01475	77.98856	1.15033126
19804	19769	0.02682	2125.48706	57.00556295
19804	19814	0.01118	2140.06665	23.92594515
19805	1859	0.73116	60.62171	44.32416948
19805	19515	0.42408	124.95528	52.99103514
19805	19909	0.49356	64.20561	31.68932087
19806	19800	0.55447	1786.65588	990.6470858
19806	19808	0.08620	1774.20923	152.9368356
19807	1820	0.18496	108.06497	19.98769685
19807	19798	0.46630	1812.50830	845.1726203
19807	19809	0.04485	1786.65588	80.13151622
19808	19806	0.08620	1786.65588	154.0097369
19808	19811	0.19168	1774.20923	340.0804252
19809	19807	0.04485	1774.20923	79.57328397
19809	19811	0.16135	1786.65588	288.2769262
19811	19808	0.19168	1786.65588	342.4661991
19811	19809	0.16135	1774.20923	286.2686593
19814	19804	0.01118	2125.48706	23.76294533
19814	19830	0.02348	2140.06665	50.24876494
19815	19766	0.03850	435.28708	16.75855258
19815	19838	0.03068	444.27707	13.63042051
19818	19748	0.04515	130.58261	5.895804842
19818	19846	0.06522	132.02545	8.610699849
19819	19622	0.54761	528.25409	289.2772222
19819	20098	0.64810	542.97583	351.9026354
19821	19424	0.55410	969.45050	537.1725221
19821	20172	0.49979	1675.82959	837.5628708
19824	547	0.15921	42.43422	6.755952166
19824	19699	0.13274	86.29747	11.45512617
19824	19883	0.10730	60.99345	6.544597185
19825	2024	0.84228	316.15518	266.291185
19825	19768	0.05195	992.03369	51.5361502
19825	20112	0.44792	738.81891	330.9317662
19826	524	0.12200	8.16969	0.99670218
19826	530	0.12827	0.14270	0.018304129
19826	19734	0.07211	73.87849	5.327377914
19826	19843	0.03576	68.01721	2.43229543
19829	524	0.12079	2.44120	0.294872548
19829	19689	0.15100	2573.08008	388.5350921
19829	19848	0.05409	2635.97534	142.5799061
19830	19814	0.02348	2125.48706	49.90643617
19830	19840	0.01454	2140.06665	31.11656909
19835	19921	0.18118	1390.30957	251.8962879
19835	30214	0.05637	501.01886	28.24243314
19836	19758	0.06966	837.32977	58.32839178
19836	19859	0.06631	715.91010	47.47199873
19838	19815	0.03068	435.28708	13.35460761

19838	19845	0.02957	444.27707	13.13727296
19839	19544	0.93307	1984.12073	1851.32353
19839	20189	1.11672	2003.31921	2237.146628
19840	19830	0.01454	2125.48706	30.90458185
19840	19847	0.03807	2140.06665	81.47233737
19843	19826	0.03576	68.76289	2.458960946
19843	19852	0.03576	68.01721	2.43229543
19845	19838	0.02957	435.28708	12.87143896
19845	19858	0.03566	444.27707	15.84292032
19846	19818	0.06522	130.58261	8.516597824
19846	19945	0.17000	132.02545	22.4443265
19847	19840	0.03807	2125.48706	80.91729237
19847	19862	0.02292	2140.06665	49.05032762
19848	19829	0.05409	2574.24731	139.241037
19848	19872	0.02685	2635.97534	70.77593788
19851	19987	0.48806	15571.22949	7599.694265
19852	19843	0.03576	68.76289	2.458960946
19852	19906	0.15996	68.01721	10.88003291
19858	19845	0.03566	435.28708	15.52233727
19858	19888	0.03400	444.27707	15.10542038
19859	19836	0.06631	837.32977	55.52333705
19859	19887	0.03344	715.91010	23.94003374
19861	19675	0.24921	255.28035	63.61841602
19861	20000	0.25144	248.34929	62.44494548
19862	530	0.14611	9.82049	1.434871794
19862	547	0.12447	489.68387	60.9509513
19862	19847	0.02292	2125.48706	48.71616342
19862	19873	0.01347	1945.67175	26.20819847
19870	19723	0.42431	15518.27734	6584.560258
19872	19848	0.02685	2574.24731	69.11854027
19872	19895	0.05085	2635.97534	134.039346
19873	19862	0.01347	1926.98547	25.95649428
19873	19894	0.04196	1945.67175	81.64038663
19875	19753	0.15484	1193.45215	184.7941309
19875	19884	0.02865	1298.92126	37.2140941
19877	19770	0.15100	452.78531	68.37058181
19877	19920	0.08737	464.18381	40.55573948
19883	19824	0.10730	44.85952	4.813426496
19883	19933	0.09922	60.99345	6.051770109
19884	19875	0.02865	1193.45215	34.1924041
19884	20100	0.33071	1298.92126	429.5662499
19885	535	0.14035	211.68575	29.71009501
19885	541	0.31610	21.00432	6.639465552
19885	19723	0.21966	598.30273	131.4231777
19885	20036	0.25040	387.96457	97.14632833
19887	19859	0.03344	837.32977	28.00030751
19887	19923	0.08194	715.91010	58.66167359
19888	19858	0.03400	435.28708	14.79976072
19888	19901	0.03233	444.27707	14.36347767
19894	19873	0.04196	1926.98547	80.85631032
19894	19908	0.03782	1945.67175	73.58530559
19895	19872	0.05085	2574.24731	130.9004757
19895	19917	0.03409	2635.97534	89.86039934
19897	541	0.20419	24.52817	5.008407032

19897	19870	0.12679	15518.27734	1967.562384
19901	19888	0.03233	435.28708	14.0728313
19901	19925	0.04960	444.27707	22.03614267
19904	19790	0.20302	454.56802	92.28639942
19904	19932	0.04576	461.10022	21.09994607
19906	530	0.16186	67.25124	10.88528571
19906	19852	0.15996	68.76289	10.99931188
19906	19930	0.08948	133.86018	11.97780891
19908	19894	0.03782	1926.98547	72.87859048
19908	19930	0.03629	1945.67175	70.60842781
19909	19805	0.49356	64.37556	31.77320139
19909	30204	0.88570	64.20561	56.86690878
19917	519	0.26477	417.09564	110.4344126
19917	525	0.13428	234.98599	31.55391874
19917	19895	0.03409	2574.24731	87.7560908
19917	19934	0.03408	2548.10498	86.83941772
19918	19660	0.37337	3454.20264	1289.69564
19918	20168	0.31236	2874.51343	897.883015
19920	1593	0.12646	64.92681	8.210644393
19920	1595	0.13416	101.81994	13.66016315
19920	19877	0.08737	452.78531	39.55985253
19920	20103	0.25647	429.89325	110.2547218
19921	19835	0.18118	501.01886	90.77459705
19921	19944	0.02699	1390.30957	37.52445529
19923	1583	0.12203	102.40724	12.4967555
19923	1584	0.13010	359.98453	46.83398735
19923	19887	0.08194	837.32977	68.61080135
19923	19985	0.10204	455.32428	46.46128953
19925	1583	0.12849	8.49294	1.091257861
19925	1595	0.11689	406.58475	47.52569143
19925	19901	0.04960	435.28708	21.59023917
19925	19963	0.06464	180.51997	11.66881086
19930	19906	0.08948	136.01413	12.17054435
19930	19908	0.03629	1926.98547	69.93030271
19930	19949	0.09058	973.10321	88.14368876
19930	19953	0.04842	2336.87451	113.1514638
19932	19904	0.04576	454.56802	20.8010326
19932	20032	0.14955	461.10022	68.9575379
19933	19883	0.09922	44.85952	4.450961574
19933	19950	0.03923	60.99345	2.392773044
19934	19917	0.03408	2474.29907	84.32411231
19934	19956	0.04249	2548.10498	108.2689806
19939	5218	0.01142	144.59749	1.651303336
19939	20280	0.02285	159.34508	3.641035078
19944	1584	0.12243	871.91107	106.7480723
19944	19921	0.02699	501.01886	13.52249903
19944	19982	0.07280	760.60461	55.37201561
19945	19846	0.17000	130.58261	22.1990437
19945	20381	0.72125	132.02545	95.22335581
19949	531	0.12416	230.28204	28.59181809
19949	547	0.16740	324.82056	54.37496174
19949	19930	0.09058	918.38318	83.18714844
19949	19968	0.09114	1267.50610	115.520506
19950	19933	0.03923	44.85952	1.75983897

19950	19988	0.07458	60.99345	4.548891501
19953	19930	0.04842	2375.06226	115.0005146
19953	19969	0.03833	2336.87451	89.57239997
19956	19934	0.04249	2474.29907	105.1329675
19956	19975	0.03914	2548.10498	99.73282892
19963	19925	0.06464	180.59061	11.67337703
19963	19993	0.05684	180.51997	10.26075509
19968	19949	0.09114	1211.64709	110.4295158
19968	19988	0.09227	1220.47998	112.6136878
19968	19995	0.04713	47.02603	2.216336794
19969	19953	0.03833	2375.06226	91.03613643
19969	30018	0.04617	2336.87451	107.8934961
19970	19971	0.01315	1162.45203	15.28624419
19970	19972	0.06759	1188.45850	80.32791002
19971	19970	0.01315	1188.45850	15.62822928
19971	20009	0.08842	1162.45203	102.7840085
19972	19970	0.06759	1162.45203	78.57013271
19972	19975	0.04967	1188.45850	59.0307337
19975	19956	0.03914	2474.29907	96.8440656
19975	19972	0.04967	1162.45203	57.73899233
19975	19977	0.09586	705.33392	67.61330957
19975	20004	0.04698	2903.64185	136.4130941
19976	525	0.11049	241.87787	26.72508586
19976	545	0.05315	98.98965	5.261299898
19976	19977	0.05056	657.87109	33.26196231
19976	19991	0.15831	839.25568	132.8625667
19977	19975	0.09586	657.87109	63.06352269
19977	19976	0.05056	705.33392	35.661683
19982	19944	0.07280	620.51959	45.17382615
19982	20023	0.05238	760.60461	39.84046947
19984	5217	0.02931	7974.04834	233.7193568
19984	5218	0.01425	1465.21631	20.87933242
19985	19923	0.10204	574.66718	58.63903905
19985	20022	0.04904	455.32428	22.32910269
19987	1908	1.17403	146.85815	172.4158738
19987	19989	0.01297	297.79568	3.86240997
19987	20067	0.21029	19907.83398	4186.418408
19988	536	0.12732	213.13972	27.13694915
19988	19950	0.07458	44.85952	3.345623002
19988	19968	0.09227	1165.71277	107.5603173
19988	20033	0.09360	1068.33374	99.99603806
19989	19897	0.35450	15542.80566	5509.924606
19989	19987	0.01297	4632.86963	60.0883191
19989	20049	0.06653	4720.50781	314.0553846
19991	19976	0.15831	802.27502	127.0081584
19991	30022	0.07007	839.25568	58.8066455
19993	19963	0.05684	180.59061	10.26477027
19993	20056	0.06523	180.51997	11.77531764
19995	19968	0.04713	45.93433	2.164884973
19995	20034	0.03861	47.02603	1.815675018
19998	19746	0.38810	1174.50830	455.8266712
19998	20104	0.11128	1137.78638	126.6128684
20000	511	0.14573	300.16281	43.7427263
20000	19861	0.25144	255.28035	64.1876912

20000	20001	0.09785	2043.36230	199.9430011
20000	20007	0.33238	1944.56567	646.3347374
20001	20000	0.09785	2008.45740	196.5275566
20001	20003	0.09069	2043.36230	185.312527
20002	20005	0.12824	2326.73535	298.3805413
20002	20006	0.12480	1280.98047	159.8663627
20002	20099	0.10280	1244.60046	127.9449273
20003	514	0.29902	331.65253	99.17073952
20003	20001	0.09069	2008.45740	182.1470016
20003	20005	0.13040	2358.86719	307.5962816
20004	19975	0.04698	2851.29248	133.9537207
20004	20039	0.03241	2903.64185	94.10703236
20005	20002	0.12824	2358.86719	302.5011284
20005	20003	0.13040	2326.73535	303.4062896
20006	20002	0.12480	1256.78210	156.8464061
20006	20008	0.06481	1280.98047	83.02034426
20007	1672	0.41738	74.63062	31.14932818
20007	20000	0.33238	1991.58936	661.9644715
20007	20013	0.29116	1957.89209	570.0598609
20008	519	0.18044	109.80502	19.81321781
20008	20006	0.06481	1256.78210	81.4520479
20008	20010	0.06619	1205.89551	79.81822381
20009	520	0.26214	17.43704	4.570945666
20009	19971	0.08842	1188.45850	105.0835006
20009	20012	0.03655	1179.73511	43.11931827
20010	20008	0.06619	1179.73511	78.08666693
20010	20012	0.01242	1205.89551	14.97722223
20012	20009	0.03655	1205.89551	44.07548089
20012	20010	0.01242	1179.73511	14.65231007
20013	20007	0.29116	2006.65771	584.2584588
20013	20014	0.25235	1957.89209	494.0740689
20014	1886	0.49990	56.27768	28.13321223
20014	1888	0.58124	119.03819	69.18975756
20014	20013	0.25235	2006.65771	506.3800731
20014	20024	0.38133	1899.03381	724.1585628
20016	20017	0.01517	1899.03381	28.8083429
20016	20024	0.22202	1949.88953	432.9144735
20017	20016	0.01517	1949.88953	29.57982417
20017	20018	0.01724	1899.03381	32.73934288
20018	20017	0.01724	1949.88953	33.6160955
20018	20029	0.08636	1899.03381	164.0005598
20022	19985	0.04904	574.66718	28.18167851
20022	20122	0.10143	455.32428	46.18354172
20023	19982	0.05238	620.51959	32.50281612
20023	20114	0.09980	760.60461	75.90834008
20024	20014	0.38133	1949.88953	743.5513745
20024	20016	0.22202	1899.03381	421.6234865
20029	1886	0.39087	56.46896	22.0720224
20029	1887	0.44567	219.57574	97.85832005
20029	20018	0.08636	1949.88953	168.3924598
20029	20031	0.08964	1971.61633	176.7356878
20030	20031	0.06827	2026.77344	138.3678227
20030	20035	0.24963	1971.61633	492.1745845
20031	20029	0.08964	2026.77344	181.6799712

20031	20030	0.06827	1971.61633	134.6022468
20032	19932	0.14955	454.56802	67.98064739
20032	20117	0.09501	461.10022	43.8091319
20033	535	0.26568	80.06326	21.27120692
20033	19988	0.09360	997.71356	93.38598922
20033	20036	0.21720	3420.31299	742.8919814
20033	20052	0.02674	2526.67163	67.56319939
20034	19995	0.03861	45.93433	1.773524481
20034	20083	0.07389	47.02603	3.474753357
20035	1862	0.62888	55.62191	34.97950676
20035	1863	0.41540	19.87227	8.254940958
20035	19719	0.47664	1937.34448	923.4158729
20035	20030	0.24963	2026.77344	505.9434538
20036	19885	0.25040	405.22333	101.4679218
20036	20033	0.21720	3364.21777	730.7080996
20036	20037	0.12554	4428.90869	556.0051969
20036	20159	0.12073	1499.43677	181.0270012
20037	20036	0.12554	4390.54004	551.1883966
20037	20038	0.12344	4428.90869	546.7044887
20038	541	0.16324	12.30815	2.009182406
20038	20037	0.12344	4390.54004	541.9682625
20038	20045	0.30894	4441.53027	1372.166362
20039	20004	0.03241	2851.29248	92.41038928
20039	20048	0.24675	854.23016	210.781292
20039	20076	0.04025	3124.49219	125.7608106
20041	1740	1.20736	391.57178	472.7681043
20041	1838	0.89731	464.60541	416.8950804
20041	19588	0.68743	4434.10303	3048.135446
20041	20217	0.18691	3734.20508	697.9602715
20044	20047	0.02906	0.00000	0
20044	20074	0.03547	0.00000	0
20045	542	0.20382	45.57498	9.289092424
20045	20038	0.30894	4378.78271	1352.78113
20045	20046	0.19242	4487.55273	863.4948963
20046	20045	0.19242	4423.94189	851.2548985
20046	20049	0.04344	4487.55273	194.9392906
20047	20044	0.02906	0.00000	0
20047	20051	0.42637	0.00000	0
20048	526	0.11919	1.01032	0.120420041
20048	545	0.08056	110.26939	8.883302058
20048	20039	0.24675	866.33356	213.7678059
20048	20057	0.02903	962.23364	27.93364257
20049	19989	0.06653	4783.89258	318.2723733
20049	20046	0.04344	4423.94189	192.1760357
20049	20102	0.22493	297.22806	66.85550754
20051	1864	0.81510	157.37869	128.2793702
20051	19687	0.53034	157.61278	83.58836175
20051	20047	0.42637	0.00000	0
20052	20033	0.02674	2510.20532	67.12289026
20052	20061	0.01529	2526.67163	38.63280922
20056	19993	0.06523	180.59061	11.77992549
20056	20126	0.06576	180.51997	11.87099323
20057	20048	0.02903	975.60449	28.32179834
20057	20082	0.08950	962.23364	86.11991078

20061	20052	0.01529	2510.20532	38.38103934
20061	20086	0.03704	2526.67163	93.58791718
20067	20320	1.06726	19907.83398	21246.83489
20074	20044	0.03547	0.00000	0
20074	21064	2.02158	0.00000	0
20075	1941	0.81231	325.45877	264.3734135
20075	19729	0.48979	789.42792	386.6539009
20075	20310	0.35898	1084.37512	389.2689806
20076	20039	0.04025	3060.03955	123.1665919
20076	20079	0.00838	3124.49219	26.18324455
20077	19989	0.21612	19814.49414	4282.308474
20079	20076	0.00838	3060.03955	25.64313143
20079	20130	0.03409	3124.49219	106.5139388
20082	20057	0.08950	975.60449	87.31660186
20082	20137	0.03912	1021.60187	39.96506515
20082	20140	0.09104	2068.30493	188.2984808
20082	30019	0.05337	1718.42676	91.71243618
20083	531	0.09943	36.11820	3.591232626
20083	536	0.09448	149.90872	14.16337587
20083	20034	0.07389	45.93433	3.394087644
20083	20175	0.07589	227.98235	17.30158054
20086	536	0.10347	232.74529	24.08215516
20086	537	0.12932	13.70943	1.772903488
20086	20061	0.03704	2510.20532	92.97800505
20086	20181	0.07490	2283.48804	171.0332542
20095	19384	1.02352	56.25414	57.57723737
20095	20186	0.07299	89.47083	6.530475882
20098	19819	0.64810	528.25409	342.3614757
20098	20585	1.11702	542.97583	606.5148616
20099	20002	0.10280	1236.66687	127.1293542
20099	20149	0.02514	1244.60046	31.28925556
20100	19884	0.33071	1193.45215	394.6865605
20100	20451	0.57735	1298.92126	749.9321895
20102	20049	0.22493	297.00220	66.80470485
20102	20350	0.44051	297.22806	130.9319327
20103	19920	0.25647	418.22733	107.2627633
20103	20115	0.02177	429.89325	9.358776053
20104	1940	1.25235	195.43475	244.7527092
20104	1941	0.70255	76.90269	54.02798486
20104	19998	0.11128	1174.50830	130.6992836
20104	20277	0.22536	1153.77478	260.0146844
20108	1589	0.44909	0.03822	0.01716422
20108	1590	0.06107	0.03805	0.002323714
20111	20112	0.06274	23.87537	1.497940714
20111	20129	0.43508	23.67725	10.30149793
20112	19825	0.44792	701.00751	313.9952839
20112	20111	0.06274	23.67725	1.485510665
20112	20390	0.50102	715.27313	358.3661436
20114	1589	0.42275	97.41134	41.18064399
20114	20023	0.09980	620.51959	61.92785508
20114	20119	0.05586	155.40054	8.680674164
20114	20203	0.09092	622.28949	56.57856043
20115	20103	0.02177	418.22733	9.104808974
20115	20128	0.21215	429.89325	91.20185299

20116	20122	0.05723	931.02252	53.28241882
20116	20124	0.06826	934.70477	63.8029476
20117	1658	0.33693	79.09067	26.64801944
20117	1819	0.47267	40.56619	19.17442103
20117	20032	0.09501	454.56802	43.18850758
20117	20289	0.25658	354.34464	90.91774773
20118	20125	0.04620	610.41321	28.2010903
20118	20126	0.02965	598.81793	17.75495162
20119	20114	0.05586	30.13526	1.683355624
20119	20120	0.07102	155.40054	11.03654635
20120	1584	0.24130	102.93196	24.83748195
20120	1594	0.25437	82.71310	21.03973125
20120	20119	0.07102	30.13526	2.140206165
20120	20127	0.02276	287.13589	6.535212856
20121	20122	0.05309	287.13589	15.2440444
20121	20127	0.04965	160.24994	7.956409521
20122	20022	0.10143	574.66718	58.28849207
20122	20116	0.05723	934.70477	53.49315399
20122	20121	0.05309	160.24994	8.507669315
20122	20230	0.12436	450.40152	56.01193303
20124	1583	0.25796	11.75933	3.033436767
20124	1585	0.29137	696.56354	202.9577186
20124	20116	0.06826	931.02252	63.55159722
20124	20125	0.04620	598.81793	27.66538837
20125	20118	0.04620	598.81793	27.66538837
20125	20124	0.04620	610.41321	28.2010903
20126	20056	0.06576	180.59061	11.87563851
20126	20118	0.02965	610.41321	18.09875168
20126	20128	0.05735	418.22733	23.98533738
20127	20120	0.02276	160.24994	3.647288634
20127	20121	0.04965	287.13589	14.25629694
20128	20115	0.21215	418.22733	88.72692806
20128	20126	0.05735	429.89325	24.65437789
20129	20111	0.43508	23.87537	10.38769598
20129	20134	0.24892	23.67725	5.89374107
20130	20079	0.03409	3060.03955	104.3167483
20130	20156	0.02179	3124.49219	68.08268482
20134	20129	0.24892	23.87537	5.9430571
20134	20136	0.25098	23.67725	5.942516205
20136	65	4.50000	24.44217	109.989765
20136	2024	0.45901	0.76685	0.351991819
20136	20134	0.25098	23.87537	5.992240363
20137	20082	0.03912	1050.22461	41.08478674
20137	20167	0.03782	1021.60187	38.63698272
20140	531	0.11494	6.87970	0.790752718
20140	532	0.21869	965.91296	211.2355052
20140	20082	0.09104	2049.03955	186.5445606
20140	20175	0.09248	1867.12573	172.6717875
20145	19412	1.02386	2268.04712	2322.162724
20145	20422	0.51249	2439.06641	1249.997144
20149	20099	0.02514	1236.66687	31.08980511
20149	20163	0.02235	1244.60046	27.81682028
20156	526	0.18407	130.92340	24.09907024
20156	20130	0.02179	3060.03955	66.67826179

20156	20182	0.02459	3026.71265	74.42686406
20159	20036	0.12073	1498.96924	180.9705563
20159	20176	0.01509	1499.43677	22.62650086
20163	20149	0.02235	1236.66687	27.63950454
20163	20233	0.09964	1244.60046	124.0119898
20164	19801	0.51719	2301.86792	1190.50307
20164	20299	0.24984	1881.70349	470.1247999
20167	526	0.14416	151.89137	21.8966599
20167	20137	0.03782	1050.22461	39.71949475
20167	20188	0.03755	900.83777	33.82645826
20168	19918	0.31236	3454.20264	1078.954737
20168	20287	0.20824	2874.51343	598.5886767
20172	1937	0.39197	48.07472	18.843848
20172	1938	0.94877	38.40431	36.4368572
20172	19821	0.49979	969.45050	484.5216654
20172	20483	0.61285	1672.46729	1024.971579
20175	20083	0.07589	220.97740	16.76997489
20175	20140	0.09248	1857.81885	171.8110872
20175	20194	0.08948	2543.24048	227.5691582
20175	20224	0.07468	1323.22961	98.81878727
20176	537	0.13582	62.36631	8.470592224
20176	542	0.47429	63.75209	30.23697877
20176	20159	0.01509	1498.96924	22.61944583
20176	20261	0.12353	1432.60437	176.9696178
20181	20086	0.07490	2262.14453	169.4346253
20181	20228	0.07537	2283.48804	172.1064936
20182	20156	0.02459	2964.24194	72.8907093
20182	20196	0.03241	3026.71265	98.09575699
20186	20095	0.07299	56.25414	4.105989679
20186	20189	0.01628	89.47083	1.456585112
20188	20167	0.03755	932.44525	35.01331914
20188	20219	0.03703	900.83777	33.35802262
20189	19839	1.11672	1984.12073	2215.707302
20189	20186	0.01628	56.25414	0.915817399
20189	20326	0.59794	2092.79004	1251.362877
20194	536	0.11080	39.12982	4.335584056
20194	20175	0.08948	2560.75806	229.1366312
20194	20228	0.08956	2583.33740	231.3636975
20196	520	0.23505	867.24097	203.84499
20196	20182	0.03241	2964.24194	96.07108128
20196	20225	0.03521	2216.66626	78.04881901
20203	20114	0.09092	608.57782	55.33189539
20203	20288	0.16415	622.28949	102.1488198
20217	20041	0.18691	3709.34961	693.3145356
20217	20305	0.19920	3734.20508	743.8536519
20219	20188	0.03703	932.44525	34.52844761
20219	20246	0.06310	900.83777	56.84286329
20224	20175	0.07468	1289.40027	96.29241216
20224	20251	0.03474	1323.22961	45.96899665
20225	20196	0.03521	2166.83911	76.29440506
20225	20253	0.03409	2216.66626	75.5661528
20228	538	0.15361	780.07532	119.8273699
20228	20181	0.07537	2262.14453	170.4978332
20228	20194	0.08956	2599.88794	232.8459639

20228	20240	0.05742	219.30002	12.59220715
20230	20122	0.12436	446.54071	55.5318027
20230	20300	0.16584	450.40152	74.69458808
20233	520	0.27704	279.99472	77.56973723
20233	20163	0.09964	1236.66687	123.2214869
20233	20237	0.12727	1002.65594	127.6080215
20234	20235	0.01655	1002.65594	16.59395581
20234	20237	0.05930	986.68823	58.51061204
20235	20234	0.01655	986.68823	16.32969021
20235	20236	0.05378	1002.65594	53.92283645
20236	511	0.21209	38.71074	8.210160847
20236	20235	0.05378	986.68823	53.06409301
20236	20309	0.17607	1018.25220	179.2836649
20237	20233	0.12727	986.68823	125.575811
20237	20234	0.05930	1002.65594	59.45749724
20240	20228	0.05742	215.90157	12.39706815
20240	20247	0.01170	219.30002	2.565810234
20245	5217	0.01931	8723.97559	168.4599686
20245	5516	0.35586	8846.77539	3148.21349
20246	20219	0.06310	932.44525	58.83729528
20246	20258	0.02117	900.83777	19.07073559
20247	20240	0.01170	215.90157	2.526048369
20247	20259	0.08500	219.30002	18.6405017
20251	20224	0.03474	1289.40027	44.79376538
20251	20267	0.03242	1323.22961	42.89910396
20253	20225	0.03409	2166.83911	73.86754526
20253	20260	0.01957	2216.66626	43.38015871
20258	527	0.14169	401.36737	56.86974266
20258	532	0.14336	111.10883	15.92856187
20258	20246	0.02117	932.44525	19.73986594
20258	20264	0.01459	600.93219	8.767600652
20259	537	0.12134	21.52563	2.611919944
20259	20247	0.08500	215.90157	18.35163345
20259	20261	0.15974	197.77438	31.59247946
20260	20253	0.01957	2166.83911	42.40504138
20260	20270	0.01564	2216.66626	34.66866031
20261	20176	0.12353	1430.76794	176.7427636
20261	20259	0.15974	193.81087	30.95934837
20261	20268	0.23776	269.68631	64.12061707
20261	20306	0.13636	1339.56042	182.6624589
20264	20258	0.01459	624.76270	9.115287793
20264	20274	0.03186	600.93219	19.14569957
20267	20251	0.03242	1289.40027	41.80235675
20267	20275	0.03353	1323.22961	44.36788882
20268	543	0.11733	87.00837	10.20869205
20268	20261	0.23776	265.62976	63.15613174
20268	20307	0.34183	182.67795	62.44480365
20270	20260	0.01564	2166.83911	33.88936368
20270	20272	0.01676	2216.66626	37.15132652
20272	20270	0.01676	2166.83911	36.31622348
20272	20278	0.01844	2216.66626	40.87532583
20274	20264	0.03186	624.76270	19.90493962
20274	20283	0.03129	600.93219	18.80316823
20275	20267	0.03353	1289.40027	43.23359105

20275	20290	0.04694	1323.22961	62.11239789
20277	20104	0.22536	1189.62817	268.0946044
20277	20376	0.27401	1153.77478	316.1458275
20278	20272	0.01844	2166.83911	39.95651319
20278	20281	0.01341	2216.66626	29.72549455
20280	5339	0.51454	159.34508	81.98941746
20280	19939	0.02285	144.59749	3.304052647
20281	20278	0.01341	2166.83911	29.05731247
20281	20293	0.03802	2216.66626	84.27765121
20283	20274	0.03129	624.76270	19.54882488
20283	20294	0.03858	600.93219	23.18396389
20287	20168	0.20824	3454.20264	719.3031578
20287	20454	0.32019	2874.51343	920.3904552
20288	1594	0.11877	204.79802	24.32386084
20288	20203	0.16415	608.57782	99.89804915
20288	20328	0.12175	442.05350	53.82001363
20289	20117	0.25658	349.08090	89.56717732
20289	20453	0.31374	354.34464	111.1720874
20290	20275	0.04694	1289.40027	60.52444867
20290	20297	0.02125	1323.22961	28.11862921
20293	527	0.13262	363.30493	48.18149982
20293	20281	0.03802	2166.83911	82.38322296
20293	20301	0.02683	1941.16956	52.08157929
20294	20283	0.03858	624.76270	24.10334497
20294	20308	0.03186	600.93219	19.14569957
20297	532	0.13083	104.45292	13.66557552
20297	538	0.23173	90.00275	20.85633726
20297	20290	0.02125	1289.40027	27.39975574
20297	20302	0.01844	1482.36804	27.33486666
20299	20164	0.24984	2301.86792	575.0986811
20299	20406	0.21688	1881.70349	408.1038529
20300	1585	0.13419	39.89757	5.353854918
20300	1594	0.13657	8.64843	1.181116085
20300	20230	0.16584	446.54071	74.05431135
20300	20329	0.08604	484.88669	41.71965081
20301	20293	0.02683	1900.37122	50.98695983
20301	20312	0.02741	1941.16956	53.20745764
20302	20297	0.01844	1446.82434	26.67944083
20302	20318	0.03694	1482.36804	54.7586754
20305	20217	0.19920	3709.34961	738.9024423
20305	20368	0.17130	3734.20508	639.6693302
20306	538	0.27802	58.07401	16.14573626
20306	543	0.23960	12.57599	3.013207204
20306	20261	0.13636	1337.81702	182.4247288
20306	20341	0.10570	1399.83899	147.9629812
20307	542	0.21656	4.99398	1.081496309
20307	543	0.31588	7.70858	2.43498625
20307	20268	0.34183	178.40997	60.98588005
20307	20348	0.30365	194.77657	59.14390548
20308	20294	0.03186	624.76270	19.90493962
20308	20315	0.02236	600.93219	13.43684377
20309	512	0.41173	113.79414	46.85246126
20309	548	0.13545	35.93802	4.867804809
20309	20236	0.17607	1002.65552	176.5375574

20309	20322	0.04698	873.15356	41.02075425
20310	20075	0.35898	1066.86841	382.9844218
20310	20320	0.04083	1084.37512	44.27503615
20312	20301	0.02741	1900.37122	52.08917514
20312	20323	0.03352	1941.16956	65.06800365
20315	20308	0.02236	624.76270	13.96969397
20315	20336	0.06485	600.93219	38.97045252
20318	20302	0.03694	1446.82434	53.44569112
20318	20339	0.06258	1482.36804	92.76659194
20320	20310	0.04083	1066.86841	43.56023718
20320	20325	0.01398	887.48157	12.40699235
20320	20524	1.07710	19979.14258	21519.53447
20322	20309	0.04698	860.54584	40.42844356
20322	20355	0.08026	873.15356	70.07930473
20323	20312	0.03352	1900.37122	63.70044329
20323	20333	0.03130	1941.16956	60.75860723
20325	20077	1.06747	19814.49414	21151.37806
20325	20320	0.01398	941.28394	13.15914948
20325	20363	0.08721	774.71588	67.56297189
20326	20189	0.59794	2040.37488	1220.021756
20326	20696	0.78046	2092.79004	1633.338915
20328	20288	0.12175	433.53030	52.78231403
20328	20353	0.06130	442.05350	27.09787955
20329	20300	0.08604	481.57761	41.43493756
20329	20356	0.06353	484.88669	30.80485142
20331	520	0.24080	139.33098	33.55089998
20331	521	0.26277	1417.74414	372.5406277
20331	20332	0.13031	1329.37268	173.2305539
20331	20407	0.32738	294.87656	96.53668821
20332	20331	0.13031	1339.77393	174.5859408
20332	20333	0.11447	1329.37268	152.1732907
20333	20323	0.03130	1900.37122	59.48161919
20333	20332	0.11447	1339.77393	153.3639218
20333	20335	0.08757	943.68323	82.63834045
20333	20357	0.05029	1235.15295	62.11584186
20334	527	0.15313	48.81090	7.474413117
20334	546	0.25687	15.55075	3.994521153
20334	20335	0.03309	922.31732	30.51948012
20334	20336	0.12212	977.85419	119.4155537
20335	20333	0.08757	922.31732	80.76732771
20335	20334	0.03309	943.68323	31.22647808
20336	20315	0.06485	624.76270	40.5158611
20336	20334	0.12212	955.87054	116.7309103
20336	20337	0.12617	926.51880	116.898877
20336	20362	0.05085	1065.34290	54.17268647
20337	528	0.24875	0.00000	0
20337	20336	0.12617	939.25000	118.5051725
20337	20338	0.05587	926.51880	51.76460536
20338	20337	0.05587	939.25000	52.4758975
20338	20339	0.06828	926.51880	63.26270366
20339	20318	0.06258	1446.82434	90.5422672
20339	20338	0.06828	939.25000	64.13199
20339	20340	0.25033	172.66692	43.22371008
20339	20358	0.04140	673.04004	27.86385766

20340	538	0.13735	17.93921	2.463950494
20340	539	0.26336	18.39108	4.843474829
20340	20339	0.25033	173.03627	43.31616947
20340	20341	0.25452	172.66692	43.94718448
20341	20306	0.10570	1397.21802	147.6859447
20341	20340	0.25452	173.03627	44.04119144
20341	20343	0.18550	222.37411	41.25039741
20341	20436	0.12462	1365.64404	170.1865603
20342	543	0.11792	0.37964	0.044767149
20342	544	0.26348	0.74273	0.1956945
20342	20343	0.07023	221.82182	15.57854642
20342	20346	0.24708	222.70656	55.02633684
20343	20341	0.18550	221.82182	41.14794761
20343	20342	0.07023	222.37411	15.61733375
20346	20342	0.24708	222.17085	54.89397362
20346	20348	0.33511	222.70656	74.63119532
20348	20307	0.30365	190.09891	57.72353402
20348	20346	0.33511	222.17085	74.45167354
20348	20402	0.17912	416.80167	74.65751513
20350	1909	0.50699	23.78372	12.0581082
20350	20102	0.44051	297.00220	130.8324391
20350	20367	0.04136	291.05692	12.03811421
20353	20328	0.06130	433.53030	26.57540739
20353	20392	0.06409	442.05350	28.33120882
20355	20322	0.08026	860.54584	69.06740912
20355	20398	0.06314	873.15356	55.13091578
20356	20329	0.06353	481.57761	30.59462556
20356	20395	0.06133	484.88669	29.7381007
20357	20333	0.05029	1226.12183	61.66166683
20357	20441	0.11231	1235.15295	138.7200278
20358	20339	0.04140	649.85815	26.90412741
20358	20369	0.03858	673.04004	25.96588474
20362	20336	0.05085	1054.45850	53.61921473
20362	20416	0.07264	1065.34290	77.38650826
20363	20325	0.08721	767.88263	66.96704416
20363	20497	0.24989	774.71588	193.5937513
20367	20350	0.04136	290.92722	12.03274982
20367	20402	0.02907	291.05692	8.461024664
20368	20305	0.17130	3709.34961	635.4115882
20368	20465	0.13630	3734.20508	508.9721524
20369	20358	0.03858	649.85815	25.07152743
20369	20420	0.04415	673.04004	29.71471777
20376	20277	0.27401	1189.62817	325.9700149
20376	20515	0.25052	1153.77478	289.0436579
20377	19374	1.53722	1890.28540	2905.784523
20377	20439	0.05734	2011.57373	115.3436377
20381	1805	0.14654	11.04418	1.618414137
20381	19945	0.72125	130.58261	94.18270746
20381	20386	0.09722	126.75793	12.32340595
20386	20381	0.09722	125.36008	12.18750698
20386	20388	0.34482	126.75793	43.70866942
20388	1656	0.21020	10.14766	2.133038132
20388	20386	0.34482	125.36008	43.22666279
20388	20391	0.21712	116.61028	25.31842399

20390	20112	0.50102	677.26361	339.3226139
20390	20722	0.50382	715.27313	360.3689084
20391	20388	0.21712	115.38218	25.05177892
20391	20392	0.21581	116.61028	25.16566453
20392	20353	0.06409	433.53030	27.78495693
20392	20391	0.21581	115.38218	24.90062827
20392	20393	0.12124	443.07236	53.71809293
20392	20452	0.06632	999.06805	66.25819308
20393	1594	0.24689	0.00000	0
20393	20392	0.12124	446.18091	54.09497353
20393	20395	0.12835	443.07236	56.86833741
20395	20356	0.06133	481.57761	29.53515482
20395	20393	0.12835	446.18091	57.2673198
20395	20397	0.14537	38.70579	5.626660692
20397	1578	1.01063	42.16872	42.61697349
20397	1585	0.21057	3.50081	0.737165562
20397	20395	0.14537	38.50525	5.597508193
20398	20355	0.06314	860.54584	54.33486434
20398	20401	0.09102	232.97954	21.20579773
20398	20470	0.12596	689.12231	86.80184617
20401	20398	0.09102	223.52750	20.34547305
20401	20404	0.04782	232.97954	11.1410816
20402	20348	0.17912	411.58829	73.7236945
20402	20367	0.02907	290.92722	8.457254285
20402	20489	0.18687	547.50562	102.3123752
20402	20503	0.54444	468.69476	255.1761751
20404	515	0.16024	43.64303	6.993359127
20404	548	0.18863	27.92537	5.267562543
20404	20401	0.04782	223.52750	10.68908505
20404	20407	0.11145	302.72968	33.73922284
20406	839	0.50341	132.97847	66.94269158
20406	1981	0.43299	48.69949	21.08639218
20406	15352	0.48650	1982.43323	964.4537664
20406	20299	0.21688	2301.86792	499.2291145
20407	20331	0.32738	302.72968	99.10764264
20407	20404	0.11145	294.87656	32.86399261
20416	20362	0.07264	1054.45850	76.59586544
20416	20457	0.06035	1065.34290	64.29344402
20420	20369	0.04415	649.85815	28.69123732
20420	20428	0.00674	673.04004	4.53628987
20422	1996	1.43103	106.29706	152.1142818
20422	20145	0.51249	2268.04712	1162.351469
20422	20425	0.24063	2435.14771	585.9695935
20422	20529	0.24308	115.69351	28.12277841
20425	20422	0.24063	2267.57568	545.6467359
20425	20431	0.31859	2435.14771	775.8137089
20428	20420	0.00674	649.85815	4.380043931
20428	20446	0.02738	673.04004	18.4278363
20431	824	0.71540	44.57269	31.88730243
20431	20425	0.31859	2267.57568	722.4269359
20431	20432	0.11032	2390.57495	263.7282285
20432	20431	0.11032	2221.55298	245.0817248
20432	20435	0.32819	2390.57495	784.5627928
20435	20432	0.32819	2221.55298	729.0914725

20435	20762	0.50344	2390.57495	1203.511053
20436	20341	0.12462	1363.94470	169.9747885
20436	20485	0.13245	1365.64404	180.8795531
20439	2021	2.46558	220.96100	544.7970224
20439	20377	0.05734	1890.28540	108.3889648
20439	20703	0.44200	1971.07373	871.2145887
20441	20357	0.11231	1226.12183	137.7057427
20441	20448	0.00838	1235.15295	10.35058172
20446	20428	0.02738	649.85815	17.79311615
20446	20460	0.02962	673.04004	19.93544598
20448	20441	0.00838	1226.12183	10.27490094
20448	20475	0.07878	1235.15295	97.3053494
20451	1997	0.51111	459.34134	234.7739523
20451	2021	2.53572	151.74706	384.788055
20451	20100	0.57735	1193.45215	689.0395988
20451	20693	0.42203	1318.03125	556.2487284
20452	20392	0.06632	986.20813	65.40532318
20452	20471	0.06094	999.06805	60.88320697
20453	20289	0.31374	349.08090	109.5206416
20453	20525	0.18686	354.34464	66.21283943
20454	20287	0.32019	3454.20264	1106.001143
20454	20472	0.06270	2874.51343	180.2319921
20457	20416	0.06035	1054.45850	63.63657048
20457	20467	0.03188	1065.34290	33.96313165
20460	20446	0.02962	649.85815	19.2487984
20460	20476	0.05366	673.04004	36.11532855
20465	20368	0.13630	3709.34961	505.5843518
20465	20487	0.07169	163.23663	11.702434
20465	20683	0.60524	3602.59863	2180.436795
20467	20457	0.03188	1054.45850	33.61613698
20467	20477	0.02962	1065.34290	31.5554567
20469	20325	0.70122	19875.13086	13936.83926
20470	512	0.41484	22.68705	9.411495822
20470	515	0.13725	22.41666	3.076686585
20470	20398	0.12596	685.96661	86.4043542
20470	20596	0.25755	656.06427	168.9693527
20471	1656	0.26461	9.69336	2.56495999
20471	20452	0.06094	986.20813	60.09952344
20471	20523	0.12409	989.73804	122.8165934
20472	20454	0.06270	3454.20264	216.5785055
20472	20550	0.16311	2874.51343	468.8618856
20474	5165	0.04735	8.97395	0.424916533
20474	5217	0.06078	20.05580	1.218991524
20475	521	0.25177	36.44436	9.175596517
20475	546	0.11550	632.04510	73.00120905
20475	20448	0.07878	1226.12183	96.59387777
20475	20501	0.06985	719.33453	50.24551692
20476	528	0.12417	337.81284	41.94622034
20476	539	0.25054	151.62169	37.98729821
20476	20460	0.05366	649.85815	34.87138833
20476	20595	0.24196	228.84215	55.37064661
20477	528	0.12348	477.52887	58.96526487
20477	546	0.12492	547.10327	68.34414049
20477	20467	0.02962	1054.45850	31.23306077

20477	20484	0.02683	166.50510	4.467331833
20483	20172	0.61285	967.89008	593.1714355
20483	20527	0.10410	1672.46729	174.1038449
20484	20477	0.02683	169.89909	4.558392585
20484	20492	0.02571	166.50510	4.280846121
20485	539	0.26249	380.35736	99.84000343
20485	544	0.24658	52.84220	13.02982968
20485	20436	0.13245	1363.94470	180.6544755
20485	20539	0.11233	934.46356	104.9682917
20487	20465	0.07169	161.45583	11.57476845
20487	20512	0.06982	163.23663	11.39718151
20489	544	0.75387	32.09232	24.19343728
20489	20402	0.18687	542.04828	101.2925621
20489	20650	0.24856	515.41327	128.1111224
20492	20484	0.02571	169.89909	4.368105604
20492	20509	0.03968	166.50510	6.606922368
20497	1942	0.52709	31.53781	16.62326427
20497	20363	0.24989	767.88263	191.8861904
20497	20618	0.19679	753.00568	148.1839878
20501	20475	0.06985	720.20123	50.30605592
20501	20507	0.02067	719.33453	14.86864474
20503	1909	0.26935	22.76327	6.131286775
20503	1910	0.34289	101.82718	34.91552175
20503	20402	0.54444	468.80905	255.2383992
20503	20648	0.54281	592.46106	321.593788
20507	20501	0.02067	720.20123	14.88655942
20507	20532	0.04023	719.33453	28.93882814
20509	20492	0.03968	169.89909	6.741595891
20509	20536	0.04249	166.50510	7.074801699
20512	20487	0.06982	161.45583	11.27284605
20512	20562	0.18770	163.23663	30.63951545
20515	20376	0.25052	1189.62817	298.0256491
20515	20640	0.18230	1153.77478	210.3331424
20519	1805	0.14043	1.05304	0.147878407
20519	20520	0.37232	1.06730	0.397377136
20520	1656	0.26738	1.57896	0.422182325
20520	20519	0.37232	1.05304	0.392067853
20520	20522	0.23032	0.07187	0.016553098
20520	20823	0.37294	2.55900	0.95435346
20522	1657	0.40327	83.57475	33.70318943
20522	20520	0.23032	0.07199	0.016580737
20522	20523	0.27166	81.92159	22.25481914
20523	20471	0.12409	977.05737	121.243049
20523	20522	0.27166	83.64674	22.72347339
20523	20659	0.19522	906.23511	176.9152182
20524	1941	0.91707	406.16165	372.4786644
20524	20531	0.01454	0.00000	0
20524	20582	0.27484	20390.50586	5604.126631
20525	20453	0.18686	349.08090	65.22925697
20525	20821	0.34866	354.34464	123.5458022
20527	20483	0.10410	967.89008	100.7573573
20527	20543	0.02265	1672.46729	37.88138412
20529	20422	0.24308	106.76855	25.95329913
20529	20749	0.26325	115.69351	30.45631651

20531	20469	0.37614	19875.13086	7475.831722
20531	20524	0.01454	406.16165	5.905590391
20532	20507	0.04023	720.20123	28.97369548
20532	20553	0.04135	719.33453	29.74448282
20536	20509	0.04249	169.89909	7.219012334
20536	20554	0.04024	166.50510	6.700165224
20539	20485	0.11233	928.92828	104.3465137
20539	20552	0.02068	934.46356	19.32470642
20543	719	0.25148	269.72672	67.83087555
20543	733	0.22255	112.91740	25.12976737
20543	20527	0.02265	967.89008	21.92271031
20543	20616	0.11516	1321.45447	152.1786968
20546	20472	0.15695	3454.20264	542.1371043
20550	20630	0.11923	2874.51343	342.7282363
20552	20539	0.02068	928.92828	19.21023683
20552	20571	0.03410	934.46356	31.8652074
20553	20532	0.04135	720.20123	29.78032086
20553	20566	0.02067	719.33453	14.86864474
20554	20536	0.04024	169.89909	6.836739382
20554	20584	0.04416	166.50510	7.352865216
20562	20512	0.18770	161.45583	30.30525929
20562	20575	0.04759	163.23663	7.768431222
20566	20553	0.02067	720.20123	14.88655942
20566	20581	0.02291	719.33453	16.47995408
20571	20552	0.03410	928.92828	31.67645435
20571	20586	0.03242	934.46356	30.29530862
20575	20562	0.04759	161.45583	7.68368295
20575	20583	0.04545	163.23663	7.419104834
20580	20531	0.21916	20281.29297	4444.848167
20581	20566	0.02291	720.20123	16.49981018
20581	20607	0.04023	719.33453	28.93882814
20582	20672	0.26765	20390.50586	5457.518893
20583	20575	0.04545	161.45583	7.338167474
20583	20887	1.37120	163.23663	223.8300671
20584	20554	0.04416	169.89909	7.502743814
20584	20617	0.04191	166.50510	6.978228741
20585	20098	1.11702	528.25409	590.0703836
20585	20603	0.02937	542.97583	15.94720013
20586	20571	0.03242	928.92828	30.11585484
20586	20635	0.05030	934.46356	47.00351707
20595	20476	0.24196	225.68352	54.6063845
20595	20619	0.02363	228.84215	5.407540005
20596	20470	0.25755	653.54279	168.3199456
20596	20597	0.12955	639.09167	82.79432585
20596	20599	0.15789	7.02123	1.108582005
20596	20840	0.25319	45.72571	11.57729251
20597	515	0.22290	4.24988	0.947298252
20597	20596	0.12955	637.81848	82.62938408
20597	20600	0.13246	643.28027	85.20890456
20598	1674	0.24056	0.08963	0.021561393
20598	20599	0.06636	7.05786	0.46835959
20598	20602	0.21771	7.10914	1.547730869
20599	20596	0.15789	7.05786	1.114365515
20599	20598	0.06636	7.02123	0.465928823

20600	20597	0.13246	642.06836	85.04837497
20600	20605	0.24004	643.28027	154.412996
20602	20598	0.21771	7.14748	1.556077871
20602	20608	0.76040	7.10914	5.405790056
20603	20585	0.02937	528.25409	15.51482262
20603	20916	0.49406	542.97583	268.2626386
20605	516	0.25793	2106.99976	543.4584481
20605	521	0.24356	97.02821	23.63219083
20605	20600	0.24004	642.06836	154.1220891
20605	20607	0.24822	1555.65222	386.143994
20607	20581	0.04023	720.20123	28.97369548
20607	20605	0.24822	1553.79041	385.6818556
20607	20614	0.12139	1009.00037	122.4825549
20607	20845	0.25647	39.33412	10.08802176
20608	20602	0.76040	7.14748	5.434943792
20608	20609	0.24212	7.10914	1.721264977
20609	1888	0.55577	7.10914	3.951046738
20609	20608	0.24212	7.14748	1.730547858
20613	546	0.25196	25.57183	6.443078287
20613	20614	0.01517	1008.46155	15.29836171
20613	20617	0.09794	1034.38635	101.3077991
20614	20607	0.12139	1008.46155	122.4171476
20614	20613	0.01517	1009.00037	15.30653561
20616	20543	0.11516	609.87122	70.2327697
20616	20785	0.14440	1321.45447	190.8180255
20617	529	0.33921	96.72269	32.80930367
20617	20584	0.04191	169.89909	7.120470862
20617	20613	0.09794	1034.03345	101.2732361
20617	20619	0.25444	848.78333	215.9644305
20618	20497	0.19679	746.29376	146.863149
20618	20636	0.01677	753.00568	12.62790525
20619	20595	0.02363	225.68352	5.332901578
20619	20617	0.25444	853.85565	217.2550316
20619	20621	0.06347	988.15729	62.7183432
20619	20850	0.26055	436.85751	113.8232242
20620	20621	0.01999	993.16461	19.85336055
20620	20622	0.03863	988.15729	38.17251611
20621	20619	0.06347	993.16461	63.0361578
20621	20620	0.01999	988.15729	19.75326423
20622	20620	0.03863	993.16461	38.36594888
20622	20623	0.04414	988.15729	43.61726278
20623	20622	0.04414	993.16461	43.83828589
20623	20625	0.07934	988.15729	78.40039939
20624	753	0.27795	343.24258	95.40427511
20624	20546	0.12259	3454.20264	423.4507016
20624	20630	0.00991	347.67822	3.44549116
20625	539	0.24530	42.82945	10.50606409
20625	540	0.26339	37.23961	9.808540878
20625	20623	0.07934	993.16461	78.79768016
20625	20632	0.12688	1002.43506	127.1889604
20630	781	0.23433	106.41924	24.93722051
20630	20624	0.00991	95.98839	0.951244945
20630	20768	0.12539	3123.87085	391.7021659
20631	20632	0.03516	1006.74884	35.39728921

20631	20633	0.03656	1002.43506	36.64902579
20632	20625	0.12688	1006.74884	127.7362928
20632	20631	0.03516	1002.43506	35.24561671
20633	20631	0.03656	1006.74884	36.80673759
20633	20634	0.03449	1002.43506	34.57398522
20634	20633	0.03449	1006.74884	34.72276749
20634	20635	0.03311	1002.43506	33.19062484
20635	20586	0.05030	928.92828	46.72509248
20635	20634	0.03311	1006.74884	33.33345409
20635	20638	0.24401	179.18741	43.72351991
20636	20618	0.01677	746.29376	12.51534636
20636	20648	0.01677	753.00568	12.62790525
20638	544	0.24558	6.18778	1.519595012
20638	552	0.26122	100.04238	26.1330705
20638	20635	0.24401	177.96603	43.42549098
20638	20641	0.16702	147.67694	24.66500252
20640	20515	0.18230	1189.62817	216.8692154
20640	20647	0.01062	2798.42651	29.71928954
20640	20733	0.52002	1647.54956	856.7587222
20641	20638	0.16702	149.08194	24.89966562
20641	20643	0.03517	147.67694	5.19379798
20643	20641	0.03517	149.08194	5.24321183
20643	20644	0.05328	147.67694	7.868227363
20644	20643	0.05328	149.08194	7.943085763
20644	20650	0.49859	147.67694	73.63024551
20647	20640	0.01062	2774.87842	29.46920882
20647	20672	0.02238	2243.00366	50.19842191
20647	20675	0.04272	555.42297	23.72766928
20648	20503	0.54281	592.68994	321.7180263
20648	20636	0.01677	746.29376	12.51534636
20648	20674	0.02572	465.87396	11.98227825
20648	20818	0.39759	477.89725	190.0071676
20650	1910	0.34302	101.64831	34.8674033
20650	20489	0.24856	510.09390	126.7889398
20650	20644	0.49859	149.08194	74.33076446
20650	20869	0.25767	421.03140	108.4871608
20659	1659	0.14857	20.01775	2.974037118
20659	20523	0.19522	895.27960	174.7764835
20659	20706	0.04780	891.66620	42.62164436
20672	20647	0.02238	2774.87842	62.10177904
20672	20675	0.02817	17847.94727	502.7766746
20672	20677	0.01174	3987.27490	46.81060733
20674	20648	0.02572	460.42294	11.84207802
20674	20961	0.33138	465.87396	154.3813129
20675	21029	0.87308	18403.37109	16067.61523
20677	20580	0.32227	20281.29297	6536.052285
20677	20672	0.01174	1976.59277	23.20519912
20677	20705	0.02461	3422.72607	84.23328858
20683	20465	0.60524	3579.52393	2166.471063
20683	21243	1.01828	3602.59863	3668.454133
20693	20451	0.42203	1231.13257	519.5748785
20693	20695	0.12548	1318.03125	165.3865613
20695	20693	0.12548	1231.13257	154.4825149
20695	21088	0.49998	1318.03125	658.9892644

20696	20326	0.78046	2040.37488	1592.430979
20696	20739	0.02108	2092.79004	44.11601404
20700	1940	1.00595	281.82419	283.5010439
20700	1944	0.39418	141.81783	55.90175223
20700	20701	0.12824	1971.22131	252.7894208
20700	20702	0.12411	1714.31458	212.7635825
20701	20700	0.12824	2034.28394	260.8765725
20701	20710	0.24412	1971.22131	481.2145462
20702	20700	0.12411	1654.33533	205.3195578
20702	20704	0.25164	1714.31458	431.3901209
20703	20439	0.44200	1980.10925	875.2082885
20703	21532	0.98853	1971.07373	1948.465514
20704	1943	0.35689	36.14618	12.90021018
20704	20702	0.25164	1654.33533	416.2969424
20704	20708	0.51574	1706.95129	880.3430583
20705	911	0.36885	596.04987	219.8529945
20705	20677	0.02461	3103.06836	76.36651234
20705	20799	0.05648	2826.67603	159.6506622
20706	20659	0.04780	880.75562	42.10011864
20706	20908	0.24636	891.66620	219.670885
20708	20704	0.51574	1647.54956	849.7072101
20708	20733	0.01007	1706.95129	17.18899949
20710	20701	0.24412	2034.28394	496.6093954
20710	20728	0.24833	1636.22241	406.3231111
20710	21107	0.49674	335.42667	166.6198441
20714	20722	0.49988	708.16852	353.9992798
20714	21571	1.00023	747.02484	747.1966557
20722	20390	0.50382	677.26361	341.218952
20722	20714	0.49988	747.02484	373.422777
20722	20729	0.73365	61.83032	45.36181427
20728	1945	0.39405	106.75307	42.06604723
20728	20710	0.24833	1698.76428	421.8541337
20728	20743	0.24563	1676.88391	411.8929948
20729	20722	0.73365	62.67708	45.98303974
20729	20737	0.25720	61.83032	15.9027583
20733	20640	0.52002	1706.95129	887.6488098
20733	20708	0.01007	1647.54956	16.59082407
20737	64	4.50000	61.83032	278.23644
20737	20729	0.25720	62.67708	16.12054498
20739	20696	0.02108	2040.37488	43.01110247
20739	20892	0.25223	2092.79004	527.8644318
20743	20728	0.24563	1741.17688	427.685277
20743	20746	0.24219	1676.88391	406.1245142
20746	1939	0.69442	47.84721	33.22605957
20746	1946	0.27854	35.45204	9.874811222
20746	20743	0.24219	1741.17688	421.6956286
20746	20753	0.24984	1598.64661	399.405869
20747	19427	0.03887	11292.93750	438.9564806
20747	19463	0.05214	11208.75098	584.4242761
20749	20529	0.26325	106.76855	28.10682079
20749	21494	0.90119	115.69351	104.2618343
20753	20746	0.24984	1663.02466	415.4900811
20753	20758	0.26329	1544.73828	406.7141417
20753	20969	0.26388	103.92667	27.42416968

20754	19657	0.07957	15718.34082	1250.708379
20755	13866	0.02016	1950.24487	39.31693658
20755	13909	0.01914	1522.61694	29.14288823
20755	13944	0.02365	2401.58301	56.79743819
20755	13945	0.01909	1471.03943	28.08214272
20756	1982	0.37222	2.56061	0.953110254
20756	15382	0.22568	1924.58740	434.3408844
20756	20757	0.31973	1520.05640	486.0076328
20757	20756	0.31973	1922.78650	614.7725276
20757	20759	0.04827	1520.05640	73.37312243
20758	1947	0.26811	0.00000	0
20758	20753	0.26329	1608.20325	423.4238337
20758	20796	0.23612	1544.73828	364.7436027
20759	1981	0.58556	57.23054	33.511915
20759	20757	0.04827	1922.78650	92.81290436
20759	20760	0.05516	1220.73889	67.33595717
20759	20944	0.24283	362.46027	88.01622736
20760	20759	0.05516	1557.24683	85.89773514
20760	20761	0.01103	1220.73889	13.46474996
20761	20760	0.01103	1557.24683	17.17643253
20761	20763	0.05171	1220.73889	63.124408
20762	13538	0.08303	1566.58630	130.0736605
20762	13581	0.07254	2355.48999	170.8672439
20762	20435	0.50344	2221.55298	1118.418632
20763	20761	0.05171	1557.24683	80.52523358
20763	20764	0.05171	1220.73889	63.124408
20764	781	0.24775	41.59185	10.30438084
20764	782	0.27843	633.93262	176.5058594
20764	20763	0.05171	1557.24683	80.52523358
20764	20765	0.09032	1905.24109	172.0813752
20765	20764	0.09032	2150.35254	194.2198414
20765	20766	0.03172	1905.24109	60.43424737
20766	20765	0.03172	2150.35254	68.20918257
20766	20767	0.01241	1905.24109	23.64404193
20767	20766	0.01241	2150.35254	26.68587502
20767	20772	0.03034	1905.24109	57.80501467
20768	20769	0.00758	2457.82666	18.63032608
20768	20773	0.01449	2150.35254	31.1586083
20768	20797	0.01064	1957.63672	20.8292547
20769	20624	0.12764	3711.18896	473.6961589
20769	20768	0.00758	1536.70410	11.64821708
20769	20770	0.02551	2287.60962	58.35692141
20770	20769	0.02551	2695.09692	68.75192243
20770	20774	0.08343	2287.60962	190.8552706
20771	20779	0.05448	1930.75989	105.1877988
20771	20780	0.11653	1758.35315	204.9008926
20772	20767	0.03034	2150.35254	65.24169606
20772	20773	0.01931	1905.24109	36.79020545
20773	20768	0.01449	1905.24109	27.60694339
20773	20772	0.01931	2150.35254	41.52330755
20774	20770	0.08343	2695.09692	224.851936
20774	20775	0.05240	2287.60962	119.8707441
20775	20774	0.05240	2695.09692	141.2230786
20775	20776	0.01379	2287.60962	31.54613666

20776	20775	0.01379	2695.09692	37.16538653
20776	20777	0.04619	2287.60962	105.6646883
20777	20776	0.04619	2695.09692	124.4865267
20777	20778	0.02896	2287.60962	66.2491746
20778	753	0.24965	267.97803	66.90071519
20778	754	0.24852	420.57065	104.5202179
20778	20777	0.02896	2695.09692	78.0500068
20778	20782	0.15582	2128.45874	331.6564409
20779	20771	0.05448	1758.35315	95.79507961
20779	20784	0.05105	1930.75989	98.56529238
20780	20771	0.11653	1930.75989	224.99145
20780	20781	0.05378	1758.35315	94.56423241
20781	733	0.25219	748.18701	188.6852821
20781	734	0.24571	10.51491	2.583618536
20781	20780	0.05378	1930.75989	103.8362669
20781	20783	0.13514	1696.12012	229.213673
20782	20778	0.15582	2530.53442	394.3078733
20782	20784	0.09515	2128.45874	202.5228491
20783	20781	0.13514	1887.15662	255.0303456
20783	20785	0.08757	1696.12012	148.5292389
20784	20779	0.05105	1758.35315	89.76392831
20784	20782	0.09515	2530.53442	240.7803501
20784	20831	0.08452	1669.18994	141.0799337
20785	20616	0.14440	609.87122	88.06540417
20785	20783	0.08757	1887.15662	165.2583052
20785	20786	0.01448	2783.92993	40.31130539
20785	20800	0.01175	2720.54395	31.96639141
20786	20785	0.01448	2670.79004	38.67303978
20786	20787	0.12272	2783.92993	341.643881
20787	20786	0.12272	2670.79004	327.7593537
20787	20788	0.11269	2783.92993	313.7210638
20788	719	0.24957	1878.40894	468.7945192
20788	720	0.24525	117.94771	28.92667588
20788	20787	0.11269	2670.79004	300.9713296
20788	20789	0.06727	2039.30713	137.1841906
20789	20788	0.06727	1950.52869	131.212065
20789	20790	0.18409	2039.30713	375.4160496
20790	20789	0.18409	1950.52869	359.0728265
20790	20791	0.10756	1807.41736	194.4058112
20790	20872	0.15224	287.19049	43.7218802
20791	20790	0.10756	1727.89270	185.8521388
20791	20792	0.11721	1807.41736	211.8473888
20792	20791	0.11721	1727.89270	202.5263034
20792	20793	0.03516	1807.41736	63.54879438
20793	20792	0.03516	1727.89270	60.75270733
20793	20794	0.15974	1807.41736	288.7168491
20794	706	0.24409	91.79240	22.40560692
20794	1938	0.96897	229.68590	222.5587465
20794	20793	0.15974	1727.89270	276.0135799
20794	20795	0.08230	1729.11023	142.3057719
20795	20794	0.08230	1653.53650	136.086054
20795	20796	0.24616	1729.11023	425.6377742
20796	1939	0.56328	143.99359	81.10870938
20796	20758	0.23612	1608.20325	379.7289514

20796	20795	0.24616	1653.53650	407.0345448
20796	20962	0.24399	402.94632	98.31487262
20797	20958	0.24015	1957.63672	470.1264583
20798	20769	0.01064	2382.57910	25.35064162
20799	20705	0.05648	2509.06177	141.7118088
20799	20844	0.09842	2826.67603	278.2014549
20800	20785	0.01175	2313.13721	27.17936222
20800	20862	0.12761	2720.54395	347.1686135
20818	20648	0.39759	476.86523	189.5968468
20818	20848	0.14906	477.89725	71.23536409
20821	501	1.34909	184.50708	248.9166566
20821	1806	1.05173	180.99612	190.3590493
20821	20525	0.34866	349.08090	121.7105466
20823	1657	0.23942	8.81624	2.110784181
20823	20520	0.37294	2.53693	0.946122674
20823	21127	0.39288	11.07467	4.35101635
20831	20784	0.08452	1898.85876	160.4915424
20831	20890	0.08564	1669.18994	142.9494265
20834	19705	0.11589	15760.15918	1826.444847
20840	1674	0.19215	40.28114	7.740021051
20840	20596	0.25319	44.44081	11.25196868
20840	20851	0.03117	6.55056	0.204180955
20844	20799	0.09842	2509.06177	246.9418594
20844	20895	0.08277	2826.67603	233.963975
20845	20607	0.25647	38.87776	9.970979107
20845	21027	0.25144	39.33412	9.890171133
20848	1942	0.29525	29.85226	8.813879765
20848	1954	0.16936	28.95073	4.903095633
20848	20818	0.14906	476.86523	71.08153118
20848	21005	0.54540	510.37860	278.3604884
20850	529	0.27768	53.62163	14.88965422
20850	540	0.24361	16.93112	4.124590143
20850	20619	0.26055	433.76385	113.0171711
20850	21031	0.25011	372.55423	93.17953847
20851	20840	0.03117	6.21334	0.193669808
20851	20856	0.00950	6.55056	0.06223032
20856	20851	0.00950	6.21334	0.05902673
20856	21014	0.21118	6.55056	1.383347261
20862	20800	0.12761	2313.13721	295.1794394
20862	20957	0.10732	2720.54395	291.9687767
20869	20650	0.25767	416.92139	107.4281346
20869	21059	0.25098	421.03140	105.6704608
20872	20790	0.15224	277.93665	42.3130756
20872	20959	0.09403	287.19049	27.00452177
20887	20583	1.37120	161.45583	221.3882341
20887	20893	0.03705	163.23663	6.047917142
20890	20831	0.08564	1898.85876	162.6182642
20890	20899	0.02239	1669.18994	37.37316276
20892	20739	0.25223	2040.37488	514.643756
20892	20907	0.02842	2092.79004	59.47709294
20893	20887	0.03705	161.45583	5.981938502
20893	20971	0.27064	163.23663	44.17836154
20895	20844	0.08277	2509.06177	207.6750427
20895	20945	0.04979	2826.67603	140.7401995

20899	20890	0.02239	1898.85876	42.51544764
20899	20947	0.04772	1669.18994	79.65374394
20907	20892	0.02842	2040.37488	57.98745409
20907	21120	0.30069	2092.79004	629.2810371
20908	1657	0.28111	1.22595	0.344626805
20908	20706	0.24636	880.75562	216.9829545
20908	20942	0.03288	892.54993	29.3470417
20916	1705	1.89639	75.71480	143.5847896
20916	20603	0.49406	528.25409	260.9892157
20916	22050	2.17986	491.10297	1070.53572
20942	20908	0.03288	881.65979	28.9889739
20942	21092	0.21583	892.54993	192.6390514
20944	782	0.07168	296.76666	21.27223419
20944	1982	0.38063	5.81531	2.213481445
20944	20759	0.24283	429.58887	104.3170653
20944	21173	0.26105	65.62828	17.13226249
20945	914	0.22252	1163.76453	258.9608832
20945	20895	0.04979	2509.06177	124.9261855
20945	21116	0.21641	1738.21851	376.1678677
20947	734	0.27512	749.78326	206.2803705
20947	754	0.25226	1027.06299	259.0869099
20947	20899	0.04772	1898.85876	90.61354003
20947	20986	0.04745	2197.26245	104.2601033
20955	754	0.25045	682.70538	170.9835624
20955	20798	0.23958	2382.57910	570.8183008
20955	20958	0.00829	678.42303	5.624126919
20957	720	0.24683	508.83084	125.5947162
20957	734	0.22429	625.12695	140.2097236
20957	20862	0.10732	2313.13721	248.2458854
20957	21057	0.15295	3154.25171	482.442799
20958	20955	0.00829	0.00000	0
20958	21128	0.21496	2636.05981	566.6474168
20959	706	0.40620	12.38208	5.029600896
20959	720	0.25352	35.73229	9.058850161
20959	20872	0.09403	277.93665	26.1343832
20959	21052	0.15054	327.24707	49.26377392
20961	1954	0.40185	0.68015	0.273318278
20961	20674	0.33138	460.42294	152.5749539
20961	21072	0.17686	466.55878	82.51558583
20962	706	0.34118	255.84534	87.2893131
20962	1947	0.24302	73.42291	17.84323559
20962	20796	0.24399	392.62735	95.79714713
20962	21074	0.18018	380.55621	68.56861792
20969	1946	0.24278	111.43131	27.05329344
20969	1947	0.25573	21.63436	5.532554883
20969	20753	0.26388	104.83965	27.66508684
20969	21082	0.18708	154.80119	28.96020663
20971	20893	0.27064	161.45583	43.69640583
20971	20984	0.07972	163.23663	13.01322414
20984	20971	0.07972	161.45583	12.87125877
20984	20992	0.03838	227.44226	8.729233939
20984	30204	0.88570	64.37556	57.01743349
20986	20947	0.04745	2444.09473	115.9722949
20986	21008	0.04478	2197.26245	98.39341251

20992	20984	0.03838	225.83139	8.667408748
20992	21004	0.21282	227.44226	48.40426177
21004	20992	0.21282	225.83139	48.06143642
21004	21068	0.49301	227.44226	112.1313086
21005	911	0.28533	66.84201	19.07203071
21005	20848	0.54540	509.74878	278.0169846
21005	21089	0.21817	465.35065	101.5255513
21007	20677	0.81173	18590.26758	15090.2779
21008	20986	0.04478	2444.09473	109.446562
21008	21177	0.16792	2197.26245	368.9643106
21014	516	0.48907	0.51278	0.250785315
21014	1890	0.78040	6.03778	4.711883512
21014	20856	0.21118	6.21334	1.312133141
21027	516	0.42465	2.65825	1.128825863
21027	529	0.28597	2.19814	0.628602096
21027	1890	0.14161	40.24598	5.699233228
21027	20845	0.25144	38.87776	9.775423974
21029	21277	0.49651	18403.37109	9137.45778
21031	20850	0.25011	371.49826	92.91542981
21031	21380	0.38142	372.55423	142.0996344
21035	21007	0.08402	18590.26758	1561.954282
21052	20959	0.15054	320.87540	48.30458272
21052	21162	0.09961	327.24707	32.59708064
21057	20957	0.15295	2774.76831	424.400813
21057	21106	0.04981	3154.25171	157.1132777
21059	20869	0.25098	416.92139	104.6389305
21059	21503	0.50361	421.03140	212.0356234
21064	20074	2.02158	0.00000	0
21064	21068	0.28691	0.00000	0
21068	1839	2.19651	45.99463	101.0276647
21068	1859	1.60350	1.60906	2.58012771
21068	21004	0.49301	225.83139	111.3371336
21068	21064	0.28691	0.00000	0
21068	21195	0.14249	180.62277	25.7369385
21072	20961	0.17686	461.10312	81.5506978
21072	21514	0.49924	466.55878	232.9248053
21073	13581	0.36033	2496.19263	899.4530904
21073	21152	0.05880	2583.20703	151.8925734
21074	20962	0.18018	487.71536	87.87655356
21074	21202	0.10799	380.55621	41.09626512
21082	20969	0.18708	157.62418	29.48833159
21082	21452	0.39098	154.80119	60.52416927
21088	20695	0.49998	1231.13257	615.5416623
21088	21524	0.48877	1318.03125	644.2141341
21089	912	0.15236	542.20123	82.6097794
21089	21005	0.21817	463.47260	101.1158171
21089	21134	0.07149	573.38361	40.99119428
21092	20942	0.21583	881.65979	190.2886325
21092	21114	0.00853	892.54993	7.613450903
21106	21057	0.04981	2774.76831	138.2112095
21106	21184	0.05653	3154.25171	178.3098492
21107	20710	0.49674	335.94745	166.8785363
21107	21547	0.49674	335.42667	166.6198441
21109	840	0.32911	149.52069	49.20875429

21109	1982	0.27352	9.37393	2.563957334
21109	14386	0.42279	1871.87732	791.4110121
21109	21155	0.04144	2024.43677	83.89265975
21114	1578	0.37632	98.44456	37.04665682
21114	21092	0.00853	881.65979	7.520558009
21114	21124	0.01082	830.50140	8.986025148
21116	911	0.31824	63.05714	20.06730423
21116	20945	0.21641	1417.82129	306.8307054
21116	21185	0.05257	1794.49866	94.33679456
21118	21119	0.20041	830.50140	166.4407856
21118	21123	0.17170	820.27405	140.8410544
21119	21118	0.20041	820.27405	164.3911224
21119	21125	0.01126	830.50140	9.351445764
21120	20907	0.30069	2040.37488	613.5203227
21120	21139	0.02276	2092.79004	47.63190131
21123	21118	0.17170	830.50140	142.5970904
21123	21124	0.09311	820.27405	76.3757168
21124	21114	0.01082	820.27405	8.875365221
21124	21123	0.09311	830.50140	77.32798535
21125	21119	0.01126	820.27405	9.236285803
21125	21127	0.01658	0.00000	0
21125	21141	0.01872	830.50140	15.54698621
21127	20823	0.39288	11.06987	4.349130526
21127	21125	0.01658	0.00000	0
21127	21150	0.02472	11.07467	0.273765842
21128	21163	0.03583	2636.05981	94.45002299
21129	20955	0.21552	3065.28442	660.6300982
21134	21089	0.07149	577.72565	41.30160672
21134	21153	0.06512	573.38361	37.33874068
21139	21120	0.02276	2040.37488	46.43893227
21139	21149	0.01309	2092.79004	27.39462162
21141	21125	0.01872	820.27405	15.35553022
21141	21150	0.01114	830.50140	9.251785596
21149	21139	0.01309	2040.37488	26.70850718
21149	21227	0.09445	2092.79004	197.6640193
21150	21127	0.02472	11.06987	0.273647186
21150	21141	0.01114	820.27405	9.137852917
21150	21241	0.08862	841.57605	74.58046955
21152	21073	0.05880	2496.19263	146.7761266
21152	21617	0.49167	2583.20703	1270.0854
21153	21134	0.06512	577.72565	37.62149433
21153	21186	0.06921	573.38361	39.68387965
21155	21109	0.04144	1946.86755	80.67819127
21155	21369	0.24691	2024.43677	499.8536829
21156	21157	0.04967	28.99107	1.439986447
21156	21165	0.05251	29.05096	1.52546591
21157	21156	0.04967	29.05096	1.442961183
21157	21164	0.04209	28.99107	1.220234136
21159	707	0.25567	0.00000	0
21159	21169	0.07303	91.54976	6.685878973
21159	21170	0.02763	95.29927	2.63311883
21160	754	0.25134	18.25638	4.588558549
21160	755	0.26700	18.23558	4.86889986
21160	21161	0.04482	29.05096	1.302064027

21160	21165	0.10756	28.99107	3.118279489
21161	21160	0.04482	28.99107	1.299379757
21161	21172	0.15169	29.05096	4.406740122
21162	21052	0.09961	320.87540	31.96239859
21162	21166	0.05516	14.85743	0.819535839
21162	21169	0.05033	95.29927	4.796412259
21162	21299	0.17517	237.46722	41.59713293
21163	21164	0.00896	18.17681	0.162864218
21163	21168	0.18754	1258.29590	235.9808131
21163	21344	0.22392	3678.65942	823.7254173
21164	21129	0.03583	3065.28442	109.8291408
21164	21157	0.04209	29.05096	1.222754906
21164	21163	0.00896	1268.91516	11.36947983
21165	21156	0.05251	28.99107	1.522321086
21165	21160	0.10756	29.05096	3.124721258
21166	21162	0.05516	14.98720	0.826693952
21166	21176	0.05241	14.85743	0.778677906
21167	782	0.24940	1275.04163	317.9953825
21167	783	0.25802	81.71451	21.08397787
21167	21168	0.06067	1050.15710	63.71303126
21167	21174	0.06068	61.58582	3.737027558
21168	21163	0.18754	1050.15710	196.9464625
21168	21167	0.06067	1258.29590	76.34081225
21169	21159	0.07303	95.29927	6.959705688
21169	21162	0.05033	91.54976	4.607699421
21170	21159	0.02763	91.54976	2.529519869
21170	21187	0.07053	95.29927	6.721457513
21172	21161	0.15169	28.99107	4.397655408
21172	21177	0.05586	29.05096	1.622786626
21173	20944	0.26105	61.58582	16.07697831
21173	21174	0.05929	65.62828	3.891100721
21174	21167	0.06068	65.62828	3.98232403
21174	21173	0.05929	61.58582	3.651423268
21176	21166	0.05241	14.98720	0.785479152
21176	21179	0.05380	14.85743	0.799329734
21177	21008	0.16792	2444.09473	410.4123871
21177	21172	0.05586	28.99107	1.61944117
21177	21224	0.06157	2204.82007	135.7507717
21179	21176	0.05380	14.98720	0.80631136
21179	21182	0.08895	14.85743	1.321568399
21182	720	0.25525	8.95515	2.285802038
21182	721	0.25550	288.88699	73.81062595
21182	21179	0.08895	14.98720	1.33311144
21182	21184	0.24963	293.85538	73.35511851
21184	21106	0.05653	2774.76831	156.8576526
21184	21182	0.24963	294.91083	73.61859049
21184	21338	0.21324	2868.80859	611.7447437
21185	915	0.26531	81.78326	21.69791671
21185	21116	0.05257	1471.23206	77.34266939
21185	21196	0.02353	1753.29810	41.25510429
21186	21153	0.06921	577.72565	39.98439224
21186	21199	0.06760	573.38361	38.76073204
21187	21170	0.07053	91.54976	6.457004573
21187	21192	0.03363	95.29927	3.20491445

21190	706	0.27314	177.76926	48.55589568
21190	21191	0.05172	283.72012	14.67400461
21191	21190	0.05172	177.76926	9.194226127
21191	21192	0.09999	283.72012	28.3691748
21192	21187	0.03363	91.54976	3.078818429
21192	21191	0.09999	177.76926	17.77514831
21192	21238	0.05036	379.01941	19.08741749
21195	21068	0.14249	178.84637	25.48381926
21195	21698	0.56225	180.62277	101.5551524
21196	21185	0.02353	1430.62817	33.66268084
21196	21212	0.02495	1753.29810	43.7447876
21199	21186	0.06760	577.72565	39.05425394
21199	21212	0.05723	573.38361	32.814744
21202	21074	0.10799	487.71536	52.66838173
21202	21382	0.21541	380.55621	81.9756132
21212	21196	0.02495	1430.62817	35.69417284
21212	21199	0.05723	577.72565	33.06323895
21212	21246	0.09667	1369.10669	132.3515437
21212	21276	0.08305	1965.02673	163.1954699
21224	21177	0.06157	2451.59253	150.9445521
21224	21309	0.12874	2204.82007	283.8485358
21227	21149	0.09445	2040.37488	192.7134074
21227	21272	0.15436	2092.79004	323.0430706
21238	21192	0.05036	269.31903	13.56290635
21238	21353	0.15221	379.01941	57.6905444
21241	21150	0.08862	831.34387	73.67369376
21241	21325	0.12821	841.57605	107.8984654
21243	1829	0.78735	502.31454	395.4973531
21243	20683	1.01828	3579.52393	3644.957627
21243	21289	0.10562	3228.81860	341.0278205
21246	21212	0.09667	1069.18213	103.3578365
21246	21264	0.10525	1369.10669	144.0984791
21264	916	0.16279	416.27759	67.76582888
21264	21246	0.10525	1069.18213	112.5314192
21264	21288	0.07354	1401.07861	103.035321
21272	21227	0.15436	2040.37488	314.9522665
21272	21279	0.01636	2092.79004	34.23804505
21274	21212	0.08240	1946.62317	160.4017492
21276	21328	0.06599	1965.02673	129.6721139
21277	21458	0.38212	18403.37109	7032.296161
21279	21272	0.01636	2040.37488	33.38053304
21279	21287	0.01600	2092.79004	33.48464064
21287	21279	0.01600	2040.37488	32.64599808
21287	21335	0.13254	2092.79004	277.3783919
21288	21264	0.07354	1112.22192	81.7928
21288	21347	0.16753	1401.07861	234.7226995
21289	21243	0.10562	3213.96753	339.4592505
21289	21340	0.07044	3228.81860	227.4379822
21299	21162	0.17517	234.71530	41.1150791
21299	21381	0.07968	237.46722	18.92138809
21309	21224	0.12874	2451.59253	315.6180223
21309	21387	0.07501	2204.82007	165.3835535
21325	21241	0.12821	831.34387	106.5865976
21325	21413	0.07747	841.57605	65.19689659

21328	21329	0.01105	0.00000	0
21328	21391	0.06263	1997.70410	125.1162078
21329	912	0.30884	31.92964	9.861150018
21329	21274	0.06767	1946.62317	131.7279899
21329	21328	0.01105	32.67741	0.361085381
21335	21287	0.13254	2040.37488	270.4312866
21335	21366	0.07384	2092.79004	154.5316166
21338	21184	0.21324	2490.38062	531.0487634
21338	21373	0.02520	2868.80859	72.29397647
21340	1830	1.79842	566.40851	1018.640393
21340	21289	0.07044	3213.96753	226.3918728
21340	21396	0.06557	2778.19287	182.1661065
21344	21375	0.02687	3678.65942	98.84557862
21345	21164	0.22392	4316.08252	966.4571979
21347	922	0.10825	110.27992	11.93780134
21347	21288	0.16753	1112.22192	186.3305383
21347	21392	0.10530	1413.87061	148.8805752
21353	21238	0.15221	269.31903	40.99304956
21353	21374	0.02402	379.01941	9.104046228
21366	21335	0.07384	2040.37488	150.6612811
21366	21505	0.50997	2092.79004	1067.260137
21369	21155	0.24691	1946.86755	480.7010668
21369	21629	0.25251	2024.43677	511.1905288
21373	735	0.26988	104.13303	28.10342214
21373	21338	0.02520	2490.38062	62.75759162
21373	21477	0.12826	2764.67554	354.5972848
21374	707	0.12472	7.31865	0.912782028
21374	826	0.25886	102.07264	26.42252359
21374	21353	0.02402	269.31903	6.469043101
21374	21397	0.02524	278.66760	7.033570224
21375	21376	0.00896	315.65549	2.82827319
21375	21643	0.24911	4108.83984	1023.553093
21376	755	0.25145	208.08151	52.32209569
21376	783	0.25297	891.61499	225.551844
21376	21345	0.02687	4316.08252	115.9731373
21376	21375	0.00896	745.83575	6.68268832
21380	1889	1.95655	242.58379	474.6273143
21380	1890	0.54803	0.88424	0.484590047
21380	1892	0.79664	134.12900	106.8525266
21380	21031	0.38142	371.49826	141.6968663
21381	707	0.12254	127.99035	15.68393749
21381	721	0.25052	23.60294	5.913008529
21381	21299	0.07968	234.71530	18.7021151
21381	21490	0.12682	109.39492	13.87346375
21382	701	0.24558	23.23840	5.706886272
21382	826	0.23874	433.02716	103.3809042
21382	21202	0.21541	487.71536	105.0587657
21382	21424	0.04646	588.93408	27.36187736
21387	735	0.23270	1026.59424	238.8884796
21387	755	0.24959	66.66835	16.63975348
21387	21309	0.07501	2451.59253	183.8939557
21387	21451	0.06605	2709.85400	178.9858567
21389	913	0.30256	787.63605	238.3071633
21389	21329	0.06152	1978.55286	121.7205719

21389	21391	0.01105	5.41502	0.059835971
21391	21389	0.01105	782.28461	8.644244941
21391	21423	0.03299	1220.83447	40.27532917
21392	915	0.32901	79.99583	26.31942803
21392	21347	0.10530	1126.85803	118.6581506
21392	21432	0.11826	1493.74597	176.6503984
21396	21340	0.06557	2774.61157	181.9312806
21396	21493	0.14039	2778.19287	390.030497
21397	21374	0.02524	172.73744	4.359892986
21397	21509	0.14830	278.66760	41.32640508
21413	21325	0.07747	831.34387	64.40420961
21413	21461	0.06912	841.57605	58.16973658
21422	21389	0.03299	1209.39746	39.89802221
21422	21423	0.01105	15.53444	0.171655562
21423	916	0.16188	23.79166	3.851393921
21423	21422	0.01105	8.16924	0.090270102
21423	21463	0.05424	1227.78674	66.59515278
21424	21382	0.04646	879.93433	40.88174897
21424	21479	0.07442	588.93408	43.82847423
21432	919	0.25561	22.31691	5.704425365
21432	921	0.07874	15.19112	1.196148789
21432	21392	0.11826	1205.83777	142.6023747
21432	21487	0.16133	1500.38684	242.0574089
21451	21387	0.06605	2950.44287	194.8767516
21451	21484	0.04368	2709.85400	118.3664227
21452	701	0.26368	39.42216	10.39483515
21452	1676	0.20837	5.68586	1.184762648
21452	21082	0.39098	157.62418	61.6279019
21452	21584	0.12935	185.41074	23.98287922
21458	21468	0.01512	154.73323	2.339566438
21458	21512	0.16557	19708.39453	3263.118882
21461	21413	0.06912	831.34387	57.46248829
21461	21686	0.24683	841.57605	207.7262164
21463	21464	0.01172	0.00000	0
21463	21502	0.05258	1227.78674	64.55702679
21464	21422	0.05481	1216.76270	66.69076359
21464	21463	0.01172	0.00000	0
21468	21035	0.88566	18590.26758	16464.65638
21468	21458	0.01512	1459.75659	22.07151964
21468	30202	0.08914	1361.44885	121.3595505
21477	21373	0.12826	2397.59253	307.5152179
21477	21553	0.07556	2764.67554	208.8988838
21479	21424	0.07442	879.93433	65.48471284
21479	21620	0.10687	588.93408	62.93938513
21484	21451	0.04368	2950.44287	128.8753446
21484	21531	0.06269	2709.85400	169.8807473
21487	21432	0.16133	1213.08740	195.7073902
21487	21631	0.28134	1500.38684	422.1188336
21490	21381	0.12682	110.53404	14.01792695
21490	21513	0.04533	109.39492	4.958871724
21493	21396	0.14039	2774.61157	389.5277183
21493	21519	0.04911	2778.19287	136.4370518
21494	20749	0.90119	106.76855	96.21874957
21494	21600	0.08401	115.69351	9.719411775

21502	21521	0.02589	1227.78674	31.7873987
21503	21059	0.50361	416.92139	209.9657812
21503	21971	0.50193	421.03140	211.3282906
21505	21366	0.50997	2040.37488	1040.529978
21505	21510	0.02128	2092.79004	44.53457205
21509	21397	0.14830	172.73744	25.61696235
21509	21661	0.08170	278.66760	22.76714292
21510	21505	0.02128	2040.37488	43.41917745
21510	21535	0.05065	2092.79004	105.9998155
21512	22113	1.27844	19708.39453	25195.9999
21513	21490	0.04533	110.53404	5.010508033
21513	21679	0.08674	109.39492	9.488915361
21514	21072	0.49924	461.10312	230.2011216
21514	21705	0.15133	466.55878	70.60434018
21519	21493	0.04911	2774.61157	136.2611742
21519	21799	0.33826	2778.19287	939.7515202
21521	21464	0.07859	1216.76270	95.62538059
21521	21563	0.02126	1227.78674	26.10274609
21524	21088	0.48877	1231.13257	601.7406662
21524	21579	0.02579	1318.03125	33.99202594
21527	21468	0.15852	19640.57031	3113.423206
21531	21484	0.06269	2950.44287	184.9632635
21531	21656	0.06270	2709.85400	169.9078458
21532	20703	0.98853	1980.10925	1957.397397
21532	21534	0.01105	2040.37488	22.54614242
21532	21585	0.02526	4063.86377	102.6531988
21534	21532	0.01105	2092.79004	23.12532994
21534	21558	0.14414	2040.37488	294.0996352
21535	21510	0.05065	2040.37488	103.3449877
21535	21559	0.17613	2092.79004	368.6031097
21543	1675	0.12930	106.67373	13.79291329
21543	21546	0.20842	390.06598	81.29755155
21543	21547	0.28799	335.94745	96.74950613
21546	21543	0.20842	393.16968	81.94442471
21546	21557	0.12415	390.06598	48.42669142
21547	21107	0.49674	335.94745	166.8785363
21547	21543	0.28799	335.42667	96.59952669
21551	21554	0.69295	3697.18115	2561.961678
21551	21677	1.42417	3619.00684	5154.080971
21553	21477	0.07556	2397.59253	181.1620916
21553	21663	0.05597	2764.67554	154.73889
21554	2027	3.83366	136.74544	524.2355235
21554	21551	0.69295	3619.00684	2507.79079
21554	21556	0.30679	3833.44312	1176.062015
21556	21554	0.30679	3755.75220	1152.227217
21556	21569	0.99700	3833.44312	3821.942791
21557	21546	0.12415	393.16968	48.81201577
21557	21566	0.16200	390.06598	63.19068876
21558	21534	0.14414	2092.79004	301.6547564
21558	21564	0.34612	2040.37488	706.2145535
21559	21535	0.17613	2040.37488	359.3712276
21559	21560	0.02137	2092.79004	44.72292315
21560	21559	0.02137	2040.37488	43.60281119
21560	21564	1.00731	2092.79004	2108.088335

21563	21521	0.02126	1216.76270	25.868375
21563	21727	0.16797	1227.78674	206.2313387
21564	21558	0.34612	2092.79004	724.3564886
21564	21560	1.00731	2040.37488	2055.29002
21566	1676	0.10732	68.48335	7.349633122
21566	1677	0.23662	1.38026	0.326597121
21566	21557	0.16200	393.16968	63.69348816
21566	21568	0.02080	454.54547	9.454545776
21568	21566	0.02080	459.20572	9.551478976
21568	21584	0.18628	454.54547	84.67273015
21569	21556	0.99700	3755.75220	3744.484943
21569	21571	0.49849	3833.44312	1910.933061
21570	939	0.27744	510.55313	141.6478604
21570	21572	0.04232	7438.27100	314.7876287
21570	30205	0.72968	6995.66895	5104.599719
21571	20714	1.00023	708.16852	708.3313988
21571	21569	0.49849	3755.75220	1872.204914
21571	21575	0.50194	4233.48779	2124.956861
21572	21570	0.04232	7271.89746	307.7467005
21572	21579	0.37577	7438.27100	2795.079094
21573	2021	1.60757	564.73712	907.854452
21573	21576	0.61639	6132.96338	3780.297298
21573	21792	0.23438	409.42300	95.96056274
21573	30205	0.72968	7140.24170	5210.091564
21575	21571	0.50194	4116.94043	2066.457079
21575	21581	0.73774	4233.48779	3123.213282
21576	21573	0.61639	6251.12158	3853.128831
21576	21578	1.01076	6132.96338	6198.954066
21578	21576	1.01076	6251.12158	6318.383648
21578	21585	1.37067	6132.96338	8406.268916
21579	21524	0.02579	1231.13257	31.75090898
21579	21572	0.37577	7271.89746	2732.560909
21579	21582	0.64001	8711.03418	5575.148986
21579	21621	0.02186	1983.72156	43.3641533
21581	63	4.50000	4233.48779	19050.69506
21581	21575	0.73774	4116.94043	3037.231633
21582	936	0.25531	178.16205	45.48655299
21582	21579	0.64001	8413.93555	5385.002891
21582	21589	0.49223	8791.63086	4327.504458
21583	824	0.76245	17.16250	13.08554813
21583	825	0.40063	17.06092	6.83511638
21584	21452	0.12935	188.83546	24.42586675
21584	21568	0.18628	459.20572	85.54084152
21584	21588	0.11454	808.33252	92.58640684
21584	21752	0.17905	1171.97681	209.8424478
21585	21532	0.02526	4020.48413	101.5574291
21585	21578	1.37067	6251.12158	8568.224816
21585	21586	0.25097	3697.18115	927.8815532
21585	21744	0.16663	1821.11133	303.4517809
21586	21585	0.25097	3619.00684	908.2621466
21586	21677	1.31520	3697.18115	4862.532648
21588	21584	0.11454	826.15100	94.62733554
21588	21590	0.06349	808.33252	51.32103169
21589	21582	0.49223	8500.99805	4184.44627

21589	21943	1.08144	8791.63086	9507.621277
21590	21588	0.06349	826.15100	52.45232699
21590	21596	0.06632	808.33252	53.60861273
21596	701	0.21524	115.00922	24.75458451
21596	702	0.28292	102.98135	29.13548354
21596	21590	0.06632	826.15100	54.79033432
21596	21620	0.25381	1014.25702	257.4285742
21600	21494	0.08401	106.76855	8.969625886
21600	21605	0.02075	0.00000	0
21600	21913	0.37285	115.69351	43.1363252
21605	21600	0.02075	0.00000	0
21605	21607	0.22683	0.00000	0
21607	21605	0.22683	0.00000	0
21607	21608	0.24683	0.00000	0
21608	21607	0.24683	0.00000	0
21608	21609	0.09653	0.00000	0
21609	21608	0.09653	0.00000	0
21609	21610	0.05102	0.00000	0
21610	21609	0.05102	0.00000	0
21610	21613	0.06481	0.00000	0
21613	21610	0.06481	0.00000	0
21613	21614	0.04482	0.00000	0
21614	21613	0.04482	0.00000	0
21614	21617	0.24960	0.00000	0
21617	21152	0.49167	2496.19263	1227.30303
21617	21614	0.24960	0.00000	0
21617	21619	0.11653	143.14627	16.68083484
21617	21931	0.38917	2787.95142	1084.987054
21618	807	0.38319	554.35651	212.4238711
21618	13146	0.25447	322.59961	82.09192276
21618	21619	0.13005	458.33340	59.60625867
21619	21617	0.11653	458.33340	53.4095911
21619	21618	0.13005	143.14627	18.61617241
21620	21479	0.10687	879.93433	94.03858185
21620	21596	0.25381	1042.88147	264.6937459
21620	21630	0.21628	757.76501	163.8894164
21620	21742	0.14829	442.02191	65.54742903
21621	21579	0.02186	2027.54822	44.32220409
21621	21669	0.02578	1983.72156	51.14034182
21629	21369	0.25251	1946.86755	491.6035251
21629	21825	0.23515	2189.61133	514.8871042
21629	30206	0.25075	625.90710	156.9462053
21630	708	0.25291	367.83212	93.02842147
21630	826	0.25856	283.88342	73.40089708
21630	21620	0.21628	804.66687	174.0333506
21630	21634	0.03293	1505.58887	49.57904149
21631	920	0.23762	129.94225	30.87687745
21631	1948	0.23537	184.44467	43.41274198
21631	21487	0.28134	1213.08740	341.2900091
21631	21789	0.53651	1584.01941	849.8422537
21633	830	0.23377	448.61731	104.8732686
21633	21635	0.04967	437.57831	21.73451466
21634	21630	0.03293	1401.50598	46.15159192
21634	21639	0.08217	1505.58887	123.7142374

21635	21633	0.04967	448.61731	22.28282179
21635	21637	0.04760	437.57831	20.82872756
21637	21635	0.04760	448.61731	21.35418396
21637	21638	0.04827	437.57831	21.12190502
21638	785	0.39104	166.19299	64.98810681
21638	21637	0.04827	448.61731	21.65475755
21638	21645	0.05381	601.71027	32.37802963
21639	21634	0.08217	1401.50598	115.1617464
21639	21658	0.05598	1505.58887	84.28286494
21640	21376	0.24854	4739.14941	1177.868194
21640	21643	0.00829	1546.51892	12.82064185
21640	21647	0.12687	1666.22632	211.3941332
21643	21640	0.00829	1007.59796	8.352987088
21643	21644	0.10128	837.08893	84.78036683
21643	21703	0.07837	4645.98193	364.1056039
21644	784	0.20679	258.61664	53.47933499
21644	21643	0.10128	835.31012	84.60020895
21644	21651	0.04835	607.12341	29.35441687
21645	21638	0.05381	607.12341	32.66931069
21645	21650	0.19443	601.71027	116.9905278
21647	21640	0.12687	1697.14966	215.3173774
21647	21648	0.12479	1666.22632	207.9283825
21648	755	0.23399	1013.12958	237.0621904
21648	756	0.26869	29.28417	7.868363637
21648	21647	0.12479	1697.14966	211.7873061
21648	21649	0.12479	1721.93384	214.8801239
21649	21648	0.12479	1779.04370	222.0068633
21649	21656	0.12549	1721.93384	216.0854776
21650	21645	0.19443	607.12341	118.0430046
21650	21653	0.06136	601.71027	36.92094217
21651	21644	0.04835	601.71027	29.09269155
21651	21653	0.05999	607.12341	36.42133337
21653	21650	0.06136	607.12341	37.25309244
21653	21651	0.05999	601.71027	36.0965991
21653	21729	0.12036	0.00000	0
21656	21531	0.06270	2950.44287	184.9927679
21656	21649	0.12549	1779.04370	223.2521939
21656	21668	0.11190	1181.83337	132.2471541
21656	21712	0.08459	2390.58032	202.2191893
21658	21639	0.05598	1401.50598	78.45630476
21658	21662	0.05319	1505.58887	80.082272
21661	21509	0.08170	172.73744	14.11264885
21661	21662	0.05447	1401.50598	76.34003073
21661	21664	0.09657	1429.12585	138.0106833
21661	21766	0.15447	423.69977	65.44890347
21662	21658	0.05319	1401.50598	74.54610308
21662	21661	0.05447	1505.58887	82.00942575
21663	21553	0.05597	2397.59253	134.1932539
21663	21666	0.25105	3661.31885	919.1740973
21663	21673	0.18921	2922.00977	552.8734686
21663	21683	0.02351	3514.77393	82.63233509
21664	21661	0.09657	1586.40002	153.1986499
21664	21674	0.02546	1429.12585	36.38554414
21666	721	0.24931	1613.52319	402.2674665

21666	722	0.24483	1913.38281	468.4535134
21666	21663	0.25105	3456.03027	867.6363993
21666	21675	0.14827	2024.06909	300.108724
21668	21656	0.11190	1469.26123	164.4103316
21668	21670	0.07171	1181.83337	84.74927096
21669	21621	0.02578	2027.54822	52.27019311
21669	21794	0.19058	1983.72156	378.0576549
21670	21668	0.07171	1469.26123	105.3607228
21670	21671	0.02827	1181.83337	33.41042937
21671	21670	0.02827	1469.26123	41.53601497
21671	21672	0.04964	1181.83337	58.66620849
21672	735	0.25939	743.53809	192.8663452
21672	736	0.24434	961.72687	234.9883434
21672	21671	0.04964	1469.26123	72.93412746
21672	21673	0.04826	2625.01538	126.6832422
21673	21663	0.18921	2625.01538	496.67916
21673	21672	0.04826	2922.00977	141.0161915
21674	707	0.25556	782.22388	199.9051348
21674	709	0.23963	15.05808	3.60836771
21674	21664	0.02546	1586.40002	40.38974451
21674	21676	0.02642	1821.09155	48.11323875
21675	21666	0.14827	1792.93298	265.8381729
21675	21679	0.10136	2024.06909	205.159643
21676	21674	0.02642	1997.07080	52.76261054
21676	21679	0.09998	1821.09155	182.0727332
21677	21551	1.42417	3697.18115	5265.414478
21677	21586	1.31520	3619.00684	4759.717796
21679	21513	0.08674	110.53404	9.58772263
21679	21675	0.10136	1792.93298	181.7316869
21679	21676	0.09998	1997.07080	199.6671386
21679	21722	0.09123	514.89813	46.9741564
21683	21663	0.02351	3649.97388	85.81088592
21683	21846	0.22050	3514.77393	775.0076516
21686	21461	0.24683	831.34387	205.2006074
21686	21750	0.11485	841.57605	96.65500934
21698	21195	0.56225	178.84637	100.5563715
21698	21755	0.09064	180.62277	16.37164787
21703	21725	0.04198	4645.98193	195.0383214
21705	1955	0.62254	107.22797	66.75370044
21705	21514	0.15133	461.10312	69.77873515
21705	21985	0.34847	368.69983	128.4808298
21707	21640	0.08286	5247.14697	434.7785979
21712	21656	0.08459	2400.85132	203.0880132
21712	21765	0.07223	2390.58032	172.6716165
21722	21679	0.09123	460.88037	42.04611616
21722	21759	0.05149	514.89813	26.51210471
21725	21726	0.00896	0.00000	0
21725	21842	0.12707	4645.98193	590.3649238
21726	21707	0.03806	5247.14697	199.7064137
21726	21725	0.00896	0.00000	0
21727	913	0.29831	29.98726	8.945499531
21727	917	0.21807	196.30727	42.80872637
21727	21563	0.16797	1216.76270	204.3796307
21727	21923	0.23806	1081.51917	257.4664536

21729	21653	0.12036	0.00000	0
21729	21839	0.12428	0.00000	0
21742	21620	0.14829	714.74475	105.989499
21742	21774	0.04029	442.02191	17.80906275
21744	21585	0.16663	1974.06433	328.9383393
21744	21814	0.08920	1821.11133	162.4431306
21750	21686	0.11485	831.34387	95.47984347
21750	21921	0.23538	841.57605	198.0901706
21752	21584	0.17905	1162.24316	208.0996378
21752	21786	0.04476	1171.97681	52.45768202
21755	21698	0.09064	178.84637	16.21063498
21755	21853	0.14538	180.62277	26.2589383
21759	21722	0.05149	460.88037	23.73073025
21759	21847	0.09626	514.89813	49.56409399
21765	21712	0.07223	2400.85132	173.4134908
21765	21812	0.06157	2390.58032	147.1880303
21766	21661	0.15447	56.41264	8.714060501
21766	21805	0.05764	423.69977	24.42205474
21774	21742	0.04029	714.74475	28.79706598
21774	21777	0.00615	442.02191	2.718434747
21776	21789	0.01735	1354.74365	23.50480233
21776	30202	0.22187	1609.56018	357.1131171
21777	21774	0.00615	714.74475	4.395680213
21777	21826	0.05260	442.02191	23.25035247
21786	21752	0.04476	1162.24316	52.02200384
21786	21800	0.02264	1171.97681	26.53355498
21789	21631	0.53651	1294.98376	694.7717371
21789	21776	0.01735	1609.56018	27.92586912
21789	21867	0.26527	463.05807	122.8354142
21789	22024	0.26122	408.50925	106.7107863
21792	21573	0.23438	430.51389	100.9038455
21792	21990	0.23999	409.42300	98.25742577
21794	936	0.63752	10.45764	6.666954653
21794	939	0.43735	150.52602	65.83255485
21794	21669	0.19058	2027.54822	386.4101398
21794	21960	0.20011	1843.42078	368.8869323
21799	21519	0.33826	2774.61157	938.5401097
21799	22415	0.95975	2778.19287	2666.370607
21800	702	0.25488	100.50683	25.61718083
21800	1677	0.20052	171.35548	34.36020085
21800	21786	0.02264	1162.24316	26.31318514
21800	21957	0.18775	1373.76074	257.9235789
21805	21766	0.05764	56.41264	3.25162457
21805	21838	0.02799	423.69977	11.85935656
21812	21765	0.06157	2400.85132	147.8204158
21812	21851	0.03949	2390.58032	94.40401684
21814	226	0.23785	264.60025	62.93516946
21814	228	0.15944	245.87521	39.20234348
21814	21744	0.08920	1974.06433	176.0865382
21814	21883	0.08696	1528.25659	132.8971931
21825	21629	0.23515	2415.34961	567.9694608
21825	21873	0.07576	2245.02319	170.0829569
21826	21777	0.05260	714.74475	37.59557385
21826	21848	0.02321	442.02191	10.25932853

21838	708	0.28077	6.84087	1.92071107
21838	709	0.13590	6.89038	0.936402642
21838	21805	0.02799	56.41264	1.578989794
21838	21878	0.06100	423.69977	25.84568597
21839	21729	0.12428	0.00000	0
21839	21935	0.12820	0.00000	0
21842	784	0.18202	492.77640	89.69516033
21842	21843	0.00965	291.96790	2.817490235
21842	21898	0.07504	5617.73193	421.554604
21843	756	0.25191	1063.09802	267.8050222
21843	21726	0.12708	5247.14697	666.8074369
21843	21842	0.00965	1263.01355	12.18808076
21846	736	0.25217	0.00000	0
21846	21683	0.22050	3649.97388	804.8192405
21846	21914	0.10245	3514.77393	360.0885891
21847	709	0.10896	571.31799	62.25080819
21847	722	0.25091	65.20994	16.36182605
21847	21759	0.09626	460.88037	44.36434442
21847	21896	0.06212	611.80176	38.00512533
21848	702	0.24738	244.87389	60.57690291
21848	708	0.21431	4.62561	0.991314479
21848	21826	0.02321	714.74475	16.58922565
21848	21869	0.04002	680.74164	27.24328043
21851	736	0.24250	2115.18286	512.9318436
21851	756	0.25484	1097.58301	279.7080543
21851	21812	0.03949	2400.85132	94.80961863
21851	21895	0.05233	3772.82642	197.4320066
21853	21755	0.14538	178.84637	26.00068527
21853	21970	0.20144	180.62277	36.38465079
21861	19512	0.12907	5932.96191	765.7673937
21861	21993	0.01875	5767.31396	108.1371368
21867	835	0.21008	65.13160	13.68284653
21867	1951	0.22148	27.23270	6.031498396
21867	21789	0.26527	436.41663	115.7682394
21867	21906	0.13807	536.37421	74.05718717
21869	21848	0.04002	954.95721	38.21738754
21869	21901	0.03134	680.74164	21.334443
21873	21984	0.12142	2245.02319	272.5907157
21878	21838	0.06100	56.41264	3.44117104
21878	21930	0.06212	423.69977	26.32022971
21883	21814	0.08696	1687.49060	146.7441826
21883	21949	0.08387	1528.25659	128.1748802
21895	21851	0.05233	3743.43164	195.8937777
21895	21940	0.06608	3772.82642	249.3083698
21896	21847	0.06212	693.16956	43.05969307
21896	21938	0.06044	611.80176	36.97729837
21897	21843	0.07445	6194.92236	461.2119697
21897	21898	0.00829	0.00000	0
21898	21897	0.00829	0.00000	0
21898	22038	0.14218	5617.73193	798.7291258
21901	21869	0.03134	954.95721	29.92835896
21901	21978	0.09289	680.74164	63.23409094
21906	21867	0.13807	511.90237	70.67836023
21906	21952	0.17273	536.37421	92.64791729

21913	825	0.50135	231.39398	116.0093719
21913	21600	0.37285	106.76855	39.80865387
21913	22048	0.12677	241.25157	30.58346153
21914	21846	0.10245	3649.97388	373.939824
21914	22100	0.15169	3514.77393	533.1560574
21921	1806	0.70639	85.98335	60.73777861
21921	21750	0.23538	831.34387	195.6817201
21921	21962	0.04701	843.78778	39.66646354
21923	918	0.29897	125.00829	37.37372846
21923	1955	0.95159	149.03355	141.8188358
21923	21727	0.23806	1073.90503	255.6538314
21923	22026	0.09336	843.20514	78.72163187
21930	21878	0.06212	56.41264	3.504353197
21930	21987	0.06100	423.69977	25.84568597
21931	825	0.49704	1380.24609	686.0375166
21931	21617	0.38917	2385.75000	928.4623275
21931	22067	0.11483	3829.48315	439.7395501
21935	21839	0.12820	0.00000	0
21935	22001	0.06916	0.00000	0
21938	21896	0.06044	693.16956	41.89516821
21938	21992	0.06044	611.80176	36.97729837
21940	21895	0.06608	3743.43164	247.3659628
21940	21997	0.06157	3772.82642	232.2929227
21943	21589	1.08144	8500.99805	9193.319331
21943	22210	0.55871	8791.63086	4911.972078
21945	21958	0.05291	1677.62793	88.76329378
21945	22127	0.99414	1396.71191	1388.527178
21949	21883	0.08387	1687.49060	141.5298366
21949	22023	0.06031	1528.25659	92.16915494
21952	834	0.15310	108.06104	16.54414522
21952	1950	0.16396	35.41220	5.806184312
21952	21906	0.17273	511.90237	88.42089637
21952	22043	0.22272	597.40448	133.0539258
21957	21800	0.18775	1367.56030	256.7594463
21957	22119	0.19420	1373.76074	266.7843357
21958	21945	0.05291	1396.71191	73.90002716
21958	21967	0.02801	1677.62793	46.99035832
21960	21794	0.20011	1809.68054	362.1351729
21960	22012	0.04877	1843.42078	89.90363144
21962	21921	0.04701	832.94403	39.15669885
21962	22199	0.21181	843.78778	178.7226897
21967	21958	0.02801	1396.71191	39.1219006
21967	21983	0.12429	1365.23145	169.6846169
21967	22502	0.55589	324.52356	180.3994018
21970	2041	0.65326	0.00000	0
21970	21853	0.20144	178.84637	36.02681277
21970	22123	0.24274	180.62277	43.84437119
21971	1911	0.24910	129.97078	32.3757213
21971	1912	0.49924	106.92721	53.38234032
21971	21503	0.50193	416.92139	209.2653533
21971	22034	0.05086	219.09470	11.14315644
21978	21901	0.09289	954.95721	88.70597524
21978	22058	0.06267	680.74164	42.66207858
21979	22017	0.03029	0.00000	0

21983	21967	0.12429	1087.31335	135.1421763
21983	22022	0.34651	1365.23145	473.0663497
21984	22046	0.04671	2245.02319	104.8650332
21985	21705	0.34847	364.24979	126.9301243
21985	22457	0.48414	368.69983	178.5023357
21987	21930	0.06100	56.41264	3.44117104
21987	22074	0.06044	423.69977	25.6084141
21990	21792	0.23999	430.51389	103.3190285
21990	22011	0.01516	409.42300	6.20685268
21992	21938	0.06044	693.16956	41.89516821
21992	22086	0.06159	611.80176	37.6808704
21993	19354	0.04557	5767.31396	262.8164972
21993	21861	0.01875	5932.96191	111.2430358
21996	22019	0.01066	0.00000	0
21997	21940	0.06157	3743.43164	230.4830861
21997	22104	0.06717	3772.82642	253.4207506
21998	21999	0.40937	1217.93689	498.5868247
21998	22011	0.99839	1046.64075	1044.955658
21999	2026	1.08146	513.92523	555.7895792
21999	21998	0.40937	1046.64075	428.4633238
21999	22007	0.08994	984.77045	88.57025427
22001	784	0.24974	0.00000	0
22001	21935	0.06916	0.00000	0
22001	22045	0.02774	0.00000	0
22002	22030	0.01291	0.00000	0
22006	30194	0.14961	2470.83276	369.6612892
22007	21999	0.08994	813.51172	73.1672441
22007	22017	0.50056	984.77045	492.9366965
22011	21990	0.01516	430.51389	6.526590572
22011	21998	0.99839	1217.93689	1215.976012
22011	22027	0.49990	702.38544	351.1224815
22012	21960	0.04877	1809.68054	88.25811994
22012	22033	0.01121	1843.42078	20.66474694
22014	22015	0.02965	813.51172	24.1206225
22014	22019	0.02209	984.77045	21.75357924
22015	22014	0.02965	984.77045	29.19844384
22015	22016	0.19238	813.51172	156.5033847
22016	22015	0.19238	984.77045	189.4501392
22016	22018	0.12893	813.51172	104.8860661
22017	21979	0.03029	0.00000	0
22017	22007	0.50056	813.51172	407.2114266
22017	22018	0.12548	984.77045	123.5689961
22018	22016	0.12893	984.77045	126.9664541
22018	22017	0.12548	813.51172	102.0794506
22019	21996	0.01066	0.00000	0
22019	22014	0.02209	813.51172	17.97047389
22019	22021	0.24890	984.77045	245.109365
22021	227	0.25304	38.41067	9.719435937
22021	22019	0.24890	813.51172	202.4830671
22021	22023	0.25097	976.33801	245.0315504
22022	936	0.23362	67.52882	15.77608293
22022	2001	0.45560	31.67462	14.43095687
22022	21983	0.34651	1087.31335	376.7649489
22022	22042	0.22959	1397.99561	320.9658121

22023	21949	0.06031	1687.49060	101.7725581
22023	22021	0.25097	805.46796	202.1482939
22023	22099	0.05218	1440.69922	75.1756853
22024	21789	0.26122	400.93155	104.7313395
22024	22062	0.02924	408.50925	11.94481047
22026	21923	0.09336	840.41132	78.46080084
22026	22441	0.43394	843.20514	365.9004385
22027	2025	1.61652	381.81787	617.2162232
22027	22011	0.49990	894.77252	447.2967827
22027	22030	0.50056	823.64154	412.2820093
22030	22002	0.01291	0.00000	0
22030	22027	0.50056	1018.56549	509.8531417
22030	22054	0.50271	823.64154	414.0528386
22033	22012	0.01121	1809.68054	20.28651885
22033	22063	0.02187	1843.42078	40.31561246
22034	21971	0.05086	216.52362	11.01239131
22034	22452	0.44604	219.09470	97.72499999
22038	22039	0.00965	0.00000	0
22038	22076	0.02800	5617.73193	157.296494
22039	21897	0.14275	6194.92236	884.3251669
22039	22038	0.00965	0.00000	0
22041	22042	0.19423	841.03387	163.3540086
22041	22047	0.07668	1101.09131	84.43168165
22042	937	0.24572	296.90424	72.95530985
22042	22022	0.22959	1131.65845	259.8174635
22042	22041	0.19423	1101.09131	213.8649651
22043	21952	0.22272	575.65515	128.209915
22043	22125	0.21244	597.40448	126.9126077
22045	22001	0.02774	0.00000	0
22045	22079	0.02355	0.00000	0
22046	22093	0.02746	2245.02319	61.6483368
22047	22041	0.07668	841.03387	64.49047715
22047	22064	0.05999	1101.09131	66.05446769
22048	21913	0.12677	224.35982	28.44209438
22048	22294	0.27052	241.25157	65.26337472
22050	20916	2.17986	477.34988	1040.555909
22050	22708	1.12308	491.10297	551.5479235
22054	939	0.25060	398.08014	99.75888308
22054	940	0.25151	1448.62573	364.3438574
22054	22030	0.50271	1018.56549	512.0430575
22054	22055	0.04275	1799.97693	76.94901376
22055	22054	0.04275	2079.95239	88.91796467
22055	22056	0.06068	1799.97693	109.2226001
22056	22055	0.06068	2079.95239	126.211511
22056	22059	0.06826	1799.97693	122.8664252
22058	21978	0.06267	954.95721	59.84716835
22058	22066	0.20582	921.27142	189.6160837
22058	22126	0.06211	3368.80029	209.236186
22059	22056	0.06826	2079.95239	141.9775501
22059	22060	0.06688	1799.97693	120.3824571
22060	22059	0.06688	2079.95239	139.1072158
22060	22061	0.06757	1799.97693	121.6244412
22061	22060	0.06757	2079.95239	140.542383
22061	22063	0.07309	1799.97693	131.5603138

22062	835	0.16919	29.48128	4.987937763
22062	22024	0.02924	400.93155	11.72323852
22062	22155	0.10501	380.82370	39.99029674
22063	22033	0.02187	1809.68054	39.57771341
22063	22061	0.07309	2079.95239	152.0237202
22063	22064	0.06757	841.03387	56.8286586
22063	22097	0.01906	1120.82422	21.36290963
22064	22047	0.05999	841.03387	50.45362186
22064	22063	0.06757	1101.09131	74.40073982
22066	708	0.23783	965.59619	229.6477419
22066	710	0.13162	69.40044	9.134485913
22066	22058	0.20582	2766.05737	569.3099279
22066	22068	0.04521	623.29053	28.17896486
22067	21931	0.11483	3405.31934	391.0328198
22067	22304	0.26954	3829.48315	1032.198888
22068	22066	0.04521	2488.22949	112.4928552
22068	22070	0.07171	623.29053	44.69616391
22069	22006	0.03949	2470.83276	97.57318569
22070	22068	0.07171	2488.22949	178.4309367
22070	22071	0.05172	623.29053	32.23658621
22071	22070	0.05172	2488.22949	128.6912292
22071	22074	0.11931	623.29053	74.36479313
22074	21987	0.06044	56.41264	3.409579962
22074	22071	0.11931	2488.22949	296.8706605
22074	22078	0.12762	2298.64990	293.3537002
22074	22130	0.05988	1021.96027	61.19498097
22076	22079	0.19582	0.00000	0
22076	22116	0.03639	5617.73193	204.4292649
22077	22039	0.02799	6194.92236	173.3958769
22078	709	0.24315	134.80397	32.77758531
22078	711	0.13599	288.18323	39.19003745
22078	22074	0.12762	2396.04370	305.783097
22078	22080	0.02273	2303.24170	52.35268384
22079	22045	0.02355	0.00000	0
22079	22076	0.19582	0.00000	0
22080	22078	0.02273	2428.28320	55.19487714
22080	22086	0.09243	2303.24170	212.8886303
22086	21992	0.06159	693.16956	42.6923132
22086	22080	0.09243	2428.28320	224.4462162
22086	22088	0.04551	2236.54004	101.7849372
22086	22147	0.07499	696.16296	52.20526037
22088	22086	0.04551	2554.19702	116.2415064
22088	22092	0.05586	2236.54004	124.9331266
22090	22069	0.01184	2470.83276	29.25465988
22090	22093	0.01036	464.70291	4.814322148
22092	22088	0.05586	2554.19702	142.6774455
22092	22095	0.08689	2236.54004	194.3329641
22093	806	0.29776	529.40436	157.6354422
22093	22090	0.01036	78.08369	0.808947028
22093	22134	0.06057	96.90133	5.869313558
22093	22162	0.09695	2528.97388	245.1840177
22095	22092	0.08689	2554.19702	221.9341791
22095	22096	0.05861	2236.54004	131.0836117
22096	722	0.24715	5328.36670	1316.90583

22096	723	0.14369	71.32448	10.24861453
22096	22095	0.05861	2554.19702	149.7014873
22096	22098	0.09930	3274.91187	325.1987487
22097	22063	0.01906	1107.00208	21.09945964
22097	22108	0.01177	1120.82422	13.19210107
22098	22096	0.09930	3536.29858	351.154449
22098	22100	0.15032	3274.91187	492.2847523
22099	22023	0.05218	1429.06323	74.56851934
22099	22214	0.13801	1440.69922	198.8308994
22100	21914	0.15169	3649.97388	553.6645379
22100	22098	0.15032	3536.29858	531.5764025
22100	22101	0.25028	2032.94238	508.8048189
22100	22159	0.08675	7352.91797	637.8656339
22101	736	0.25078	1061.51318	266.2062753
22101	737	0.12765	626.61938	79.98796386
22101	22100	0.25028	2050.77588	513.2681872
22101	22104	0.24224	1037.55688	251.3377786
22102	756	0.23622	16.43243	3.881668615
22102	22104	0.25787	757.17285	195.2521628
22102	22120	0.02632	677.56415	17.83348843
22104	21997	0.06717	3743.43164	251.4463033
22104	22101	0.24224	1020.53741	247.2149822
22104	22102	0.25787	661.02283	170.4579572
22104	22211	0.12540	3018.81348	378.5592104
22108	22097	0.01177	1107.00208	13.02941448
22108	22189	0.09473	1120.82422	106.1756784
22113	22131	0.06202	19708.39453	1222.314629
22116	22117	0.00965	15.20108	0.146690422
22116	22145	0.04031	6250.65820	251.964032
22117	22077	0.03639	6194.92236	225.4332247
22117	22116	0.00965	648.12744	6.254429796
22117	22118	0.12549	757.17285	95.01762095
22118	22117	0.12549	661.02283	82.95175494
22118	22120	0.12480	757.17285	94.49517168
22119	21957	0.19420	1367.56030	265.5802103
22119	22131	0.02014	840.41022	16.92586183
22119	22137	0.03075	533.35052	16.40052849
22120	757	0.10488	16.54133	1.73485469
22120	22102	0.02632	773.60529	20.36129123
22120	22118	0.12480	661.02283	82.49564918
22121	21527	1.27756	19640.57031	25092.00701
22123	21970	0.24274	178.84637	43.41316785
22123	22132	0.06937	180.62277	12.52980155
22125	836	0.24315	6.88898	1.675055487
22125	837	0.09136	23.50089	2.14704131
22125	22043	0.21244	575.65515	122.2921801
22125	22242	0.34460	590.19672	203.3817897
22126	22058	0.06211	1798.22986	111.6880566
22126	22175	0.05932	3368.80029	199.8372332
22127	21945	0.99414	1677.62793	1667.79703
22127	22361	0.55623	1396.71191	776.8930657
22130	22074	0.05988	2422.21826	145.0424294
22130	22206	0.07469	1021.96027	76.33021257
22131	22119	0.02014	1367.56030	27.54266444

22131	22137	0.01969	19053.32617	375.1599923
22131	22140	0.01270	865.48322	10.99163689
22132	2042	0.63315	0.00000	0
22132	22123	0.06937	178.84637	12.40657269
22132	22138	0.01700	180.62277	3.07058709
22134	22321	0.35045	96.90133	33.9590711
22137	22149	0.03293	19586.67578	644.9892334
22138	22132	0.01700	178.84637	3.04038829
22138	22220	0.24788	180.62277	44.77277223
22140	22121	0.06350	19614.85156	1245.543074
22140	22131	0.01270	737.56384	9.367060768
22140	22172	0.04364	49.37435	2.154696634
22144	22117	0.03975	6923.99854	275.228942
22144	22145	0.00967	0.00000	0
22145	22144	0.00967	0.00000	0
22145	22201	0.05552	6250.65820	347.0365433
22147	22086	0.07499	584.91541	43.8628066
22147	22209	0.05536	696.16296	38.53958147
22148	22140	0.02204	19335.20703	426.1479629
22149	22255	0.39512	19586.67578	7739.087334
22152	22148	0.01559	19335.20703	301.4358776
22152	22172	0.06151	191.69450	11.7911287
22155	22062	0.10501	373.32214	39.20255792
22155	22247	0.12026	380.82370	45.79785816
22159	22100	0.08675	7731.67139	670.7224931
22159	22217	0.06609	7352.91797	485.9543486
22162	22213	0.04592	2528.97388	116.1304806
22163	22090	0.09747	2857.45190	278.5158367
22172	22121	0.08172	25.71850	2.10171582
22172	22140	0.04364	201.09946	8.775980434
22172	22202	0.02589	241.06885	6.241272527
22175	703	0.16443	83.77684	13.7754258
22175	710	0.19892	209.39317	41.65248938
22175	22126	0.05932	1798.22986	106.6709953
22175	22224	0.06211	3501.87915	217.501714
22189	22108	0.09473	1107.00208	104.866307
22189	22270	0.11659	1120.82422	130.6768958
22199	21962	0.21181	832.94403	176.425875
22199	22222	0.04683	843.78778	39.51458174
22201	757	0.25814	412.79474	106.5588342
22201	785	0.55976	1047.85071	586.5449134
22201	22144	0.05494	6923.99854	380.4044798
22201	22248	0.08520	7268.71338	619.29438
22202	837	0.31188	63.30843	19.74463315
22202	22172	0.02589	226.81795	5.872316726
22202	22215	0.02807	177.76042	4.989734989
22206	710	0.29390	1.28704	0.378261056
22206	711	0.12229	208.39647	25.48480432
22206	22130	0.07469	2422.21826	180.9154818
22206	22225	0.04507	1375.58081	61.99742711
22209	711	0.12123	235.78246	28.58390763
22209	723	0.24994	83.05363	20.75842428
22209	22147	0.05536	584.91541	32.3809171
22209	22212	0.00814	780.75592	6.355353189

22210	21943	0.55871	8500.99805	4749.592621
22210	22286	0.51815	8791.63086	4555.38353
22211	22104	0.12540	2876.24927	360.6816585
22211	22218	0.02757	3018.81348	83.22868764
22212	22209	0.00814	742.11993	6.04085623
22212	22313	0.12039	780.75592	93.99520521
22213	22329	0.12208	2528.97388	308.7371313
22214	22099	0.13801	1429.06323	197.2250164
22214	22244	0.06366	1440.69922	91.71491235
22215	22202	0.02807	168.26276	4.723135673
22215	22242	0.06496	177.76042	11.54731688
22217	723	0.24494	902.53534	221.0670062
22217	737	0.24642	794.68060	195.8251935
22217	22159	0.06604	7731.67139	510.5995786
22217	22282	0.07562	8645.72461	653.789695
22218	737	0.25149	571.51947	143.7314315
22218	757	0.25239	290.89270	73.41840855
22218	22211	0.02757	2876.24927	79.29819237
22218	22226	0.01447	3679.39282	53.24081411
22220	22138	0.24788	178.84637	44.3324382
22220	22343	0.19358	180.62277	34.96495582
22222	22199	0.04683	832.94403	39.00676892
22222	22351	0.13179	843.78778	111.2027915
22224	22175	0.06211	2069.14355	128.5145059
22224	22255	0.05148	3501.87915	180.2767386
22225	22206	0.04507	2401.85181	108.2514611
22225	22280	0.05988	1375.58081	82.3697789
22226	22218	0.01447	3481.03174	50.37052928
22226	22349	0.10139	3679.39282	373.053638
22242	22125	0.34460	562.68250	193.9003895
22242	22215	0.06496	168.26276	10.93034889
22242	22253	0.01379	478.76743	6.60220286
22244	227	0.25426	6.70234	1.704136968
22244	22214	0.06366	1429.06323	90.97416522
22244	22389	0.10804	1447.63989	156.4030137
22247	22155	0.12026	373.32214	44.89572056
22247	22569	0.29769	380.82370	113.3674073
22248	22274	0.01625	7268.71338	118.1165924
22250	22201	0.08685	8023.72607	696.8606092
22253	22242	0.01379	441.75562	6.09181
22253	22411	0.26521	478.76743	126.9739101
22255	22224	0.05148	2069.14355	106.51951
22255	22278	0.01287	7662.09424	98.61115287
22255	22299	0.46260	15868.32129	7340.685429
22269	22250	0.01457	8023.72607	116.9056888
22269	22274	0.00903	7029.98389	63.48075453
22270	937	0.33401	250.00780	83.50510528
22270	940	0.44176	105.39560	46.55956026
22270	22189	0.11659	1107.00208	129.0653725
22270	22302	0.02578	1050.56653	27.08360514
22274	22312	0.19078	5301.11377	1011.346485
22274	22372	0.07617	8997.58398	685.3459718
22278	22152	0.41506	19526.90039	8104.835276
22278	22255	0.01287	2511.00391	32.31662032

22278	22410	0.11807	5378.39453	635.0270422
22280	22225	0.05988	2401.85181	143.8228864
22280	22303	0.03103	1375.58081	42.68427253
22282	22292	0.24642	5762.47754	1419.989715
22282	22297	0.01343	7045.19385	94.61695341
22283	22217	0.07615	9023.11523	687.1102248
22283	22282	0.00692	4161.94727	28.80067511
22286	1996	2.06770	447.72046	925.7515951
22286	22210	0.51815	8500.99805	4404.79214
22286	22291	0.49642	9096.62988	4515.749005
22288	22278	0.07432	14023.23047	1042.206489
22290	22269	0.26879	5950.30859	1599.383446
22290	22312	0.46462	10754.60254	4996.803432
22291	22286	0.49642	8806.46777	4371.70673
22291	22293	0.47436	9096.62988	4315.07735
22292	22290	0.47880	16704.91211	7998.311918
22293	22291	0.47436	8806.46777	4177.436051
22293	22294	0.02621	9096.62988	238.4226692
22294	22048	0.27052	224.35982	60.69381851
22294	22293	0.02621	8806.46777	230.8175203
22294	22304	1.00046	9520.97461	9525.354258
22294	22309	0.01064	1642.05200	17.47143328
22296	22292	0.02553	10942.43359	279.3603296
22297	22356	0.04142	7045.19385	291.8119293
22298	22283	0.01289	9285.44629	119.6894027
22299	22280	0.03733	2401.85181	89.66112807
22299	22300	0.01656	13466.46875	223.0047225
22300	22303	0.03518	13466.46875	473.7503706
22302	22270	0.02578	1040.94165	26.83547574
22302	22333	0.01569	1050.56653	16.48338886
22303	22318	0.33732	14842.04980	5006.520239
22304	22067	0.26954	3405.31934	917.8697749
22304	22294	1.00046	9424.53906	9428.874348
22304	22315	0.43782	13154.61914	5759.355352
22304	22523	0.22885	1602.73865	366.7867401
22305	22330	0.14898	2492.88623	371.3901905
22306	22315	0.27008	12525.14551	3382.791299
22307	22163	0.28867	810.63843	234.0069956
22307	22330	0.16987	7394.88916	1256.169822
22308	22314	0.32821	16055.71582	5269.646489
22309	22294	0.01064	1431.43286	15.23044563
22309	22517	0.21900	1642.05200	359.609388
22310	22308	0.02965	16055.71582	476.0519741
22311	22310	0.07860	16055.71582	1261.979263
22312	22311	0.01448	16055.71582	232.4867651
22313	22212	0.12039	742.11993	89.34381837
22313	22337	0.01287	780.75592	10.04832869
22314	22307	0.13587	8205.52734	1114.885
22314	22323	0.08296	7850.18848	651.2516363
22315	22304	0.43782	12525.14551	5483.759207
22315	22334	0.26907	13154.61914	3539.513372
22316	22329	0.14247	5309.71973	756.4757699
22317	22326	0.43747	16680.97461	7297.425963
22318	22283	0.37604	3899.61621	1466.41168

22318	22319	0.01793	10942.43359	196.1978343
22319	22296	0.58516	10942.43359	6403.07444
22320	22288	0.38764	14023.23047	5435.965059
22321	22306	0.08585	12525.14551	1075.283742
22322	22320	0.01725	14023.23047	241.9007256
22323	22335	0.05809	7850.18848	456.0174488
22324	22317	0.04559	16680.97461	760.4856325
22326	22331	0.01727	16680.97461	288.0804315
22327	22322	0.04414	13926.13965	614.6998042
22327	22370	0.05312	547.29480	29.07229978
22328	22316	0.00999	5309.71973	53.0441001
22328	22336	0.13588	4578.05566	622.0662031
22329	22375	0.03809	7838.69336	298.5758301
22330	22328	0.07930	9887.77539	784.1005884
22331	22344	0.62380	10494.81543	6546.665865
22331	22367	0.26961	6186.15869	1667.850244
22332	22163	0.16854	2046.81348	344.9699439
22332	22305	0.01073	2492.88623	26.74866925
22333	22302	0.01569	1040.94165	16.33237449
22333	22407	0.07455	1050.56653	78.31973481
22334	22346	0.08585	9534.22949	818.5136017
22334	22363	0.14628	3620.38867	529.5904546
22335	22347	0.19541	7850.18848	1534.005331
22336	22321	0.05750	12428.24414	714.6240381
22337	22313	0.01287	742.11993	9.551083499
22337	22439	0.11081	780.75592	86.5155635
22338	22339	0.03034	16947.35156	514.1826463
22339	22340	0.07860	11279.13281	886.5398389
22339	22372	0.28311	5668.21924	1604.729549
22340	22341	0.01310	11279.13281	147.7566398
22341	22324	0.42216	11279.13281	4761.598707
22342	22338	0.32823	16947.35156	5562.629203
22343	22220	0.19358	178.84637	34.6210803
22343	22506	0.20485	180.62277	37.00057443
22344	22348	0.02625	14473.43457	379.9276575
22346	22353	0.04790	9534.22949	456.6895926
22347	22336	0.18505	7850.18848	1452.677378
22348	22327	0.32847	14473.43457	4754.089053
22349	22226	0.10131	3481.03174	352.6633256
22349	22352	0.25386	259.38843	65.84834684
22349	22355	0.24620	315.48145	77.67153299
22349	22436	0.09684	3410.18164	330.24199
22350	22342	0.09607	16947.35156	1628.132064
22351	22222	0.13179	832.94403	109.7736937
22351	22405	0.08216	843.78778	69.325604
22352	22349	0.25386	285.04053	72.36038895
22352	22362	0.12551	267.78232	33.60935898
22352	22438	0.09629	82.79704	7.972526982
22353	22358	0.19539	9534.22949	1862.8931
22354	22350	0.05676	10047.99902	570.3244244
22355	22349	0.24620	280.57910	69.07857442
22355	22364	0.11994	315.48145	37.83884511
22356	22367	0.01007	7045.19385	70.94510207
22357	22298	0.04147	9285.44629	385.0674576

22358	22359	0.02137	9534.22949	203.7464842
22359	22354	0.16220	9534.22949	1546.452023
22361	22127	0.55623	1677.62793	933.1469835
22361	22580	0.55338	1396.71191	772.9124368
22362	759	0.11045	238.50327	26.34268617
22362	22352	0.12551	205.13380	25.74634324
22362	22397	0.12587	531.35016	66.88104464
22363	22377	0.13762	81.83772	11.26250703
22363	22525	0.27819	3538.55103	984.389511
22364	738	0.11181	94.83284	10.60325984
22364	22355	0.11994	280.57910	33.65265725
22364	22412	0.13855	1144.38855	158.5550336
22367	22368	0.00896	5761.85645	51.62623379
22367	22412	0.04925	7469.49609	367.8726824
22368	22344	0.34774	3978.61914	1383.52502
22368	22357	0.01007	9285.44629	93.50444414
22370	22322	0.04277	97.09048	4.15255983
22370	22404	0.03862	547.29480	21.13652518
22371	22269	0.07670	9103.40137	698.2308851
22371	22324	0.22665	5401.84131	1224.327333
22372	22371	0.00898	4494.69287	40.36234197
22372	22399	0.02967	10171.11035	301.7768441
22373	22332	0.03697	4539.69971	167.8326983
22375	22387	0.01184	513.76953	6.083031235
22375	22525	0.18309	7324.92383	1341.120304
22376	22354	0.15374	513.76953	78.98692754
22376	22382	0.01213	81.83772	0.992691544
22377	22376	0.07793	595.60724	46.41567221
22382	22373	0.14008	81.83772	11.46382782
22387	22377	0.14206	513.76953	72.98609943
22389	22244	0.10804	1435.76550	155.1201046
22389	22497	0.13858	1447.63989	200.613936
22397	22362	0.12587	443.63708	55.84059926
22397	22371	0.02799	10010.54980	280.1952889
22399	22432	0.04142	10171.11035	421.2873907
22404	22370	0.03862	97.09048	3.749634338
22404	22464	0.08900	547.29480	48.7092372
22405	22351	0.08216	832.94403	68.4346815
22405	22414	0.04999	843.78778	42.18095112
22407	22333	0.07455	1040.94165	77.60220001
22407	22488	0.10650	1050.56653	111.8853354
22410	712	0.21468	480.53986	103.1622971
22410	22278	0.11807	5730.97510	676.6562301
22410	22556	0.15164	4897.85449	742.7106549
22411	704	0.09549	143.87794	13.73890449
22411	22253	0.26521	441.75562	117.158008
22411	22556	0.30023	558.05273	167.5441711
22412	22364	0.13855	132.53711	18.36301659
22412	22413	0.01040	2478.74292	25.77892637
22412	30075	0.06504	6045.46143	393.1968114
22413	724	0.24394	1417.69971	345.8336673
22413	22368	0.05039	7502.20850	378.0362863
22413	22412	0.01040	42.85645	0.44570708
22414	22405	0.04999	832.94403	41.63887206

22414	22435	0.09447	843.78778	79.71263158
22415	21799	0.95975	2774.61157	2662.933454
22415	22423	0.02326	2778.19287	64.62076616
22423	502	0.60160	279.28271	168.0164783
22423	1821	1.21023	149.65643	181.1187013
22423	22415	0.02326	2774.61157	64.53746512
22423	22700	0.79699	2499.11084	1991.766348
22432	786	0.15496	430.57724	66.72224911
22432	22433	0.00965	715.48969	6.904475509
22432	22552	0.12439	9542.86621	1187.037128
22433	22397	0.04367	9922.83594	433.3302455
22433	22432	0.00965	123.15667	1.188461866
22435	22414	0.09447	832.94403	78.68822251
22435	22583	0.24354	843.78778	205.4960759
22436	739	0.14601	156.85909	22.90299573
22436	758	0.14124	186.22656	26.30263933
22436	22349	0.09684	3221.07080	311.9284963
22436	22565	0.12930	3071.87964	397.1940375
22438	22352	0.09629	171.09767	16.47499464
22438	22468	0.05540	82.79704	4.586956016
22439	724	0.24278	125.17526	30.39004962
22439	22337	0.11081	742.11993	82.23430944
22439	22469	0.05150	655.58069	33.76240554
22441	22026	0.43394	840.41132	364.6880882
22441	22483	0.05704	843.20514	48.09642119
22452	22034	0.44604	216.52362	96.57819546
22452	22813	0.49914	219.09470	109.3589286
22456	22350	0.27427	6899.35254	1892.285421
22457	1912	0.70136	93.31716	65.44892334
22457	1956	0.75180	78.51006	59.02386311
22457	21985	0.48414	364.24979	176.3478933
22457	22470	0.02405	210.94020	5.07311181
22461	4703	0.01104	3322.55493	36.68100643
22461	4704	0.17822	3233.21899	576.2242884
22462	22413	0.07636	5113.05762	390.4330799
22464	22404	0.08900	97.09048	8.64105272
22464	22521	0.05600	547.29480	30.6485088
22468	758	0.12444	2.99612	0.372837173
22468	759	0.08312	303.91119	25.26109811
22468	22438	0.05540	171.09767	9.478810918
22468	22560	0.07056	203.01901	14.32502135
22469	22439	0.05150	623.02466	32.08576999
22469	22542	0.06380	655.58069	41.82604802
22470	22457	0.02405	207.57571	4.992195826
22470	22824	0.49141	210.94020	103.6581237
22483	1953	0.79913	131.39871	105.0046511
22483	1956	0.74313	126.34831	93.89321961
22483	22441	0.05704	840.41132	47.93706169
22483	22850	0.51111	654.97235	334.7629178
22488	22407	0.10650	1040.94165	110.8602857
22488	22590	0.09865	1050.56653	103.6383882
22497	22389	0.13858	1435.76550	198.968383
22497	22852	0.50437	1447.63989	730.1461313
22502	2001	0.33073	49.26417	16.29313894

22502	21967	0.55589	321.52563	178.7328825
22502	23201	1.00060	283.28894	283.4589134
22506	2042	0.54026	0.00000	0
22506	22343	0.20485	178.84637	36.63667889
22506	24093	0.44254	180.62277	79.93280064
22517	22309	0.21900	1431.43286	313.4837963
22517	22518	0.62605	181.48596	113.6192853
22517	22748	0.31162	1492.39795	465.0610492
22518	22517	0.62605	177.83820	111.3356051
22518	22519	0.06289	181.48596	11.41365202
22519	1681	0.36738	1323.58679	486.2593149
22519	22518	0.06289	177.83820	11.1842444
22519	22520	0.18464	1202.39648	222.0104861
22520	22519	0.18464	1173.93274	216.7549411
22520	22523	0.12756	1202.39648	153.377695
22521	712	0.29645	380.32092	112.7461367
22521	713	0.05611	174.28200	9.77896302
22521	22464	0.05600	97.09048	5.43706688
22522	22373	0.18201	4457.86230	811.3755172
22523	22304	0.22885	1711.61206	391.7024199
22523	22520	0.12756	1173.93274	149.7468603
22523	22526	0.25235	484.34613	122.2247459
22525	22595	0.07222	10863.47559	784.5602071
22526	809	0.11794	265.64413	31.33006869
22526	22523	0.25235	564.75580	142.5161261
22526	22530	0.19447	234.70166	45.64243182
22526	22684	0.20943	196.11438	41.0722346
22530	22526	0.19447	274.02570	53.28977788
22530	22534	0.33243	235.08160	78.14817629
22531	22532	0.04896	488.51721	23.9178026
22531	22533	0.04551	0.00000	0
22531	22584	0.04871	476.27542	23.19937571
22532	22531	0.04896	476.27542	23.31844456
22532	22535	0.08250	488.51721	40.30266983
22533	22531	0.04551	0.00000	0
22533	22537	0.04827	0.00000	0
22534	808	0.12073	174.88165	21.1134616
22534	810	0.44040	108.28472	47.68859069
22534	22530	0.33243	243.21722	80.85270044
22534	22539	0.12677	211.78357	26.84780317
22535	797	0.14584	488.51721	71.24534991
22535	22532	0.08250	476.27542	39.29272215
22537	22533	0.04827	0.00000	0
22537	22538	0.04353	0.00000	0
22538	798	0.20980	0.00000	0
22538	22537	0.04353	0.00000	0
22538	22540	0.02545	0.00000	0
22539	22534	0.12677	223.92169	28.38655264
22539	22541	0.02827	211.78357	5.987121524
22540	22538	0.02545	0.00000	0
22540	22546	0.04694	0.00000	0
22541	22539	0.02827	223.92169	6.330266176
22541	22573	0.07689	211.78357	16.2840387
22542	713	0.18866	294.19864	55.50351542

22542	22469	0.06380	623.02466	39.74897331
22542	22548	0.04828	570.90155	27.56312683
22542	22578	0.02799	669.32800	18.73449072
22544	22546	0.04413	0.00000	0
22545	22549	0.11721	113.61913	13.31729823
22545	22596	0.07092	155.04463	10.99576516
22546	22540	0.04694	0.00000	0
22546	22544	0.04413	0.00000	0
22547	22548	0.04757	463.06567	22.02803392
22547	22557	0.04834	570.90155	27.59738093
22548	22542	0.04828	463.06567	22.35681055
22548	22547	0.04757	570.90155	27.15778673
22549	22545	0.11721	155.04463	18.17278108
22549	22550	0.08238	113.61913	9.359943929
22550	786	0.13564	37.27755	5.056326882
22550	787	0.24650	2648.26318	652.7968739
22550	22549	0.08238	155.04463	12.77257662
22550	22551	0.07069	2755.95435	194.818413
22551	22550	0.07069	2726.32568	192.7239623
22551	22555	0.03587	2755.95435	98.85608253
22552	22553	0.00965	3439.86646	33.19471134
22552	22554	0.02207	2726.32568	60.17000776
22552	22637	0.12651	7124.50537	901.3211744
22553	22433	0.12436	9330.50391	1160.341466
22553	22552	0.00965	991.87640	9.57160726
22553	22558	0.12619	1428.39758	180.2494906
22554	22552	0.02207	2755.95435	60.8239125
22554	22555	0.02483	2726.32568	67.69466663
22555	22551	0.03587	2726.32568	97.79330214
22555	22554	0.02483	2755.95435	68.43034651
22556	22410	0.15164	4909.58789	744.4899076
22556	22411	0.30023	519.05652	155.836339
22556	22605	0.14824	5304.12793	786.2839243
22557	725	0.18139	421.56677	76.46799641
22557	22547	0.04834	463.06567	22.38459449
22557	22559	0.04898	886.73413	43.43223769
22558	761	0.12210	177.96829	21.72992821
22558	22553	0.12619	1587.97803	200.3869476
22558	22560	0.12551	1576.95117	197.9231413
22559	22557	0.04898	731.86584	35.84678884
22559	22562	0.05103	886.73413	45.25004265
22560	22468	0.07056	218.04964	15.3855826
22560	22558	0.12551	1765.94629	221.6439189
22560	22561	0.05929	1820.26147	107.9233026
22560	22636	0.12203	532.76605	65.01344108
22561	22560	0.05929	2015.11658	119.476262
22561	22564	0.06828	1820.26147	124.2874532
22562	724	0.12872	514.44196	66.21896909
22562	22559	0.05103	731.86584	37.34711382
22562	22570	0.12060	1390.94800	167.7483288
22563	22565	0.06274	1735.78369	108.9030687
22563	22566	0.05933	1625.85815	96.46216404
22564	758	0.07117	305.88919	21.77013365
22564	760	0.12509	125.28155	15.67146909

22564	22561	0.06828	2015.11658	137.5921601
22564	22565	0.12479	1566.28931	195.457243
22565	22436	0.12930	2892.79590	374.0385099
22565	22563	0.06274	1625.85815	102.0063403
22565	22564	0.12479	1848.16479	230.6324841
22565	22601	0.06157	3114.89355	191.7839959
22566	22563	0.05933	1735.78369	102.9840463
22566	22567	0.02272	1625.85815	36.93949717
22567	739	0.12439	262.53912	32.65724114
22567	741	0.12618	75.30406	9.501866291
22567	22566	0.02272	1735.78369	39.43700544
22567	22568	0.03939	1737.51685	68.44078872
22568	22567	0.03939	1836.21692	72.32858448
22568	22571	0.06482	1737.51685	112.6258422
22569	838	0.18809	43.77307	8.233276736
22569	1953	0.78699	202.83121	159.626134
22569	22247	0.29769	373.32214	111.1342679
22569	22765	0.32544	138.25027	44.99216787
22570	726	0.24423	26.53617	6.480928799
22570	22562	0.12060	1134.98999	136.8797928
22570	22572	0.02771	1364.41187	37.80785292
22571	22568	0.06482	1836.21692	119.0235808
22571	22574	0.12756	1737.51685	221.6376494
22572	22570	0.02771	1108.05261	30.70413782
22572	22576	0.09732	1364.41187	132.7845632
22573	22541	0.07689	223.92169	17.21733874
22573	22658	0.14557	211.78357	30.82933428
22574	738	0.10454	495.24600	51.77301684
22574	740	0.13601	621.60925	84.54507409
22574	22571	0.12756	1836.21692	234.2278303
22574	22576	0.12207	1921.79004	234.5929102
22576	22462	0.08635	5113.05762	441.5125255
22576	22572	0.09732	1108.05261	107.83568
22576	22574	0.12207	1997.08826	243.7845639
22576	22652	0.12314	4282.50635	527.3478319
22578	22542	0.02799	682.06671	19.09104721
22578	22689	0.17721	669.32800	118.6116149
22580	1998	1.05399	362.13522	381.6869005
22580	22361	0.55338	1677.62793	928.3657439
22580	22741	0.56230	1578.03967	887.3317064
22583	22435	0.24354	832.94403	202.8551891
22583	22606	0.03679	843.78778	31.04295243
22584	22531	0.04871	488.51721	23.7956733
22584	22613	0.04591	476.27542	21.86580453
22590	22488	0.09865	1040.94165	102.6888938
22590	22667	0.13033	1050.56653	136.9203359
22591	22456	0.14079	6899.35254	971.3598441
22594	22522	0.07280	4457.86230	324.5323754
22594	22591	0.00675	6899.35254	46.57062965
22595	22901	0.43841	10863.47559	4762.656333
22596	22545	0.07092	113.61913	8.0578687
22596	22641	0.06719	155.04463	10.41744869
22601	22565	0.06157	3107.75952	191.3447536
22601	22643	0.06157	3114.89355	191.7839959

22605	712	0.16223	159.72548	25.91226462
22605	22556	0.14824	5276.86523	782.2425017
22605	22703	0.28743	4880.05225	1402.673418
22605	22812	0.32821	637.31543	209.1732973
22606	22583	0.03679	832.94403	30.64401086
22606	22753	0.23538	843.78778	198.6107677
22613	22584	0.04591	488.51721	22.42782511
22613	22650	0.04537	476.27542	21.60861581
22635	761	0.11997	463.76047	55.63734359
22635	22553	0.12599	6722.93311	847.0223425
22635	22637	0.01105	202.61638	2.238910999
22636	760	0.12918	5.68904	0.734910187
22636	761	0.12825	5.61179	0.719712068
22636	22560	0.12203	541.93671	66.13253672
22636	22713	0.12538	532.76605	66.79820735
22637	22635	0.01105	262.85068	2.904500014
22637	22660	0.03253	7064.27100	229.8007356
22641	22596	0.06719	113.61913	7.634069345
22641	22676	0.06327	155.04463	9.80967374
22643	741	0.13269	169.28767	22.46278093
22643	760	0.12465	334.17978	41.65550958
22643	22601	0.06157	3107.75952	191.3447536
22643	22675	0.06214	2948.73096	183.2341419
22650	22613	0.04537	488.51721	22.16402582
22650	22668	0.04479	476.27542	21.33237606
22652	740	0.14008	54.39628	7.619830902
22652	22576	0.12314	4143.35156	510.2123111
22652	22733	0.12817	4336.59570	555.8214709
22655	17323	0.02243	3803.36255	85.309422
22658	22573	0.14557	223.92169	32.59628041
22658	22698	0.06159	211.78357	13.04375008
22660	22681	0.03868	7064.27100	273.2460023
22661	22635	0.03303	6632.51514	219.0719751
22665	19271	0.00693	13646.07520	94.56730114
22665	23734	0.00284	13590.24316	38.59629057
22666	19271	0.00646	13646.39355	88.15570233
22666	23458	0.00358	13707.11816	49.07148301
22667	938	0.08832	179.71466	15.87239877
22667	22590	0.13033	1040.94165	135.6659252
22667	22688	0.02382	900.31464	21.44549472
22668	22650	0.04479	488.51721	21.88068584
22668	22696	0.03510	476.27542	16.71726724
22675	22643	0.06214	2945.79590	183.0517572
22675	22717	0.06325	2948.73096	186.5072332
22676	22641	0.06327	113.61913	7.188682355
22676	22693	0.01735	155.04463	2.690024331
22681	22682	0.00896	0.00000	0
22681	22721	0.05766	7064.27100	407.3258659
22682	22661	0.03866	6632.51514	256.4130353
22682	22681	0.00896	0.00000	0
22684	22526	0.20943	231.78386	48.5424938
22684	22707	0.03955	196.11438	7.756323729
22688	22667	0.02382	895.36938	21.32769863
22688	22844	0.24999	900.31464	225.0696569

22689	725	0.14514	271.62494	39.42364379
22689	22578	0.17721	682.06671	120.8690417
22689	22705	0.03349	879.64001	29.45914393
22693	22676	0.01735	113.61913	1.971291906
22693	22715	0.04367	155.04463	6.770798992
22696	798	0.14874	787.41058	117.1194497
22696	799	0.12618	997.93976	125.9200389
22696	22668	0.03510	488.51721	17.14695407
22696	22699	0.00971	2203.27686	21.39381831
22698	810	0.27776	0.00000	0
22698	22658	0.06159	223.92169	13.79133689
22698	22706	0.02072	211.78357	4.38815557
22699	22696	0.00971	2216.43188	21.52155355
22699	22723	0.03472	2203.27686	76.49777258
22700	22423	0.79699	2503.22656	1995.046536
22700	22835	0.36745	2499.11084	918.2982782
22703	22605	0.28743	4757.09424	1367.331597
22703	22760	0.18191	4880.05225	887.7303048
22705	22689	0.03349	953.69165	31.93913336
22705	22751	0.06604	879.64001	58.09142626
22706	22698	0.02072	223.92169	4.639657417
22706	22739	0.03136	211.78357	6.641532755
22707	811	0.15351	29.20200	4.48279902
22707	22684	0.03955	231.78386	9.167051663
22707	22745	0.04781	166.91238	7.980080888
22708	22050	1.12308	477.34988	536.1021032
22708	22973	0.45219	491.10297	222.071852
22712	761	0.12657	112.51866	14.2414868
22712	763	0.13412	395.45691	53.03868077
22712	22713	0.12160	848.30780	103.1542285
22712	22718	0.12403	427.86642	53.06827207
22713	22636	0.12538	541.93671	67.9480247
22713	22712	0.12160	887.61334	107.9337821
22713	22716	0.13013	588.13135	76.53353258
22713	22782	0.09740	372.01453	36.23421522
22715	787	0.19015	3.69702	0.702988353
22715	788	0.12457	90.06348	11.2192077
22715	22693	0.04367	113.61913	4.961747407
22715	22796	0.12989	68.70664	8.92430547
22716	760	0.12309	183.21907	22.55243533
22716	762	0.14991	5.84136	0.875678278
22716	22713	0.13013	632.93121	82.36333836
22716	22717	0.12293	410.84744	50.5054758
22717	22675	0.06325	2945.79590	186.3215907
22717	22716	0.12293	456.48166	56.11529046
22717	22725	0.10429	545.79822	56.92129636
22717	22766	0.08173	3145.12573	257.0511259
22718	787	0.19279	618.98431	119.3339851
22718	22682	0.05710	6632.51514	378.7166145
22718	22712	0.12403	374.34409	46.42989748
22718	22721	0.00898	340.24698	3.05541788
22721	22718	0.00898	6.88877	0.061861155
22721	22758	0.06830	7397.62939	505.2580873
22723	22699	0.03472	2216.43188	76.95451487

22723	22779	0.08847	2203.27686	194.9239038
22725	22717	0.10429	586.57458	61.17386295
22725	22727	0.03165	545.79822	17.27451366
22726	22728	0.06964	759.10052	52.86376021
22726	22731	0.05727	715.63342	40.98432596
22727	741	0.12742	18.01830	2.295891786
22727	743	0.13946	156.08113	21.76707439
22727	22725	0.03165	586.57458	18.56508546
22727	22728	0.04006	715.63342	28.66827481
22728	22726	0.06964	715.63342	49.83671137
22728	22727	0.04006	759.10052	30.40956683
22729	740	0.11589	256.44519	29.71943307
22729	742	0.14256	97.29499	13.87037377
22729	22731	0.05172	759.10052	39.26067889
22729	22732	0.05103	369.57104	18.85921017
22730	22732	0.04758	380.72388	18.11484221
22730	22733	0.04834	369.57104	17.86506407
22731	22726	0.05727	759.10052	43.47368678
22731	22729	0.05172	715.63342	37.01256048
22732	22729	0.05103	380.72388	19.4283396
22732	22730	0.04758	369.57104	17.58419008
22733	726	0.09677	519.40961	50.26326796
22733	22652	0.12817	4197.74756	538.0253048
22733	22730	0.04834	380.72388	18.40419236
22733	22801	0.11926	4222.77734	503.6084256
22739	22706	0.03136	223.92169	7.022184198
22739	22771	0.07558	211.78357	16.00660222
22741	22580	0.56230	1864.97058	1048.672957
22741	22768	0.13250	1578.03967	209.0902563
22745	22707	0.04781	231.78386	11.08158635
22745	22764	0.04424	166.91238	7.384203691
22748	1681	0.68678	134.74789	92.54215589
22748	22517	0.31162	1285.42664	400.5646496
22748	22926	0.22327	1633.03406	364.6075146
22749	1984	0.58604	0.00000	0
22751	22705	0.06604	953.69165	62.98179657
22751	22811	0.10130	879.64001	89.10753301
22753	22606	0.23538	832.94403	196.0583658
22753	22855	1.34488	475.46637	639.4452117
22753	23046	0.56127	1134.87463	636.9710836
22758	22783	0.02631	7397.62939	194.6316293
22759	22718	0.06942	7347.61475	510.0714159
22760	22703	0.18191	4757.09424	865.3630132
22760	22802	0.10005	4880.05225	488.2492276
22764	22745	0.04424	231.78386	10.25411797
22764	22890	0.16438	166.91238	27.43705702
22765	22569	0.32544	135.13893	43.97961338
22765	23186	0.62146	138.25027	85.91701279
22766	22717	0.08173	3147.04858	257.2082804
22766	22809	0.06672	3145.12573	209.8427887
22768	22741	0.13250	1805.82312	239.2715634
22768	22926	0.41672	1578.03967	657.6006913
22770	22785	0.12350	482.95480	59.6449178
22770	22805	0.13515	472.42841	63.84869961

22771	22739	0.07558	223.92169	16.92400133
22771	22899	0.15556	211.78357	32.94505215
22779	22723	0.08847	2216.43188	196.0877284
22779	22806	0.05153	2203.27686	113.5348566
22782	22713	0.09740	375.69080	36.59228392
22782	22808	0.05152	372.01453	19.16618859
22783	22784	0.00896	1195.76416	10.71404687
22783	22924	0.16110	6201.86523	999.1204886
22784	763	0.11948	1195.76416	142.8699018
22784	22759	0.02575	7347.61475	189.2010798
22784	22783	0.00896	0.00000	0
22785	1755	2.63406	52.33574	137.8554793
22785	1756	2.44082	21.97062	53.62632871
22785	22770	0.12350	472.42841	58.34490864
22785	23097	5.22038	416.70972	2175.383088
22796	22715	0.12989	29.22107	3.795524782
22796	22911	0.11868	68.70664	8.154104035
22799	22784	0.03422	6140.74170	210.136181
22801	742	0.13255	415.38971	55.05990606
22801	22733	0.11926	4105.42236	489.6126707
22801	22823	0.04417	4110.34473	181.5539267
22802	714	0.07110	13.99068	0.994737348
22802	715	0.28597	438.55893	125.4146972
22802	22760	0.10005	4757.09424	475.9472787
22802	22872	0.16105	5307.06250	854.7024156
22805	22770	0.13515	482.95480	65.27134122
22805	22851	0.15650	472.42841	73.93504617
22806	22779	0.05153	2216.43188	114.2127348
22806	22858	0.06664	2203.27686	146.82637
22808	762	0.12390	402.60104	49.88226886
22808	763	0.13076	298.10571	38.98030264
22808	22782	0.05152	375.69080	19.35559002
22808	22814	0.01064	753.22491	8.014313042
22809	743	0.11951	366.05966	43.74778997
22809	762	0.12848	409.09225	52.56017228
22809	22766	0.06672	3147.04858	209.9710813
22809	22821	0.02174	2835.04321	61.63383939
22811	714	0.11745	48.74329	5.724899411
22811	22751	0.10130	953.69165	96.60896415
22811	22822	0.02243	914.26178	20.50689173
22811	22869	0.12031	125.10104	15.05090612
22812	715	0.19543	148.72467	29.06526226
22812	22605	0.32821	693.72711	227.6881748
22812	22867	0.07023	516.27917	36.25828611
22813	22452	0.49914	216.52362	108.0755997
22813	23151	0.49802	219.09470	109.1135425
22814	22808	0.01064	749.72626	7.977087406
22814	22832	0.03191	753.22491	24.03540688
22821	22809	0.02174	2843.66431	61.8212621
22821	22874	0.06047	2835.04321	171.4350629
22822	22811	0.02243	987.82220	22.15685195
22822	22872	0.05932	914.26178	54.23400879
22823	22801	0.04417	3997.71729	176.5791727
22823	22896	0.06772	4110.34473	278.3525451

22824	22470	0.49141	207.57571	102.0047797
22824	23009	0.25213	210.94020	53.18435263
22832	22814	0.03191	749.72626	23.92376496
22832	22863	0.02519	753.22491	18.97373548
22835	22700	0.36745	2503.22656	919.8105995
22835	22864	0.05006	2499.11084	125.1054887
22844	941	0.40825	467.95081	191.0409182
22844	22688	0.24999	895.36938	223.8333913
22844	23185	0.50167	529.01251	265.3897059
22850	22483	0.51111	653.30475	333.9105908
22850	23199	0.50112	654.97235	328.219744
22851	22805	0.15650	482.95480	75.5824262
22851	22856	0.24719	472.42841	116.7795787
22852	22497	0.50437	1435.76550	724.1570452
22852	23212	0.50549	1447.63989	731.767488
22855	22753	1.34488	465.16440	625.5902983
22855	22856	0.10605	475.46637	50.42320854
22856	1578	1.98898	3.16135	6.287861923
22856	1807	1.03214	4.68388	4.834419903
22856	22851	0.24719	482.95480	119.381597
22856	22855	0.10605	465.16440	49.33068462
22858	22806	0.06664	2216.43188	147.7030205
22858	22912	0.03584	2203.27686	78.96544266
22863	22832	0.02519	749.72626	18.88560449
22863	22928	0.04590	753.22491	34.57302337
22864	501	1.31264	463.89575	608.9281173
22864	1822	1.76902	319.29147	564.8329963
22864	22835	0.05006	2503.22656	125.3115216
22864	22877	0.05666	2002.61340	113.4680752
22867	22812	0.07023	568.73315	39.94212912
22867	22882	0.01798	516.27917	9.282699477
22869	727	0.07955	77.64352	6.176542016
22869	22811	0.12031	125.97597	15.15616895
22869	22879	0.07569	152.41235	11.53609077
22872	22802	0.16105	5181.51025	834.4822258
22872	22822	0.05932	987.82220	58.5976129
22872	23010	0.32805	5414.12305	1776.103067
22874	22821	0.06047	2843.66431	171.9563808
22874	22934	0.06047	2835.04321	171.4350629
22877	22864	0.05666	2005.28345	113.6193603
22877	22907	0.11256	2002.61340	225.4141643
22879	827	0.06062	174.53192	10.58012499
22879	22869	0.07569	155.36371	11.75947921
22879	22881	0.08248	222.02292	18.31245044
22881	22879	0.08248	222.36684	18.34081696
22881	22884	0.10330	222.02292	22.93496764
22882	22867	0.01798	568.73315	10.22582204
22882	22919	0.01119	516.27917	5.777163912
22884	726	0.24513	12.75510	3.126657663
22884	728	0.16074	250.40210	40.24963355
22884	22881	0.10330	222.36684	22.97049457
22884	22896	0.12841	451.85706	58.02296507
22887	22892	0.30184	1030.34680	310.9998781
22887	22897	0.10275	1012.98108	104.083806

22890	1681	0.58467	975.63861	570.4266261
22890	22764	0.16438	231.78386	38.10063091
22890	22892	0.12824	881.49561	113.042997
22890	22940	0.05906	732.63422	43.26937703
22892	811	0.23479	170.54054	40.04121339
22892	22887	0.30184	1012.98108	305.7582092
22892	22890	0.12824	896.48291	114.9649684
22893	22894	0.02118	1012.98108	21.45493927
22893	22897	0.06068	1030.34680	62.52144382
22894	810	0.07275	804.03986	58.49389982
22894	812	0.09694	1131.17041	109.6556595
22894	22893	0.02118	1030.34680	21.82274522
22894	22895	0.03400	2651.87500	90.16375
22895	22894	0.03400	2648.42285	90.0463769
22895	22898	0.05033	2651.87500	133.4688688
22896	22823	0.06772	3997.71729	270.7254149
22896	22884	0.12841	458.25940	58.84508955
22896	23002	0.17599	3820.48120	672.3664864
22897	22887	0.10275	1030.34680	105.8681337
22897	22893	0.06068	1012.98108	61.46769193
22898	22895	0.05033	2648.42285	133.295122
22898	22899	0.03725	2651.87500	98.78234375
22899	22771	0.15556	223.92169	34.8332581
22899	22898	0.03725	2648.42285	98.65375116
22899	22901	0.02760	2843.06494	78.46859234
22900	788	0.22754	142.85857	32.50603902
22900	790	0.30335	196.40547	59.57959932
22900	22905	0.13448	3522.63428	473.723858
22900	22908	0.05930	3024.14795	179.3319734
22901	22899	0.02760	2851.75098	78.70832705
22901	22902	0.01034	3781.70825	39.10286331
22901	23098	0.33361	10268.03223	3425.518232
22902	22594	0.43952	11357.21484	4991.723066
22902	22901	0.01034	3194.95117	33.0357951
22902	22906	0.02483	3918.53442	97.29720965
22903	22907	0.04896	2005.28345	98.17867771
22903	22914	0.10208	2002.61340	204.4267759
22905	22900	0.13448	3227.47021	434.0301938
22905	22912	0.12343	3522.63428	434.7987492
22906	22902	0.02483	4231.22412	105.0612949
22906	22910	0.10618	3918.53442	416.0699847
22907	22877	0.11256	2005.28345	225.7147051
22907	22903	0.04896	2002.61340	98.04795206
22908	22900	0.05930	3334.13208	197.7140323
22908	22911	0.06413	3024.14795	193.938608
22910	22906	0.10618	4231.22412	449.2713771
22910	22912	0.09791	3918.53442	383.6637051
22911	22796	0.11868	29.22107	3.467956588
22911	22908	0.06413	3334.13208	213.8178903
22911	22917	0.06552	3021.97778	197.9999841
22912	22858	0.03584	2216.43188	79.43691858
22912	22905	0.12343	3227.47021	398.366648
22912	22910	0.09791	4231.22412	414.2791536
22912	23001	0.16898	1638.21924	276.8262872

22914	22903	0.10208	2005.28345	204.6993346
22914	22930	0.06363	2002.61340	127.4262906
22917	22911	0.06552	3292.47632	215.7230485
22917	22920	0.13172	3195.74609	420.943675
22917	22941	0.05434	642.47327	34.91199749
22919	22882	0.01119	568.73315	6.364123949
22919	23054	0.24711	516.27917	127.5777457
22920	787	0.25933	513.66113	133.2077408
22920	789	0.20049	264.27344	52.98418199
22920	22917	0.13172	3546.54980	467.1515397
22920	22924	0.17106	2893.66895	494.9910106
22921	22922	0.03858	1544.55640	59.58898591
22921	22925	0.07867	1557.50073	122.5285824
22922	763	0.12549	805.03900	101.0243441
22922	765	0.19668	469.90787	92.42147987
22922	22921	0.03858	1557.50073	60.08837816
22922	22923	0.02096	490.23776	10.27538345
22923	22922	0.02096	486.39178	10.19477171
22923	22927	0.05539	490.23776	27.15426953
22924	22920	0.17106	2845.81641	486.8053551
22924	22925	0.00896	1808.36682	16.20296671
22924	22947	0.05768	6331.23584	365.1856833
22925	22799	0.12697	6140.74170	779.6899736
22925	22921	0.07867	1544.55640	121.510252
22925	22924	0.00896	1889.88501	16.93336969
22926	22748	0.22327	1420.17456	317.082374
22926	22768	0.41672	1805.82312	752.5226106
22926	22932	0.02912	953.33948	27.76124566
22926	23241	1.34932	991.59595	1337.980247
22927	22923	0.05539	486.39178	26.94124069
22927	22928	0.05654	490.23776	27.71804295
22928	22863	0.04590	749.72626	34.41243533
22928	22927	0.05654	486.39178	27.50059124
22928	22950	0.05262	736.81531	38.77122161
22930	22914	0.06363	2005.28345	127.5961859
22930	22957	0.07164	2002.61340	143.467224
22932	22926	0.02912	737.00604	21.46161588
22932	23239	0.44079	953.33948	420.2225094
22934	22874	0.06047	2843.66431	171.9563808
22934	22951	0.02128	2835.04321	60.32971951
22940	22890	0.05906	781.64600	46.16401276
22940	23057	0.20018	732.63422	146.6587182
22941	22917	0.05434	562.16797	30.54820749
22941	22952	0.01120	642.47327	7.195700624
22947	22948	0.00896	0.00000	0
22947	22970	0.02724	6331.23584	172.4628643
22948	22925	0.05770	6209.31543	358.2775003
22948	22947	0.00896	0.00000	0
22950	22928	0.05262	729.47070	38.38474823
22950	22969	0.02127	736.81531	15.67206164
22951	22934	0.02128	2843.66431	60.51317652
22951	22981	0.05206	2835.04321	147.5923495
22952	22941	0.01120	562.16797	6.296281264
22952	22968	0.02015	642.47327	12.94583639

22957	22930	0.07164	2005.28345	143.6585064
22957	22962	0.06929	2002.61340	138.7610825
22958	22959	0.03176	2005.28345	63.68780237
22958	22960	0.02999	2002.61340	60.05837587
22959	22958	0.03176	2002.61340	63.60300158
22959	22961	0.05316	2005.28345	106.6008682
22960	22958	0.02999	2005.28345	60.13845067
22960	22980	0.05273	2002.61340	105.5978046
22961	22959	0.05316	2002.61340	106.4589283
22961	22963	0.06831	2005.28345	136.9809125
22962	22957	0.06929	2005.28345	138.9460903
22962	22963	0.01862	2002.61340	37.28866151
22963	22961	0.06831	2002.61340	136.7985214
22963	22962	0.01862	2005.28345	37.33837784
22968	22952	0.02015	562.16797	11.3276846
22968	22979	0.02744	642.47327	17.62946653
22969	22950	0.02127	729.47070	15.51584179
22969	22991	0.04283	736.81531	31.55779973
22970	22988	0.03373	6331.23584	213.5525849
22972	22948	0.03034	6209.31543	188.3906301
22973	22708	0.45219	477.34988	215.8528422
22973	23136	0.38862	491.10297	190.8524362
22979	22968	0.02744	562.16797	15.4258891
22979	22995	0.02128	642.47327	13.67183119
22980	22960	0.05273	2005.28345	105.7385963
22980	23013	0.07270	2002.61340	145.5899942
22981	22951	0.05206	2843.66431	148.041164
22981	23014	0.06774	2835.04321	192.045827
22988	22989	0.00827	0.00000	0
22988	23011	0.06174	6331.23584	390.8905008
22989	22972	0.03080	6209.31543	191.2469152
22989	22988	0.00827	0.00000	0
22991	22969	0.04283	729.47070	31.24323008
22991	23028	0.07361	736.81531	54.23697497
22995	22979	0.02128	562.16797	11.9629344
22995	22997	0.01120	642.47327	7.195700624
22997	22995	0.01120	562.16797	6.296281264
22997	23004	0.02688	642.47327	17.2696815
23001	801	0.12213	1425.95569	174.1519684
23001	22912	0.16898	1668.90002	282.0107254
23001	23104	0.16864	221.62711	37.37519583
23002	728	0.13694	211.79230	29.00283756
23002	744	0.12751	963.98041	122.9171421
23002	22896	0.17599	3714.25610	653.671931
23002	23081	0.11764	3309.95264	389.3828286
23004	22997	0.02688	562.16797	15.11107503
23004	23026	0.02912	642.47327	18.70882162
23009	22824	0.25213	207.57571	52.33606376
23009	23162	0.24934	210.94020	52.59582947
23010	728	0.10172	124.80132	12.69479027
23010	729	0.13445	445.17923	59.85434747
23010	22872	0.32805	5362.13184	1759.04735
23010	23111	0.26605	5459.91357	1452.610005
23011	23016	0.00706	0.00000	0

23011	23033	0.03475	6331.23584	220.0104454
23013	22980	0.07270	2005.28345	145.7841068
23013	23044	0.15348	2002.61340	307.3611046
23014	745	0.12855	668.96515	85.99547003
23014	764	0.11986	454.78619	54.51067273
23014	22981	0.06774	2843.66431	192.6298204
23014	23032	0.02183	2406.32690	52.53011623
23016	22989	0.06530	6209.31543	405.4682976
23016	23011	0.00706	0.00000	0
23026	789	0.14354	288.42737	41.40086469
23026	790	0.16925	433.62198	73.39052012
23026	23004	0.02912	562.16797	16.37033129
23026	23040	0.02912	713.39465	20.77405221
23028	764	0.13037	401.89557	52.39512546
23028	765	0.14249	113.31734	16.14658778
23028	22991	0.07361	729.47070	53.69633823
23028	23074	0.07677	869.37994	66.74229799
23032	23014	0.02183	2423.32983	52.90129019
23032	23059	0.05262	2406.32690	126.6209215
23033	765	0.15429	210.94423	32.54658525
23033	789	0.12757	1051.17627	134.0985568
23033	23016	0.03157	6209.31543	196.0280881
23033	23069	0.05556	6093.20313	338.5383659
23036	23042	0.35184	2005.28345	705.538929
23036	23056	0.09502	2002.61340	190.2883253
23040	23026	0.02912	634.70947	18.48273977
23040	23064	0.03667	713.39465	26.16018182
23042	23036	0.35184	2002.61340	704.5994987
23042	23044	0.02207	2005.28345	44.25660574
23044	23013	0.15348	2005.28345	307.7709039
23044	23042	0.02207	2002.61340	44.19767774
23045	716	0.32225	2.15044	0.69297929
23045	729	0.21893	2.11145	0.462259749
23046	22753	0.56127	1134.33276	636.6669482
23046	23056	0.02088	1134.87463	23.69618227
23054	716	0.29168	125.58485	36.63058905
23054	22919	0.24711	568.73315	140.5396487
23054	23222	0.22180	390.69437	86.65601127
23056	23036	0.09502	2005.28345	190.5420334
23056	23046	0.02088	1134.33276	23.68486803
23056	23205	0.31439	2226.69678	700.0512007
23057	813	0.41193	119.77398	49.33849558
23057	22940	0.20018	781.64600	156.4698963
23057	23078	0.02830	709.34534	20.07447312
23059	23032	0.05262	2423.32983	127.5156157
23059	23079	0.02183	2406.32690	52.53011623
23064	23040	0.03667	634.70947	23.27479626
23064	23087	0.03835	713.39465	27.35868483
23069	23070	0.00689	0.00000	0
23069	23086	0.02800	6093.20313	170.6096876
23070	23033	0.05554	5979.31982	332.0914228
23070	23069	0.00689	0.00000	0
23074	23028	0.07677	871.20764	66.88261052
23074	23121	0.07389	869.37994	64.23848377

23078	23057	0.02830	746.85010	21.13585783
23078	23089	0.02800	709.34534	19.86166952
23079	23059	0.02183	2423.32983	52.90129019
23079	23095	0.03863	2406.32690	92.95640815
23081	23002	0.11764	3179.02783	373.9808339
23081	23091	0.02482	3309.95264	82.15302452
23083	23097	0.11854	405.79959	48.1034834
23083	23235	1.38637	416.70972	577.7138545
23085	23070	0.02744	5979.31982	164.0725359
23086	23115	0.04759	6093.20313	289.975537
23087	23064	0.03835	634.70947	24.34110817
23087	23109	0.03472	713.39465	24.76906225
23089	23078	0.02800	746.85010	20.9118028
23089	23241	0.17527	709.34534	124.3269577
23091	23081	0.02482	3179.02783	78.90347074
23091	23129	0.05376	3309.95264	177.9430539
23095	23079	0.03863	2423.32983	93.61323133
23095	23099	0.01457	2406.32690	35.06018293
23097	22785	5.22038	405.79959	2118.428064
23097	23083	0.11854	416.70972	49.39677021
23098	813	0.32763	386.92853	126.7693943
23098	23274	0.19832	9992.72070	1981.756369
23099	23095	0.01457	2423.32983	35.30791562
23099	23126	0.02240	2406.32690	53.90172256
23101	1681	0.48937	14.46126	7.076906806
23101	1985	0.30599	14.75943	4.516237986
23104	800	0.10268	221.62711	22.75667165
23104	23001	0.16864	221.63681	37.37683164
23109	23087	0.03472	634.70947	22.0371128
23109	23110	0.09034	13.74468	1.241694391
23109	23137	0.04544	699.64996	31.79209418
23110	23109	0.09034	13.87113	1.253117884
23110	23112	0.05191	13.74468	0.713486339
23111	23010	0.26605	5408.40283	1438.905573
23111	23091	0.05815	160.81639	9.351473079
23111	23129	0.04643	5299.09717	246.0370816
23112	831	0.04900	0.00000	0
23112	23110	0.05191	13.87113	0.720050358
23112	23114	0.03983	56.21356	2.238986095
23113	23130	0.02401	180.62277	4.336752708
23113	24093	0.44254	178.84637	79.14667258
23114	23112	0.03983	13.87113	0.552487108
23114	23115	0.08630	56.21356	4.851230228
23115	23114	0.08630	13.87113	1.197078519
23115	23117	0.00692	145.42091	1.006312697
23115	23140	0.04984	6033.10547	300.6899766
23116	23117	0.08756	145.35745	12.72749832
23116	23118	0.06907	131.21193	9.062808005
23117	23085	0.04871	5979.31982	291.2526684
23117	23115	0.00692	42.98095	0.297428174
23117	23116	0.08756	131.21193	11.48891659
23118	767	0.04541	111.00222	5.04061081
23118	23116	0.06907	145.35745	10.03983907
23118	23120	0.11160	63.90832	7.132168512

23119	23121	0.06344	69.02905	4.379202932
23119	23123	0.05380	66.22620	3.56296956
23120	23118	0.11160	67.31369	7.512207804
23120	23121	0.03999	63.90832	2.555693717
23121	23074	0.07389	871.20764	64.37353252
23121	23119	0.06344	66.22620	4.201390128
23121	23120	0.03999	67.31369	2.691874463
23121	23142	0.05038	812.04578	40.9108664
23123	766	0.05318	0.00000	0
23123	23119	0.05380	69.02905	3.71376289
23123	23125	0.05671	66.22620	3.755687802
23125	23123	0.05671	69.02905	3.914637426
23125	23126	0.06481	66.22620	4.292120022
23126	23099	0.02240	2423.32983	54.28258819
23126	23125	0.06481	69.02905	4.473772731
23126	23148	0.04957	2337.29785	115.8598544
23129	23091	0.05376	3018.21143	162.2590465
23129	23111	0.04643	5408.40283	251.1121434
23129	23135	0.03582	6872.39160	246.1690671
23129	23232	0.11026	2333.23047	257.2619916
23130	23113	0.02401	178.84637	4.294101344
23130	23345	0.21934	180.62277	39.61779837
23130	23394	0.28015	0.00000	0
23131	23133	0.05332	380.30197	20.27770104
23131	23135	0.02573	344.14423	8.854831038
23133	23131	0.05332	344.14423	18.34977034
23133	23139	0.06729	380.30197	25.59051956
23135	23129	0.03582	6736.60889	241.3053304
23135	23131	0.02573	380.30197	9.785169688
23135	23138	0.01176	6496.87891	76.40329598
23136	1707	7.22935	1.14084	8.247531654
23136	22973	0.38862	477.34988	185.5077104
23136	23240	0.40347	828.96741	334.4634809
23136	23423	0.97462	374.62671	365.1186841
23137	831	0.14461	12.87256	1.861500902
23137	23109	0.04544	620.83838	28.21089599
23137	23154	0.02399	686.77740	16.47578983
23138	23135	0.01176	6397.25342	75.23170022
23138	23146	0.02671	6496.87891	173.5316357
23139	744	0.22917	544.50134	124.7833721
23139	23133	0.06729	344.14423	23.15746524
23139	23144	0.05444	930.81903	50.67378799
23140	831	0.12382	42.24420	5.230676844
23140	23168	0.03639	5990.86133	218.0074438
23141	23117	0.04927	5862.73389	288.8568988
23142	766	0.11726	59.01744	6.920385014
23142	767	0.14845	61.86836	9.184358042
23142	23121	0.05038	814.47601	41.03330138
23142	23166	0.03135	808.15735	25.33573292
23144	23139	0.05444	888.64557	48.37786483
23144	23156	0.06563	930.81903	61.08965294
23146	23138	0.02671	6397.25342	170.8706388
23146	23159	0.04432	6496.87891	287.9416733
23148	766	0.11859	54.15384	6.422103886

23148	23126	0.04957	2357.10352	116.8416215
23148	23181	0.04441	2283.14404	101.3944268
23151	1913	0.26657	59.52574	15.86777651
23151	1914	0.50204	101.56464	50.98951187
23151	22813	0.49802	216.52362	107.8330932
23151	23541	0.50027	166.14091	83.11531305
23154	23137	0.02399	608.09039	14.58808846
23154	23160	0.01959	686.77740	13.45396927
23156	23144	0.06563	888.64557	58.32180876
23156	23158	0.03682	930.81903	34.27275668
23157	23394	0.28015	0.00000	0
23157	30203	0.56030	0.00000	0
23158	23156	0.03682	888.64557	32.71992989
23158	23161	0.02023	930.81903	18.83046898
23159	23146	0.04432	6397.25342	283.5262716
23159	23230	0.09708	6496.87891	630.7170046
23160	23154	0.01959	608.09039	11.91249074
23160	23164	0.08897	141.07343	12.55130307
23160	23215	0.03807	591.64117	22.52377934
23161	745	0.24276	88.49229	21.48238832
23161	23158	0.02023	888.64557	17.97729988
23161	23173	0.03778	842.32672	31.82310348
23162	1914	0.50003	64.15714	32.08049471
23162	1957	0.83518	106.78757	89.18684271
23162	23009	0.24934	207.57571	51.75692753
23162	23413	0.25045	50.44262	12.63335418
23163	831	0.03925	43.56191	1.709804968
23163	832	0.05781	135.92740	7.857962994
23163	23164	0.05142	146.54628	7.535409718
23163	23167	0.03962	221.24069	8.765556138
23164	23160	0.08897	146.54628	13.03822253
23164	23163	0.05142	141.07343	7.253995771
23166	23142	0.03135	816.91284	25.61021753
23166	23172	0.05932	1771.77161	105.1014919
23166	23174	0.05824	1812.63965	105.5681332
23166	23247	0.05964	317.19815	18.91769767
23167	23163	0.03962	216.05511	8.560103458
23167	23168	0.08756	221.24069	19.37183482
23168	23167	0.08756	216.05511	18.91778543
23168	23171	0.00760	2382.94214	18.11036026
23168	23262	0.07557	4272.35303	322.8617185
23169	23170	0.02888	1771.77161	51.1687641
23169	23172	0.06895	1789.99158	123.4199194
23170	769	0.05729	2345.63013	134.3811501
23170	23169	0.02888	1789.99158	51.69495683
23170	23171	0.15249	2786.88647	424.9723178
23171	23141	0.03695	5862.73389	216.6280172
23171	23168	0.00760	659.24786	5.010283736
23171	23170	0.15249	2820.65430	430.1215742
23172	23166	0.05932	1789.99158	106.1823005
23172	23169	0.06895	1771.77161	122.1636525
23173	23161	0.03778	820.03882	30.98106662
23173	23179	0.05212	842.32672	43.90206865
23174	23166	0.05824	1804.97522	105.1217568

23174	23176	0.05794	1812.63965	105.0243413
23176	766	0.03583	138.25092	4.953530464
23176	768	0.05375	339.03519	18.22314146
23176	23174	0.05794	1804.97522	104.5802642
23176	23177	0.05724	1760.15723	100.7513998
23177	23176	0.05724	1743.24854	99.78354643
23177	23181	0.05889	1760.15723	103.6556593
23179	23173	0.05212	820.03882	42.7404233
23179	23181	0.06082	842.32672	51.23031111
23181	23148	0.04441	2305.61011	102.392145
23181	23177	0.05889	1743.24854	102.6599065
23181	23179	0.06082	820.03882	49.87476103
23181	23253	0.04704	1940.91199	91.30050001
23185	2002	0.67245	334.82755	225.154786
23185	22844	0.50167	530.70343	266.2379897
23185	23660	0.61713	233.92090	144.359605
23186	1952	0.25457	138.25027	35.19437123
23186	22765	0.62146	135.13893	83.98343944
23199	1957	0.71484	108.11142	77.28236747
23199	22850	0.50112	653.30475	327.3840763
23199	23819	0.99986	546.86096	546.7843995
23201	2002	0.45350	556.26324	252.2653793
23201	22502	1.00060	281.44772	281.6165886
23201	23813	0.99361	272.59750	270.855602
23205	23056	0.31439	2228.82495	700.720276
23205	23482	0.41761	2226.69678	929.8908423
23212	22852	0.50549	1435.76550	725.7651026
23212	23829	0.99583	1447.63989	1441.603232
23213	705	0.24568	250.93440	61.64956339
23213	23216	0.11606	253.43721	29.41392259
23215	23160	0.03807	507.48132	19.31981385
23215	23258	0.03751	591.64117	22.19246029
23216	23213	0.11606	250.93440	29.12344646
23216	23222	0.25305	253.43721	64.13228599
23222	23054	0.22180	437.22046	96.97549803
23222	23216	0.25305	250.93440	63.49894992
23222	23228	0.29768	269.52216	80.23135659
23222	23432	0.24427	336.65283	82.23418678
23224	23225	0.05585	604.87207	33.78210511
23224	23226	0.05033	550.67853	27.71565041
23225	729	0.16615	19.54723	3.247772265
23225	23224	0.05585	550.67853	30.7553959
23225	23229	0.18133	600.69922	108.9247896
23226	23224	0.05033	604.87207	30.44321128
23226	23231	0.05103	550.67853	28.10112539
23228	716	0.22833	205.34523	46.88647637
23228	717	0.24466	227.99632	55.78157965
23228	23222	0.29768	307.38406	91.50208698
23228	23229	0.33670	546.36554	183.9612773
23229	23225	0.18133	546.36554	99.07246337
23229	23228	0.33670	600.69922	202.2554274
23230	746	0.14041	249.39793	35.01796335
23230	23159	0.09708	6397.25342	621.045362
23230	23250	0.03775	6735.17627	254.2529042

23231	23226	0.05103	604.87207	30.86662173
23231	23233	0.04413	550.67853	24.30144353
23232	23129	0.11026	2286.57837	252.1181311
23232	23233	0.10549	597.36743	63.01629019
23232	23324	0.08620	1895.12854	163.3600801
23233	730	0.11287	7.62654	0.86080757
23233	23231	0.04413	604.87207	26.69300445
23233	23232	0.10549	543.05200	57.28655548
23235	23083	1.38637	405.79959	562.5883776
23235	23552	1.40948	416.70972	587.3440161
23239	1984	0.61066	473.49521	289.1445849
23239	1985	0.56971	50.69749	28.88286703
23239	22932	0.44079	737.00604	324.8648924
23239	23599	0.50241	548.39929	275.5212873
23240	23136	0.40347	806.73083	325.491688
23240	23391	0.43429	828.96741	360.0122565
23241	22926	1.34932	1222.85315	1650.020212
23241	23089	0.17527	746.85010	130.900417
23241	23243	0.02557	921.16986	23.55431332
23241	23256	0.01848	737.06659	13.62099058
23243	23241	0.02557	1086.30530	27.77682652
23243	23261	0.14464	921.16986	133.2380086
23247	768	0.12069	37.98129	4.58396189
23247	769	0.15298	39.38218	6.024685896
23247	23166	0.05964	315.39813	18.81034447
23247	23279	0.03513	317.19815	11.14317101
23250	23230	0.03775	6641.86230	250.7303018
23250	23284	0.07291	6735.17627	491.0617018
23253	768	0.11516	0.00000	0
23253	23181	0.04704	1924.18164	90.51350435
23253	23287	0.03247	1940.91199	63.02141232
23254	2043	0.24056	0.00000	0
23254	2047	0.08948	0.00000	0
23254	23377	0.30289	0.00000	0
23254	23403	0.15144	0.00000	0
23256	23241	0.01848	840.69318	15.53600997
23256	23430	0.21000	737.06659	154.7839839
23258	832	0.14189	61.52433	8.729687184
23258	23215	0.03751	507.48132	19.03562431
23258	23297	0.03583	655.30066	23.47942265
23261	820	0.25198	138.62173	34.92990353
23261	23243	0.14464	1086.30530	157.1231986
23261	23272	0.02171	1056.97180	22.94685778
23262	769	0.15955	1295.17053	206.6444581
23262	832	0.12797	10.84184	1.387430265
23262	23263	0.00631	0.00000	0
23262	23307	0.04058	5597.71094	227.1551099
23263	23171	0.07616	4172.80762	317.8010283
23263	23262	0.00631	1284.23889	8.103547396
23264	800	0.17658	121.31107	21.42110874
23264	802	0.25387	539.04504	136.8473643
23264	23266	0.04927	2002.67590	98.67184159
23264	23288	0.26290	1584.45496	416.553209
23266	23264	0.04927	1612.43750	79.44479563

23266	23267	0.01184	2002.67590	23.71168266
23267	23266	0.01184	1612.43750	19.09126
23267	23270	0.04425	2002.67590	88.61840858
23270	23267	0.04425	1612.43750	71.35035938
23270	23359	0.10163	2501.16260	254.193155
23270	29966	0.03738	1354.10718	50.61652639
23272	23261	0.02171	1224.92700	26.59316517
23272	23282	0.17837	1056.97180	188.53206
23274	23384	0.12216	2013.24316	245.9377844
23274	23418	0.16443	7979.47754	1312.065492
23275	22902	0.53327	10457.76758	5576.813717
23277	23278	0.10789	3001.80127	323.864339
23277	29966	0.04614	3465.03125	159.8765419
23278	814	0.23791	884.41461	210.4110799
23278	23277	0.10789	3099.48242	334.4031583
23278	23281	0.04242	2289.42236	97.11729651
23279	23247	0.03513	315.39813	11.07993631
23279	23318	0.03359	317.19815	10.65468586
23280	813	0.26582	175.78802	46.72797148
23280	815	0.21524	1279.67505	275.4372578
23280	23281	0.13686	2346.87524	321.1933453
23280	23282	0.04034	1224.92700	49.41355518
23281	23278	0.04242	2346.87524	99.55444768
23281	23280	0.13686	2289.42236	313.3303442
23282	23272	0.17837	1224.92700	218.490229
23282	23280	0.04034	1056.97180	42.63824241
23284	23250	0.07291	6641.86230	484.2581803
23284	23299	0.03742	6735.17627	252.030296
23287	23253	0.03247	1924.18164	62.47817785
23287	23292	0.01008	1940.91199	19.56439286
23288	23264	0.26290	1981.18591	520.8537757
23288	23289	0.04714	1584.45496	74.69120681
23289	794	0.18313	523.06268	95.78846859
23289	23288	0.04714	1981.18591	93.3931038
23289	23290	0.07492	1768.13843	132.4689312
23290	790	0.24587	229.71738	56.48061222
23290	23289	0.07492	2175.48047	162.9869968
23290	23291	0.04275	1778.05920	76.0120308
23290	23338	0.03807	107.66179	4.098684345
23291	23290	0.04275	2146.77734	91.77473129
23291	23294	0.04482	1778.05920	79.69261334
23292	23287	0.01008	1924.18164	19.39575093
23292	23328	0.02352	1940.91199	45.65025
23294	793	0.18980	93.14398	17.6787274
23294	23291	0.04482	2146.77734	96.21856038
23294	23297	0.09308	1684.91516	156.8319031
23297	23258	0.03583	569.00568	20.38747351
23297	23294	0.09308	2053.03540	191.096535
23297	23301	0.08828	3538.82422	312.4074021
23297	23340	0.03865	2826.77295	109.2547745
23299	23284	0.03742	6641.86230	248.5384873
23299	23309	0.03826	6735.17627	257.6878441
23301	23297	0.08828	3881.33691	342.6444224
23301	23303	0.05723	3538.82422	202.5269101

23303	791	0.11474	354.14377	40.63445617
23303	832	0.05399	48.04317	2.593850748
23303	23301	0.05723	3881.33691	222.1289114
23303	23305	0.03448	3932.98901	135.6094611
23305	23303	0.03448	4279.77539	147.5666554
23305	23307	0.09005	3932.98901	354.1656604
23307	23263	0.04045	5457.04688	220.7375463
23307	23305	0.09005	4279.77539	385.3937739
23307	23313	0.13498	1157.28479	156.210301
23307	23344	0.03415	3060.11938	104.5030768
23309	23299	0.03826	6641.86230	254.1176516
23309	23314	0.01900	6735.17627	127.9683491
23313	23307	0.13498	1305.39783	176.2025991
23313	23315	0.02362	1157.28479	27.33506674
23314	747	0.09186	309.77289	28.45573768
23314	23309	0.01900	6641.86230	126.1953837
23314	23319	0.02220	6425.40381	142.6439646
23315	769	0.06464	2075.84473	134.1826033
23315	771	0.03654	114.07117	4.168160552
23315	23313	0.02362	1305.39783	30.83349674
23315	23316	0.03224	3227.10864	104.0419826
23316	23315	0.03224	3266.85059	105.323263
23316	23317	0.06344	3227.10864	204.7277721
23317	23316	0.06344	3266.85059	207.2490014
23317	23318	0.04482	3227.10864	144.6390092
23318	23279	0.03359	315.39813	10.59422319
23318	23317	0.04482	3266.85059	146.4202434
23318	23323	0.07519	3535.27148	265.8170626
23318	30076	0.02777	1812.58862	50.33558598
23319	23314	0.02220	6332.17139	140.5742049
23319	23327	0.03395	6425.40381	218.1424593
23323	23318	0.07519	3578.17090	269.04267
23323	23325	0.05724	3535.27148	202.3589395
23324	23232	0.08620	1902.79163	164.0206385
23324	23347	0.03289	1895.12854	62.33077768
23325	768	0.06717	558.56110	37.51854909
23325	770	0.07943	767.87439	60.9922628
23325	23323	0.05724	3578.17090	204.8145023
23325	23326	0.05723	4367.99756	249.9805004
23326	23325	0.05723	4402.03613	251.9285277
23326	23328	0.05792	4367.99756	252.9944187
23327	23319	0.03395	6332.17139	214.9772187
23327	23328	0.06136	6425.40381	394.2627778
23328	23292	0.02352	1924.18164	45.25675217
23328	23326	0.05792	4402.03613	254.9659326
23328	23327	0.06136	6332.17139	388.5420365
23328	23362	0.05657	4636.44336	262.2836009
23338	23290	0.03807	143.83319	5.475729543
23338	23356	0.03919	107.66179	4.21926555
23340	23297	0.03865	2766.08545	106.9092026
23340	23390	0.07727	2826.77295	218.4247458
23344	771	0.15643	668.72827	104.6091633
23344	23307	0.03415	3118.12891	106.4841023
23344	23352	0.02967	2391.39111	70.95257423

23345	23130	0.21934	178.84637	39.2281628
23345	23377	0.04215	180.62277	7.613249756
23347	730	0.10390	342.29004	35.56393516
23347	746	0.11491	269.42584	30.95972327
23347	23324	0.03289	1902.79163	62.58281671
23347	23380	0.03653	1409.12988	51.47551452
23349	23350	0.03500	605.62567	21.19689845
23349	23353	0.06206	572.41901	35.52432376
23350	771	0.02164	463.91309	10.03907927
23350	773	0.19299	83.94119	16.19981026
23350	23349	0.03500	572.41901	20.03466535
23350	23351	0.02247	710.13171	15.95665952
23351	23350	0.02247	670.90070	15.07513873
23351	23352	0.13376	710.13171	94.98721753
23352	23344	0.02967	2435.63281	72.26522547
23352	23351	0.13376	670.90070	89.73967763
23352	23368	0.00952	2453.56812	23.3579685
23353	23349	0.06206	605.62567	37.58512908
23353	23354	0.04620	572.41901	26.44575826
23354	770	0.12661	643.57581	81.4831333
23354	23353	0.04620	605.62567	27.97990595
23354	23402	0.05598	744.32111	41.66709574
23354	30076	0.02821	962.44794	27.15065639
23356	23338	0.03919	143.83319	5.636822716
23356	23388	0.03695	107.66179	3.978103141
23359	23275	0.09737	2501.16260	243.5382024
23362	23328	0.05657	4560.51953	257.9885898
23362	23386	0.02282	4636.44336	105.8036375
23368	23352	0.00952	2458.57861	23.40566837
23368	23395	0.04310	2453.56812	105.748786
23369	23275	0.09537	7956.60498	758.8214169
23377	23254	0.30289	0.00000	0
23377	23345	0.04215	178.84637	7.538374496
23377	24259	0.24596	180.62277	44.42597651
23380	23347	0.03653	1423.25269	51.99142077
23380	23404	0.03974	1409.12988	55.99882143
23384	23277	0.12537	2013.24316	252.400295
23386	747	0.11720	679.29010	79.61279972
23386	770	0.12383	93.45119	11.57206086
23386	23362	0.02282	4560.51953	104.0710557
23386	23411	0.03325	4381.00342	145.6683637
23387	23406	0.33395	374.62671	125.1065898
23387	23522	0.87333	383.09045	334.5643827
23388	23356	0.03695	143.83319	5.314636371
23388	23433	0.06495	107.66179	6.992633261
23390	791	0.13818	243.57759	33.65755139
23390	23340	0.07727	2766.08545	213.7354227
23390	23447	0.07451	2807.21997	209.16596
23391	23240	0.43429	806.73083	350.3551322
23391	23434	0.08707	828.96741	72.17819239
23394	2043	0.35197	0.00000	0
23394	23130	0.28015	0.00000	0
23394	23157	0.28015	0.00000	0
23395	791	0.13442	65.47789	8.801537974

23395	23368	0.04310	2458.57861	105.9647381
23395	23420	0.03192	2464.67456	78.67241196
23402	23354	0.05598	760.06696	42.54854842
23402	23438	0.05598	744.32111	41.66709574
23403	2047	0.10059	0.00000	0
23403	23254	0.15144	0.00000	0
23403	24170	0.15144	0.00000	0
23404	23380	0.03974	1423.25269	56.5600619
23404	23416	0.01567	1409.12988	22.08106522
23406	1713	2.03896	134.36479	273.9644322
23406	23387	0.33395	383.09045	127.9330558
23406	23552	4.24238	405.79959	1721.556065
23411	23386	0.03325	4303.58789	143.0942973
23411	23449	0.05710	4381.00342	250.1552953
23413	23162	0.25045	49.67595	12.44134168
23413	23553	0.25045	50.44262	12.63335418
23416	23404	0.01567	1423.25269	22.30236965
23416	23456	0.05821	1409.12988	82.02545031
23417	23369	0.06259	7956.60498	498.0039057
23418	30110	0.26486	7979.47754	2113.444421
23420	23395	0.03192	2468.96533	78.80937333
23420	23452	0.03807	2464.67456	93.8301605
23423	23136	0.97462	383.09045	373.3676144
23423	23522	1.07539	374.62671	402.8698177
23426	23431	0.67184	537.11823	360.8575116
23426	23459	1.29221	521.66907	674.1059889
23430	23256	0.21000	840.69318	176.5455678
23430	23457	0.03457	737.06659	25.48039202
23431	61	24.00000	55.92643	1342.23432
23431	1702	6.80987	491.02304	3343.803069
23431	23426	0.67184	521.66907	350.478148
23432	717	0.29774	4.69495	1.397874413
23432	23222	0.24427	342.81421	83.73922708
23432	23584	0.26049	341.24905	88.89196503
23433	23388	0.06495	143.83319	9.341965691
23433	23442	0.01064	107.66179	1.145521446
23434	23391	0.08707	806.73083	70.24205337
23434	23455	0.06098	537.11823	32.75346967
23434	23554	0.30535	594.29706	181.4686073
23438	23402	0.05598	760.06696	42.54854842
23438	23463	0.03980	744.32111	29.62398018
23442	793	0.08688	4.08150	0.35460072
23442	794	0.08934	129.87468	11.60300391
23442	23433	0.01064	143.83319	1.530385142
23442	23486	0.07503	231.32875	17.35659611
23447	793	0.09034	298.78952	26.99264524
23447	23390	0.07451	2742.45605	204.3404003
23447	23448	0.09033	267.20102	24.13626814
23447	23488	0.07574	2806.16138	212.5386629
23448	23447	0.09033	271.95386	24.56559217
23448	23450	0.04872	267.20102	13.01803369
23449	23411	0.05710	4303.58789	245.7348685
23449	23464	0.03417	4381.00342	149.6988869
23450	791	0.07560	0.11695	0.00884142

23450	833	0.06433	7.89774	0.508061614
23450	23448	0.04872	271.95386	13.24959206
23450	23451	0.04300	274.98016	11.82414688
23451	23450	0.04300	279.73322	12.02852846
23451	23452	0.09173	274.98016	25.22393008
23452	23420	0.03807	2468.96533	93.99351011
23452	23451	0.09173	279.73322	25.65992827
23452	23473	0.04089	2220.15625	90.78218906
23455	23434	0.06098	521.66907	31.81137989
23455	23459	0.03186	537.11823	17.11258681
23456	23416	0.05821	1423.25269	82.84753908
23456	23461	0.01959	1409.12988	27.60485435
23457	820	0.12038	60.13451	7.238992314
23457	1985	0.71649	190.69516	136.6311752
23457	23430	0.03457	840.69318	29.06276323
23457	23557	0.20232	595.91156	120.5648268
23458	19168	0.18478	13707.11816	2532.801294
23458	22666	0.00358	13646.39355	48.85408891
23458	24089	0.00458	0.00000	0
23459	23426	1.29221	537.11823	694.069548
23459	23455	0.03186	521.66907	16.62037657
23461	23456	0.01959	1423.25269	27.8815202
23461	23485	0.03313	1409.12988	46.68447292
23463	23438	0.03980	760.06696	30.25066501
23463	23475	0.01343	744.32111	9.996232507
23464	23449	0.03417	4303.58789	147.0535982
23464	23477	0.01623	4381.00342	71.10368551
23473	23452	0.04089	2229.19995	91.15198596
23473	23499	0.04719	2220.15625	104.7691734
23474	23476	0.06589	3.56985	0.235217417
23474	23477	0.06084	3.55652	0.216378677
23475	23463	0.01343	760.06696	10.20769927
23475	23476	0.12377	266.86130	33.0294231
23475	23489	0.03247	1015.02594	32.95789227
23476	770	0.13581	274.35712	37.26044047
23476	772	0.10953	10.81038	1.184060921
23476	23474	0.06589	3.55652	0.234339103
23476	23475	0.12377	272.89767	33.77654462
23477	23464	0.01623	4303.58789	69.84723145
23477	23474	0.06084	3.56985	0.217189674
23477	23502	0.05486	4380.23779	240.2998452
23482	1807	0.52500	41.10674	21.5810385
23482	23205	0.41761	2228.82495	930.7795874
23482	23815	0.68084	2202.60156	1499.619246
23485	731	0.13705	634.82782	87.00315273
23485	23461	0.03313	1423.25269	47.15236162
23485	23577	0.17340	1028.10059	178.2726423
23486	23442	0.07503	269.54504	20.22396435
23486	23504	0.03696	231.32875	8.5499106
23488	792	0.14830	252.82466	37.49389708
23488	833	0.09724	5.45115	0.530069826
23488	23447	0.07574	2740.44067	207.5609763
23488	23510	0.04215	2587.63232	109.0687023
23489	773	0.14576	8.69825	1.26785692

23489	23475	0.03247	1024.73535	33.27315681
23489	23505	0.03026	1008.22607	30.50892088
23499	773	0.15354	126.05235	19.35407782
23499	23473	0.04719	2229.19995	105.1959456
23499	23525	0.06107	2161.19922	131.9844364
23502	23477	0.05486	4302.83643	236.0536065
23502	23523	0.04693	4380.23779	205.5645595
23504	23486	0.03696	269.54504	9.962384678
23504	23517	0.04087	231.32875	9.454406013
23505	23489	0.03026	1018.13245	30.80868794
23505	23514	0.03303	1008.22607	33.30170709
23510	23488	0.04215	2512.38721	105.8971209
23510	23519	0.05067	2587.63232	131.1153297
23514	772	0.12046	151.05573	18.19617324
23514	23505	0.03303	1018.13245	33.62891482
23514	23534	0.02687	857.17035	23.0321673
23517	23504	0.04087	269.54504	11.01630578
23517	23588	0.09742	231.32875	22.53604683
23519	23510	0.05067	2512.38721	127.3026599
23519	23550	0.05916	2587.63232	153.0843281
23522	23387	0.87333	374.62671	327.1727446
23522	23423	1.07539	383.09045	411.971639
23523	749	0.12175	189.67163	23.09252095
23523	772	0.13000	292.78366	38.0618758
23523	23502	0.04693	4302.83643	201.9321137
23523	23540	0.01973	3978.40430	78.49391684
23525	792	0.16276	1323.85510	215.4706561
23525	23499	0.06107	2172.61743	132.6817465
23525	23604	0.10335	1125.63147	116.3340124
23534	23514	0.02687	833.30585	22.39092819
23534	23546	0.00954	857.17035	8.177405139
23540	23523	0.01973	3909.68970	77.13817778
23540	23610	0.08676	3978.40430	345.1663571
23541	23151	0.50027	165.99461	83.04212354
23541	23694	0.25213	166.14091	41.88910764
23546	23534	0.00954	833.30585	7.949737809
23546	23570	0.04926	857.17035	42.22421144
23550	793	0.19653	75.58088	14.85391035
23550	23519	0.05916	2512.38721	148.6328273
23550	23588	0.10427	2663.73438	277.7475838
23552	23235	1.40948	405.79959	571.9664061
23552	23406	4.24238	416.70972	1767.840982
23553	1915	0.40246	50.44262	20.30113685
23553	23413	0.25045	49.67595	12.44134168
23554	1706	3.51952	594.29706	2091.640389
23554	23434	0.30535	587.50964	179.3960686
23557	23457	0.20232	702.52240	142.134332
23557	23579	0.02409	595.91156	14.35550948
23570	23546	0.04926	833.30585	41.04864617
23570	23622	0.03750	857.17035	32.14388813
23577	23485	0.17340	1041.92493	180.6697829
23577	23598	0.01119	1028.10059	11.5044456
23578	23584	0.46955	725.54553	340.6799036
23578	23794	0.65682	719.42554	472.5330832

23579	23557	0.02409	702.52240	16.92376462
23579	23613	0.01904	595.91156	11.3461561
23580	23582	0.28889	1108.47107	320.2262074
23580	23583	0.20951	1126.60754	236.0355457
23582	1998	1.01219	104.53441	105.8086845
23582	23580	0.28889	1126.60754	325.4656522
23582	23587	0.50195	1178.27271	591.4339868
23583	23580	0.20951	1108.47107	232.2357739
23583	23702	0.20488	1126.60754	230.8193528
23584	23432	0.26049	347.50916	90.52266109
23584	23578	0.46955	719.42554	337.8062623
23584	23586	0.31296	381.60681	119.4276673
23586	717	0.25994	40.56968	10.54568262
23586	23584	0.31296	381.74695	119.4715255
23586	23595	0.31447	421.60892	132.5833571
23587	23582	0.50195	1185.14624	594.8841552
23587	23599	0.49782	1278.06177	636.2447103
23588	23517	0.09742	269.54504	26.2590778
23588	23550	0.10427	2587.96802	269.8474254
23588	23648	0.05263	2862.08789	150.6316857
23591	23592	0.05033	422.31662	21.25519548
23591	23597	0.04964	421.60892	20.92866679
23592	23591	0.05033	421.60892	21.21957694
23592	23593	0.01517	422.31662	6.406543125
23593	23592	0.01517	421.60892	6.395807316
23593	23594	0.07101	422.31662	29.98870319
23594	23593	0.07101	421.60892	29.93844941
23594	23595	0.16133	422.31662	68.1323403
23595	23586	0.31447	422.31662	132.8059075
23595	23594	0.16133	421.60892	68.01816706
23596	23597	0.07377	1349.37244	99.5432049
23596	23598	0.07447	1336.56775	99.53420034
23597	731	0.19801	9.54809	1.890617301
23597	732	0.25556	960.73486	245.5254008
23597	23591	0.04964	422.31662	20.96379702
23597	23596	0.07377	1336.56775	98.59860292
23598	23577	0.01119	1041.92493	11.65913997
23598	23596	0.07447	1349.37244	100.4877656
23598	23601	0.12978	1101.25513	142.9208908
23598	23723	0.25186	178.04247	44.84177649
23599	23239	0.50241	505.59512	254.0160442
23599	23587	0.49782	1168.23352	581.5700109
23599	23600	0.44090	1170.00171	515.8537539
23599	23863	0.50017	257.55573	128.8216495
23600	1985	0.36977	13.86462	5.126720537
23600	1986	0.25350	89.44498	22.67430243
23600	23599	0.44090	1059.42590	467.1008793
23600	23611	0.56507	1213.59900	685.7683869
23601	748	0.11633	35.61043	4.142561322
23601	750	0.24676	79.65788	19.65637847
23601	23598	0.12978	1124.91260	145.9911572
23601	23603	0.11850	1180.13843	139.846404
23603	23601	0.11850	1209.26038	143.297355
23603	23605	0.07310	1180.13843	86.26811923

23604	23525	0.10335	1129.44958	116.7286141
23604	23626	0.01287	1125.63147	14.48687702
23605	23603	0.07310	1209.26038	88.39693378
23605	23606	0.04254	1180.13843	50.20308881
23606	749	0.11910	6.53350	0.77813985
23606	751	0.23793	90.94564	21.63869613
23606	23605	0.04254	1209.26038	51.44193657
23606	23609	0.04710	1083.73816	51.04406734
23608	23609	0.01931	1114.19104	21.51502898
23608	23610	0.06688	1083.73816	72.48040814
23609	23606	0.04710	1114.19104	52.47839798
23609	23608	0.01931	1083.73816	20.92698387
23610	23540	0.08676	3909.68970	339.2046784
23610	23608	0.06688	1114.19104	74.51709676
23610	23612	0.02765	1080.15125	29.86618206
23610	23654	0.05765	3462.55884	199.6165171
23611	23600	0.56507	1104.88074	624.3349598
23611	23613	0.24890	1421.35669	353.7756801
23611	23701	0.18145	338.88504	61.49069051
23612	23610	0.02765	1129.00757	31.21705931
23612	23616	0.03596	1080.15125	38.84223895
23613	821	0.18802	98.88877	18.59306654
23613	23579	0.01904	702.52240	13.3760265
23613	23611	0.24890	1249.41980	310.9805882
23613	23614	0.12175	1655.72888	201.5849911
23614	820	0.23501	39.13713	9.197616921
23614	23613	0.12175	1590.79688	193.6795201
23614	23615	0.12439	1694.18396	210.7395428
23615	23614	0.12439	1629.93408	202.7475002
23615	23618	0.11036	2152.04175	237.4993275
23615	23688	0.15624	623.97900	97.49047896
23616	23612	0.03596	1129.00757	40.59911222
23616	23617	0.06207	1080.15125	67.04498809
23617	772	0.11020	200.18631	22.06053136
23617	774	0.23651	1.33630	0.316048313
23617	23616	0.06207	1129.00757	70.07749987
23617	23619	0.05862	1189.53894	69.73077266
23618	815	0.26037	358.28836	93.28754029
23618	23615	0.11036	2076.89307	229.2059192
23618	23621	0.02906	2387.70068	69.38658176
23619	23617	0.05862	1279.83081	75.02368208
23619	23620	0.02689	1189.53894	31.9867021
23620	23619	0.02689	1279.83081	34.41465048
23620	23622	0.03861	1189.53894	45.92809847
23621	23618	0.02906	2321.20923	67.45434022
23621	23628	0.16278	2387.70068	388.6699167
23622	23570	0.03750	833.30585	31.24896938
23622	23620	0.03861	1279.83081	49.41426757
23622	23623	0.05518	1864.83569	102.9016334
23622	23661	0.07389	1774.93750	131.1501319
23623	23622	0.05518	1948.42151	107.5138989
23623	23625	0.03174	1864.83569	59.1898848
23624	23626	0.12245	1853.46851	226.957219
23624	23627	0.05728	1937.03979	110.9536392

23625	23623	0.03174	1948.42151	61.84289873
23625	23627	0.02896	1864.83569	54.00564158
23626	23604	0.01287	1129.44958	14.53601609
23626	23624	0.12245	1937.03979	237.1905223
23626	23642	0.12699	1731.64624	219.901756
23627	773	0.19499	11.36718	2.216486428
23627	23624	0.05728	1853.46851	106.1666763
23627	23625	0.02896	1948.42151	56.42628693
23628	23621	0.16278	2321.20923	377.8464385
23628	23629	0.04211	2387.70068	100.5460756
23629	814	0.25480	136.50510	34.78149948
23629	816	0.18702	88.32218	16.5180141
23629	12429	0.09806	2590.80127	254.0539725
23629	23628	0.04211	2321.20923	97.74612068
23631	23632	0.01034	4567.29150	47.22579411
23631	30104	0.02386	2526.70386	60.2871541
23631	30105	0.02788	7324.15283	204.1973809
23632	23631	0.01034	3847.86938	39.78696939
23632	30101	0.02290	3830.07617	87.70874429
23632	30102	0.02993	7956.60498	238.1411871
23633	23635	0.04069	5687.89893	231.4406075
23633	30101	0.01642	5613.40918	92.17217874
23634	802	0.25285	150.93356	38.16355065
23634	803	0.20865	634.82849	132.4569644
23634	23636	0.02078	5527.35059	114.8583453
23634	23638	0.00888	5613.40918	49.84707352
23635	23633	0.04069	5613.40918	228.4096195
23635	23637	0.02138	5687.89893	121.6072791
23636	23634	0.02078	5448.81836	113.2264455
23636	23639	0.02898	5527.35059	160.1826201
23637	23635	0.02138	5613.40918	120.0146883
23637	23638	0.01931	5687.89893	109.8333283
23638	23634	0.00888	5687.89893	50.5085425
23638	23637	0.01931	5613.40918	108.3949313
23639	23636	0.02898	5448.81836	157.9067561
23639	23641	0.04697	5527.35059	259.6196572
23641	23639	0.04697	5448.81836	255.9309984
23641	23644	0.20384	5527.35059	1126.695144
23642	775	0.25815	419.27344	108.2354385
23642	23626	0.12699	1819.03552	230.9993207
23642	23643	0.00991	1772.55994	17.56606901
23643	23642	0.00991	1866.33252	18.49535527
23643	23652	0.05210	1772.55994	92.35037287
23644	266	0.41174	794.87561	327.2820837
23644	23641	0.20384	5448.81836	1110.687135
23644	23647	0.03386	5735.98389	194.2204145
23647	23644	0.03386	5667.90576	191.915289
23647	23648	0.04140	5735.98389	237.469733
23648	23588	0.05263	2824.53760	148.6554139
23648	23647	0.04140	5667.90576	234.6512985
23648	23649	0.02898	2303.47705	66.75476491
23648	23657	0.03248	2452.62378	79.66122037
23649	23648	0.02898	2216.97192	64.24784624
23649	23650	0.05655	2303.47705	130.2616272

23650	795	0.22509	750.75586	168.9876365
23650	23649	0.05655	2216.97192	125.3697621
23650	23651	0.08343	2465.89844	205.7299068
23651	23650	0.08343	2376.03540	198.2326334
23651	23653	0.05379	2465.89844	132.6406771
23652	792	0.13574	630.55316	85.59128594
23652	23643	0.05210	1866.33252	97.23592429
23652	23653	0.04759	2376.03540	113.0755247
23653	23651	0.05379	2376.03540	127.8069442
23653	23652	0.04759	2465.89844	117.3521068
23654	23610	0.05765	3375.44092	194.594169
23654	23680	0.09012	3462.55884	312.0458027
23657	23648	0.03248	2433.50073	79.04010371
23657	23733	0.18922	2452.62378	464.0854717
23660	2025	1.24193	271.12488	336.7181222
23660	23185	0.61713	236.13129	145.723703
23660	23796	0.33855	424.89273	143.8474337
23661	23622	0.07389	1757.77893	129.8822851
23661	23674	0.04590	1774.93750	81.46963125
23674	23661	0.04590	1757.77893	80.68205289
23674	23687	0.02967	1774.93750	52.66239563
23680	23654	0.09012	3375.44092	304.1947357
23680	23726	0.09852	3462.55884	341.1312969
23687	23674	0.02967	1757.77893	52.15330085
23687	23713	0.05934	1774.93750	105.3247913
23688	23615	0.15624	634.87799	99.19333716
23688	23705	0.03926	623.97900	24.49741554
23694	23541	0.25213	165.99461	41.85222102
23694	23710	0.03956	166.14091	6.5725344
23701	821	0.26025	20.18664	5.25357306
23701	23611	0.18145	402.10370	72.96171637
23701	23866	0.31470	326.77875	102.8372726
23702	23583	0.20488	1108.47107	227.1035528
23702	23848	0.29693	1126.60754	334.5235769
23705	816	0.24718	11.16355	2.759406289
23705	821	0.23626	440.72678	104.126109
23705	23688	0.03926	634.87799	24.92530989
23705	23772	0.15784	227.77705	35.95232957
23710	1915	0.66698	13.60953	9.077284319
23710	23694	0.03956	165.99461	6.566746772
23710	23795	0.20749	152.53139	31.64873811
23713	23687	0.05934	1757.77893	104.3066017
23713	23727	0.02083	1774.93750	36.97194813
23719	23724	0.01624	7324.15283	118.944242
23720	23633	0.22730	1857.82251	422.2830565
23720	30108	0.16559	5453.84961	903.1029569
23723	732	0.19132	4.67687	0.894778768
23723	750	0.13146	74.14113	9.74659295
23723	23598	0.25186	181.01419	45.59023389
23723	23760	0.06996	108.53725	7.59326601
23724	23768	0.09630	7324.15283	705.3159175
23726	751	0.12158	224.96843	27.35166172
23726	774	0.13072	146.74870	19.18299006
23726	23680	0.09852	3375.44092	332.5484394

23726	23784	0.14329	3143.86572	450.484519
23727	774	0.12027	194.72919	23.42007968
23727	775	0.27711	317.31671	87.93163351
23727	23713	0.02083	1757.77893	36.61453511
23727	23730	0.02173	1363.27148	29.62388926
23730	23727	0.02173	1338.40552	29.08355195
23730	23776	0.11084	1363.27148	151.1050108
23733	795	0.12894	63.16181	8.144083781
23733	23657	0.18922	2433.50073	460.4670081
23733	23879	0.23738	2517.81348	597.6785639
23734	19293	0.12251	13590.24316	1664.94069
23734	22665	0.00284	13646.07520	38.75485357
23734	25115	0.00364	0.00000	0
23747	23720	0.05375	7311.67236	393.0023894
23760	23723	0.06996	105.43017	7.375894693
23760	23861	0.17910	108.53725	19.43902148
23768	23832	0.12933	7324.15283	947.2326855
23772	23705	0.15784	231.90930	36.60456391
23772	23982	0.41604	227.77705	94.76436388
23776	23730	0.11084	1338.40552	148.3488678
23776	23859	0.12091	1363.27148	164.8331546
23784	23726	0.14329	3064.85889	439.1636303
23784	23858	0.09970	3143.86572	313.4434123
23794	23578	0.65682	725.54553	476.552815
23794	23842	0.88115	719.42554	633.9218146
23795	23710	0.20749	152.49312	31.64079747
23795	23799	0.50481	169.31638	85.47260179
23795	23856	0.07418	110.16582	8.172100528
23796	23660	0.33855	430.61853	145.7859033
23796	23846	0.06670	424.89273	28.34034509
23799	1915	0.29966	67.05858	20.09477408
23799	1916	0.96712	35.17623	34.01963556
23799	23795	0.50481	169.49969	85.56513851
23799	23807	0.99098	198.16223	196.3748067
23807	23799	0.99098	199.41357	197.6148596
23807	23808	0.15377	198.16223	30.47140611
23808	1916	0.78952	79.40807	62.69425943
23808	23807	0.15377	199.41357	30.66382466
23808	23809	0.09653	276.58728	26.69897014
23809	1957	0.80551	99.62280	80.24716163
23809	23808	0.09653	278.82166	26.91465484
23809	23810	0.24902	369.03058	91.89599503
23810	23809	0.24902	370.91119	92.36430453
23810	23819	0.50414	369.03058	186.0430766
23812	23747	0.17580	7311.67236	1285.392001
23813	23201	0.99361	278.42303	276.6439068
23813	23836	0.01009	272.59750	2.750508775
23815	23482	0.68084	2205.09375	1501.316029
23815	23925	0.17856	2202.60156	393.2965346
23818	2002	1.00704	32.26204	32.48916476
23818	23831	0.25098	690.92645	173.4087204
23818	23846	0.62904	730.75696	459.6753581
23819	23199	0.99986	549.02509	548.9482265
23819	23810	0.50414	370.91119	186.9911673

23819	23838	0.49442	513.40851	253.8394355
23819	24015	0.36462	602.86798	219.8177229
23829	23212	0.99583	1435.76550	1429.778358
23829	24063	0.50156	1447.63989	726.0782632
23831	23818	0.25098	698.41040	175.2870422
23831	23836	0.24891	690.92645	171.9785027
23832	23872	0.02855	7324.15283	209.1045633
23836	23813	0.01009	278.42303	2.809288373
23836	23831	0.24891	698.41040	173.8413327
23836	23839	0.49988	960.93732	480.3533475
23836	24050	0.46626	0.53614	0.249980636
23838	23819	0.49442	516.58478	255.4098469
23838	23842	1.09929	513.40851	564.384841
23839	23836	0.49988	974.25671	487.0114442
23839	23845	0.47304	960.93732	454.5617899
23842	1952	0.76987	59.10737	45.50499094
23842	1958	1.29791	366.42319	475.5843225
23842	23794	0.88115	725.54553	639.3144438
23842	23838	1.09929	516.58478	567.8764828
23845	23839	0.47304	974.25671	460.8623941
23845	23848	0.53227	960.93732	511.4781073
23846	23796	0.06670	430.61853	28.72225595
23846	23818	0.62904	723.18848	454.9144815
23846	23888	0.02915	692.38806	20.18311195
23848	23702	0.29693	1108.47107	329.1383148
23848	23845	0.53227	974.25671	518.567619
23848	23989	0.28068	238.59724	66.96947332
23849	750	0.27385	26.27378	7.195074653
23849	752	0.25124	171.21686	43.01652391
23849	23850	0.04416	191.46669	8.45516903
23850	23849	0.04416	195.26274	8.622802598
23850	23851	0.04757	191.46669	9.108070443
23851	23850	0.04757	195.26274	9.288648542
23851	23854	0.02666	191.46669	5.104501955
23854	751	0.25227	1.57908	0.398354512
23854	23851	0.02666	195.26274	5.205704648
23854	23858	0.12985	189.88760	24.65690486
23855	23812	0.02799	7311.67236	204.6537094
23856	1891	2.52237	110.16582	277.8789594
23856	23795	0.07418	109.94423	8.155662981
23858	23784	0.09970	3064.85889	305.5664313
23858	23854	0.12985	193.71109	25.15338504
23858	23862	0.17515	722.41620	126.5311974
23858	23967	0.27140	2452.61597	665.6399743
23859	23776	0.12091	1338.40552	161.8266114
23859	23862	0.07310	747.25989	54.62469796
23859	23878	0.00896	1742.44507	15.61230783
23861	23760	0.17910	105.43017	18.88254345
23861	23874	0.03779	108.53725	4.101622678
23862	828	0.12934	182.94194	23.66171052
23862	23858	0.17515	709.46838	124.2633868
23862	23859	0.07310	756.03668	55.26628131
23863	1986	0.55868	1.16966	0.653465649
23863	23599	0.50017	215.49910	107.7861848

23863	23971	0.25150	258.69479	65.06173969
23864	23868	0.05171	735.19629	38.01700016
23864	23871	0.03105	730.06531	22.66852788
23866	23701	0.31470	389.74640	122.6531921
23866	23980	0.25480	326.77875	83.2632255
23867	775	0.30679	141.56331	43.43020787
23867	23871	0.03379	735.19629	24.84228264
23867	23883	0.02847	622.92889	17.7347855
23868	795	0.24035	78.81975	18.94432691
23868	23864	0.05171	730.06531	37.75167718
23868	23869	0.11790	1107.32458	130.553568
23868	23926	0.13230	1066.93884	141.1560085
23869	23868	0.11790	1100.19910	129.7134739
23869	23873	0.03938	1316.15466	51.83017051
23869	23970	0.25561	436.73102	111.632816
23871	23864	0.03105	735.19629	22.8278448
23871	23867	0.03379	730.06531	24.66890682
23872	23932	0.14816	7324.15283	1085.146483
23873	278	0.03667	9.29593	0.340881753
23873	23869	0.03938	1316.86841	51.85827799
23873	23879	0.03104	1306.85876	40.56489591
23874	23861	0.03779	105.43017	3.984206124
23874	23930	0.14485	108.53725	15.72162066
23875	23876	0.13514	850.25317	114.9032134
23875	23878	0.08894	831.46124	73.95016269
23876	23875	0.13514	831.46124	112.363672
23876	23877	0.02965	850.25317	25.21000649
23877	777	0.17359	760.07202	131.940902
23877	23876	0.02965	831.46124	24.65282577
23877	23880	0.09515	624.01410	59.37494162
23878	23859	0.00896	1708.80225	15.31086816
23878	23875	0.08894	850.25317	75.62151694
23878	23937	0.15113	912.90790	137.9677709
23879	266	0.15447	64.50690	9.964380843
23879	23733	0.23738	2496.66235	592.6577086
23879	23873	0.03104	1307.65442	40.5895932
23879	23892	0.03690	1248.34094	46.06378069
23880	23877	0.09515	622.92889	59.27168388
23880	23883	0.06895	624.01410	43.0257722
23883	23867	0.02847	624.01410	17.76568143
23883	23880	0.06895	622.92889	42.95094697
23888	23846	0.02915	690.54541	20.1293987
23888	24000	0.30246	692.38806	209.4196926
23892	278	0.02967	31.56871	0.936643626
23892	23879	0.03690	1228.05078	45.31507378
23892	23968	0.20756	1223.92822	254.0385413
23918	24014	0.21310	183.79790	39.16733249
23918	24175	0.24596	178.84637	43.98905317
23918	24313	0.64569	0.00000	0
23918	30203	1.12059	3.08136	3.452941202
23925	23815	0.17856	2205.09375	393.74154
23925	23998	0.16409	2202.60156	361.42489
23926	777	0.35565	5.00666	1.780618629
23926	23868	0.13230	1066.33228	141.0757606

23926	23962	0.10880	1071.86865	116.6193091
23930	752	0.19539	108.53725	21.20709328
23930	23874	0.14485	105.43017	15.27156012
23932	23958	0.06868	7324.15283	503.0228164
23933	23855	0.15761	7311.67236	1152.392681
23937	23878	0.15113	898.05701	135.7233559
23937	23951	0.04870	912.90790	44.45861473
23949	23933	0.04791	7311.67236	350.3022228
23951	23937	0.04870	898.05701	43.73537639
23951	23972	0.04534	912.90790	41.39124419
23957	804	0.18623	1308.53772	243.6889796
23957	23949	0.02072	7311.67236	151.4978513
23957	23958	0.01103	174.34538	1.923029541
23958	817	0.25234	512.93280	129.4334628
23958	23957	0.01103	1637.39233	18.0604374
23958	23990	0.05321	5845.82080	311.0561248
23962	267	0.09367	320.98563	30.06672396
23962	23926	0.10880	1071.33887	116.5616691
23962	24030	0.14037	804.03003	112.8616953
23964	776	0.12712	267.58279	34.01512426
23964	828	0.11933	12.20355	1.456249622
23964	23965	0.05033	1299.31702	65.39462562
23964	23967	0.08832	1200.36035	106.0158261
23965	23964	0.05033	1253.42798	63.08503023
23965	23972	0.05158	1299.31702	67.01877189
23967	752	0.34840	17.42704	6.071580736
23967	23858	0.27140	2390.38013	648.7491673
23967	23964	0.08832	1252.53210	110.6236351
23967	24023	0.12986	1481.69299	192.4126517
23968	23892	0.20756	1203.21191	249.738664
23968	24018	0.11321	1223.92822	138.5609138
23970	267	0.09047	355.73898	32.18370552
23970	23869	0.25561	428.89185	109.6290458
23970	24061	0.23317	150.56734	35.10778667
23971	1987	0.50621	22.27222	11.27442049
23971	1999	0.75954	177.67136	134.9485048
23971	23863	0.25150	216.66876	54.49219314
23971	23995	0.03249	103.00507	3.346634724
23972	829	0.17759	22.95329	4.076274771
23972	23951	0.04534	898.05701	40.71790483
23972	23965	0.05158	1253.42798	64.65181521
23972	23974	0.06649	1665.90601	110.7660906
23974	23972	0.06649	1605.57813	106.7548899
23974	23987	0.02472	1665.90601	41.18119657
23980	822	0.25244	6.21066	1.56781901
23980	1987	0.49436	106.20963	52.50579269
23980	23866	0.25480	389.74640	99.30738272
23980	24071	0.22568	243.92137	55.04817478
23982	822	0.18178	148.84979	27.05791483
23982	23772	0.41604	231.90930	96.48354517
23982	24033	0.14508	100.82481	14.62766343
23987	777	0.15189	48.86858	7.422648616
23987	23974	0.02472	1605.57813	39.68989137
23987	24026	0.17020	1701.11694	289.5301032

23989	23848	0.28068	233.78014	65.6174097
23989	24177	0.64828	238.59724	154.6778187
23990	30097	0.18661	5845.82080	1090.888619
23995	23971	0.03249	71.54773	2.324585748
23995	24001	0.00784	103.00507	0.807559749
23998	23925	0.16409	2205.09375	361.8338334
23998	24042	0.11912	2202.60156	262.3738978
24000	23888	0.30246	690.54541	208.8623647
24000	24078	0.19868	692.38806	137.5636598
24001	23995	0.00784	71.54773	0.560934203
24001	24064	0.18763	103.00507	19.32684128
24014	23918	0.21310	181.92773	38.76879926
24014	24022	0.02879	183.79790	5.291541541
24015	23819	0.36462	603.73645	220.1343844
24015	24053	0.11800	602.86798	71.13842164
24018	23968	0.11321	1203.21191	136.2156203
24018	24055	0.11019	1223.92822	134.8646506
24022	24014	0.02879	181.92773	5.237699347
24022	24028	0.02391	183.79790	4.394607789
24023	23967	0.12986	1471.67310	191.1114688
24023	24096	0.14451	1481.69299	214.119454
24026	23987	0.17020	1640.66760	279.2416255
24026	24060	0.10028	1701.11694	170.5880067
24028	24022	0.02391	181.92773	4.349892024
24028	24108	0.17813	183.79790	32.73991993
24030	23962	0.14037	803.02332	112.7203834
24030	24103	0.17972	804.03003	144.500277
24033	23982	0.14508	107.56022	15.60483672
24033	24043	0.03737	100.82481	3.76782315
24041	23957	0.17468	5833.27393	1018.95629
24042	1822	1.84090	98.58733	181.4894158
24042	23998	0.11912	2205.09375	262.6707675
24042	24114	0.89710	2302.76147	2065.807315
24043	817	0.33116	62.76937	20.78670457
24043	24033	0.03737	107.56022	4.019525421
24043	24076	0.06571	67.60053	4.442030826
24050	23836	0.46626	0.52625	0.245369325
24050	24118	0.15322	0.53614	0.082147371
24053	24015	0.11800	603.73645	71.2409011
24053	24327	1.12374	602.86798	677.4668638
24055	266	0.51515	55.69783	28.69273712
24055	24018	0.11019	1203.21191	132.5819204
24055	24061	0.02657	217.50780	5.779182246
24055	24087	0.05106	1251.68115	63.91083952
24060	24026	0.10028	1640.66760	164.5261469
24060	24105	0.03809	1701.11694	64.79554424
24061	23970	0.23317	139.06967	32.42687495
24061	24055	0.02657	224.08826	5.954025068
24061	24088	0.02367	179.48834	4.248489008
24063	23829	0.50156	1435.76550	720.1225442
24063	24166	0.33172	1447.63989	480.2111043
24064	24001	0.18763	71.54773	13.42450058
24064	24066	0.29923	200.23195	59.9154064
24064	24188	0.42231	223.77510	94.50246248

24066	24064	0.29923	166.04517	49.68569622
24066	24080	0.19230	200.23195	38.50460399
24070	24072	0.01173	55.83128	0.654900914
24070	24075	0.12586	54.72108	6.887195129
24071	23980	0.22568	306.59772	69.19297345
24071	24082	0.00840	243.92137	2.048939508
24072	24070	0.01173	54.72108	0.641878268
24072	24076	0.11242	55.83128	6.276552498
24075	24070	0.12586	55.83128	7.026924901
24075	24084	0.10859	54.72108	5.942162077
24076	24043	0.06571	71.29046	4.684496127
24076	24072	0.11242	54.72108	6.151743814
24076	24107	0.04088	110.85292	4.53166737
24076	30098	0.45952	0.00000	0
24078	24000	0.19868	690.54541	137.1975621
24078	24131	0.15925	692.38806	110.2627986
24079	24080	0.01034	176.83719	1.828496545
24079	24081	0.24062	211.06902	50.78742759
24080	1988	0.20172	16.22773	3.273457696
24080	24066	0.19230	166.04517	31.93048619
24080	24079	0.01034	211.06902	2.182453667
24081	24079	0.24062	176.83719	42.55056466
24081	24082	0.25993	211.06902	54.86317037
24082	24071	0.00840	306.59772	2.575420848
24082	24081	0.25993	176.83719	45.9652908
24082	24083	0.11794	164.54684	19.40665431
24083	24082	0.11794	192.99135	22.76139982
24083	24084	0.02416	164.54684	3.975451654
24084	24075	0.10859	55.83128	6.062718695
24084	24083	0.02416	192.99135	4.662671016
24084	24112	0.08207	108.71557	8.92228683
24085	24086	0.00923	0.00000	0
24085	30084	0.02166	5833.27393	126.3487133
24086	24085	0.00923	0.00000	0
24086	30082	0.02047	5845.82080	119.6639518
24087	24055	0.05106	1223.40820	62.46722269
24087	24130	0.18683	1251.68115	233.8515893
24088	24061	0.02367	174.57114	4.132098884
24088	24129	0.13871	179.48834	24.89682764
24090	776	0.13392	0.00000	0
24093	2041	0.62905	0.00000	0
24093	22506	0.44254	178.84637	79.14667258
24093	23113	0.44254	180.62277	79.93280064
24093	24803	0.38742	0.00000	0
24094	718	0.93090	255.71513	238.0452145
24094	24095	0.13169	251.98720	33.18419437
24095	24094	0.13169	255.71513	33.67512547
24095	24097	0.07378	251.98720	18.59161562
24096	24023	0.14451	1471.67310	212.6714797
24096	24097	0.28269	255.71513	72.2881101
24096	24128	0.12475	1259.56458	157.1306814
24097	24095	0.07378	255.71513	18.86666229
24097	24096	0.28269	251.98720	71.23426157
24099	24100	0.03172	1642.98401	52.1154528

24099	24105	0.02552	1580.93799	40.3455375
24100	24099	0.03172	1580.93799	50.14735304
24100	24101	0.04757	1642.98401	78.15674936
24101	24100	0.04757	1580.93799	75.20522018
24101	24102	0.02068	1642.98401	33.97690933
24102	24101	0.02068	1580.93799	32.69379763
24102	24103	0.12617	1642.98401	207.2952925
24103	24030	0.17972	803.02332	144.3193511
24103	24102	0.12617	1580.93799	199.4669462
24103	24136	0.16907	1656.67041	280.0932662
24105	24060	0.03809	1640.66760	62.49302888
24105	24099	0.02552	1642.98401	41.92895194
24105	24125	0.11308	841.98096	95.21120696
24107	24076	0.04088	113.43265	4.637126732
24107	24109	0.01120	110.85292	1.241552704
24108	24028	0.17813	181.92773	32.40678654
24108	24139	0.21465	183.79790	39.45221924
24109	24107	0.01120	113.43265	1.27044568
24109	24126	0.08456	110.85292	9.373722915
24112	24084	0.08207	138.27026	11.34784024
24112	24142	0.15881	108.71557	17.26511967
24114	24042	0.89710	2300.94067	2064.173875
24114	24284	0.83100	2302.76147	1913.594782
24118	24050	0.15322	0.52625	0.080632025
24118	24208	0.37323	0.53614	0.200103532
24125	779	0.12157	26.66717	3.241927857
24125	24105	0.11308	843.57764	95.39175953
24125	24156	0.13897	817.58868	113.6202989
24126	24109	0.08456	113.43265	9.591864884
24126	24143	0.10808	110.85292	11.98098359
24128	778	0.12603	25.21053	3.177283096
24128	24096	0.12475	1253.27246	156.3457394
24128	24145	0.12547	1234.35400	154.8743964
24129	269	0.14314	137.30029	19.65316351
24129	270	0.10899	23.23346	2.532214805
24129	24088	0.13871	174.57114	24.21476283
24129	24153	0.12543	50.32783	6.312619717
24130	24087	0.18683	1223.40820	228.569354
24130	24132	0.01874	1251.68115	23.45650475
24131	24078	0.15925	690.54541	109.9693565
24131	24207	0.32303	692.38806	223.662115
24132	270	0.06691	101.41271	6.785524426
24132	24130	0.01874	1223.40820	22.92666967
24132	24157	0.10686	1164.99951	124.4918476
24136	24103	0.16907	1593.61768	269.4329412
24136	24154	0.08229	1656.67041	136.327408
24139	2049	0.62294	0.00000	0
24139	24108	0.21465	181.92773	39.05078724
24139	24144	0.12352	183.79790	22.70271661
24142	24112	0.15881	138.27026	21.95869999
24142	24161	0.07024	108.71557	7.636181637
24143	24126	0.10808	113.43265	12.25980081
24143	24155	0.02968	110.85292	3.290114666
24144	2048	0.33474	0.00000	0

24144	24139	0.12352	181.92773	22.47171321
24144	24396	1.32049	183.79790	242.703289
24145	24128	0.12547	1228.62500	154.1555788
24145	24146	0.12528	1234.35400	154.6398691
24146	778	0.13448	1.84881	0.248627969
24146	24145	0.12528	1228.62500	153.92214
24146	24148	0.12432	1236.21008	153.6856371
24147	779	0.13635	0.23065	0.031449128
24147	24150	0.03940	697.62762	27.48652823
24147	24156	0.12403	700.49609	86.88253004
24148	24146	0.12432	1230.47388	152.9725128
24148	24150	0.08825	700.72675	61.83913569
24148	24273	0.49826	1899.08203	946.2366123
24149	279	0.10953	393.73938	43.12627429
24149	24151	0.02367	383.38544	9.074733365
24149	24154	0.13904	670.03839	93.16213775
24150	24147	0.03940	700.72675	27.60863395
24150	24148	0.08825	697.62762	61.56563747
24151	24149	0.02367	336.90903	7.97463674
24151	24152	0.08274	383.38544	31.72131131
24152	24151	0.08274	336.90903	27.87585314
24152	24153	0.07929	383.38544	30.39863154
24153	24129	0.12543	49.22180	6.173890374
24153	24152	0.07929	336.90903	26.71351699
24153	24157	0.17100	254.08192	43.44800832
24153	24173	0.07576	156.95322	11.89077595
24154	24136	0.08229	1593.61768	131.1387989
24154	24149	0.13904	723.10938	100.5411282
24154	24179	0.10887	947.68787	103.1747784
24155	818	0.08097	7.01058	0.567646663
24155	24143	0.02968	113.43265	3.366681052
24155	24248	0.31303	105.00691	32.87031304
24156	268	0.11342	123.12452	13.96478306
24156	24125	0.13897	819.82001	113.9303868
24156	24147	0.12403	697.38684	86.49688977
24156	24191	0.15069	131.34703	19.79268395
24157	24132	0.10686	1138.23279	121.6315559
24157	24153	0.17100	208.49971	35.65345041
24157	24169	0.06046	1419.08142	85.79766265
24158	24161	0.04348	0.00000	0
24158	24162	0.06683	0.00000	0
24159	24162	0.01017	0.00000	0
24161	823	0.26035	107.24799	27.9220142
24161	24142	0.07024	138.27026	9.712103062
24161	24158	0.04348	0.00000	0
24161	24165	0.04020	1.46758	0.058996716
24162	24158	0.06683	0.00000	0
24162	24159	0.01017	0.00000	0
24162	24239	0.31316	0.00000	0
24165	24161	0.04020	1.45026	0.058300452
24165	24190	0.10706	1.46758	0.157119115
24166	2027	3.53666	837.98566	2963.670364
24166	2028	2.41895	288.46423	697.7805492
24166	24063	0.33172	1435.76550	476.2721317

24166	24422	1.17072	905.71478	1060.338407
24168	24176	0.03247	5845.82080	189.8138014
24169	24157	0.06046	1346.73254	81.42344937
24169	24178	0.04681	1419.08142	66.42720127
24170	23403	0.15144	0.00000	0
24170	24175	0.24596	180.62277	44.42597651
24170	24259	0.24596	178.84637	43.98905317
24173	271	0.12578	105.76490	13.30310912
24173	24153	0.07576	154.95299	11.73923852
24173	24251	0.25741	51.56881	13.27432738
24175	2045	0.39563	0.00000	0
24175	23918	0.24596	180.62277	44.42597651
24175	24170	0.24596	178.84637	43.98905317
24176	24232	0.15565	5845.82080	909.9020075
24177	23989	0.64828	233.78014	151.5549892
24177	24198	0.24956	215.06505	53.67163388
24177	24216	0.61009	95.64321	58.35096599
24178	277	0.08493	6.45094	0.547878334
24178	24169	0.04681	1346.73254	63.0405502
24178	24186	0.01869	1413.51685	26.41862993
24179	279	0.14051	9.98632	1.403177823
24179	24154	0.10887	937.70605	102.0880577
24179	24231	0.14026	957.74237	134.3329448
24182	30100	0.34725	5833.27393	2025.604372
24186	24178	0.01869	1341.29724	25.06884542
24186	24195	0.03924	1413.51685	55.46640119
24188	24064	0.42231	226.50452	95.65512384
24188	24219	0.07785	223.77510	17.42089154
24190	24165	0.10706	1.45026	0.155264836
24190	24267	0.34910	1.46758	0.512332178
24191	24156	0.15069	131.98883	19.88939679
24191	24233	0.09798	131.34703	12.869382
24195	271	0.07004	208.86096	14.62862164
24195	24186	0.03924	1341.29724	52.6325037
24195	24200	0.01955	1246.15002	24.36223289
24198	24177	0.24956	211.38515	52.75327803
24198	24202	0.40182	215.06505	86.41743839
24200	24195	0.01955	1179.23499	23.05404405
24200	24245	0.09406	1246.15002	117.2128709
24202	24198	0.40182	211.38515	84.93878097
24202	24203	0.05316	215.06505	11.43285806
24203	24202	0.05316	211.38515	11.23723457
24203	24204	0.03539	215.06505	7.61115212
24204	24203	0.03539	211.38515	7.480920459
24204	24220	0.06105	215.06505	13.1297213
24207	2028	2.92490	622.23108	1819.963686
24207	24131	0.32303	690.54541	223.0668838
24207	24369	0.81162	106.26643	86.24795992
24208	24118	0.37323	0.52625	0.196412288
24208	24296	0.45961	0.53614	0.246415305
24216	24177	0.61009	94.50602	57.65717774
24216	24217	0.07584	95.64321	7.253581046
24217	2000	0.70958	12.74784	9.045612307
24217	24216	0.07584	94.50602	7.167336557

24217	24302	0.50198	88.84415	44.59798642
24219	24188	0.07785	226.50452	17.63337688
24219	24270	0.25151	223.77510	56.2816754
24220	24204	0.06105	211.38515	12.90506341
24220	24236	0.08290	215.06505	17.82889265
24228	272	0.43269	0.00000	0
24228	24231	0.11879	65.09550	7.732694445
24228	24233	0.13287	66.78228	8.873361544
24231	24179	0.14026	947.69238	132.9233332
24231	24228	0.11879	66.78228	7.933067041
24231	24277	0.25360	1007.34326	255.4622507
24232	24237	0.00672	5845.82080	39.28391578
24233	24191	0.09798	131.98883	12.93226556
24233	24228	0.13287	65.09550	8.649239085
24233	24297	0.43650	66.25153	28.91879285
24234	273	0.24536	1.25834	0.308746302
24234	279	0.14239	1.26955	0.180771225
24235	24182	0.14043	5833.27393	819.166658
24235	24237	0.01218	159.06133	1.937366999
24236	24220	0.08290	211.38515	17.52382894
24236	24255	0.13496	215.06505	29.02517915
24237	24235	0.01218	764.36475	9.309962655
24237	24243	0.01960	5222.58643	102.362694
24237	24244	0.05303	944.17511	50.06960608
24239	24162	0.31316	0.00000	0
24239	24252	0.06593	0.00000	0
24242	24235	0.01970	5227.97021	102.9910131
24243	24258	0.08853	5222.58643	462.3555766
24244	24237	0.05303	926.24377	49.11870712
24244	24249	0.20667	944.17511	195.13267
24245	24200	0.09406	1179.23499	110.9188432
24245	24265	0.13094	1246.15002	163.1708836
24248	24155	0.31303	107.47316	33.64232327
24248	24249	0.25172	915.17383	230.3675565
24248	24252	0.07567	903.17834	68.34350499
24249	818	0.34989	10.88061	3.807016633
24249	24244	0.20667	926.24377	191.4267999
24249	24248	0.25172	933.29449	234.928889
24251	280	0.05647	54.48656	3.076856043
24251	24173	0.25741	50.17198	12.91476937
24251	24298	0.39022	2.86556	1.118198823
24252	823	0.18384	868.48199	159.661729
24252	24239	0.06593	0.00000	0
24252	24248	0.07567	887.52399	67.15894032
24252	24267	0.25164	36.72661	9.24188414
24254	24242	0.05431	5227.97021	283.9310621
24255	24236	0.13496	211.38515	28.52853984
24255	24296	0.50567	215.06505	108.7519438
24258	24275	0.13598	5222.58643	710.1673028
24259	2044	0.37508	0.00000	0
24259	2047	0.08840	0.00000	0
24259	23377	0.24596	178.84637	43.98905317
24259	24170	0.24596	180.62277	44.42597651
24265	805	0.09918	105.50176	10.46366456

24265	24245	0.13094	1179.23499	154.4090296
24265	24293	0.22739	1154.82788	262.5963116
24267	819	0.52079	38.19419	19.89115221
24267	24190	0.34910	1.45026	0.506285766
24267	24252	0.25164	36.15219	9.097337092
24270	24219	0.25151	226.50452	56.96815183
24270	24307	0.25265	223.77510	56.53677902
24273	780	0.22200	1899.08203	421.5962107
24273	24148	0.49826	1896.44495	944.9226608
24275	24254	0.16965	5227.97021	886.9251461
24275	24300	0.21500	5222.58643	1122.856082
24277	24231	0.25360	998.98010	253.3413534
24277	24291	0.12037	1007.34326	121.2539082
24284	24114	0.83100	2300.94067	1912.081697
24284	24286	0.03052	2302.76147	70.28028006
24286	24284	0.03052	2300.94067	70.22470925
24286	24330	0.29547	2302.76147	680.3969315
24291	24277	0.12037	998.98010	120.2472346
24291	24312	0.12540	1007.34326	126.3208448
24293	24265	0.22739	1090.34448	247.9334313
24293	24298	0.05655	1154.82788	65.30551661
24296	24208	0.45961	0.52625	0.241869763
24296	24255	0.50567	211.38515	106.8911288
24296	24334	0.31233	215.60120	67.3387228
24297	272	0.12655	66.25153	8.384131122
24297	24233	0.43650	65.20655	28.46265908
24297	24311	0.06118	0.00000	0
24298	24251	0.39022	2.91774	1.138560503
24298	24293	0.05655	1090.34448	61.65898034
24298	24321	0.09410	1157.59753	108.9299276
24300	24275	0.21500	5227.97021	1124.013595
24300	24323	0.09467	5222.58643	494.4222573
24302	24217	0.50198	87.99738	44.17292481
24302	24426	0.50161	88.84415	44.56511408
24307	24270	0.25265	226.50452	57.22636698
24307	24316	0.03517	223.77510	7.870170267
24311	24297	0.06118	0.00000	0
24311	24344	0.16746	0.00000	0
24312	272	0.14093	60.60000	8.540358
24312	273	0.35000	148.19547	51.8684145
24312	24291	0.12540	998.98010	125.2721045
24312	24322	0.04087	839.87970	34.32588334
24313	2045	0.48173	0.00000	0
24313	2046	0.71250	0.00000	0
24313	23918	0.64569	0.00000	0
24313	24570	1.29139	0.00000	0
24316	1989	1.20671	170.54483	205.7981518
24316	2000	0.49956	54.35895	27.15555706
24316	24307	0.03517	226.50452	7.966163968
24320	273	0.30300	3.31727	1.00513281
24320	274	0.21219	3.32871	0.706318975
24321	24298	0.09410	1093.16638	102.8669564
24321	24332	0.05991	1157.59753	69.35166802
24322	24312	0.04087	833.70715	34.07361122

24322	24337	0.08229	839.87970	69.11370051
24323	24300	0.09467	5227.97021	494.9319398
24323	24335	0.04839	5222.58643	252.7209573
24327	1958	1.54358	1.05262	1.62480318
24327	24053	1.12374	603.73645	678.4427983
24327	24475	0.57609	603.94434	347.9262948
24330	24286	0.29547	2300.94067	679.8589398
24330	24385	0.31464	2302.76147	724.5408689
24332	24321	0.05991	1093.16638	65.49159783
24332	24339	0.02296	1157.59753	26.57843929
24334	24296	0.31233	211.91139	66.18628444
24334	24373	0.31937	215.60120	68.85655524
24335	24323	0.04839	5227.97021	252.9814785
24335	24455	0.51385	5222.58643	2683.626037
24337	24322	0.08229	833.70715	68.60576137
24337	24348	0.06326	839.87970	53.13078982
24339	24332	0.02296	1093.16638	25.09910008
24339	24367	0.12933	1157.59753	149.7120886
24344	24311	0.16746	0.00000	0
24344	24365	0.08509	0.00000	0
24348	24337	0.06326	833.70715	52.74031431
24348	24364	0.06431	839.87970	54.01266351
24364	274	0.24986	575.66785	143.836369
24364	24348	0.06431	833.70715	53.61570682
24364	24441	0.24303	273.24152	66.40588661
24365	24344	0.08509	0.00000	0
24365	24388	0.08708	0.00000	0
24367	274	0.24705	545.07819	134.6615668
24367	24339	0.12933	1093.16638	141.3792079
24367	24438	0.24074	761.86597	183.4116136
24369	24207	0.81162	104.07965	84.47312553
24369	24416	0.18553	106.26643	19.71561076
24373	24334	0.31937	211.91139	67.67814062
24373	24418	0.22762	215.60120	49.07514514
24385	24330	0.31464	2300.94067	723.9679724
24385	24401	0.06419	2302.76147	147.8142588
24388	24365	0.08708	0.00000	0
24388	24408	0.11683	0.00000	0
24396	24144	1.32049	181.92773	240.2337482
24396	24449	0.14449	183.79790	26.55695857
24401	24385	0.06419	2300.94067	147.6973816
24401	24445	0.15180	2302.76147	349.5591911
24408	24388	0.11683	0.00000	0
24408	24441	0.18407	0.00000	0
24416	24369	0.18553	104.07965	19.30989746
24416	24418	0.33717	18.26835	6.15953957
24416	24501	0.26512	87.99809	23.33005362
24418	24373	0.22762	211.91139	48.23527059
24418	24416	0.33717	17.84113	6.015493802
24418	24501	0.43204	197.76007	85.44026064
24422	24166	1.17072	882.52094	1033.184915
24422	24678	1.01939	905.71478	923.2765896
24426	24302	0.50161	87.99738	44.14036578
24426	30074	1.36648	88.84415	121.4037541

24438	24367	0.24074	699.74255	168.4560215
24438	24444	0.24962	62.16897	15.51861829
24438	24480	0.15900	822.79523	130.8244416
24441	1678	0.69623	212.31224	147.8181509
24441	24364	0.24303	271.12500	65.89150875
24441	24408	0.18407	0.00000	0
24441	24444	0.24685	60.92928	15.04039277
24444	274	0.24465	0.00000	0
24444	24438	0.24962	60.92928	15.20916687
24444	24441	0.24685	62.16897	15.34641024
24445	24401	0.15180	2300.94067	349.2827937
24445	24467	0.14134	2302.76147	325.4723062
24449	24396	0.14449	181.92773	26.28673771
24449	24458	0.06588	183.79790	12.10860565
24455	819	0.57526	4.27841	2.461198137
24455	1679	0.45480	56.74962	25.80972718
24455	24335	0.51385	5227.97021	2686.392492
24455	24464	0.02977	5170.13574	153.914941
24458	24449	0.06588	181.92773	11.98539885
24458	24465	0.02624	183.79790	4.822856896
24464	24455	0.02977	5176.12988	154.0933865
24464	24630	0.70137	5170.13574	3626.178104
24465	24458	0.02624	181.92773	4.773783635
24465	24521	0.18744	183.79790	34.45107838
24467	24445	0.14134	2300.94067	325.2149543
24467	24659	0.89684	2302.76147	2065.208597
24475	24327	0.57609	604.78906	348.4129296
24475	24523	0.13800	603.94434	83.34431892
24480	24438	0.15900	761.91156	121.143938
24480	24581	0.31894	822.79523	262.4223107
24501	24416	0.26512	86.23853	22.86355907
24501	24418	0.43204	193.64305	83.66154332
24501	24628	1.12666	285.75815	321.9522773
24521	1831	5.01448	61.44820	308.1307699
24521	2050	1.24970	0.00000	0
24521	24465	0.18744	181.92773	34.10053371
24521	24691	1.08921	155.08347	168.9184664
24523	24475	0.13800	604.78906	83.46089028
24523	24572	0.39869	547.53687	218.2974747
24523	24584	0.19613	56.40749	11.06320101
24570	2044	0.45642	0.00000	0
24570	2045	0.69015	0.00000	0
24570	2051	0.60870	0.00000	0
24570	24313	1.29139	0.00000	0
24570	24756	0.64569	0.00000	0
24572	24523	0.39869	548.74634	218.7796783
24572	24573	0.33991	547.53687	186.1132575
24573	24572	0.33991	548.74634	186.5243684
24573	24576	1.58521	547.53687	867.9609217
24576	24573	1.58521	548.74634	869.8781856
24576	24577	0.17702	547.53687	96.92497673
24577	1958	1.50711	57.60833	86.82209023
24577	24576	0.17702	548.74634	97.13907711
24577	24592	0.05188	606.84375	31.48305375

24581	275	0.18438	298.44815	55.0278699
24581	1678	0.67084	27.30779	18.31915784
24581	24480	0.31894	761.91156	243.0040729
24581	24620	0.21741	593.78247	129.0942468
24584	24523	0.19613	56.04272	10.99165867
24584	24689	0.62260	56.40749	35.11930327
24592	24577	0.05188	606.35468	31.4576808
24592	24619	0.18945	606.84375	114.9665484
24619	24592	0.18945	606.35468	114.8738941
24619	24650	0.14827	606.84375	89.97672281
24620	24581	0.21741	540.75256	117.5650141
24620	24627	0.03415	593.78247	20.27767135
24627	24620	0.03415	540.75256	18.46669992
24627	24646	0.07905	593.78247	46.93850425
24628	24501	1.12666	279.88156	315.3313584
24628	24676	0.56510	285.75815	161.4819306
24630	24464	0.70137	5176.12988	3630.382214
24630	24634	0.02448	5170.13574	126.5649229
24634	1679	0.33865	10.37443	3.51330072
24634	1680	0.11842	73.96808	8.759300034
24634	24630	0.02448	5176.12988	126.7116595
24634	30049	0.71576	5129.41748	3671.431855
24643	24651	0.08504	2235.06494	190.0699225
24643	24755	1.65251	2241.88281	3704.733762
24646	24627	0.07905	540.75256	42.74648987
24646	24658	0.12360	593.78247	73.39151329
24650	24619	0.14827	606.35468	89.9042084
24650	24767	0.77047	606.84375	467.5549041
24651	24643	0.08504	2241.88281	190.6497142
24651	24668	0.37375	2235.06494	835.3555213
24658	24646	0.12360	540.75256	66.83701642
24658	24664	0.03087	593.78247	18.33006485
24659	1831	2.80873	469.91290	1319.85846
24659	24467	0.89684	2300.94067	2063.57563
24659	24667	0.06013	2241.88281	134.8044134
24664	24658	0.03087	540.75256	16.69303153
24664	24666	0.02347	593.78247	13.93607457
24666	24664	0.02347	540.75256	12.69146258
24666	24680	0.08064	593.78247	47.88261838
24667	24659	0.06013	2235.06494	134.3944548
24667	24668	0.18088	2241.88281	405.5117627
24668	24651	0.37375	2241.88281	837.9037002
24668	24667	0.18088	2235.06494	404.2785463
24676	24628	0.56510	279.88156	158.1610696
24676	24732	0.84419	285.75815	241.2341726
24678	24422	1.01939	882.52094	899.633021
24678	24850	1.19781	905.71478	1084.874221
24680	24666	0.08064	540.75256	43.60628644
24680	24684	0.05315	593.78247	31.55953828
24684	24680	0.05315	540.75256	28.74099856
24684	24701	0.24080	593.78247	142.9828188
24689	24584	0.62260	56.04272	34.89219747
24689	24705	0.13926	56.40749	7.855307057
24691	24521	1.08921	152.73317	166.3584961

24691	24716	0.23215	155.08347	36.00262756
24701	24684	0.24080	540.75256	130.2132164
24701	24722	0.13431	593.78247	79.75092355
24705	1917	0.39850	56.40749	22.47838477
24705	24689	0.13926	56.04272	7.804509187
24707	2028	1.53660	0.21428	0.329262648
24707	2029	2.12058	0.21428	0.454397882
24716	24691	0.23215	152.73317	35.45700542
24716	24802	0.59873	155.08347	92.85312599
24722	24701	0.13431	540.75256	72.62847633
24722	24738	0.14456	593.78247	85.83719386
24732	24676	0.84419	279.88156	236.2732141
24732	24760	0.24188	285.75815	69.11918132
24738	24722	0.14456	540.75256	78.17119007
24738	24749	0.05263	593.78247	31.2507714
24739	24746	0.07354	725.35803	53.34282953
24739	24752	0.10479	668.24438	70.02532858
24745	24747	0.25789	2021.19409	521.2457439
24745	24757	0.05673	2051.97363	116.408464
24746	24739	0.07354	668.24438	49.14269171
24746	30054	0.01585	725.35803	11.49692478
24747	24745	0.25789	2051.97363	529.1834794
24747	30050	0.21126	2021.19409	426.9974635
24749	24738	0.05263	540.75256	28.45980723
24749	24750	0.03654	593.78247	21.69681145
24750	276	0.71403	486.14005	347.1185799
24750	24749	0.03654	540.75256	19.75909854
24750	24751	0.05792	725.35803	42.0127371
24751	24750	0.05792	668.24438	38.70471449
24751	24752	0.04964	725.35803	36.00677261
24752	24739	0.10479	725.35803	76.01026796
24752	24751	0.04964	668.24438	33.17165102
24755	24643	1.65251	2235.06494	3693.467164
24755	24821	0.47286	2241.88281	1060.096706
24756	24570	0.64569	0.00000	0
24756	24803	0.25828	0.00000	0
24757	24745	0.05673	2021.19409	114.6623407
24757	24977	2.02709	2051.97363	4159.535226
24760	24732	0.24188	279.88156	67.69775173
24760	24782	0.54234	285.75815	154.9780751
24767	24650	0.77047	606.35468	467.1780903
24767	24832	0.43025	606.84375	261.0945234
24782	24760	0.54234	279.88156	151.7909653
24782	24805	0.25403	285.75815	72.59114284
24802	24716	0.59873	152.73317	91.44593087
24802	24804	0.00863	155.08347	1.338370346
24803	2044	0.55517	0.00000	0
24803	24093	0.38742	0.00000	0
24803	24756	0.25828	0.00000	0
24804	24802	0.00863	152.73317	1.318087257
24804	24836	0.24564	155.08347	38.09470357
24805	24782	0.25403	279.88156	71.09831269
24805	24813	0.17709	285.75815	50.60491078
24813	24805	0.17709	279.88156	49.56422546

24813	24828	0.11577	285.75815	33.08222103
24821	24755	0.47286	2235.06494	1056.872808
24821	24856	0.44299	2241.88281	993.131666
24828	24813	0.11577	279.88156	32.4018882
24828	24833	0.06077	285.75815	17.36552278
24832	24767	0.43025	606.35468	260.8841011
24832	24860	0.24393	606.84375	148.0273959
24833	24828	0.06077	279.88156	17.0084024
24833	24838	0.09721	285.75815	27.77854976
24836	24804	0.24564	152.73317	37.51737588
24836	24895	0.49962	155.08347	77.48280328
24838	24833	0.09721	279.88156	27.20728645
24838	24849	0.16373	285.75815	46.7871819
24844	23458	0.00438	0.00000	0
24849	24838	0.16373	279.88156	45.82500782
24849	24853	0.11573	285.75815	33.0707907
24850	24678	1.19781	882.52094	1057.092407
24850	24866	0.12190	905.71478	110.4066317
24853	24849	0.11573	279.88156	32.39069294
24853	24855	0.03401	285.75815	9.718634682
24855	24853	0.03401	279.88156	9.518771856
24855	24857	0.15380	285.75815	43.94960347
24856	24821	0.44299	2235.06494	990.1114178
24856	24865	0.09208	2241.88281	206.4325691
24857	24855	0.15380	279.88156	43.04578393
24857	24858	0.01171	285.75815	3.346227937
24858	24857	0.01171	279.88156	3.277413068
24858	24861	0.06349	285.75815	18.14278494
24860	24832	0.24393	606.35468	147.9080971
24860	24886	0.17594	606.84375	106.7680894
24861	24858	0.06349	279.88156	17.76968024
24861	24872	0.64852	285.75815	185.3198754
24865	24856	0.09208	2235.06494	205.8047797
24865	24869	0.05249	2241.88281	117.6764287
24866	24850	0.12190	882.52094	107.5793026
24866	24876	0.09411	905.71478	85.23681795
24869	24865	0.05249	2235.06494	117.3185587
24869	24878	0.11493	2241.88281	257.6595914
24872	24861	0.64852	279.88156	181.5087893
24872	24887	0.15448	285.75815	44.14391901
24873	24882	0.36234	0.00000	0
24873	24909	0.45723	0.00000	0
24874	276	0.30207	110.08698	33.25397405
24874	1963	1.01832	131.66660	134.0787321
24874	25083	2.33312	3446.15649	8040.29663
24874	30053	0.97883	3413.13232	3340.876309
24876	24866	0.09411	882.52094	83.05404566
24876	24900	0.13773	905.71478	124.7440966
24878	24869	0.11493	2235.06494	256.8760136
24878	24879	0.01560	2241.88281	34.97337184
24879	24878	0.01560	2235.06494	34.86701306
24879	24904	0.12355	2241.88281	276.9846212
24882	24873	0.36234	0.00000	0
24882	24980	1.63747	0.00000	0

24886	1917	2.71660	14.79234	40.18487084
24886	1959	1.58974	353.83551	562.5064637
24886	24860	0.17594	606.35468	106.6820424
24886	24955	0.47676	654.90820	312.2340334
24887	24872	0.15448	279.88156	43.23610339
24887	24908	0.15979	285.75815	45.66129479
24895	24836	0.49962	152.73317	76.3085464
24895	24897	0.00998	155.08347	1.547733031
24897	24895	0.00998	152.73317	1.524277037
24897	24917	0.20725	155.08347	32.14104916
24900	24876	0.13773	882.52094	121.5496091
24900	24908	0.03338	9.95734	0.332376009
24900	24913	0.05547	895.75745	49.68766575
24904	24879	0.12355	2235.06494	276.1422733
24904	24915	0.06830	2241.88281	153.1205959
24908	24887	0.15979	279.88156	44.72227447
24908	24900	0.03338	10.39310	0.346921678
24908	24913	0.03221	275.36505	8.869508261
24909	952	1.38737	785.35181	1089.573541
24909	24873	0.45723	0.00000	0
24909	24919	0.18031	774.55518	139.6600445
24913	24900	0.05547	872.12787	48.37693295
24913	24908	0.03221	269.92422	8.694259126
24913	24916	0.03180	711.07581	22.61221076
24913	25340	4.51550	785.56061	3547.198934
24915	24904	0.06830	2235.06494	152.6549354
24915	24925	0.28159	1557.11658	438.4684578
24915	24965	0.36437	1101.50830	401.3565793
24916	24913	0.03180	686.77637	21.83948857
24916	24941	0.18426	711.07581	131.0228288
24917	24897	0.20725	152.73317	31.65394948
24917	24924	0.17605	155.08347	27.30244489
24919	24909	0.18031	785.35181	141.6067849
24919	24935	0.25515	774.55518	197.6277542
24924	24917	0.17605	152.73317	26.88867458
24924	24928	0.02943	155.08347	4.564106522
24925	24915	0.28159	1563.92102	440.38452
24925	24933	0.12850	1557.11658	200.0894805
24928	24924	0.02943	152.73317	4.494937193
24928	24947	0.23832	155.08347	36.95949257
24933	954	0.35366	976.15009	345.2252408
24933	24925	0.12850	1563.92102	200.9638511
24933	24937	0.04689	1719.28101	80.61708656
24935	24919	0.25515	785.35181	200.3825143
24935	24986	0.67518	774.55518	522.9641664
24937	24933	0.04689	1697.44214	79.59306194
24937	24952	0.20432	1719.28101	351.283496
24941	24916	0.18426	686.77637	126.5454139
24941	24963	0.14297	711.07581	101.6625086
24947	24928	0.23832	152.73317	36.39936907
24947	24962	0.12439	155.08347	19.29083283
24952	24937	0.20432	1697.44214	346.821378
24952	24994	0.30719	1719.28101	528.1459335
24955	24886	0.47676	644.46808	307.2566018

24955	24967	0.01796	654.90820	11.76215127
24962	2052	0.78850	0.00000	0
24962	24947	0.12439	152.73317	18.99847902
24962	24968	0.03082	155.08347	4.779672545
24963	24941	0.14297	686.77637	98.18841762
24963	24998	0.18970	711.07581	134.8910812
24965	24915	0.36437	1087.88599	396.3930182
24965	24995	0.14051	1101.50830	154.7729312
24967	24955	0.01796	644.46808	11.57464672
24967	25095	0.84603	654.90820	554.0719844
24968	24962	0.03082	152.73317	4.707236299
24968	25025	0.78502	155.08347	121.7436256
24973	24426	4.22356	87.99738	371.6622143
24973	24975	0.04621	53.70412	2.481667385
24973	24978	0.01738	27.93752	0.485554098
24974	2032	0.54739	24.64834	13.49225483
24974	24977	1.49895	818.85883	1227.428443
24974	24982	0.58087	822.77527	477.9254711
24975	24973	0.04621	58.59339	2.707600552
24975	24978	0.04962	764.18188	37.91870489
24975	24982	0.17679	796.40393	140.7962508
24977	1963	1.01797	45.02229	45.83134055
24977	24757	2.02709	2021.19409	4097.142328
24977	24974	1.49895	837.80371	1255.825871
24977	25204	1.86426	1443.65381	2691.346052
24978	24973	0.01738	29.40399	0.511041346
24978	24975	0.04962	742.69983	36.85276556
24978	25118	1.11860	792.11945	886.0648168
24980	24882	1.63747	0.00000	0
24982	24974	0.58087	796.40393	462.6071508
24982	24975	0.17679	822.77527	145.45844
24986	24935	0.67518	785.35181	530.2538351
24986	24987	0.02205	774.55518	17.07894172
24987	951	0.46380	136.97786	63.53033147
24987	24986	0.02205	785.35181	17.31700741
24987	24992	0.03869	637.57733	24.6678669
24992	24987	0.03869	644.49622	24.93555875
24992	25020	0.30940	637.57733	197.2664259
24994	24952	0.30719	1697.44214	521.437251
24994	25002	0.15626	1719.28101	268.6548506
24995	24965	0.14051	1087.88599	152.8588605
24995	25055	0.88088	1101.50830	970.2966313
24998	24963	0.18970	686.77637	130.2814774
24998	25000	0.02263	711.07581	16.09164558
25000	24998	0.02263	686.77637	15.54174925
25000	25024	0.19293	711.07581	137.187856
25002	951	1.22448	563.65369	690.1826703
25002	955	1.82793	496.34839	907.2901125
25002	24994	0.15626	1697.44214	265.2423088
25002	25015	0.08581	1342.84351	115.2294016
25004	25008	0.07735	637.57733	49.31660648
25004	25020	0.73151	644.49622	471.4554299
25008	25004	0.07735	644.49622	49.85178262
25008	25018	0.19720	637.57733	125.7302495

25015	25002	0.08581	1331.33594	114.241937
25015	25018	0.10824	1342.84351	145.3493815
25018	25008	0.19720	644.49622	127.0946546
25018	25015	0.10824	1331.33594	144.1038021
25018	25027	0.28811	698.34729	201.2008377
25020	24992	0.30940	644.49622	199.4071305
25020	25004	0.73151	637.57733	466.3941927
25023	23734	0.00327	0.00000	0
25024	25000	0.19293	686.77637	132.4997651
25024	25122	0.79129	711.07581	562.6671777
25025	24968	0.78502	152.73317	119.8985931
25025	25031	0.14721	155.08347	22.82983762
25027	25018	0.28811	693.75861	199.8787931
25027	25030	0.15291	698.34729	106.7842841
25030	25027	0.15291	693.75861	106.0826291
25030	25034	0.08162	698.34729	56.99910581
25031	25025	0.14721	152.73317	22.48384996
25031	25039	0.28075	155.08347	43.5396842
25034	25030	0.08162	693.75861	56.62457775
25034	25099	0.58546	698.34729	408.8544044
25039	25031	0.28075	152.73317	42.87983748
25039	25045	0.13597	155.08347	21.08669942
25045	25039	0.13597	152.73317	20.76712912
25045	25094	0.54282	155.08347	84.18240919
25055	24995	0.88088	1087.88599	958.2970109
25055	25109	0.42377	1101.50830	466.7861723
25083	1962	1.99649	495.23108	988.7238989
25083	24874	2.33312	3424.23584	7989.153123
25083	25112	0.36608	3226.87573	1181.294667
25094	25045	0.54282	152.73317	82.90661934
25094	25302	2.79879	155.08347	434.046065
25095	24967	0.84603	644.46808	545.2393297
25095	25149	0.77075	654.90820	504.7704952
25099	25034	0.58546	693.75861	406.1679158
25099	25101	0.03788	698.34729	26.45339535
25101	25099	0.03788	693.75861	26.27957615
25101	25104	0.08108	698.34729	56.62199827
25104	25101	0.08108	693.75861	56.2499481
25104	25107	0.05831	698.34729	40.72063048
25107	25104	0.05831	693.75861	40.45306455
25107	25127	0.25470	698.34729	177.8690548
25109	25055	0.42377	1087.88599	461.013446
25109	25124	0.27056	1101.50830	298.0240856
25112	25083	0.36608	3202.09961	1172.224625
25112	25169	0.83999	3226.87573	2710.543344
25118	24978	1.11860	772.10382	863.6753331
25118	25205	1.07733	792.11945	853.3740471
25122	25024	0.79129	686.77637	543.4392738
25122	25137	0.26875	711.07581	191.1016239
25124	955	0.77199	659.29706	508.9707373
25124	25109	0.27056	1087.88599	294.3384335
25124	25154	0.57310	724.89886	415.4395367
25127	25107	0.25470	693.75861	176.700318
25127	25129	0.00783	698.34729	5.468059281

25129	25127	0.00783	693.75861	5.432129916
25129	25133	0.05732	698.34729	40.02926666
25133	25129	0.05732	693.75861	39.76624353
25133	25139	0.13001	698.34729	90.79213117
25137	25122	0.26875	686.77637	184.5711494
25137	25138	0.01496	711.07581	10.63769412
25138	25137	0.01496	686.77637	10.2741745
25138	25141	0.09154	711.07581	65.09187965
25139	25133	0.13001	693.75861	90.19555689
25139	25140	0.04223	698.34729	29.49120606
25140	25139	0.04223	693.75861	29.2974261
25140	25144	0.12638	698.34729	88.25713051
25141	25138	0.09154	686.77637	62.86750891
25141	25159	0.18103	711.07581	128.7260539
25144	25140	0.12638	693.75861	87.67721313
25144	25151	0.06315	698.34729	44.10063136
25149	25095	0.77075	644.46808	496.7237727
25149	25155	0.04133	654.90820	27.06735591
25151	25144	0.06315	693.75861	43.81085622
25151	25156	0.02738	698.34729	19.1207488
25154	25124	0.57310	710.54156	407.211368
25154	25238	1.17317	724.89886	850.4295956
25155	1960	0.59732	155.14116	92.66891769
25155	25149	0.04133	644.46808	26.63586575
25155	25157	0.02560	719.79303	18.42670157
25156	25151	0.02738	693.75861	18.99511074
25156	25170	0.11887	698.34729	83.01254236
25157	25155	0.02560	712.93951	18.25125146
25157	25165	0.07920	719.79303	57.00760798
25159	25141	0.18103	686.77637	124.3271263
25159	25162	0.03537	711.07581	25.1507514
25162	25159	0.03537	686.77637	24.29128021
25162	25182	0.13264	711.07581	94.31709544
25165	25157	0.07920	712.93951	56.46480919
25165	25219	0.27928	719.79303	201.0237974
25169	904	3.55119	2108.99780	7489.451897
25169	1961	0.74425	128.92949	95.95577293
25169	25112	0.83999	3202.09961	2689.731651
25169	25282	0.87298	2000.04077	1745.995591
25170	25156	0.11887	693.75861	82.46708597
25170	25188	0.10382	698.34729	72.50241565
25182	25162	0.13264	686.77637	91.09401772
25182	25187	0.02316	711.07581	16.46851576
25187	25182	0.02316	686.77637	15.90574073
25187	25221	0.17538	711.07581	124.7084756
25188	25170	0.10382	693.75861	72.02601889
25188	25224	0.18564	698.34729	129.6411909
25204	24977	1.86426	1428.95239	2663.938783
25204	25462	1.50831	1443.65381	2177.477478
25205	25118	1.07733	772.10382	831.8106084
25205	25449	1.78040	792.11945	1410.289469
25219	25165	0.27928	712.93951	199.1097464
25219	25234	0.08786	719.79303	63.24101562
25221	25187	0.17538	686.77637	120.4468398

25221	25254	0.21384	711.07581	152.0564512
25224	25188	0.18564	693.75861	128.7893484
25224	25258	0.24561	698.34729	171.5210779
25234	25219	0.08786	712.93951	62.63886535
25234	25319	0.52104	719.79303	375.0409604
25238	25154	1.17317	710.54156	833.5860419
25238	25295	0.63822	724.89886	462.6449504
25254	25221	0.21384	686.77637	146.860259
25254	25358	0.60446	711.07581	429.8168841
25258	25224	0.24561	693.75861	170.3940522
25258	25269	0.12227	698.34729	85.38692315
25269	25258	0.12227	693.75861	84.82586524
25269	25276	0.03356	698.34729	23.43653505
25276	25269	0.03356	693.75861	23.28253895
25276	25277	0.02319	698.34729	16.19467366
25277	952	1.50287	225.66740	339.1487654
25277	25276	0.02319	693.75861	16.08826217
25277	25283	0.22925	924.92029	212.0379765
25282	25169	0.87298	1978.43701	1727.135941
25282	25284	0.01916	2000.04077	38.32078115
25283	25277	0.22925	919.42603	210.7784174
25283	25287	0.03559	924.92029	32.91791312
25284	25282	0.01916	1978.43701	37.90685311
25284	25306	0.14317	2000.04077	286.345837
25287	25283	0.03559	919.42603	32.72237241
25287	25323	0.26931	924.92029	249.0902833
25295	25238	0.63822	710.54156	453.4818344
25295	25342	0.26388	724.89886	191.2863112
25301	25302	0.03934	152.73317	6.008522908
25301	25367	0.51597	155.08347	80.01841802
25302	25094	2.79879	152.73317	427.4680689
25302	25301	0.03934	155.08347	6.10098371
25306	25284	0.14317	1978.43701	283.2528267
25306	25315	0.09069	2000.04077	181.3836974
25315	25306	0.09069	1978.43701	179.4244524
25315	25322	0.03809	2000.04077	76.18155293
25319	25234	0.52104	712.93951	371.4700023
25319	25328	0.07779	719.79303	55.9926998
25322	25315	0.03809	1978.43701	75.35866571
25322	25332	0.08601	2000.04077	172.0235066
25323	25287	0.26931	919.42603	247.6106241
25323	25330	0.06236	924.92029	57.67802928
25328	25319	0.07779	712.93951	55.45956448
25328	25338	0.03416	719.79303	24.5881299
25330	25323	0.06236	919.42603	57.33540723
25330	25346	0.07613	924.92029	70.41418168
25332	25322	0.08601	1978.43701	170.1653672
25332	25440	0.38414	2000.04077	768.2956614
25338	25328	0.03416	712.93951	24.35401366
25338	25344	0.03358	719.79303	24.17064995
25340	2030	2.00000	342.03900	684.078
25340	24913	4.51550	780.78955	3525.655213
25340	25371	0.11808	476.24326	56.23480414
25342	25295	0.26388	710.54156	187.4977069

25342	25364	0.06052	724.89886	43.87087901
25344	25338	0.03358	712.93951	23.94050875
25344	25361	0.05037	719.79303	36.25597492
25346	25330	0.07613	919.42603	69.99590366
25346	25423	0.34958	924.92029	323.333635
25358	25254	0.60446	686.77637	415.1288446
25358	25398	0.16054	711.07581	114.1561105
25361	25344	0.05037	712.93951	35.91076312
25361	25394	0.14266	719.79303	102.6856737
25364	25342	0.06052	710.54156	43.00197521
25364	25391	0.14864	724.89886	107.7489666
25367	25301	0.51597	152.73317	78.80573372
25367	25419	0.36934	155.08347	57.27852881
25371	25340	0.11808	458.78021	54.1727672
25371	25628	1.09369	476.24326	520.862491
25391	25364	0.14864	710.54156	105.6148975
25391	25407	0.05984	724.89886	43.37794778
25394	901	2.38538	1404.04297	3349.17602
25394	25361	0.14266	712.93951	101.7079505
25394	25446	0.31252	1499.29797	468.5606016
25398	25358	0.16054	686.77637	110.2550784
25398	25401	0.01462	711.07581	10.39592834
25401	25398	0.01462	686.77637	10.04067053
25401	25405	0.01444	711.07581	10.2679347
25405	25401	0.01444	686.77637	9.917050783
25405	25451	0.12762	711.07581	90.74749487
25407	25391	0.05984	710.54156	42.51880695
25407	25506	0.35369	724.89886	256.3894778
25419	25367	0.36934	152.73317	56.41046901
25419	25422	0.30939	155.08347	47.98127478
25422	25419	0.30939	152.73317	47.25411547
25422	25441	0.11036	155.08347	17.11501175
25423	25346	0.34958	919.42603	321.4129516
25423	25467	0.36365	410.61868	149.321483
25423	25591	1.05437	689.80640	727.311174
25440	902	0.48590	691.93768	336.2125187
25440	25332	0.38414	1978.43701	759.996793
25440	25445	0.08212	1511.78259	124.1475863
25440	25448	0.00822	718.13995	5.903110389
25441	25422	0.11036	152.73317	16.85563264
25441	25475	0.21229	155.08347	32.92266985
25444	25445	0.00827	1499.29797	12.39919421
25444	25446	0.03310	1511.78259	50.04000373
25445	25440	0.08212	1499.29797	123.1223493
25445	25444	0.00827	1511.78259	12.50244202
25446	25394	0.31252	1511.78259	472.462295
25446	25444	0.03310	1499.29797	49.62676281
25448	25440	0.00822	698.24994	5.739614507
25448	25472	0.10629	718.13995	76.33109529
25449	2033	1.63902	16.58428	27.18196661
25449	2034	1.30290	29.66170	38.64622893
25449	25205	1.78040	772.10382	1374.653641
25449	25512	0.26296	773.77191	203.4710615
25451	25405	0.12762	686.77637	87.64640034

25451	25485	0.12414	711.07581	88.27295105
25462	1962	2.13422	106.99026	228.3407527
25462	2033	3.90132	59.91751	233.7573801
25462	25204	1.50831	1428.95239	2155.303179
25462	25465	0.00899	1494.58679	13.43633524
25465	25462	0.00899	1476.80042	13.27643578
25465	25486	0.08781	1494.58679	131.239666
25467	25423	0.36365	402.71164	146.4460879
25467	25524	0.37000	410.61868	151.9289116
25472	25448	0.10629	698.24994	74.21698612
25472	25602	0.51293	718.13995	368.3555246
25475	25441	0.21229	152.73317	32.42372466
25475	25668	1.52396	155.08347	236.3410049
25485	25451	0.12414	686.77637	85.25641857
25485	25491	0.03258	711.07581	23.16684989
25486	25465	0.08781	1476.80042	129.6778449
25486	25873	2.25626	1494.58679	3372.176391
25491	25485	0.03258	686.77637	22.37517413
25491	25536	0.19317	711.07581	137.3585142
25506	25407	0.35369	710.54156	251.3114444
25506	25635	0.81494	724.89886	590.749077
25512	25449	0.26296	753.39203	198.1119682
25512	25513	0.01524	773.77191	11.79228391
25513	25512	0.01524	753.39203	11.48169454
25513	25606	0.56476	773.77191	436.9954239
25524	25467	0.37000	402.71164	149.0033068
25524	25529	0.03450	410.61868	14.16634446
25529	953	0.74457	410.61868	305.7343506
25529	25524	0.03450	402.71164	13.89355158
25536	25491	0.19317	686.77637	132.6645914
25536	25568	0.10944	711.07581	77.82013665
25568	25536	0.10944	686.77637	75.16080593
25568	25573	0.03274	711.07581	23.28062202
25573	25568	0.03274	686.77637	22.48505835
25573	25590	0.07866	711.07581	55.93322321
25590	25573	0.07866	686.77637	54.02182926
25590	25631	0.13905	711.07581	98.87509138
25591	25423	1.05437	692.21918	729.8551368
25591	25636	0.19485	689.80640	134.408777
25602	25472	0.51293	698.24994	358.1533417
25602	25654	0.21893	718.13995	157.2223793
25606	25513	0.56476	753.39203	425.4856829
25606	26207	5.02153	773.77191	3885.518859
25628	25371	1.09369	458.78021	501.7633279
25628	25699	0.47023	476.24326	223.9438681
25631	25590	0.13905	686.77637	95.49625425
25631	25648	0.10021	711.07581	71.25690692
25635	25506	0.81494	710.54156	579.0487389
25635	25788	0.86170	724.89886	624.6453477
25636	25591	0.19485	692.21918	134.8789072
25636	25682	0.27092	689.80640	186.8823499
25648	25631	0.10021	686.77637	68.82186004
25648	25838	1.37912	711.07581	980.6588711
25654	25602	0.21893	698.24994	152.8678594

25654	25718	0.24319	718.13995	174.6444544
25668	25475	1.52396	152.73317	232.7592418
25668	25805	0.64668	155.08347	100.2893784
25682	25636	0.27092	692.21918	187.5360202
25682	25691	0.02674	689.80640	18.44542314
25691	25682	0.02674	692.21918	18.50994087
25691	25717	0.10162	689.80640	70.09812637
25699	25628	0.47023	458.78021	215.7322181
25699	25795	0.66848	476.24326	318.3590944
25717	25691	0.10162	692.21918	70.34331307
25717	25725	0.07396	689.80640	51.01808134
25718	25654	0.24319	698.24994	169.8074029
25718	25750	0.12535	718.13995	90.01884273
25725	25717	0.07396	692.21918	51.19653055
25725	25726	0.08556	689.80640	59.01983558
25726	25725	0.08556	692.21918	59.22627304
25726	25735	0.19755	689.80640	136.2712543
25733	25735	0.03517	692.21918	24.34534856
25733	25736	0.03796	689.80640	26.18505094
25735	25726	0.19755	692.21918	136.747899
25735	25733	0.03517	689.80640	24.26049109
25736	25733	0.03796	692.21918	26.27664007
25736	25743	0.04716	689.80640	32.53126982
25743	25736	0.04716	692.21918	32.64505653
25743	25748	0.18318	689.80640	126.3587364
25748	2040	1.66333	689.80640	1147.375679
25748	25743	0.18318	692.21918	126.8007094
25748	25804	0.37074	0.00000	0
25750	25718	0.12535	698.24994	87.52562998
25750	25822	0.43706	718.13995	313.8702465
25788	956	1.49664	724.89886	1084.91263
25788	25635	0.86170	710.54156	612.2736623
25795	25699	0.66848	458.78021	306.6853948
25795	25826	0.31211	476.24326	148.6402839
25796	25804	0.12539	0.00000	0
25796	25828	0.30115	0.00000	0
25804	25748	0.37074	0.00000	0
25804	25796	0.12539	0.00000	0
25805	25668	0.64668	152.73317	98.76948638
25805	25819	0.10228	155.08347	15.86193731
25819	25805	0.10228	152.73317	15.62154863
25819	25842	0.12117	155.08347	18.79146406
25822	25750	0.43706	698.24994	305.1771188
25822	25879	0.24707	718.13995	177.4308374
25826	25795	0.31211	458.78021	143.1898913
25826	25851	0.53804	476.24326	256.2379236
25828	25796	0.30115	0.00000	0
25838	25648	1.37912	686.77637	947.1470274
25838	26056	1.19570	711.07581	850.233346
25842	25819	0.12117	152.73317	18.50667821
25842	25852	0.04595	155.08347	7.126085447
25851	25826	0.53804	458.78021	246.8421042
25851	25963	0.57631	476.24326	274.4637532
25852	25842	0.04595	152.73317	7.018089162

25852	25855	0.01313	155.08347	2.036245961
25855	25852	0.01313	152.73317	2.005386522
25855	25858	0.01922	155.08347	2.980704293
25858	25855	0.01922	152.73317	2.935531527
25858	25878	0.09239	155.08347	14.32816179
25873	25486	2.25626	1476.80042	3332.045716
25873	25923	0.37177	1494.58679	555.6425309
25877	25880	0.27407	512.17108	140.3707279
25877	25885	0.26383	525.81708	138.7263202
25878	25858	0.09239	152.73317	14.11101758
25878	25940	0.32181	155.08347	49.90741148
25879	25822	0.24707	698.24994	172.5166127
25879	25936	0.31361	718.13995	225.2158697
25880	25877	0.27407	525.81708	144.1106871
25880	25884	0.08963	512.17108	45.9058939
25884	25880	0.08963	525.81708	47.12898488
25884	25910	0.37752	512.17108	193.3548261
25885	25877	0.26383	512.17108	135.126096
25885	25886	0.02466	525.81708	12.96664919
25886	25885	0.02466	512.17108	12.63013883
25886	25896	0.05928	525.81708	31.1704365
25887	62	15.00000	412.44647	6186.69705
25887	25888	0.00912	396.71640	3.618053568
25888	25887	0.00912	412.44647	3.761511806
25888	25963	2.19192	396.71640	869.5706115
25896	25886	0.05928	512.17108	30.36150162
25896	25907	0.12195	525.81708	64.12339291
25907	25896	0.12195	512.17108	62.45926321
25907	25914	0.10112	525.81708	53.17062313
25910	25884	0.37752	525.81708	198.506464
25910	25932	0.10355	512.17108	53.03531533
25914	25907	0.10112	512.17108	51.79073961
25914	25916	0.00734	525.81708	3.859497367
25916	25914	0.00734	512.17108	3.759335727
25916	25917	0.01291	525.81708	6.788298503
25917	25916	0.01291	512.17108	6.612128643
25917	25918	0.01379	525.81708	7.251017533
25918	25917	0.01379	512.17108	7.062839193
25918	25927	0.02348	525.81708	12.34618504
25923	25873	0.37177	1476.80042	549.0300921
25923	25938	0.10653	1494.58679	159.2183307
25927	25918	0.02348	512.17108	12.02577696
25927	25943	0.11974	525.81708	62.96133716
25932	25910	0.10355	525.81708	54.44835863
25932	25941	0.06960	512.17108	35.64710717
25936	903	0.54573	295.22406	161.1126263
25936	25879	0.31361	698.24994	218.9781637
25936	25955	0.26617	525.81708	139.9567322
25938	25923	0.10653	1476.80042	157.3235487
25938	26050	0.62415	1494.58679	932.846345
25940	25878	0.32181	152.73317	49.15106144
25940	25964	0.18732	155.08347	29.0502356
25941	25932	0.06960	525.81708	36.59686877
25941	25955	0.12114	512.17108	62.04440463

25943	901	1.78310	272.34186	485.6127706
25943	25927	0.11974	512.17108	61.32736512
25943	25950	0.03839	754.91278	28.98110162
25950	25943	0.03839	740.87476	28.44218204
25950	25961	0.06839	754.91278	51.62848502
25955	25936	0.26617	512.17108	136.3245764
25955	25941	0.12114	525.81708	63.69748107
25961	25950	0.06839	740.87476	50.66842484
25961	25973	0.08362	754.91278	63.12580666
25963	2031	1.56221	66.21487	103.4415321
25963	25851	0.57631	458.78021	264.3996228
25963	25888	2.19192	412.44647	904.0496665
25964	25940	0.18732	152.73317	28.6099774
25964	25977	0.08201	155.08347	12.71839537
25973	25961	0.08362	740.87476	61.95194743
25973	26000	0.10518	754.91278	79.4017262
25977	25964	0.08201	152.73317	12.52564727
25977	25983	0.01618	155.08347	2.509250545
25983	1865	4.83764	317.08813	1533.958221
25983	25977	0.01618	152.73317	2.471222691
25983	25994	0.05165	317.62494	16.40532815
25994	25983	0.05165	321.60651	16.61097624
25994	26012	0.09322	317.62494	29.60899691
26000	25973	0.10518	740.87476	77.92520726
26000	26007	0.06967	754.91278	52.59477338
26007	26000	0.06967	740.87476	51.61674453
26007	26016	0.10575	754.91278	79.83202649
26012	25994	0.09322	321.60651	29.98015886
26012	26069	0.81436	317.62494	258.6610461
26016	26007	0.10575	740.87476	78.34750587
26016	26030	0.11472	754.91278	86.60359412
26030	26016	0.11472	740.87476	84.99315247
26030	26039	0.06804	754.91278	51.36426555
26039	26030	0.06804	740.87476	50.40911867
26039	26042	0.06793	754.91278	51.28122515
26042	26039	0.06793	740.87476	50.32762245
26042	26053	0.04391	754.91278	33.14822017
26050	25938	0.62415	1476.80042	921.7449821
26050	26109	0.42898	1494.58679	641.1478412
26053	26042	0.04391	740.87476	32.53181071
26053	26057	0.02034	754.91278	15.35492595
26056	25838	1.19570	686.77637	821.1785056
26056	26061	0.08080	711.07581	57.45492545
26057	26053	0.02034	740.87476	15.06939262
26057	26071	0.10074	754.91278	76.04991346
26061	26056	0.08080	686.77637	55.4915307
26061	26073	0.10393	711.07581	73.90210893
26069	26012	0.81436	321.60651	261.9034775
26069	26077	0.13490	317.62494	42.84760441
26071	26057	0.10074	740.87476	74.63572332
26071	26074	0.08354	754.91278	63.06541364
26073	26061	0.10393	686.77637	71.37666813
26073	26102	0.40558	711.07581	288.398127
26074	26071	0.08354	740.87476	61.89267745

26074	26078	0.14274	384.30850	54.85619529
26074	26083	0.05697	619.20007	35.27582799
26077	26069	0.13490	321.60651	43.3847182
26077	26079	0.04149	317.62494	13.17825876
26078	26074	0.14274	378.63806	54.04679668
26078	26108	0.54993	384.30850	211.3427734
26079	26077	0.04149	321.60651	13.3434541
26079	26093	0.26038	317.62494	82.70318188
26083	26074	0.05697	610.83252	34.79912866
26083	26098	0.08894	619.20007	55.07165423
26093	26079	0.26038	321.60651	83.73990307
26093	26133	0.84994	317.62494	269.9621415
26098	26083	0.08894	610.83252	54.32744433
26098	26100	0.01946	619.20007	12.04963336
26100	26098	0.01946	610.83252	11.88680084
26100	26118	0.09509	619.20007	58.87973466
26102	26073	0.40558	686.77637	278.5427601
26102	26103	0.01309	711.07581	9.307982353
26103	26102	0.01309	686.77637	8.989902683
26103	26147	0.46748	711.07581	332.4137197
26108	1918	1.45725	73.02068	106.4093859
26108	26078	0.54993	378.63806	208.2244283
26108	26110	0.03580	321.60651	11.51351306
26109	26050	0.42898	1476.80042	633.5178442
26109	26151	0.25400	1494.58679	379.6250447
26110	26108	0.03580	317.62494	11.37097285
26110	26113	0.19694	321.60651	63.33718608
26112	26113	0.27670	317.62494	87.8868209
26112	26116	0.39872	321.60651	128.2309477
26113	26110	0.19694	317.62494	62.55305568
26113	26112	0.27670	321.60651	88.98852132
26114	26116	0.33592	317.62494	106.6965698
26114	26122	0.20992	321.60651	67.51163858
26116	26112	0.39872	317.62494	126.6434161
26116	26114	0.33592	321.60651	108.0340588
26118	26100	0.09509	610.83252	58.08406433
26118	26124	0.04326	619.20007	26.78659503
26122	26114	0.20992	317.62494	66.6758274
26122	26126	0.03131	321.60651	10.06949983
26124	26118	0.04326	610.83252	26.42461482
26124	26128	0.01739	619.20007	10.76788922
26126	26122	0.03131	317.62494	9.944836871
26126	26146	0.18813	321.60651	60.50383273
26128	26124	0.01739	610.83252	10.62237752
26128	26148	0.11503	619.20007	71.22658405
26133	26093	0.84994	321.60651	273.3462371
26133	26161	0.41649	317.62494	132.2876113
26146	26126	0.18813	317.62494	59.75477996
26146	26154	0.18115	321.60651	58.25901929
26147	26103	0.46748	686.77637	321.0542174
26147	26153	0.07002	711.07581	49.78952822
26148	26128	0.11503	610.83252	70.26406478
26148	26181	0.25949	619.20007	160.6762262
26151	26109	0.25400	1476.80042	375.1073067

26151	26177	0.19438	1494.58679	290.5177802
26153	2035	2.59088	30.05510	77.86915749
26153	26147	0.07002	686.77637	48.08808143
26153	26158	0.02486	694.54712	17.2664414
26154	26146	0.18115	317.62494	57.53775788
26154	26167	0.33786	321.60651	108.6579755
26155	26159	0.10458	321.60651	33.63360882
26155	26166	0.27402	317.62494	87.03558606
26158	26153	0.02486	670.74817	16.67479951
26158	26164	0.02829	694.54712	19.64873802
26159	26155	0.10458	317.62494	33.21721623
26159	26160	0.03290	321.60651	10.58085418
26160	26159	0.03290	317.62494	10.44986053
26160	26161	0.01731	321.60651	5.567008688
26161	26133	0.41649	321.60651	133.9458953
26161	26160	0.01731	317.62494	5.498087711
26164	26158	0.02829	670.74817	18.97546573
26164	26179	0.21506	694.54712	149.3693036
26166	26155	0.27402	321.60651	88.12661587
26166	26167	0.08647	317.62494	27.46502856
26167	26154	0.33786	317.62494	107.3127622
26167	26166	0.08647	321.60651	27.80931492
26177	2038	4.69520	631.94061	2967.087552
26177	2039	5.86867	1158.19092	6797.040306
26177	26151	0.19438	1476.80042	287.0604656
26179	26164	0.21506	670.74817	144.2511014
26179	26184	0.07882	694.54712	54.744204
26181	26148	0.25949	610.83252	158.5049306
26181	26183	0.02278	619.20007	14.10537759
26183	26181	0.02278	610.83252	13.91476481
26183	26192	0.12780	619.20007	79.13376895
26184	26179	0.07882	670.74817	52.86837076
26184	26185	0.01443	694.54712	10.02231494
26185	26184	0.01443	670.74817	9.678896093
26185	26187	0.00889	694.54712	6.174523897
26187	26185	0.00889	670.74817	5.962951231
26187	26189	0.05677	694.54712	39.42944
26189	26187	0.05677	670.74817	38.07837361
26189	26210	0.19840	694.54712	137.7981486
26192	26183	0.12780	610.83252	78.06439606
26192	26196	0.01017	0.00000	0
26192	26222	0.26681	619.20007	165.2087707
26196	26192	0.01017	0.00000	0
26207	25606	5.02153	753.39203	3783.18068
26207	26367	1.80390	773.77191	1395.807148
26210	26189	0.19840	670.74817	133.0764369
26210	26212	0.01898	694.54712	13.18250434
26212	26210	0.01898	670.74817	12.73080027
26212	26234	0.23018	694.54712	159.8708561
26222	26192	0.26681	610.83252	162.9762247
26222	26228	0.07240	619.20007	44.83008507
26228	26222	0.07240	610.83252	44.22427445
26228	26236	0.06787	619.20007	42.02510875
26234	26212	0.23018	670.74817	154.3928138

26234	26235	0.02298	694.54712	15.96069282
26235	26234	0.02298	670.74817	15.41379295
26235	26240	0.07008	694.54712	48.67386217
26236	26228	0.06787	610.83252	41.45720313
26236	26256	0.20834	619.20007	129.0041426
26240	26235	0.07008	670.74817	47.00603175
26240	26243	0.02233	694.54712	15.50923719
26243	26240	0.02233	670.74817	14.97780664
26243	26276	0.34725	694.54712	241.1814874
26256	26236	0.20834	610.83252	127.2608472
26256	26301	0.33868	619.20007	209.7106797
26276	26243	0.34725	670.74817	232.917302
26276	26289	0.12717	694.54712	88.32555725
26289	26276	0.12717	670.74817	85.29904478
26289	26292	0.02053	694.54712	14.25905237
26292	26289	0.02053	670.74817	13.77045993
26292	26319	0.16942	694.54712	117.6701731
26301	26256	0.33868	610.83252	206.8767579
26301	26308	0.04085	619.20007	25.29432286
26308	26301	0.04085	610.83252	24.95250844
26308	26350	0.19004	619.20007	117.6727813
26319	26292	0.16942	670.74817	113.638155
26319	26321	0.01334	694.54712	9.265258581
26321	26319	0.01334	670.74817	8.947780588
26321	26380	0.48883	694.54712	339.5154687
26342	22655	0.00702	3803.36255	26.6996051
26350	26308	0.19004	610.83252	116.0826121
26350	26394	0.68887	619.20007	426.5483522
26367	26207	1.80390	753.39203	1359.043883
26367	26423	0.58670	773.77191	453.9719796
26380	26321	0.48883	670.74817	327.8818279
26380	26382	0.00939	694.54712	6.521797457
26382	26380	0.00939	670.74817	6.298325316
26382	26403	0.25294	694.54712	175.6787485
26394	28	15.00000	164.18536	2462.7804
26394	1919	2.88098	48.57131	139.9329727
26394	2039	4.33198	600.87518	2602.979262
26394	26350	0.68887	610.83252	420.7841981
26403	26382	0.25294	670.74817	169.6590421
26403	26427	0.32838	694.54712	228.0753833
26423	26367	0.58670	753.39203	442.015104
26423	26514	1.37373	773.77191	1062.953686
26427	26403	0.32838	670.74817	220.2602841
26427	26455	0.32573	694.54712	226.2348334
26455	26427	0.32573	670.74817	218.4828014
26455	26485	0.26128	694.54712	181.4712715
26485	26455	0.26128	670.74817	175.2530819
26485	26525	0.55339	694.54712	384.3554307
26514	26423	1.37373	753.39203	1034.957233
26514	26526	0.14388	773.77191	111.3303024
26523	2031	2.66824	25.37348	67.70253428
26523	26525	0.03312	25.83032	0.855500198
26525	26485	0.55339	670.74817	371.1853298
26525	26523	0.03312	25.37348	0.840369658

26525	26533	0.13419	719.84338	96.59578316
26526	26514	0.14388	753.39203	108.3980453
26526	26568	0.63109	773.77191	488.3197147
26533	26525	0.13419	695.58759	93.3408987
26533	26541	0.14085	719.84338	101.3899401
26540	26628	0.01481	0.00000	0
26541	26533	0.14085	695.58759	97.97351205
26541	26544	0.02209	719.84338	15.90134026
26544	26541	0.02209	695.58759	15.36552986
26544	26555	0.22418	719.84338	161.3744889
26555	26544	0.22418	695.58759	155.9368259
26555	26556	0.01156	719.84338	8.321389473
26556	26555	0.01156	695.58759	8.04099254
26556	26562	0.08278	719.84338	59.588635
26558	2035	1.12562	0.00000	0
26562	26556	0.08278	695.58759	57.5807407
26562	26585	0.44003	719.84338	316.7526825
26568	26526	0.63109	753.39203	475.4581762
26568	26638	1.22852	773.77191	950.5942669
26585	26562	0.44003	695.58759	306.0794072
26585	26588	0.02578	719.84338	18.55756234
26588	26585	0.02578	695.58759	17.93224807
26588	26593	0.24531	719.84338	176.5847795
26593	26588	0.24531	695.58759	170.6345917
26593	26596	0.13322	719.84338	95.89753508
26596	26593	0.13322	695.58759	92.66617874
26596	26597	0.02961	719.84338	21.31456248
26597	26596	0.02961	695.58759	20.59634854
26597	26599	0.07169	719.84338	51.60557191
26599	26597	0.07169	695.58759	49.86667433
26599	26602	0.22578	719.84338	162.5262383
26602	26599	0.22578	695.58759	157.0497661
26602	26603	0.04012	719.84338	28.88011641
26603	26602	0.04012	695.58759	27.90697411
26603	26621	0.33527	719.84338	241.34189
26621	26603	0.33527	695.58759	233.2096513
26621	26622	0.09228	719.84338	66.42714711
26622	26621	0.09228	695.58759	64.18882281
26622	26625	0.05650	719.84338	40.67115097
26625	26622	0.05650	695.58759	39.30069884
26625	26626	0.02920	719.84338	21.0194267
26626	26625	0.02920	695.58759	20.31115763
26626	26632	0.07466	719.84338	53.74350675
26632	26626	0.07466	695.58759	51.93256947
26632	26634	0.01890	719.84338	13.60503988
26634	26632	0.01890	695.58759	13.14660545
26634	26658	0.33723	719.84338	242.752783
26638	2037	2.88593	116.70879	336.8133983
26638	26568	1.22852	753.39203	925.5571767
26638	26710	2.66315	753.86719	2007.661407
26658	26634	0.33723	695.58759	234.573003
26658	26659	0.03513	719.84338	25.28809794
26659	26658	0.03513	695.58759	24.43599204
26659	26660	0.00964	719.84338	6.939290183

26660	26659	0.00964	695.58759	6.705464368
26660	26661	0.03069	0.00000	0
26660	26668	0.53994	719.84338	388.6722346
26661	26660	0.03069	0.00000	0
26661	26683	0.69851	0.00000	0
26668	26660	0.53994	695.58759	375.5755633
26668	26670	0.06745	719.84338	48.55343598
26670	26668	0.06745	695.58759	46.91738295
26670	26681	0.29580	719.84338	212.9296718
26681	26670	0.29580	695.58759	205.7548091
26681	26685	0.15762	719.84338	113.4617136
26683	26661	0.69851	0.00000	0
26685	26681	0.15762	695.58759	109.6385159
26685	26686	0.02390	719.84338	17.20425678
26686	26685	0.02390	695.58759	16.6245434
26686	26695	0.08052	719.84338	57.96178896
26695	26686	0.08052	695.58759	56.00871275
26695	26704	0.28842	719.84338	207.6172277
26704	26695	0.28842	695.58759	200.6213727
26704	26705	0.08662	719.84338	62.35283358
26705	26704	0.08662	695.58759	60.25179705
26705	26707	0.05398	1442.97400	77.89173652
26705	26710	0.46815	735.64276	344.3911581
26707	26705	0.05398	1400.49377	75.5986537
26707	26718	0.30716	1442.97400	443.2238938
26710	26638	2.66315	735.64276	1959.127016
26710	26705	0.46815	753.86719	352.922925
26713	13791	0.05018	2833.69092	142.1946104
26713	30135	0.00361	2260.99292	8.162184441
26718	2036	2.05361	1442.97400	2963.305836
26718	26707	0.30716	1400.49377	430.1756664
29906	1970	0.52957	324.71640	171.9600639
29906	17127	0.23291	3196.61938	744.5246198
29906	17643	0.76297	2738.57227	2089.448485
29907	1780	0.73301	15.41110	11.29649041
29907	10026	0.64764	1451.32153	939.9338757
29907	10030	0.34936	1442.47791	503.9440826
29908	1687	0.24763	176.95854	43.82024326
29908	4422	0.25236	1496.74634	377.7189064
29910	16580	0.33933	430.60434	146.1169707
29910	16611	0.35076	0.00000	0
29910	16714	0.11873	585.93268	69.5677871
29911	15205	0.13800	693.36609	95.68452042
29911	15460	0.07594	645.21899	48.9979301
29915	13918	0.00320	2262.23145	7.23914064
29915	14186	0.12738	1426.55225	181.7142256
29916	13907	0.06724	351.83664	23.65749567
29916	30132	0.00363	537.11139	1.949714346
29917	29927	0.00928	4350.59668	40.37353719
29918	14211	0.11586	3205.50439	371.3897386
29918	29924	0.02221	4245.87549	94.30089463
29919	4701	0.01313	252.17201	3.311018491
29919	30122	0.01034	262.56717	2.714944538
29920	13913	0.05501	222.47935	12.23858904

29920	29928	0.01591	220.50641	3.508256983
29921	29922	0.00549	4337.65332	23.81371673
29922	13845	0.01312	2234.31006	29.31414799
29922	13862	0.00906	2103.34326	19.05628994
29923	29918	0.02260	3205.50439	72.44439921
29923	29930	0.00765	104.72136	0.801118404
29924	29925	0.00781	4350.59668	33.97816007
29925	29917	0.00759	4350.59668	33.0210288
29926	13839	0.01643	2072.67188	34.05399899
29926	29921	0.01200	2277.92505	27.3351006
29927	29926	0.00611	4350.59668	26.58214571
29928	29923	0.00865	3310.22583	28.63345343
29929	29920	0.01398	222.47935	3.110261313
29929	29931	0.00659	3089.71948	20.36125137
29930	29924	0.00706	104.72136	0.739332802
29931	29928	0.00690	3089.71948	21.31906441
29932	16238	0.12211	875.60620	106.9202731
29932	29933	0.01439	869.48883	12.51194426
29933	16152	0.10686	299.07697	31.95936501
29933	29932	0.01439	875.60620	12.59997322
29933	29934	0.00651	608.52771	3.961515392
29934	16341	0.07096	649.20355	46.06748391
29934	29933	0.00651	913.72198	5.94833009
29935	1376	0.27309	0.00000	0
29935	15863	0.26285	4010.75537	1054.227049
29936	1327	0.34051	101.56304	34.58323075
29936	15869	0.02204	7638.44336	168.3512917
29937	1289	0.22058	724.83466	159.8840293
29937	15836	0.11811	6749.54004	797.1881741
29938	11398	0.07765	19697.64258	1529.521946
29939	1369	0.08988	546.08313	49.08195172
29939	11365	0.06558	18463.79688	1210.855799
29940	11353	0.05983	19202.62695	1148.89317
29941	11487	0.04062	14289.45898	580.4378238
29943	1013	0.47109	117.30249	55.26003001
29943	11502	0.24991	12054.89551	3012.638937
29944	11468	0.14324	14824.27930	2123.429767
29945	1446	0.22448	99.91908	22.42983508
29945	11440	0.11006	17477.91016	1923.618792
29946	1337	0.24750	0.00000	0
29946	7214	0.08946	6524.00635	583.6376081
29948	7218	0.05855	3444.19824	201.657807
29949	7203	0.03585	7233.91016	259.3356792
29950	6728	0.02729	1837.42249	50.14325975
29951	1261	0.14511	159.34743	23.12290557
29951	5812	0.25004	1758.26013	439.6353629
29952	1259	0.28405	0.00000	0
29952	5494	0.25836	963.13605	248.8358299
29953	1257	0.32635	146.17352	47.70372825
29953	5061	0.25607	900.89886	230.6931711
29954	1042	0.10593	1461.09790	154.7741005
29954	11466	0.13867	9827.32715	1362.755456
29955	7182	0.10208	1081.22620	110.3715705
29956	7369	0.09816	3955.39600	388.2616714

29957	11812	0.03632	8325.03125	302.365135
29958	14239	0.08282	3135.30127	259.6656512
29959	1242	0.10666	132.36659	14.11822049
29959	14238	0.04858	2761.11499	134.1349662
29960	29962	0.09657	3135.30127	302.7760436
29961	4701	0.01368	3539.29199	48.41751442
29961	30123	0.01155	3593.04321	41.49964908
29962	14146	0.00918	23.11523	0.212197811
29962	14154	0.08241	3112.18604	256.4752516
29963	30115	0.19881	3113.38940	618.9729466
29964	4701	0.01263	456.63788	5.767336424
29964	13258	0.01175	481.82721	5.661469718
29965	14148	0.00899	22.60900	0.20325491
29965	29963	0.01160	3113.38940	36.11531704
29966	23270	0.03738	3465.03125	129.5228681
29966	23277	0.04614	1354.10718	62.47850529
29967	29976	0.00666	192.02618	1.278894359
29968	29982	0.00771	4453.37793	34.33554384
29969	29978	0.00797	219.94142	1.752933117
29970	29980	0.00923	4725.33789	43.61486872
29971	29975	0.00780	5173.96533	40.35692957
29972	29977	0.00871	1718.88953	14.97152781
29973	29979	0.00830	4725.33789	39.22030449
29974	29981	0.00744	4725.33789	35.1565139
29975	29968	0.00708	4453.37793	31.52991574
29975	29983	0.01202	720.58752	8.66146199
29976	29971	0.00657	5173.96533	33.99295222
29977	29967	0.00992	192.02618	1.904899706
29977	29985	0.01660	1526.86328	25.34593045
29978	29972	0.01008	1718.88953	17.32640646
29979	29969	0.00692	219.94142	1.521994626
29979	29984	0.01047	4505.39648	47.17150115
29980	29973	0.00744	4725.33789	35.1565139
29981	29970	0.00748	4725.33789	35.34552742
29982	29974	0.01019	4725.33789	48.1511931
29983	17273	0.03260	720.58752	23.49115315
29983	29982	0.01450	271.95975	3.943416375
29984	29978	0.01332	1498.94812	19.96598896
29984	30008	0.00926	4505.39648	41.7199714
29985	17299	0.03159	1526.86328	48.23361102
29985	29976	0.01081	4981.93945	53.85476545
29990	30007	0.00712	851.59601	6.063363591
29992	30017	0.00446	452.77945	2.019396347
29994	30005	0.00832	4556.36328	37.90894249
29995	30000	0.00624	2350.54419	14.66739575
29996	30002	0.01133	5356.99268	60.69472706
29997	30004	0.00772	4556.36328	35.17512452
29998	30006	0.01216	4556.36328	55.40537748
29999	29995	0.00699	2350.54419	16.43030389
30000	29990	0.00661	851.59601	5.629049626
30000	30008	0.01079	1498.94812	16.17365021
30001	29996	0.01103	5356.99268	59.08762926
30002	30010	0.00540	5356.99268	28.92776047
30003	29997	0.00750	4556.36328	34.1727246

30004	29994	0.00760	4556.36328	34.62836093
30005	29998	0.00974	4556.36328	44.37897835
30006	30016	0.00260	4556.36328	11.84654453
30007	30001	0.00488	5356.99268	26.14212428
30008	29984	0.00926	1498.94812	13.88025959
30008	30007	0.01294	4505.39648	58.29983045
30010	17353	0.00474	473.88562	2.246217839
30010	30012	0.01128	4883.10693	55.08144617
30011	30003	0.00312	4556.36328	14.21585343
30012	17405	0.15047	4883.10693	734.7610998
30012	30011	0.01050	4082.47778	42.86601669
30014	17302	0.15863	4103.58398	650.9515267
30014	30017	0.00914	1897.76465	17.3455689
30016	29992	0.00462	452.77945	2.091841059
30016	30014	0.01005	4103.58398	41.241019
30017	29999	0.00262	2350.54419	6.158425778
30018	19969	0.04617	2375.06226	109.6566245
30018	30032	0.02410	2336.87451	56.31867569
30019	20082	0.05337	1722.44031	91.92663934
30019	30026	0.01672	1718.42676	28.73209543
30021	5827	0.18240	3693.87524	673.7628438
30021	5832	0.25857	3812.30420	985.747497
30022	19991	0.07007	802.27502	56.21541065
30022	30029	0.01417	839.25568	11.89225299
30023	17242	0.09584	977.81683	93.71396499
30023	17301	0.03342	993.19116	33.19244857
30024	531	0.07437	63.57644	4.728179843
30024	30034	0.01801	68.79697	1.23903343
30026	30027	0.00295	2456.74536	7.247398812
30027	30022	0.01523	802.27502	12.21864855
30027	30028	0.00428	1654.47021	7.081132499
30028	30029	0.00412	1654.47021	6.816417265
30029	30030	0.00433	2493.72583	10.79783284
30030	30018	0.02269	2375.06226	53.89016268
30030	30031	0.00405	118.66376	0.480588228
30031	30032	0.00447	118.66376	0.530427007
30032	30024	0.01996	63.57644	1.268985742
30032	30033	0.00396	2391.96191	9.472169164
30033	30034	0.00465	2391.96191	11.12262288
30034	30035	0.00359	2460.75879	8.834124056
30035	30019	0.01773	1722.44031	30.5388667
30035	30036	0.00335	738.31848	2.473366908
30036	30026	0.00400	738.31848	2.95327392
30037	30038	0.01138	5651.28369	64.31160839
30038	30039	0.01086	5651.28369	61.37294087
30039	30040	0.00991	514.84900	5.10215359
30039	30049	0.03647	5136.43457	187.3257688
30040	30041	0.01083	5644.26660	61.12740728
30041	30042	0.01136	5644.26660	64.11886858
30042	30043	0.00765	3592.29272	27.48103931
30042	30050	0.02768	2051.97363	56.79863008
30043	30044	0.00842	5613.48682	47.26555902
30044	30045	0.00972	5613.48682	54.56309189
30045	30046	0.01040	2181.03784	22.68279354

30045	30053	0.02034	3432.44897	69.81601205
30046	30047	0.00876	5594.16992	49.0049285
30047	30048	0.01071	5594.16992	59.91355984
30048	30037	0.00793	4925.92578	39.06259144
30048	30054	0.01827	668.24438	12.20882482
30049	24634	0.71576	5136.43457	3676.454408
30049	30040	0.03535	5129.41748	181.3249079
30050	24747	0.21126	2051.97363	433.4999491
30050	30043	0.02762	2021.19409	55.82538077
30051	1879	0.54472	329.99265	179.7535963
30051	1899	0.50818	188.66748	95.87703999
30051	14646	0.44944	9029.65332	4058.287388
30051	15875	0.55293	8911.02539	4927.173269
30052	1449	0.14050	31.53638	4.43086139
30052	1450	0.24080	75.25735	18.12196988
30052	13903	0.22597	1693.54883	382.6912291
30052	13954	0.22825	1759.54114	401.6152652
30053	24874	0.97883	3432.44897	3359.784025
30053	30046	0.01914	3413.13232	65.3273526
30054	24746	0.01585	668.24438	10.59167342
30054	30037	0.01665	725.35803	12.0772112
30059	10836	0.23251	1155.15356	268.5847542
30059	11476	0.05860	1205.30359	70.63079037
30061	8878	0.43775	36966.59375	16182.12641
30063	30061	0.16966	36966.59375	6271.752296
30067	9299	0.59256	35148.80469	20827.77571
30068	30067	0.17636	35148.80469	6198.843195
30069	8338	0.26893	5.20347	1.399369187
30069	8913	0.04984	0.00000	0
30069	8934	0.19671	39.54115	7.778139617
30070	8039	0.12005	264.58041	31.76287822
30070	8208	0.48771	227.31079	110.8617454
30071	9075	0.07743	4818.49561	373.0961151
30071	30072	0.04227	4599.52246	194.4218144
30072	30071	0.04227	4818.49561	203.6778094
30072	30073	0.03081	4599.52246	141.711287
30073	9387	0.03407	4599.52246	156.7057302
30073	30072	0.03081	4818.49561	148.4578497
30074	2032	1.38164	7.20251	9.951275916
30074	24973	2.85708	81.64164	233.2566968
30075	738	0.13295	974.31006	129.5345225
30075	22576	0.09931	5071.15137	503.6160426
30076	771	0.14297	845.08258	120.8214565
30076	23318	0.02777	1807.63110	50.19791565
30076	23354	0.02821	967.50604	27.29334539
30077	1882	0.51112	128.26631	65.55947637
30077	1885	0.51814	78.64763	40.75048301
30077	19159	0.33702	2197.59644	740.6339522
30077	30192	0.34814	2330.42993	811.3158758
30078	14819	0.04878	15.92077	0.776615161
30081	24085	0.02060	5833.27393	120.165443
30082	30099	0.01299	5845.82080	75.93721219
30084	30096	0.01448	5833.27393	84.46580651
30085	24086	0.02146	5845.82080	125.4513144

30096	24041	0.06378	5833.27393	372.0462113
30097	30085	0.01381	5845.82080	80.73078525
30098	24076	0.45952	0.00000	0
30099	24168	0.29227	5845.82080	1708.558045
30100	30081	0.01266	5833.27393	73.84924795
30101	23632	0.02290	5613.40918	128.5470702
30101	23633	0.01642	3830.07617	62.88985071
30102	30109	0.02154	7956.60498	171.3852713
30103	23631	0.03008	7979.47754	240.0226844
30104	12429	0.01807	2526.70386	45.65753875
30104	23631	0.02386	2590.80127	61.8165183
30105	30107	0.02178	7324.15283	159.5200486
30106	23632	0.02789	5453.84961	152.1078656
30107	23719	0.16142	7324.15283	1182.26475
30108	30106	0.02097	5453.84961	114.3672263
30109	23417	0.27007	7956.60498	2148.840307
30110	30103	0.02137	7979.47754	170.521435
30115	13568	0.18914	3113.38940	588.8664711
30116	13294	0.00427	1118.50488	4.776015838
30116	13332	0.06826	499.14786	34.07183292
30116	13667	0.20655	2757.70435	569.6038335
30117	30116	0.03426	3200.04370	109.6334972
30118	13166	0.02772	4213.99658	116.8119852
30119	13166	0.00474	1482.09521	7.025131295
30119	30117	0.03256	3200.04370	104.1934229
30121	1499	0.13500	2.12093	0.28632555
30121	4418	0.14538	2.12093	0.308340803
30122	4870	0.18015	262.56717	47.30147568
30122	29919	0.01034	252.17201	2.607458583
30123	4719	0.22408	3593.04321	805.1291225
30123	29961	0.01155	3539.29199	40.87882248
30124	1436	0.10295	332.45236	34.22597046
30124	1437	0.23731	146.01212	34.6501362
30124	13954	0.25928	1796.68738	465.8451039
30124	13974	0.15702	2167.32642	340.3135945
30125	4410	0.08725	490.87848	42.82914738
30125	4521	0.16772	491.95972	82.51148424
30126	12808	0.13172	4422.36230	582.5135622
30126	13055	0.07794	478.46167	37.29130256
30126	30127	0.00855	3162.09082	27.03587651
30127	13046	0.09970	3174.67505	316.5151025
30127	13556	0.25283	7649.67969	1934.068516
30127	30126	0.00855	566.99048	4.847768604
30129	13975	0.01131	7610.15479	86.07085067
30130	13557	0.23217	8650.84277	2008.466166
30131	1415	0.29177	46.76013	13.64320313
30131	30126	0.12166	7051.20459	857.8495504
30132	13894	0.00912	537.11139	4.898455877
30132	29916	0.00363	351.83664	1.277167003
30133	13918	0.02638	1342.85547	35.4245273
30133	13933	0.22329	1791.11145	399.9372757
30135	13894	0.00761	2260.99292	17.20615612
30135	26713	0.00361	2833.69092	10.22962422
30149	30182	0.07416	3628.18091	269.0658963

30150	10655	0.02020	3279.42505	66.24438601
30163	9050	0.13346	6298.31836	840.5735683
30163	30173	0.00653	6536.44678	42.68299747
30163	30185	0.18473	3025.05859	558.8190733
30164	8490	0.08106	113.84677	9.228419176
30164	30174	0.00692	894.91663	6.19282308
30164	30190	0.13159	1789.35632	235.4613981
30165	8092	0.13567	178.61914	24.23325872
30165	30176	0.00638	508.27713	3.242808089
30165	30188	0.27068	1872.98145	506.9786189
30166	8474	0.09090	602.06934	54.72810301
30166	30174	0.00606	310.91006	1.884114964
30166	30187	0.12260	3057.97339	374.9075376
30167	8093	0.06640	0.00000	0
30167	30176	0.00643	321.48926	2.067175942
30167	30191	0.11740	2485.06714	291.7468822
30168	6915	0.13653	3963.62720	541.1540216
30168	30171	0.01808	4483.71338	81.06553791
30169	7237	0.14335	22.44194	3.217052099
30169	30172	0.03591	19.04130	0.683773083
30171	30169	0.03596	22.44194	0.807012162
30171	30172	0.00699	5182.49121	36.22561356
30172	7247	0.01257	2922.09692	36.73075828
30172	30179	0.11145	2279.43555	254.043092
30173	9046	0.00688	6536.44678	44.97075385
30173	30163	0.00653	7230.39209	47.21446035
30174	30164	0.00692	310.91006	2.151497615
30174	30166	0.00606	894.91663	5.423194778
30176	30165	0.00638	321.48926	2.051101479
30176	30167	0.00643	508.27713	3.268221946
30178	7247	0.11179	1981.92151	221.5590056
30179	30189	0.11389	2279.43555	259.6049148
30180	10061	0.02388	3793.06616	90.5784199
30180	10064	0.00370	4838.96729	17.90417897
30180	30184	0.31045	2467.52588	766.0434094
30181	10064	0.00370	3320.25146	12.2849304
30181	10068	0.03354	3987.36060	133.7360745
30181	30183	0.15876	3520.92847	558.9826039
30182	1410	0.26403	206.69200	54.57288876
30182	30180	0.15763	3421.48901	539.3293126
30183	1427	0.12617	597.53247	75.39067174
30183	30150	0.07270	3279.42505	238.4142011
30184	1409	0.24992	0.00000	0
30184	9046	0.18509	3047.43262	564.0493036
30185	1426	0.23349	684.47723	159.8185884
30185	30181	0.31128	2340.58130	728.5761471
30186	1408	0.23774	0.00000	0
30186	30164	0.11965	2164.08862	258.9332034
30187	1479	0.25173	586.47565	147.6335154
30187	30163	0.13194	2608.46094	344.1603364
30188	1406	0.24490	505.95215	123.9076815
30188	30178	0.11316	1981.92151	224.2742381
30189	1424	0.24577	600.57947	147.6044163
30189	30167	0.26994	2298.27954	620.397579

30190	1407	0.22116	184.99149	40.91271793	
30190	30165	0.11740	1733.02026	203.4565785	
30191	1425	0.25025	327.32211	81.91235803	
30191	30166	0.12961	2157.74512	279.665345	
30192	19157	0.31733	2330.42993	739.5153297	
30192	30077	0.34814	2355.36597	819.9971088	
30194	796	0.27918	66.62399	18.60008553	
30194	21825	0.07045	2470.76147	174.0651456	
30196	9191	0.53601	702.75763	376.6851173	
30196	9663	0.21083	581.89923	122.6818147	
30198	1331	0.19979	296.36584	59.21093117	
30198	4866	0.33511	9.24723	3.098839245	
30198	4881	0.12520	347.45996	43.50198699	
30199	6096	0.24809	4108.85400	1019.365589	
30199	6667	0.18983	4507.83301	855.7219403	
30200	1147	0.49705	230.79230	114.7153127	
30200	1150	0.33214	142.63058	47.37332084	
30200	9086	0.50707	819.83588	415.7141797	
30200	11464	0.49202	597.59869	294.0305075	
30201	1855	0.62410	33.79512	21.09153439	
30201	1856	0.52230	91.11375	47.58871163	
30201	18150	0.51911	1263.05737	655.6657113	
30201	18155	0.48545	1361.91919	661.1436708	
30202	1949	0.45682	7.43146	3.394839557	
30202	21468	0.08914	1616.16992	144.0653867	
30202	21776	0.22187	1354.74365	300.5769736	
30203	1839	1.36557	3.08136	4.207812775	
30203	2043	0.30627	0.00000	0	
30203	23157	0.56030	0.00000	0	
30203	23918	1.12059	3.17513	3.558018927	
30204	19909	0.88570	64.37556	57.01743349	
30204	20984	0.88570	64.20561	56.86690878	
30205	21570	0.72968	7140.24170	5210.091564	
30205	21573	0.72968	6995.66895	5104.599719	
30206	13146	0.25075	625.90710	156.9462053	
30206	21629	0.25075	322.59961	80.89185221	
30207	4154	0.11703	412.19327	48.23897839	
30207	4237	0.07575	444.05362	33.63706172	
30208	3952	0.08034	1916.95581	154.0082298	
30209	3948	0.01479	4201.55029	62.14092879	
30209	3957	0.05607	4154.28125	232.9305497	
30210	8375	0.12158	0.00000	0	
30213	18526	0.00726	1109.07666	8.051896552	
30213	19711	0.05247	1858.30359	97.50518937	
30214	18070	0.00639	501.01886	3.201510515	
30214	19835	0.05637	1390.30957	78.37175046	
				13,674,488	No Project

ATTACHMENT C

WITH PROJECT MODEL RUN

A NODE	B NODE	DISTANCE	DAILY VOLUME	VMT
28	26394	15.00000	166.22366	2493.3549
61	23431	24.00000	55.04206	1321.00944
62	25887	15.00000	396.72543	5950.88145
63	21581	4.50000	4116.95215	18526.28468
64	20737	4.50000	62.67792	282.05064
65	20136	4.50000	24.62981	110.834145
66	19273	4.50000	1207.50610	5433.77745
67	19048	4.50000	261.90015	1178.550675
68	18540	4.50000	640.93958	2884.22811
69	3914	4.00000	1160.96301	4643.85204
70	17823	4.50000	123.78171	557.017695
71	12383	3.00000	1162.37781	3487.13343
72	17086	4.50000	161.82619	728.217855
73	3755	2.00000	2567.84424	5135.68848
74	16164	35.00000	411.16544	14390.7904
75	16138	35.00000	18538.01172	648830.4102
76	15254	4.50000	186.84871	840.819195
77	13858	4.50000	245.73589	1105.811505
78	6102	10.00000	1182.51624	11825.1624
79	4590	10.00000	53.26522	532.6522
80	3470	10.00000	243.62331	2436.2331
81	3044	25.00000	428.86444	10721.611
82	3053	9.00000	46.41442	417.72978
83	3056	18.00000	685.15924	12332.86632
84	3064	17.00000	1660.46851	28227.96467
85	3083	2.00000	1090.83252	2181.66504
86	3092	2.00000	464.90561	929.81122
87	3201	2.00000	1860.59814	3721.19628
88	3582	14.00000	1598.86438	22384.10132
89	3575	14.00000	7270.65186	101789.126
90	3008	21.00000	19751.41602	414779.7364
91	3086	22.00000	571.56024	12574.32528
92	3310	21.00000	3455.95093	72574.96953
93	4757	2.00000	3995.07129	7990.14258
94	5577	2.00000	1677.73584	3355.47168
95	13219	6.00000	718.20477	4309.22862
96	3578	2.00000	65.05442	130.10884
97	3651	0.98854	2671.29883	2640.685745
101	3342	0.25331	8.21267	2.080351438
101	3415	0.22259	169.29269	37.68285987
102	3415	0.27959	36.70749	10.26304713
102	3478	0.24512	134.33932	32.92925412
103	3342	0.20740	7.89463	1.637346262
103	3407	0.21961	160.53815	35.25578312
104	3407	0.26912	8.34845	2.246734864
104	3478	0.21531	286.89511	61.77138613
111	12728	0.12273	1314.13684	161.2840144
112	13192	0.25698	556.96869	143.129814
112	13651	0.24887	488.96790	121.6894413
112	13766	0.20140	286.87326	57.77627456
112	14086	0.23810	51.19322	12.18910568
113	14092	0.12255	758.32166	92.93231943
113	14279	0.23412	44.87837	10.50692398

113	14281	0.26611	30.30548	8.064591283
113	14476	0.13119	0.00000	0
114	14590	0.25150	167.27620	42.0699643
114	14593	0.25017	207.35851	51.87487845
115	15074	0.28528	17.67874	5.043390947
115	15185	0.25022	14.73948	3.688112686
116	12831	0.35843	9.51358	3.409952479
116	13187	0.32386	52.33654	16.94971184
116	14124	0.58413	35.97988	21.0169273
117	13932	0.08859	76.63195	6.788824451
117	14118	0.04530	351.36853	15.91699441
118	14130	0.24934	548.86090	136.8529768
118	14471	0.10031	11.14123	1.117576781
118	14590	0.15804	41.31078	6.528755671
119	15185	0.13291	10.13447	1.346972408
120	14119	0.20101	81.60460	16.40334065
120	14409	0.15587	7.36394	1.147817328
121	15411	0.14781	17.64178	2.607631502
131	4719	0.53313	50.34350	26.83963016
131	5161	0.22047	6.48767	1.430336605
131	5237	0.30968	59.88467	18.54508461
131	5541	0.47786	0.00000	0
132	4466	0.12894	9.16048	1.181152291
132	4503	0.27438	0.00000	0
132	4529	0.11287	778.48511	87.86761437
132	13861	0.23292	0.00000	0
133	4529	0.12815	259.82562	33.2966532
133	4574	0.24875	0.00000	0
133	4583	0.25225	13.81545	3.484947263
133	4723	0.12178	330.39612	40.23563949
134	4723	0.18915	771.24170	145.8803676
134	4860	0.24823	563.26898	139.8202589
134	4870	0.25038	83.88978	21.00432312
134	4982	0.18916	58.22163	11.01320353
135	4982	0.33171	57.42543	19.04858939
135	5237	0.25259	137.10028	34.63015973
135	5254	0.24923	884.25220	220.3821758
135	5540	0.30143	1070.36401	322.6398235
136	5540	0.24975	51.90158	12.96241961
136	5744	0.23099	190.33232	43.9648626
136	5918	0.26638	87.58395	23.3306126
137	4125	0.25196	901.59650	227.1662541
137	4223	0.23663	335.20819	79.320314
137	4309	0.27257	32.16866	8.768211656
137	4336	0.23041	100.07909	23.05922313
138	4524	0.13567	188.12518	25.52294317
139	4524	0.13188	29.12223	3.840639692
139	4582	0.12488	265.50372	33.15610455
139	4583	0.12451	14.34710	1.786357421
139	4702	0.11801	465.61301	54.94699131
140	4159	0.25238	35.05066	8.846085571
140	4217	0.12043	269.00858	32.39670329
141	4702	0.19135	475.50244	90.98739189
141	4860	0.12756	175.26614	22.35694882

141	4861	0.12342	501.38248	61.88062568
141	4988	0.18920	7.68021	1.453095732
142	4988	0.17044	30.68971	5.230754172
142	5170	0.12575	291.55518	36.66306389
142	5184	0.12658	33.65841	4.260481538
143	4992	0.19032	167.79863	31.93543526
143	5170	0.12586	91.34458	11.49662884
143	5203	0.13453	284.53653	38.27869938
144	5382	0.12502	79.52178	9.941812936
144	5392	0.11930	2.50687	0.299069591
144	5571	0.14886	444.09521	66.10801296
145	5365	0.14274	191.32187	27.30928372
145	5392	0.12835	2.46927	0.316930805
145	5548	0.12651	215.15898	27.21976256
146	5475	0.05592	95.44633	5.337358774
146	5562	0.05600	18.30111	1.02486216
147	5571	0.10749	86.51283	9.299264097
147	5637	0.11414	46.43814	5.3004493
148	5548	0.10567	348.27896	36.8026377
148	5634	0.12745	104.14022	13.27267104
149	5774	0.23840	41.92225	9.9942644
149	5780	0.25754	124.21555	31.99047275
149	5906	0.15026	61.23209	9.200733843
150	4217	0.24838	187.73088	46.62859597
150	4330	0.24713	538.43896	133.0644202
150	4336	0.25314	964.80261	244.2301327
150	4447	0.23539	257.70547	60.66129058
151	4447	0.24051	752.52783	180.9904684
151	4522	0.23038	1764.17493	406.4306204
151	4537	0.26913	2425.70898	652.8310578
152	4559	0.10953	168.26443	18.43000302
152	4709	0.10653	195.82318	20.86104337
153	4709	0.20076	352.70047	70.80814636
153	4766	0.15783	145.96326	23.03738133
153	4872	0.07853	232.74973	18.2778363
153	4920	0.18017	629.72693	113.457901
154	4872	0.12992	24.96863	3.24392441
154	4895	0.14558	269.56247	39.24290438
154	4995	0.13502	248.69263	33.5784789
154	5025	0.11447	211.83720	24.24900428
155	5025	0.07050	2.38645	0.168244725
155	5094	0.04215	90.83727	3.828790931
155	5176	0.05559	41.52519	2.308385312
156	5176	0.25833	680.25006	175.728998
156	5337	0.13898	133.23676	18.5172449
156	5365	0.14068	357.66940	50.31693119
156	5549	0.21721	337.58716	73.32730702
157	5549	0.10664	130.20087	13.88462078
157	5634	0.13747	198.32652	27.2639467
157	5646	0.11133	1.97294	0.21964741
158	5911	0.13246	963.97614	127.6882795
159	4710	0.08735	81.75906	7.141653891
159	4772	0.04150	74.07639	3.074170185
159	4814	0.03956	197.77850	7.82411746

159	4816	0.08621	2.92061	0.251785788
160	4995	0.06653	118.43441	7.879441297
160	4998	0.06359	57.08150	3.629812585
160	5035	0.03758	9.99754	0.375707553
161	5107	0.09171	286.54706	26.27923087
161	5199	0.12697	1136.22424	144.2663918
161	5223	0.09506	375.84406	35.72773634
161	5250	0.10234	238.04230	24.36124898
162	5250	0.16430	176.36423	28.97664299
162	5388	0.10941	174.32976	19.07341904
162	5389	0.10760	16.09921	1.732274996
162	5535	0.15062	76.39694	11.5069071
163	5535	0.12319	267.99786	33.01465637
163	5645	0.12340	35.12800	4.3347952
163	5646	0.13069	39.50640	5.163091416
164	6123	0.25774	28.10211	7.243037831
164	6138	0.25520	64.04790	16.34502408
164	6463	0.26159	30.21292	7.903397743
165	4211	0.11877	20.28618	2.409389599
165	4261	0.24977	0.00000	0
165	4266	0.25212	0.00000	0
165	4326	0.12674	49.99106	6.335866944
166	4326	0.42057	75.56999	31.78247069
166	4506	0.26833	9.24104	2.479648263
166	4522	0.23889	51.08641	12.20403248
166	4735	0.32569	55.47570	18.06788073
167	4885	0.09971	57.99119	5.782301555
167	4913	0.07914	7.46688	0.590928883
167	4969	0.06009	25.87361	1.554745225
168	4877	0.15953	124.29049	19.82806187
168	4920	0.09308	420.54800	39.14460784
168	4975	0.09138	49.15972	4.492215214
168	4998	0.07765	190.75810	14.81236647
169	5143	0.24307	645.74445	156.9611035
169	5335	0.13713	318.61057	43.69106746
169	5529	0.26075	128.83324	33.59326733
170	5534	0.50695	6.68018	3.386517251
170	5908	0.24726	250.01662	61.81910946
170	5926	0.24790	256.52112	63.59158565
170	6460	0.50450	0.00000	0
171	4744	0.13228	173.27242	22.92047572
171	4815	0.12210	214.80867	26.22813861
171	4830	0.12623	324.70221	40.98715997
171	4950	0.18302	29.71750	5.43889685
172	4950	0.11248	2.60472	0.292978906
172	5016	0.09526	44.64089	4.252491181
172	5019	0.09248	99.85942	9.234999162
172	5142	0.08377	33.77416	2.829261383
173	5142	0.11094	117.47341	13.03250011
173	5234	0.09534	39.50725	3.766621215
174	5393	0.15007	230.55612	34.59955693
174	5543	0.19679	65.78027	12.94489933
175	4322	0.37973	94.71151	35.96480169
175	4502	0.49604	64.00137	31.74723957

175	4506	0.50360	76.87313	38.71330827
175	4734	0.36854	32.38792	11.93624404
176	4746	0.27645	149.73981	41.39557047
176	4951	0.14447	289.23871	41.78631643
176	5145	0.22994	127.19465	29.24713782
177	4538	0.13554	4.14773	0.562183324
177	4540	0.11847	78.36169	9.283509414
178	4734	0.28994	18.99147	5.506386812
178	4940	0.50679	12.83979	6.507077174
178	5132	0.21608	16.43706	3.551719925
179	5145	0.15768	207.81897	32.76889519
179	5234	0.12607	421.29974	53.11325822
180	5132	0.31051	66.01851	20.49940754
180	5332	0.38204	13.73782	5.248396753
180	5531	0.23216	74.40132	17.27301045
181	5545	0.50595	0.62863	0.318055349
181	5803	0.61323	37.51001	23.00226343
181	5908	0.39015	105.90982	41.32071627
181	6462	0.50647	19.36770	9.809159019
182	4129	0.28147	65.37488	18.40106747
182	4223	0.26531	166.58246	44.19599246
183	4443	0.19649	519.93036	102.1611164
184	4216	0.07923	29.89810	2.368826463
185	5689	0.04380	21.95066	0.961438908
186	4449	0.10496	143.38522	15.04971269
186	4501	0.12808	236.54680	30.29691414
187	4525	0.13240	0.00000	0
187	4579	0.12136	268.54880	32.59108237
187	4582	0.12825	11.20834	1.437469605
187	4707	0.11772	42.65400	5.02122888
188	4707	0.20052	104.08015	20.87015168
188	4861	0.11615	10.55275	1.225701913
188	4863	0.13328	377.65817	50.3342809
188	4992	0.18033	35.73787	6.444610097
189	4735	0.17886	27.77495	4.967827557
189	4808	0.09535	176.40318	16.82004321
189	4877	0.10442	5.67989	0.593094114
189	4885	0.09669	80.99010	7.830932769
190	4969	0.15251	0.59694	0.091039319
190	4975	0.08132	116.26187	9.454415268
190	5124	0.08430	77.36757	6.522086151
190	5143	0.11252	96.60052	10.86949051
191	5393	0.11249	38.80809	4.365522044
191	5552	0.08033	45.20670	3.631454211
192	3839	0.45279	1235.58923	559.4624475
192	3840	0.55424	8.47689	4.698231514
226	21814	0.23785	262.94257	62.54089027
227	22021	0.25304	38.01262	9.618713365
227	22244	0.25426	6.93796	1.76404571
228	21814	0.15944	241.15302	38.44943751
236	14950	0.25174	641.72632	161.5481838
236	15162	0.28798	71.38777	20.55825
236	15310	0.34444	13.92919	4.797770204
237	15310	0.49637	5.96506	2.960876832

237	15868	0.49345	87.28471	43.07064015
238	13935	0.20655	43.43075	8.970621413
238	14313	0.36024	477.33218	171.9541445
238	14479	0.28550	267.35300	76.3292815
239	15004	0.14016	253.37851	35.51353196
239	15162	0.12598	8.53426	1.075146075
239	15169	0.10383	61.66805	6.402993632
239	15291	0.09629	38.65347	3.721942626
240	15291	0.17343	297.06949	51.52076165
240	15587	0.15806	53.16878	8.403857367
240	15590	0.13563	39.43304	5.348303215
241	13921	0.38681	53.81239	20.81517058
241	14479	0.24283	499.08026	121.1916595
242	15109	0.07305	129.07060	9.42860733
243	15284	0.32895	4.73528	1.557670356
243	15577	0.14780	157.60504	23.29402491
243	15581	0.14945	757.37537	113.189749
244	14550	0.27735	85.87568	23.81761985
245	15277	0.25396	1.35406	0.343877078
245	15558	0.24785	350.52960	86.87876136
246	15052	0.09414	752.41071	70.83194424
246	15177	0.14411	104.38514	15.04294253
247	14845	0.03906	220.59348	8.616381329
248	15289	0.32388	0.00000	0
248	15581	0.14367	813.09412	116.8172322
248	15590	0.14863	1053.43420	156.5719251
249	15109	0.06944	177.44769	12.32196759
249	15177	0.11864	4.87125	0.5779251
249	15216	0.13312	3.23144	0.430169293
249	15284	0.07945	45.13847	3.586251442
250	15167	0.04740	173.29762	8.214307188
250	15216	0.09706	20.23240	1.963756744
250	15233	0.14727	0.00000	0
250	15276	0.05603	4.22838	0.236916131
251	14936	0.21937	199.17503	43.69302633
251	14937	0.03254	71.20812	2.317112225
251	15046	0.24759	6.03257	1.493604006
252	15030	0.07652	113.66633	8.697747572
253	15276	0.34742	2.16066	0.750656497
253	15558	0.16279	371.57538	60.48875611
253	15577	0.16275	241.40277	39.28830082
266	23644	0.41174	784.32263	322.9369997
266	23879	0.15447	64.38842	9.946079237
266	24055	0.51515	56.64952	29.18300023
267	23962	0.09367	320.99295	30.06740963
267	23970	0.09047	359.37646	32.51278834
268	24156	0.11342	121.59070	13.79081719
269	24129	0.14314	134.68625	19.27898983
270	24129	0.10899	22.00035	2.397818147
270	24132	0.06691	99.94586	6.687377493
271	24173	0.12578	105.09200	13.21847176
271	24195	0.07004	203.62737	14.26206099
272	24228	0.43269	0.00000	0
272	24297	0.12655	65.23552	8.255555056

272	24312	0.14093	59.25859	8.351313089
273	24234	0.24536	1.26821	0.311168006
273	24312	0.35000	147.26808	51.543828
273	24320	0.30300	3.32479	1.00741137
274	24320	0.21219	3.31340	0.703070346
274	24364	0.24986	571.33636	142.7541029
274	24367	0.24705	542.71643	134.078094
274	24444	0.24465	0.00000	0
275	24581	0.18438	290.17197	53.50190783
276	24750	0.71403	489.85648	349.7722224
276	24874	0.30207	114.61784	34.62261093
277	24178	0.08493	6.32176	0.536907077
278	23873	0.03667	9.20512	0.33755175
278	23892	0.02967	31.98029	0.948855204
279	24149	0.10953	387.11514	42.40072128
279	24179	0.14051	10.05036	1.412176084
279	24234	0.14239	1.25704	0.178989926
280	24251	0.05647	53.04661	2.995542067
291	18085	0.24261	2101.56055	509.859605
291	18179	0.32805	287.29453	94.24697057
292	18201	0.12988	125.56940	16.30895367
292	18300	0.24312	17.86648	4.343698618
293	18401	0.16514	549.52020	90.74776583
294	18173	0.17805	405.25952	72.15645754
294	18307	0.14191	160.60437	22.79136615
294	18400	0.16717	6.63491	1.109157905
295	18413	0.25596	90.80762	23.24311842
295	18513	0.15280	39.65096	6.058666688
296	18513	0.24918	134.12138	33.42036547
296	18675	0.31328	609.31030	190.8847308
296	18682	0.31051	2.69519	0.836883447
296	18812	0.25200	773.28894	194.8688129
297	18532	0.07450	0.04207	0.003134215
297	18614	0.18405	160.80241	29.59568356
297	18639	0.09142	0.00000	0
297	18646	0.07502	116.46024	8.736847205
297	18650	0.18113	124.75895	22.59758861
298	18634	0.07386	446.96838	33.01308455
298	18650	0.04706	267.10803	12.57010389
298	18663	0.04397	231.36038	10.17291591
298	18679	0.07768	8.90494	0.691735739
299	18646	0.09159	5.74161	0.52587406
299	18675	0.14304	33.82071	4.837714358
299	18694	0.15299	263.07040	40.2471405
299	18702	0.06790	271.59961	18.44161352
300	18679	0.07585	92.78719	7.037908362
300	18694	0.05301	143.57878	7.611111128
300	18709	0.03902	102.95564	4.017329073
300	18724	0.07508	0.00000	0
301	18702	0.08718	2.12847	0.185560015
301	18714	0.11139	7.86812	0.876429887
301	18741	0.12000	73.04511	8.7654132
301	18796	0.07730	68.94240	5.32924752
302	18798	0.14357	289.27307	41.53093466

302	18912	0.14015	38.33764	5.373020246
303	18925	0.45384	6.98327	3.169287257
303	19099	0.14097	0.23607	0.033278788
303	19103	0.13789	90.86416	12.52925902
303	19197	0.38360	92.76726	35.58552094
304	17964	0.40978	0.92977	0.381001151
304	18074	0.18856	85.91968	16.20101486
304	18085	0.18716	358.41989	67.08186661
304	18169	0.34296	10.75061	3.687029206
305	18169	0.20397	39.61535	8.08034294
305	18307	0.15128	257.67499	38.98107249
305	18312	0.11702	3.94110	0.461187522
305	18395	0.14633	49.82058	7.290245471
306	18171	0.16812	672.22522	113.014504
306	18305	0.11582	193.83742	22.45024998
306	18312	0.12509	116.87956	14.62046416
306	18391	0.18197	78.68324	14.31798918
307	18456	0.06519	26.50020	1.727548038
307	18507	0.09403	151.07402	14.2054901
307	18592	0.09161	33.04349	3.027114119
307	18619	0.07608	0.63507	0.048316126
308	18451	0.11636	32.03217	3.727263301
308	18592	0.09119	176.42210	16.0879313
308	18617	0.08627	37.44461	3.230346505
308	18647	0.09670	0.29657	0.028678319
309	18652	0.07693	89.41087	6.878378229
309	18663	0.08994	447.09982	40.21215781
309	18688	0.09205	4.59066	0.422570253
309	18695	0.07398	148.15196	10.960282
310	18680	0.08276	67.24678	5.565343513
310	18688	0.15195	92.12269	13.99804275
310	18725	0.15083	28.55968	4.307656534
310	18730	0.07681	3.28439	0.252273996
311	18695	0.07608	91.72263	6.97825769
311	18709	0.09139	16.55671	1.513117727
311	18729	0.08800	106.95796	9.41230048
311	18748	0.07714	144.47101	11.14449371
312	18779	0.16364	155.97789	25.52422192
312	18898	0.21167	389.14963	82.37130218
312	18914	0.29094	21.71904	6.318937498
313	19103	0.27088	159.00676	43.07175115
313	19108	0.25791	31.82150	8.207083065
313	19190	0.27372	64.73578	17.7194777
314	17956	0.39279	195.52368	76.79974627
314	18074	0.33727	104.57648	35.27050941
314	18160	0.35843	164.71986	59.04053942
315	18160	0.22077	155.96790	34.43303328
315	18305	0.21332	676.06268	144.2176909
315	18327	0.29145	0.46670	0.136019715
315	18466	0.28297	311.37012	88.10840286
316	18466	0.12905	177.72025	22.93479826
316	18617	0.24308	1.21542	0.295444294
316	18618	0.26073	0.00000	0
316	18667	0.12301	106.10460	13.05192685

317	18769	0.13270	214.11127	28.41256553
317	18900	0.18778	17.43166	3.273317115
317	18914	0.19152	279.56113	53.54154762
318	19032	0.25651	9.95245	2.55290295
318	19108	0.21016	44.00629	9.248361906
318	19183	0.28452	21.97338	6.251866078
319	18400	0.10616	242.30141	25.72271769
319	18463	0.13761	121.94254	16.78051293
320	18489	0.04005	7.85378	0.314543889
321	18728	0.04961	42.01189	2.084209863
321	18741	0.07536	28.54603	2.151228821
321	18787	0.03514	4.01447	0.141068476
322	18748	0.02377	5.34591	0.127072281
322	18784	0.02182	3.76226	0.082092513
323	18791	0.10308	1352.59436	139.4254266
323	18898	0.14374	506.25034	72.76842387
323	18925	0.09271	6.97109	0.646289754
324	18395	0.07579	19.80152	1.500757201
324	18422	0.12791	0.28669	0.036670518
324	18426	0.13686	179.34369	24.54497741
324	18458	0.07898	95.79721	7.566063646
325	18393	0.07127	10.43894	0.743983254
325	18421	0.05126	13.64943	0.699669782
325	18422	0.05010	46.80222	2.344791222
325	18453	0.07351	10.84664	0.797336506
326	18392	0.07430	79.24538	5.887931734
326	18420	0.07027	16.94901	1.191006933
326	18421	0.06310	0.07709	0.004864379
326	18451	0.07031	41.89080	2.945342148
327	18462	0.03185	16.07646	0.512035251
327	18507	0.07281	7.98608	0.581466485
327	18525	0.04099	4.34946	0.178284365
328	18548	0.04049	165.25423	6.691143773
328	18634	0.04614	48.43958	2.235002221
329	18619	0.04258	61.85561	2.633811874
329	18652	0.04305	23.09929	0.994424435
330	18647	0.05312	25.83535	1.372373792
330	18680	0.04276	10.76977	0.460515365
331	18718	0.05409	395.20450	21.37661141
331	18729	0.08031	330.27457	26.52435072
331	18779	0.04618	28.69293	1.325039507
332	18974	0.24979	47.00957	11.74252049
332	18977	0.24945	76.55603	19.09690168
333	18667	0.12803	122.23817	15.65015291
333	18725	0.25964	86.35138	22.4202723
333	18769	0.12819	59.80760	7.666736244
376	17245	0.05663	309.77780	17.54271681
377	17405	0.19468	189.14453	36.8226571
378	17395	0.24574	105.81699	26.00346712
378	17514	0.19600	194.08380	38.0404248
378	17548	0.21902	45.42752	9.94953543
379	16839	0.29113	139.21738	40.53035584
379	17000	0.27328	361.77563	98.86604417
380	17229	0.11829	4.54460	0.537580734

380	17289	0.22824	599.47021	136.8230807
380	17294	0.22803	209.90045	47.86359961
381	17548	0.15866	1221.59717	193.818607
382	16833	0.24432	193.82971	47.35647475
382	16951	0.25578	125.03369	31.98111723
383	17261	0.14916	535.08484	79.81325473
383	17263	0.12460	103.83290	12.93757934
383	17365	0.18843	139.96996	26.37453956
384	17379	0.22079	288.70108	63.74231145
384	17487	0.11645	359.71826	41.88919138
385	17365	0.28101	788.13416	221.4735803
385	17519	0.13339	676.09583	90.18442276
385	17522	0.14151	22.92036	3.243460144
386	17660	0.04529	194.67621	8.816885551
386	17688	0.03980	40.96593	1.630444014
387	17689	0.14093	103.89463	14.64187021
388	16812	0.41338	17.79592	7.35647741
388	16951	0.56836	96.92900	55.09056644
388	17347	0.63274	11.22066	7.099760408
389	17274	0.12984	523.93481	68.02769573
389	17295	0.12129	2.73402	0.331609286
389	17359	0.13950	274.22327	38.25414617
390	17359	0.08415	13.41944	1.129245876
390	17447	0.08035	135.99675	10.92733886
391	17354	0.17443	78.21492	13.6430285
391	17477	0.27506	313.30298	86.17711768
392	17578	0.23049	45.53902	10.49628872
393	17347	0.28413	52.55769	14.93321646
394	16811	0.50084	362.71844	181.6639035
394	17348	0.50112	209.44131	104.9552293
395	17273	0.12997	803.61975	104.4464589
395	17405	0.19967	120.30927	24.02215194
396	16856	0.37909	41.74407	15.8247595
396	16983	0.25795	187.76137	48.43304539
397	17239	0.11832	1.60941	0.190425391
397	17289	0.21096	352.95444	74.45926866
398	17145	0.20743	649.35205	134.6950957
398	17239	0.18488	1.57258	0.29073859
399	17229	0.13082	457.52835	59.85385875
400	17263	0.11427	207.16986	23.6732999
400	17372	0.18568	706.97937	131.2719294
401	17490	0.20518	326.64954	67.02195262
401	17522	0.14415	201.21074	29.00452817
402	17184	0.17736	148.13609	26.27341692
403	17048	0.13063	341.56097	44.61810951
404	17262	0.12481	350.27206	43.71745581
405	17354	0.05273	170.76561	9.004470615
406	17524	0.09046	325.19727	29.41734504
407	17372	0.10138	344.20862	34.8958699
407	17443	0.11142	71.94520	8.016134184
407	17445	0.08838	3.83455	0.338897529
408	17386	0.18395	192.96773	35.49641393
408	17487	0.11673	90.92879	10.61411766
451	4045	0.24815	292.60092	72.6089183

452	3975	0.11732	106.29283	12.47027482
452	4041	0.34360	4.98739	1.713667204
453	4075	0.21130	0.00000	0
453	4098	0.12687	233.58971	29.63552651
453	4131	0.18198	347.18149	63.18008755
453	4194	0.21873	68.12529	14.90104468
454	3942	0.05922	753.21313	44.60528156
455	4094	0.17677	259.82791	45.92977965
455	4124	0.45682	470.54211	214.9530467
455	6333	0.34786	465.17184	161.8146763
456	4122	0.08212	350.13739	28.75328247
456	4190	0.17108	63.78635	10.91256876
457	4190	0.24563	3.37990	0.830204837
457	4301	0.24623	163.01414	40.13897169
457	4403	0.25065	408.85477	102.4794481
458	3888	0.19247	104.96620	20.20284451
459	3964	0.10110	707.91010	71.56971111
460	3995	0.04061	232.81595	9.45465573
471	16772	0.24749	39.33025	9.733843573
472	16866	0.25017	22.60394	5.65482767
472	16977	0.24373	135.68042	33.06938877
473	6090	0.24172	0.00000	0
473	17247	0.22648	541.70563	122.6854911
474	16772	0.15769	0.10122	0.015961382
474	16787	0.12594	70.78110	8.914171734
474	16859	0.21505	14.95605	3.216298553
475	16859	0.22050	0.85834	0.18926397
475	16973	0.10780	385.90860	41.60094708
475	16977	0.12415	81.00764	10.05709851
475	17018	0.16072	2.31372	0.371861078
476	16854	0.25729	54.60159	14.04844309
476	16969	0.12630	322.10941	40.68241848
476	17013	0.12573	21.31172	2.679522556
477	17092	0.25528	62.69176	16.00395249
477	17247	0.24762	57.58717	14.25973504
477	17248	0.25242	255.64201	64.52915616
478	16786	0.27030	5.98168	1.616848104
478	16844	0.25369	52.14941	13.22978382
479	16844	0.13158	342.60596	45.08009222
479	16921	0.22175	0.00000	0
479	16922	0.21783	0.00000	0
479	16966	0.12659	114.07409	14.44063905
480	16966	0.13232	243.64026	32.2384792
480	17008	0.21919	32.62315	7.150668249
480	17016	0.21865	0.00000	0
480	17116	0.13115	543.58466	71.29112816
481	17248	0.21830	27.84703	6.079006649
482	16834	0.26206	153.88927	40.3282221
482	16961	0.27770	64.11720	17.80534644
482	16979	0.28259	210.23601	59.41059407
482	17098	0.26332	2.00678	0.52842531
483	17104	0.24023	162.29471	38.98805818
484	17018	0.06170	2.37547	0.146566499
484	17030	0.12898	44.85539	5.785448202

484	17033	0.13099	37.21513	4.874809879
484	17102	0.06602	147.76202	9.75524856
485	17013	0.06967	71.39287	4.973941253
485	17030	0.11559	15.36214	1.775709763
485	17036	0.12541	396.37891	49.7098791
485	17087	0.05760	0.00000	0
486	16786	0.13086	55.84730	7.308177678
486	16787	0.12154	6.73884	0.819038614
486	16854	0.24950	0.37273	0.092996135
501	20821	1.34909	182.62111	246.3723133
501	22864	1.31264	462.77155	607.4524474
502	22423	0.60160	274.36023	165.0551144
511	20000	0.14573	295.17563	43.01594456
511	20236	0.21209	38.17728	8.097019315
512	20309	0.41173	111.53745	45.92331429
512	20470	0.41484	22.38598	9.286599943
513	19163	0.19589	86.53391	16.95112763
513	19266	0.46477	0.58002	0.269575895
513	19271	0.47458	57.41956	27.25017478
513	19324	0.24561	36.72716	9.020557768
514	19675	0.29197	333.64246	97.41358905
514	20003	0.29902	328.89948	98.34752251
515	20404	0.16024	42.26834	6.773078802
515	20470	0.13725	22.12534	3.036702915
515	20597	0.22290	4.17060	0.92962674
516	20605	0.25793	2108.05859	543.7315521
516	21014	0.48907	0.50818	0.248535593
516	21027	0.42465	2.63320	1.11818838
517	19325	0.15789	448.04190	70.74133559
517	19505	0.13062	125.75758	16.4264551
518	19505	0.27462	193.98900	53.27325918
518	19689	0.25062	180.72279	45.29274563
519	19917	0.26477	420.71494	111.3926947
519	20008	0.18044	108.95369	19.65960382
520	20009	0.26214	17.28287	4.530531542
520	20196	0.23505	858.29230	201.7416051
520	20233	0.27704	283.83398	78.63336582
520	20331	0.24080	141.81499	34.14904959
521	20331	0.26277	1396.76611	367.0282307
521	20475	0.25177	36.52637	9.196244175
521	20605	0.24356	95.93411	23.36571183
522	19174	0.23728	15.66492	3.716972218
522	19271	0.24532	145.27437	35.63870845
522	19292	0.27241	5.09431	1.387740987
522	19463	0.38419	200.74402	77.12384504
523	19427	0.26313	114.00605	29.99841194
523	19595	0.05912	193.02977	11.41192
523	19620	0.06975	47.45584	3.31004484
523	19693	0.15646	0.00000	0
524	19692	0.14876	5.49280	0.817108928
524	19826	0.12200	8.25396	1.00698312
524	19829	0.12079	2.40255	0.290204015
525	19917	0.13428	247.99583	33.30088005
525	19976	0.11049	230.93071	25.51553415

526	20048	0.11919	0.99834	0.118992145
526	20156	0.18407	129.28456	23.79740896
526	20167	0.14416	148.62737	21.42612166
527	20258	0.14169	409.52771	58.02598123
527	20293	0.13262	354.46741	47.00946791
527	20334	0.15313	49.41917	7.567557502
528	20337	0.24875	0.00000	0
528	20476	0.12417	330.79346	41.07462393
528	20477	0.12348	468.71207	57.8765664
529	20617	0.33921	94.92157	32.19834576
529	20850	0.27768	52.37492	14.54346779
529	21027	0.28597	2.20650	0.630992805
530	19697	0.14251	273.46848	38.97199308
530	19826	0.12827	0.13978	0.017929581
530	19862	0.14611	9.45719	1.381790031
530	19906	0.16186	65.71878	10.63724173
531	19949	0.12416	229.88542	28.54257375
531	20083	0.09943	36.49776	3.628972277
531	20140	0.11494	6.84350	0.78659189
531	30024	0.07437	68.10894	5.065261868
532	20140	0.21869	961.11475	210.1861847
532	20258	0.14336	109.21759	15.6574337
532	20297	0.13083	102.80352	13.44978452
533	19292	0.32880	281.26205	92.47896204
533	19705	0.60320	176.53825	106.4878724
534	19615	0.09201	837.57288	77.06508069
534	19636	0.13945	0.00000	0
534	19695	0.06670	525.97955	35.08283599
535	19699	0.26217	103.88831	27.23639823
535	19885	0.14035	202.42445	28.41027156
535	20033	0.26568	81.79423	21.73109103
536	19988	0.12732	214.04576	27.25230616
536	20083	0.09448	152.27296	14.38674926
536	20086	0.10347	239.08932	24.73857194
536	20194	0.11080	39.89802	4.420700616
537	20086	0.12932	13.40987	1.734164388
537	20176	0.13582	63.43440	8.615660208
537	20259	0.12134	21.70226	2.633352228
538	20228	0.15361	782.68298	120.2279326
538	20297	0.23173	90.15169	20.89085112
538	20306	0.27802	58.05130	16.13942243
538	20340	0.13735	17.85095	2.451827983
539	20340	0.26336	17.41196	4.585613786
539	20476	0.25054	141.20212	35.37677914
539	20485	0.26249	384.52911	100.9350461
539	20625	0.24530	42.19712	10.35095354
540	20625	0.26339	38.26889	10.07964294
540	20850	0.24361	15.60565	3.801692397
541	19885	0.31610	21.40967	6.767596687
541	19897	0.20419	0.00000	0
541	20038	0.16324	36.70799	5.992212288
542	20045	0.20382	46.57638	9.493197772
542	20176	0.47429	64.13453	30.41836623
542	20307	0.21656	5.19161	1.124295062

543	20268	0.11733	87.21329	10.23273532
543	20306	0.23960	12.74191	3.052961636
543	20307	0.31588	7.96698	2.516609642
543	20342	0.11792	0.39477	0.046551278
544	20342	0.26348	0.71387	0.188090468
544	20485	0.24658	51.44654	12.68568783
544	20489	0.75387	31.90457	24.05189819
544	20638	0.24558	6.14796	1.509816017
545	19976	0.05315	97.69037	5.192243166
545	20048	0.08056	108.82225	8.76672046
546	20334	0.25687	15.24734	3.916584226
546	20475	0.11550	622.68414	71.92001817
546	20477	0.12492	541.73102	67.67303902
546	20613	0.25196	25.16788	6.341299045
547	19824	0.15921	41.54695	6.61468991
547	19862	0.12447	493.48773	61.42441775
547	19949	0.16740	327.67590	54.85294566
548	20309	0.13545	35.41652	4.797167634
548	20404	0.18863	27.51349	5.189869619
549	19495	0.15877	65.00238	10.32042787
550	19511	0.11995	115.85903	13.89729065
550	19620	0.10318	101.38937	10.4613552
550	19690	0.21125	23.02255	4.863513688
551	19488	0.21334	724.53687	154.5726958
551	19595	0.12836	11.30281	1.450828692
551	19697	0.14711	340.70560	50.12120082
552	20638	0.26122	97.46789	25.46056223
601	3798	0.50608	617.13074	312.3175249
601	3847	0.25864	606.92987	156.9763416
611	12378	0.25102	151.38539	38.0007606
611	12736	0.49379	132.58159	65.46746333
611	13161	0.25511	39.80894	10.15565868
612	13160	0.25340	271.99277	68.92296792
612	13649	0.25374	0.00000	0
612	13654	0.37026	80.09568	29.65622648
612	14059	0.23474	0.00000	0
612	14072	0.24642	432.01834	106.4579593
613	14075	0.19486	411.65460	80.21501536
613	14453	0.19493	52.54486	10.24256956
613	14481	0.21240	6.30995	1.34023338
614	13171	0.12856	40.61098	5.220947589
614	13407	0.18877	536.19904	101.2182928
614	13412	0.18376	0.00000	0
614	13655	0.12498	71.92019	8.988585346
615	13655	0.12114	155.02995	18.78032814
615	13814	0.19899	546.25482	108.6992466
615	13826	0.17478	0.00000	0
615	14076	0.12896	1039.51794	134.0562335
616	14076	0.12854	905.83740	116.4363394
616	14277	0.19287	86.46970	16.67741104
616	14278	0.18113	9.22198	1.670377237
616	14456	0.11557	3.21520	0.371580664
617	14456	0.13331	19.51764	2.601896588
617	14596	0.18646	117.59563	21.92688117

618	15092	0.25247	141.25673	35.66308662
618	15399	0.23734	27.16642	6.447678123
619	15682	0.28815	233.90646	67.40014645
619	15934	0.26638	28.26449	7.529094846
620	16081	0.24859	106.51662	26.47896657
621	12735	0.11635	0.00000	0
621	12893	0.12829	0.00000	0
621	12895	0.12676	103.77634	13.15468886
621	13172	0.12901	66.45972	8.573968477
622	13172	0.09937	167.82758	16.67702662
622	13348	0.21200	72.44461	15.35825732
622	13407	0.16798	98.75082	16.58816274
622	13546	0.09319	188.00610	17.52028846
623	13546	0.09015	207.17723	18.67702728
623	13666	0.19186	54.07720	10.37525159
623	13702	0.18634	119.38956	22.24705061
623	13819	0.09725	307.09543	29.86503057
624	13819	0.06243	10.83246	0.676270478
624	13938	0.17733	307.48322	54.5259994
624	13960	0.20196	261.33221	52.77865313
624	14108	0.08083	142.16498	11.49119533
625	14108	0.13324	322.43808	42.96164978
625	14275	0.13399	16.64123	2.229758408
625	14277	0.11741	342.67389	40.23334142
625	14460	0.11857	0.00000	0
626	14109	0.11781	363.52563	42.82695447
626	14275	0.06894	14.66493	1.011000274
626	14285	0.05657	2.55000	0.1442535
626	14466	0.12951	0.00000	0
627	14464	0.13602	67.58971	9.193552354
627	14596	0.24792	60.74085	15.05887153
628	15401	0.41028	26.09107	10.7046442
628	15927	0.23377	2.13753	0.499690388
628	16302	0.59606	4.06418	2.422495131
629	12380	0.11507	416.75446	47.95593571
629	12539	0.01199	0.00000	0
629	12549	0.16637	0.35666	0.059337524
629	12815	0.20138	2.94380	0.592822444
630	13179	0.19027	96.14435	18.29338547
630	13545	0.15348	440.88724	67.6673736
631	13822	0.06510	0.00000	0
631	13938	0.19153	19.57000	3.7482421
631	13987	0.18241	0.00000	0
631	14111	0.06644	35.89723	2.385011961
632	13186	0.13345	103.90530	13.86616229
632	13425	0.14224	395.98596	56.32504295
632	13763	0.20769	0.00000	0
633	14111	0.14422	185.78612	26.79407423
633	14285	0.18814	2.51434	0.473047928
633	14304	0.18893	0.15481	0.029248253
633	14468	0.10631	0.00000	0
634	14100	0.12740	12.58270	1.60303598
634	14281	0.12190	28.21481	3.439385339
634	14304	0.13047	0.15146	0.019760986

634	14474	0.12355	0.00000	0
635	14593	0.27848	36.16000	10.0698368
636	15074	0.25183	19.60527	4.937195144
636	15402	0.25214	3.57021	0.900192749
637	12374	0.13572	25.90093	3.51527422
637	12549	0.21863	0.35511	0.077637699
637	12564	0.15933	7.83588	1.24849076
638	12815	0.10465	2.93458	0.307103797
638	13179	0.09864	241.98335	23.86923764
639	13176	0.12506	11.35347	1.419864958
640	15092	0.25078	43.02601	10.79006279
640	15401	0.24930	32.97355	8.220306015
641	13919	0.12441	94.98267	11.81679397
676	12212	0.32037	56.32822	18.04587184
676	12802	0.34801	210.53673	73.26888741
676	13142	0.28389	478.15070	135.7422022
677	13022	0.50580	415.48227	210.1509322
677	13361	0.50284	239.15729	120.2578517
677	13941	0.58014	82.05135	47.60127019
678	13441	0.23686	1266.91040	300.0803973
678	13941	0.21864	145.39180	31.78846315
678	13990	0.28917	98.01895	28.34413977
679	14913	0.22670	1049.39929	237.898819
680	14913	0.25868	49.50445	12.80581113
680	14942	0.25473	97.26997	24.77757946
681	12269	0.40162	8.76500	3.5201993
681	12802	0.63671	94.85607	60.39580833
681	13061	1.37130	4.77493	6.547861509
682	13618	0.46734	267.26239	124.9024053
683	14942	0.50817	240.25076	122.0882287
684	12258	0.19892	202.17856	40.21735916
696	18184	0.53237	199.76199	106.3472906
696	18246	0.47104	1060.86975	499.712087
696	18582	0.50847	369.22787	187.7412951
697	18565	0.38041	87.11371	33.13892642
697	18736	0.28992	108.95613	31.58856121
701	21382	0.24558	22.97494	5.642185765
701	21452	0.26368	39.23912	10.34657116
701	21596	0.21524	111.79230	24.06217465
702	21596	0.28292	95.18333	26.92926772
702	21800	0.25488	100.84174	25.70254269
702	21848	0.24738	243.05482	60.12690137
703	22175	0.16443	81.80704	13.45153159
704	22411	0.09549	145.71623	13.9144428
705	23213	0.24568	253.26201	62.22141062
706	20794	0.24409	88.89856	21.69924951
706	20959	0.40620	12.32312	5.005651344
706	20962	0.34118	140.96536	48.09456152
706	21190	0.27314	283.20959	77.35586741
707	21159	0.25567	0.00000	0
707	21374	0.12472	7.36887	0.919045466
707	21381	0.12254	124.23429	15.2236699
707	21674	0.25556	763.59644	195.1447062
708	21630	0.25291	352.26526	89.09140691

708	21838	0.28077	6.88671	1.933581567
708	21848	0.21431	4.65520	0.997655912
708	22066	0.23783	973.02972	231.4156583
709	21674	0.23963	15.06357	3.609683279
709	21838	0.13590	6.83742	0.929205378
709	21847	0.10896	432.67487	47.14425384
709	22078	0.24315	256.19492	62.2937948
710	22066	0.13162	41.36223	5.444096713
710	22175	0.19892	73.68680	14.65777826
710	22206	0.29390	159.37013	46.83888121
711	22078	0.13599	139.41127	18.95853861
711	22206	0.12229	423.30865	51.76641481
711	22209	0.12123	155.20836	18.81590948
712	22410	0.21468	821.01440	176.2553714
712	22521	0.29645	3.68900	1.09360405
712	22605	0.16223	199.06650	32.2945583
713	22521	0.05611	101.00034	5.667129077
713	22542	0.18866	356.55484	67.26763611
714	22802	0.07110	14.13532	1.005021252
714	22811	0.11745	48.34443	5.678053304
715	22802	0.28597	441.01553	126.1172111
715	22812	0.19543	152.20523	29.7454681
716	23045	0.32225	2.11069	0.680169853
716	23054	0.29168	131.98976	38.4987732
716	23228	0.22833	193.24680	44.12404184
717	23228	0.24466	223.20314	54.60888023
717	23432	0.29774	4.59043	1.366754628
717	23586	0.25994	39.96962	10.38970302
718	24094	0.93090	251.98677	234.5744842
719	20543	0.25148	276.54898	69.54653749
719	20788	0.24957	1861.75073	464.6371297
720	20788	0.24525	109.18612	26.77789593
720	20957	0.24683	507.14014	125.1774008
720	20959	0.25352	32.89705	8.340060116
720	21182	0.25525	8.95904	2.28679496
721	21182	0.25550	288.00879	73.58624585
721	21381	0.25052	23.49792	5.886698918
721	21666	0.24931	1595.29968	397.7241632
722	21666	0.24483	1955.91370	478.8663512
722	21847	0.25091	68.24390	17.12307695
722	22096	0.24715	5381.10205	1329.939372
723	22096	0.14369	70.78364	10.17090123
723	22209	0.24994	91.03854	22.75417269
723	22217	0.24494	901.24652	220.7513226
724	22413	0.24394	1369.13232	333.9861381
724	22439	0.24278	119.00230	28.89137839
724	22562	0.12872	615.49957	79.22710465
725	22557	0.18139	468.27206	84.93986896
725	22689	0.14514	210.10922	30.49525219
726	22570	0.24423	26.93083	6.577316611
726	22733	0.09677	509.16272	49.27167641
726	22884	0.24513	10.03367	2.459553527
727	22869	0.07955	75.58921	6.013121656
728	22884	0.16074	246.98322	39.70008278

728	23002	0.13694	223.05579	30.54525988
728	23010	0.10172	127.79769	12.99958103
729	23010	0.13445	441.16409	59.3145119
729	23045	0.21893	2.14964	0.470620685
729	23225	0.16615	19.67981	3.269800432
730	23233	0.11287	7.50492	0.84708032
730	23347	0.10390	335.23535	34.83095287
731	23485	0.13705	634.88171	87.01053836
731	23597	0.19801	9.64926	1.910649973
732	23597	0.25556	948.00452	242.2720351
732	23723	0.19132	4.63308	0.886400866
733	20543	0.22255	113.33659	25.2230581
733	20781	0.25219	729.36810	183.9393411
734	20781	0.24571	10.58779	2.601525881
734	20947	0.27512	749.45404	206.1897955
734	20957	0.22429	598.83136	134.3118857
735	21373	0.26988	92.78233	25.04009522
735	21387	0.23270	1036.27209	241.1405153
735	21672	0.25939	712.29120	184.7612144
736	21672	0.24434	982.49670	240.0632437
736	21846	0.25217	0.00000	0
736	21851	0.24250	2185.90088	530.0809634
736	22101	0.25078	1068.69397	268.0070738
737	22101	0.12765	650.12762	82.98879069
737	22217	0.24642	795.17621	195.9473217
737	22218	0.25149	582.70990	146.5457128
738	22364	0.11181	1069.96399	119.6326737
738	22574	0.10454	551.16901	57.61920831
738	30075	0.13295	0.00000	0
739	22436	0.14601	144.04832	21.0324952
739	22567	0.12439	274.89664	34.19439305
740	22574	0.13601	588.44769	80.03477032
740	22652	0.14008	54.08525	7.57626182
740	22729	0.11589	287.65436	33.33626378
741	22567	0.12618	73.88567	9.322893841
741	22643	0.13269	164.69560	21.85345916
741	22727	0.12742	17.55126	2.236381549
742	22729	0.14256	98.34752	14.02042245
742	22801	0.13255	409.90030	54.33228477
743	22727	0.13946	153.96115	21.47142198
743	22809	0.11951	357.73172	42.75251786
744	23002	0.12751	975.88495	124.43509
744	23139	0.22917	550.57764	126.1758778
745	23014	0.12855	669.12823	86.01643397
745	23161	0.24276	68.52115	16.63419437
746	23230	0.14041	243.00314	34.12007089
746	23347	0.11491	270.06564	31.03324269
747	23314	0.09186	309.29276	28.41163293
747	23386	0.11720	678.64996	79.53777531
748	23601	0.11633	35.82320	4.167312856
749	23523	0.12175	186.98276	22.76515103
749	23606	0.11910	6.47271	0.770899761
750	23601	0.24676	73.96017	18.25041155
750	23723	0.13146	80.14926	10.53642172

750	23849	0.27385	26.81274	7.342668849
751	23606	0.23793	89.77988	21.36132685
751	23726	0.12158	219.48346	26.68479907
751	23854	0.25227	1.55135	0.391359065
752	23849	0.25124	166.80217	41.90737719
752	23930	0.19539	105.56379	20.62610893
752	23967	0.34840	17.37525	6.0535371
753	20624	0.27795	337.87515	93.91239794
753	20778	0.24965	261.48242	65.27908615
754	20778	0.24852	432.74930	107.546856
754	20947	0.25226	1009.27185	254.5989169
754	20955	0.25045	678.22662	169.861857
754	21160	0.25134	18.22030	4.579490202
755	21160	0.26700	18.24157	4.87049919
755	21376	0.25145	212.79028	53.50611591
755	21387	0.24959	63.01334	15.72749953
755	21648	0.23399	985.89307	230.6891194
756	21648	0.26869	30.13402	8.096709834
756	21843	0.25191	1086.37903	273.6697414
756	21851	0.25484	1065.20325	271.4563962
756	22102	0.23622	16.53741	3.90646699
757	22120	0.10488	16.42862	1.723033666
757	22201	0.25814	361.20126	93.24049326
757	22218	0.25239	335.55331	84.69029991
758	22436	0.14124	188.85971	26.67454544
758	22468	0.12444	94.23141	11.72615666
758	22564	0.07117	218.85950	15.57623062
759	22362	0.11045	263.24252	29.07513633
759	22468	0.08312	285.84772	23.75966249
760	22564	0.12509	125.25262	15.66785024
760	22636	0.12918	5.61062	0.724779892
760	22643	0.12465	334.27963	41.66795588
760	22716	0.12309	182.25415	22.43366332
761	22558	0.12210	148.37065	18.11605637
761	22635	0.11997	493.69232	59.22826763
761	22636	0.12825	5.68782	0.729462915
761	22712	0.12657	117.46885	14.86803234
762	22716	0.14991	5.93530	0.889760823
762	22808	0.12390	407.28741	50.4629101
762	22809	0.12848	410.01834	52.67915632
763	22712	0.13412	404.67538	54.27506197
763	22784	0.11948	1204.38794	143.9002711
763	22808	0.13076	300.57098	39.30266134
763	22922	0.12549	818.70294	102.7390319
764	23014	0.11986	445.03882	53.34235297
764	23028	0.13037	393.86908	51.34871196
765	22922	0.19668	472.83243	92.99668233
765	23028	0.14249	112.18974	15.98591605
765	23033	0.15429	207.50002	32.01517809
766	23123	0.05318	0.00000	0
766	23142	0.11726	59.41694	6.967230384
766	23148	0.11859	51.47688	6.104643199
766	23176	0.03583	141.86194	5.08291331
767	23118	0.04541	121.61996	5.522762384

767	23142	0.14845	55.06941	8.175053915
768	23176	0.05375	344.40131	18.51157041
768	23247	0.12069	39.39736	4.754867378
768	23253	0.11516	0.00000	0
768	23325	0.06717	562.37445	37.77469181
769	23170	0.05729	2328.95581	133.4258784
769	23247	0.15298	37.99723	5.812816245
769	23262	0.15955	1335.89539	213.1421095
769	23315	0.06464	2178.69434	140.8308021
770	23325	0.07943	770.21149	61.17789865
770	23354	0.12661	655.88434	83.04151629
770	23386	0.12383	95.41109	11.81475527
770	23476	0.13581	280.07410	38.03686352
771	23315	0.03654	114.42113	4.18094809
771	23344	0.15643	682.30597	106.7331229
771	23350	0.02164	471.31815	10.19932477
771	30076	0.14297	843.45465	120.5887113
772	23476	0.10953	11.05231	1.210559514
772	23514	0.12046	184.80150	22.26118869
772	23523	0.13000	286.44937	37.2384181
772	23617	0.11020	158.73891	17.49302788
773	23350	0.19299	82.53780	15.92897002
773	23489	0.14576	8.49879	1.23878363
773	23499	0.15354	123.65462	18.98593035
773	23627	0.19499	11.38062	2.219107094
774	23617	0.23651	1.31987	0.312162454
774	23726	0.13072	144.17258	18.84623966
774	23727	0.12027	189.10631	22.7438159
775	23642	0.25815	411.94241	106.3429331
775	23727	0.27711	329.01010	91.17198881
775	23867	0.30679	145.31418	44.58093728
776	23964	0.12712	261.31870	33.21883314
776	24090	0.13392	0.00000	0
777	23877	0.17359	742.44995	128.8818868
777	23926	0.35565	4.92327	1.750960976
777	23987	0.15189	48.97689	7.439099822
778	24128	0.12603	24.65348	3.107078084
778	24146	0.13448	1.85514	0.249479227
779	24125	0.12157	26.03695	3.165312012
779	24147	0.13635	0.24083	0.032837171
780	24273	0.22200	1896.35327	420.9904259
781	20630	0.23433	104.11201	24.3965673
781	20764	0.24775	40.80614	10.10972119
782	20764	0.27843	725.00116	201.862073
782	20944	0.07168	366.92184	26.30095749
782	21167	0.24940	1065.91394	265.8389366
783	21167	0.25802	78.31316	20.20636154
783	21376	0.25297	893.83752	226.1140774
784	21644	0.20679	262.13821	54.20756045
784	21842	0.18202	493.13803	89.76098422
784	22001	0.24974	0.00000	0
785	21638	0.39104	172.52821	67.46543124
785	22201	0.55976	1017.02399	569.2893486
786	22432	0.15496	394.40396	61.11683764

786	22550	0.13564	76.96675	10.43976997
787	22550	0.24650	2678.78198	660.3197581
787	22715	0.19015	3.72520	0.70834678
787	22718	0.19279	183.73183	35.42165951
787	22920	0.25933	918.34613	238.1547019
788	22715	0.12457	88.20213	10.98733933
788	22900	0.22754	138.64795	31.54795454
789	22920	0.20049	258.25900	51.77834691
789	23026	0.14354	290.19977	41.65527499
789	23033	0.12757	1045.36340	133.3570089
790	22900	0.30335	185.73288	56.34206915
790	23026	0.16925	430.20563	72.81230288
790	23290	0.24587	232.09520	57.06524682
791	23303	0.11474	355.69467	40.81240644
791	23390	0.13818	247.60687	34.2143173
791	23395	0.13442	66.17765	8.895599713
791	23450	0.07560	0.11832	0.008944992
792	23488	0.14830	262.24170	38.89044411
792	23525	0.16276	1329.36108	216.3668094
792	23652	0.13574	634.23279	86.09075891
793	23294	0.18980	93.75163	17.79405937
793	23442	0.08688	4.16266	0.361651901
793	23447	0.09034	294.87924	26.63939054
793	23550	0.19653	76.07712	14.95143639
794	23289	0.18313	512.54559	93.8624739
794	23442	0.08934	127.71427	11.40999288
795	23650	0.22509	753.59827	169.6274346
795	23733	0.12894	65.16551	8.402440859
795	23868	0.24035	81.36161	19.55526296
796	30194	0.27918	66.51064	18.56844048
797	22535	0.14584	476.34183	69.46969249
798	22538	0.20980	0.00000	0
798	22696	0.14874	768.46161	114.3009799
799	22696	0.12618	1015.41632	128.1252313
800	23104	0.10268	221.38451	22.73176149
800	23264	0.17658	123.66060	21.83598875
801	23001	0.12213	1455.11414	177.7130899
802	23264	0.25387	530.29041	134.6248264
802	23634	0.25285	149.42960	37.78327436
803	23634	0.20865	639.98456	133.5327784
804	23957	0.18623	1322.94543	246.3721274
805	24265	0.09918	103.08239	10.22371144
806	22093	0.29776	523.47583	155.8701631
807	21618	0.38319	565.65619	216.7537954
808	22534	0.12073	171.62465	20.72024399
809	22526	0.11794	270.79065	31.93704926
810	22534	0.44040	107.54093	47.36102557
810	22698	0.27776	0.00000	0
810	22894	0.07275	794.81354	57.82268504
811	22530	0.27180	31.18792	8.476876656
811	22707	0.15351	0.00000	0
811	22892	0.23479	168.05743	39.45820399
812	22894	0.09694	1159.84485	112.4353598
813	23057	0.41193	131.28238	54.07915079

813	23098	0.32763	111.61736	36.56919566
813	23280	0.26582	442.85550	117.719849
814	23278	0.23791	924.51398	219.951121
814	23629	0.25480	140.03839	35.68178177
815	23280	0.21524	1236.00464	266.0376387
815	23618	0.26037	349.54105	91.01000319
816	23629	0.18702	82.43410	15.41682538
816	23705	0.24718	15.07473	3.726171761
817	23958	0.25234	497.71417	125.5931937
817	24043	0.33116	65.79491	21.7886424
818	24155	0.08097	7.12264	0.576720161
818	24249	0.34989	11.05203	3.866994777
819	24267	0.52079	37.59781	19.58056347
819	24455	0.57526	4.29665	2.471690879
820	23261	0.25198	135.82660	34.22558667
820	23457	0.12038	59.25826	7.133509339
820	23614	0.23501	38.43012	9.031462501
821	23613	0.18802	98.47348	18.51498371
821	23701	0.26025	20.42805	5.316400013
821	23705	0.23626	443.19998	104.7104273
822	23980	0.25244	6.12166	1.54535185
822	23982	0.18178	146.23392	26.58240198
823	24161	0.26035	136.76022	35.60552328
823	24252	0.18384	852.38068	156.7016642
824	13581	0.46916	712.54761	334.2988367
824	20431	0.71540	45.88241	32.82427611
824	21583	0.76245	17.06409	13.01051542
825	21583	0.40063	17.16576	6.877118429
825	21913	0.50135	239.19975	119.9227947
825	21931	0.49704	1400.60913	696.158762
826	21374	0.25886	98.29633	25.44498798
826	21382	0.23874	250.07637	59.70323257
826	21630	0.25856	449.80182	116.3007586
827	22879	0.06062	177.01468	10.7306299
828	23862	0.12934	178.81856	23.12839255
828	23964	0.11933	12.23197	1.45964098
829	23972	0.17759	22.54194	4.003223125
830	21633	0.23377	437.61682	102.301684
831	23112	0.04900	42.37248	2.07625152
831	23137	0.14461	12.74441	1.84296913
831	23140	0.12382	0.00000	0
831	23163	0.03925	45.17566	1.773144655
832	23163	0.05781	144.72160	8.366355696
832	23258	0.14189	63.64147	9.030088178
832	23262	0.12797	10.93398	1.399221421
832	23303	0.05399	41.85172	2.259574363
833	23450	0.06433	7.88973	0.507546331
833	23488	0.09724	5.47783	0.532664189
834	21952	0.15310	105.95033	16.22099552
835	21867	0.21008	63.17450	13.27169896
835	22062	0.16919	29.50358	4.9917107
836	22125	0.24315	6.84465	1.664276648
837	22125	0.09136	29.21499	2.669081486
837	22202	0.31188	58.57154	18.2672919

838	22569	0.18809	42.91287	8.071481718
839	20406	0.50341	134.62114	67.76962809
840	21109	0.32911	148.77650	48.96383392
901	25394	2.38538	1384.56140	3302.705072
901	25943	1.78310	272.46341	485.8295064
902	25440	0.48590	702.25464	341.2255296
903	25936	0.54573	288.96457	157.6966348
904	25169	3.55119	2103.14453	7468.665823
911	20705	0.36885	593.91699	219.0662818
911	21005	0.28533	67.78622	19.34144215
911	21116	0.31824	65.91976	20.97830442
912	21089	0.15236	535.85193	81.64240005
912	21329	0.30884	32.65107	10.08395646
913	21389	0.30256	779.35321	235.8011072
913	21727	0.29831	31.92738	9.524256728
914	20945	0.22252	1166.41467	259.5505924
915	21185	0.26531	81.11324	21.5201537
915	21392	0.32901	80.89672	26.61582985
916	21264	0.16279	405.32422	65.98272977
916	21423	0.16188	23.31552	3.774316378
917	21727	0.21807	190.94713	41.63984064
918	21923	0.29897	121.56056	36.34296062
919	21432	0.25561	22.14271	5.659898103
920	21631	0.23762	129.15244	30.68920279
921	21432	0.07874	14.75834	1.162071692
922	21347	0.10825	108.42841	11.73737538
936	21582	0.25531	171.65526	43.82530443
936	21794	0.63752	26.27754	16.7524573
936	22022	0.23362	56.16191	13.12054541
937	22042	0.24572	290.49142	71.37955172
937	22270	0.33401	247.00085	82.50075391
938	22667	0.08832	175.04105	15.45962554
939	21570	0.27744	531.64703	147.500152
939	21794	0.43735	212.04752	92.73898287
939	22054	0.25060	332.21826	83.25389596
940	22054	0.25151	1428.71802	359.3368692
940	22270	0.44176	104.15437	46.01123449
941	22844	0.40825	461.21375	188.2905134
951	24987	0.46380	140.75253	65.28102341
951	25002	1.22448	561.96429	688.1140338
952	24909	1.38737	774.87927	1075.044253
952	25277	1.50287	226.07446	339.7605237
953	25529	0.74457	402.65247	299.8029496
954	24933	0.35366	1003.89740	355.0383545
955	25002	1.82793	486.92297	890.0611046
955	25124	0.77199	660.50122	509.9003368
956	25788	1.49664	710.58600	1063.491431
966	10483	0.42094	30.71829	12.93055699
967	10573	0.65203	0.51393	0.335097778
967	12087	0.61382	121.12515	74.34903957
968	10651	0.57687	48.67516	28.07923955
968	11169	0.07016	1514.20813	106.2368424
969	11771	0.11320	1158.59766	131.1532551
969	11836	0.28980	487.42410	141.2555042

969	12087	0.40870	178.53094	72.96559518
976	3426	0.23285	333.00067	77.53920601
976	3496	0.17948	3.41487	0.612900868
976	3521	0.25035	107.95459	27.02643161
977	3452	0.17704	202.35995	35.82580555
977	3496	0.24669	66.70111	16.45449683
1001	6557	0.19060	33.39475	6.36503935
1001	6892	0.28352	32.51333	9.218179322
1002	5085	0.50353	0.00000	0
1002	5513	0.24971	7.40642	1.849457138
1002	5514	0.24906	23.65202	5.890772101
1002	5883	0.49818	0.06836	0.034055585
1003	5883	0.26265	2.84481	0.747189347
1003	6114	0.25093	37.41603	9.388804408
1003	6141	0.24993	124.22083	31.04651204
1003	6396	0.23508	0.00089	0.000209221
1004	6670	0.14075	66.35955	9.340106663
1004	6892	0.20797	272.84930	56.74446892
1004	7262	0.17716	15.46315	2.739451654
1005	6842	0.31832	600.91138	191.2821105
1006	7756	0.09475	710.61810	67.33106498
1007	7272	0.14160	286.27231	40.5361591
1007	7756	0.13552	337.37384	45.7209028
1008	8524	0.22130	1029.11206	227.7424989
1009	8800	0.06419	0.96846	0.062165447
1009	9081	0.12353	0.57799	0.071399105
1010	9347	0.21798	445.81830	97.17947303
1010	9614	0.14611	188.50349	27.54224492
1011	10108	0.10790	382.76819	41.3006877
1011	10191	0.10589	422.70679	44.76042199
1012	10739	0.12962	279.69113	36.25356427
1012	11066	0.21225	0.40087	0.085084658
1013	12211	0.21532	0.61802	0.133072066
1013	12315	0.27879	203.69881	56.78919124
1013	13013	0.47243	40.38854	19.08075795
1013	29943	0.47109	50.15300	23.62657677
1014	5091	0.48700	0.00000	0
1014	5448	0.25804	24.87774	6.41945203
1014	5513	0.24780	141.68164	35.10871039
1014	5886	0.51358	199.07573	102.2413134
1015	5886	0.25048	72.02239	18.04016825
1015	6104	0.24906	141.99686	35.36573795
1015	6114	0.25084	645.03748	161.8012015
1015	6403	0.24838	779.48804	193.6092394
1016	6403	0.13022	19.91191	2.59292892
1016	6619	0.23446	95.95587	22.49781328
1017	7033	0.14901	252.09645	37.56489201
1018	7534	0.14311	39.23893	5.615483272
1018	7723	0.13034	423.97433	55.26081417
1019	7723	0.12370	46.57788	5.761683756
1019	7869	0.14272	145.24767	20.72974746
1020	8340	0.16313	1389.09875	226.6036791
1021	8540	0.12991	1084.99146	140.9512406
1022	8623	0.15570	696.67041	108.4715828

1022	8866	0.19753	3479.66870	687.3389583
1022	9105	0.18628	462.73904	86.19902837
1023	8540	0.12481	124.38701	15.52474272
1023	9093	0.12077	416.08389	50.2504514
1024	9465	0.20027	168.63388	33.77230715
1024	9748	0.16406	136.81396	22.44569828
1024	10105	0.18297	102.57426	18.76801235
1025	9583	0.12170	747.32227	90.94912026
1025	9748	0.08631	55.02065	4.748832302
1025	10136	0.16005	431.87518	69.12162256
1026	10301	0.24878	253.83958	63.15021071
1026	10586	0.16478	77.18737	12.71893483
1027	11510	0.35701	87.89597	31.37974025
1027	12211	0.27299	0.60515	0.165199899
1027	12413	0.29763	216.13585	64.32851304
1028	5095	0.41644	11.31929	4.713805128
1028	5437	0.25537	291.36002	74.40460831
1028	5448	0.25581	803.80774	205.622058
1029	5723	0.25321	309.54840	78.38075036
1029	5737	0.25608	802.84070	205.5914465
1029	5877	0.23872	6.35840	1.517877248
1030	5877	0.24789	164.95154	40.88983725
1030	6056	0.25819	7.60988	1.964794917
1030	6104	0.25598	532.76404	136.376939
1030	6428	0.26390	213.75974	56.41119539
1031	6428	0.17033	243.48018	41.47197906
1031	6619	0.27331	761.18536	208.0395707
1031	6811	0.25202	4.34579	1.095225996
1032	6978	0.12229	0.00000	0
1032	7033	0.20189	447.30753	90.30691723
1033	7404	0.26138	127.21355	33.2510777
1033	7534	0.26141	93.15758	24.35232299
1033	7720	0.13746	639.91907	87.96327536
1034	7732	0.19651	606.40619	119.1648804
1034	8026	0.12522	1471.69373	184.2854889
1034	8139	0.14358	0.00000	0
1034	8328	0.20271	99.95898	20.26268484
1035	7703	0.18318	545.85291	99.98933605
1035	7720	0.23012	209.83109	48.28633043
1035	8292	0.21842	1876.81592	409.9341332
1036	8328	0.09682	1709.32813	165.4971495
1037	8294	0.18844	91.75383	17.29009173
1037	8296	0.22619	29.16421	6.59665266
1037	8836	0.17242	415.44714	71.63139588
1038	8866	0.12271	524.05884	64.30726026
1038	9095	0.08025	0.00000	0
1039	9583	0.26678	2362.12280	630.1671206
1040	9583	0.20612	531.14911	109.4804546
1040	9630	0.19591	306.96436	60.13738777
1040	10129	0.13741	467.13809	64.18944495
1041	10129	0.11903	261.57825	31.1356591
1041	10499	0.16399	25.45770	4.174808223
1041	10500	0.17091	87.26017	14.91363565
1042	29954	0.10593	1485.57324	157.3667733

1043	11472	0.13432	77.57904	10.42041665
1044	5099	0.40128	4.23714	1.700279539
1044	5437	0.24938	72.50551	18.08142408
1044	5525	0.28083	66.34535	18.63176464
1045	5723	0.25486	48.59760	12.38558434
1045	5746	0.25480	40.31440	10.27210912
1045	5859	0.20475	1505.32947	308.216209
1046	5859	0.16513	787.86053	130.0994093
1046	6056	0.28795	175.72331	50.59952711
1046	6276	0.34976	828.38080	289.7344686
1047	6505	0.20612	2838.15747	585.0010177
1048	6542	0.18951	3.13081	0.593319803
1048	6811	0.20847	29.06027	6.058194487
1048	6865	0.19776	690.15283	136.4846237
1049	7099	0.12080	359.53366	43.43166613
1049	7404	0.16434	16.85091	2.769278549
1049	7474	0.17974	1038.28662	186.6216371
1049	7700	0.16629	531.92004	88.45298345
1050	7700	0.12905	146.38715	18.89126171
1050	7905	0.14570	231.54752	33.73647366
1051	8193	0.12838	750.24011	96.31582532
1051	8289	0.07853	569.85199	44.75047677
1052	8290	0.22277	61.13196	13.61836673
1052	8805	0.11862	611.87067	72.58009888
1052	9083	0.19812	310.96530	61.60844524
1053	9563	0.15024	621.37439	93.35528835
1054	9563	0.12370	234.15666	28.96517884
1054	10122	0.14742	266.90298	39.34683731
1055	10122	0.20961	220.96274	46.31599993
1055	10499	0.11453	465.73007	53.34006492
1056	5103	0.24114	0.14893	0.03591298
1056	5307	0.25041	15.20600	3.80773446
1056	5331	0.25067	8.93662	2.240142535
1057	5746	0.13620	15.83844	2.157195528
1057	5772	0.18734	97.48122	18.26213175
1057	5855	0.13869	139.22876	19.30963672
1058	5855	0.23053	212.39267	48.96288222
1058	6057	0.15966	277.17987	44.25453804
1058	6062	0.16097	320.45233	51.58321156
1059	6426	0.20606	23.37873	4.817421104
1059	6509	0.16035	180.38477	28.92469787
1059	6630	0.11064	228.03456	25.22974372
1060	6630	0.18824	90.29545	16.99721551
1060	6865	0.17868	529.57751	94.62490949
1060	6973	0.18495	3.96643	0.733591229
1060	7369	0.20885	338.32513	70.6592034
1061	6686	0.18869	37.66858	7.10768436
1061	6973	0.09225	3.92619	0.362191028
1061	7016	0.08973	146.65211	13.15909383
1061	7450	0.21545	250.46320	53.96229644
1062	7335	0.11365	208.55504	23.7022803
1062	7474	0.09244	359.16043	33.20079015
1062	7757	0.14272	271.84583	38.79783686
1063	7382	0.13914	380.42923	52.93292306

1063	7586	0.09053	798.73059	72.30908031
1063	7773	0.11404	380.40048	43.38087074
1064	7450	0.10953	5.32854	0.583634986
1064	7576	0.09725	329.19748	32.01445493
1064	7586	0.09167	676.54193	62.01859872
1064	7812	0.11530	25.34998	2.922852694
1065	7757	0.07689	297.86557	22.90288368
1065	7802	0.18550	418.82355	77.69176853
1065	7904	0.18091	580.38629	104.9976837
1065	7956	0.07380	14.85396	1.096222248
1066	8285	0.20488	101.99606	20.89695277
1066	8669	0.18595	282.36053	52.50494055
1066	9071	0.16857	308.42865	51.99181753
1067	8041	0.30493	543.73578	165.8013514
1067	8669	0.12375	2193.61035	271.4592808
1067	9060	0.22759	519.78619	118.298139
1068	9070	0.05198	246.37999	12.80683188
1068	9197	0.07791	347.35669	27.06255972
1069	9065	0.07311	263.61282	19.27273327
1069	9198	0.09054	411.28412	37.23766422
1070	9877	0.19559	388.33875	75.95517611
1070	10104	0.17237	179.22633	30.8932425
1071	10112	0.28804	1149.77271	331.1805314
1071	10695	0.25010	534.20789	133.6053933
1072	11477	0.14408	147.50453	21.25245268
1072	11750	0.23600	213.53487	50.39422932
1073	12180	0.10664	97.65952	10.41441121
1074	5156	0.49972	0.00000	0
1074	5518	0.23713	288.20129	68.3411719
1074	5584	0.26136	49.24636	12.87102865
1074	5881	0.47773	657.35883	314.0400339
1075	5881	0.24121	917.37671	221.2804362
1075	6053	0.24561	1118.36755	274.682254
1075	6086	0.25397	785.76971	199.5619332
1076	6500	0.26233	641.96869	168.4076464
1076	6647	0.25670	309.43997	79.4332403
1076	6790	0.17596	10.23961	1.801761776
1077	6790	0.15557	172.49481	26.83501759
1077	7016	0.27686	537.06757	148.6925274
1077	7387	0.31979	279.27798	89.31030522
1078	7462	0.28941	50.89483	14.72947275
1078	7663	0.08837	115.51237	10.20782814
1079	7606	0.13753	340.97946	46.89490513
1079	7834	0.12693	167.05136	21.20382912
1079	7895	0.14641	534.57007	78.26640395
1079	8097	0.18319	782.96381	143.4311404
1080	7735	0.11836	117.61240	13.92060366
1080	7895	0.17462	130.53094	22.79331274
1080	7995	0.20299	206.21559	41.85970261
1081	8097	0.25706	191.36290	49.19174707
1081	8430	0.21912	33.71239	7.387058897
1081	9063	0.27345	584.24750	159.7624789
1082	8128	0.11464	98.31981	11.27138302
1082	8274	0.09353	81.07927	7.583344123

1083	8753	0.09131	52.16978	4.763622612
1083	9047	0.14394	176.65344	25.42749615
1084	8131	0.10925	82.67017	9.031716073
1084	8269	0.11446	138.49791	15.85247078
1085	9064	0.14413	569.10822	82.02556775
1086	9061	0.09338	471.00558	43.98250106
1087	9876	0.34467	1143.91016	394.2715148
1087	10092	0.17475	453.40469	79.23246958
1088	10101	0.25119	82.33923	20.68279118
1088	10696	0.12727	314.31198	40.00248569
1088	11449	0.27517	20.04078	5.514621433
1089	10091	0.25076	1179.41809	295.7508802
1089	10672	0.16755	474.53662	79.50861068
1090	5858	0.22687	257.52457	58.4245992
1090	6053	0.08828	349.92038	30.89097115
1090	6062	0.09308	343.86725	32.00716363
1090	6110	0.04136	0.00000	0
1090	6290	0.22799	4.33934	0.989326127
1091	9058	0.06808	899.69476	61.25121926
1092	9676	0.20882	794.08118	165.820032
1092	10078	0.18132	367.31433	66.60143432
1093	10078	0.24939	828.03009	206.5024241
1093	10638	0.21216	275.87173	58.52894624
1093	10672	0.17128	8.14633	1.395303402
1094	11800	0.52911	2673.45459	1414.551558
1094	12400	0.37444	50.85576	19.04243077
1094	13000	0.43760	929.76080	406.8633261
1095	5118	0.48896	1.15878	0.566597069
1095	5518	0.35402	23.64909	8.372250842
1095	5892	0.50313	6.37238	3.206135549
1096	5150	0.49910	1.60011	0.798614901
1096	5578	0.25218	16.30230	4.111114014
1096	5891	0.48877	41.55106	20.3089116
1097	5891	0.34536	8.45261	2.91919339
1097	6086	0.49796	31.58042	15.72578594
1098	6875	0.49731	2222.32764	1105.185759
1098	7383	0.24389	2.94917	0.719273071
1099	7383	0.06454	2.99192	0.193098517
1099	7447	0.57199	95.13870	54.41838501
1099	7705	0.14090	36.92434	5.202639506
1100	7651	0.47496	132.05177	62.71930868
1100	7908	0.06654	880.30347	58.57539289
1101	7849	0.09487	517.35455	49.08142616
1101	7995	0.23149	684.09448	158.3610312
1102	7886	0.52483	43.72825	22.94989745
1102	8422	0.28880	368.74338	106.4930881
1102	9030	0.25808	1085.12439	280.0489026
1103	7936	0.29298	1479.12854	433.3550796
1103	9022	0.29160	3528.58154	1028.934377
1104	8004	0.25970	125.16902	32.50639449
1104	8423	0.19640	4.66219	0.915654116
1104	9020	0.29395	323.56577	95.11215809
1105	9029	0.08116	764.97510	62.08537912
1106	9676	0.23088	925.23541	213.6183515

1106	9994	0.17636	49.82869	8.787787768
1107	9994	0.13636	911.11255	124.2393073
1107	10361	0.25091	294.51871	73.89768953
1108	10812	0.25166	519.57141	130.755341
1109	9782	0.14811	676.84698	100.2478062
1110	9782	0.40623	382.12888	155.2322149
1110	9813	0.26512	1117.46692	296.2628298
1111	11476	0.28320	446.16312	126.3533956
1112	5578	0.54646	46.76763	25.55663909
1112	6375	0.77247	15.96095	12.32935505
1113	7597	0.41484	652.27173	270.5884045
1113	7769	0.33989	33.97270	11.546981
1113	7941	0.20462	116.38806	23.81532484
1114	8192	0.06543	915.55634	59.90485133
1115	8192	0.26583	356.72684	94.82869588
1115	8338	0.41428	239.93604	99.40070265
1115	8423	0.46221	701.36072	324.1759384
1116	9663	0.16202	476.36395	77.18048718
1117	9592	0.40696	414.15646	168.545113
1118	8326	0.11324	106.64445	12.07641752
1118	8500	0.21420	914.17029	195.8152761
1118	8708	0.18021	245.84474	44.3036806
1119	8935	0.14872	94.15790	14.00316289
1120	8500	0.12958	193.58260	25.08443331
1120	8610	0.37186	3.61509	1.344307367
1121	9008	0.16703	42.95328	7.174486358
1121	9476	0.32948	379.44180	125.0184843
1122	9087	0.10439	0.79470	0.082958733
1122	9247	0.08240	0.86228	0.071051872
1123	9462	0.10697	143.16277	15.31412151
1123	9892	0.21183	147.67876	31.28279173
1123	9893	0.12994	52.88467	6.87183402
1124	11064	0.07937	3.42984	0.272226401
1124	11482	0.11521	0.99104	0.114177718
1125	10385	0.10763	202.98759	21.84755431
1126	10138	0.18237	182.95279	33.36510031
1126	10287	0.15877	204.30495	32.43749691
1126	10739	0.18292	0.70265	0.128528738
1127	9303	0.06233	108.33018	6.752220119
1127	9307	0.13400	147.20006	19.72480804
1128	9105	0.13663	857.40546	117.147308
1128	9583	0.17874	3006.66089	537.4105675
1129	10191	0.11705	80.98336	9.479102288
1129	10586	0.16480	154.90735	25.52873128
1130	11066	0.14460	20.45113	2.957233398
1130	11488	0.15474	156.64296	24.23893163
1131	7956	0.10674	137.28499	14.65379983
1131	8124	0.20196	11.16518	2.254919753
1131	8183	0.16872	472.73041	79.75907478
1131	8285	0.10763	509.16895	54.80185409
1132	7050	0.04592	38.13181	1.751012715
1132	7256	0.07247	213.78545	15.49303156
1133	6396	0.07704	0.00089	6.85656E-05
1134	5655	0.18389	254.71490	46.83952296

1134	5759	0.14141	575.22369	81.342382
1135	6290	0.13671	4.22069	0.57701053
1135	6509	0.09055	197.93010	17.92257056
1135	6518	0.09277	23.35923	2.167035767
1135	6686	0.11420	88.54599	10.11195206
1136	7493	0.24444	9.74161	2.381239148
1137	8519	0.13107	12.66126	1.659511348
1137	9087	0.12724	21.94968	2.792877283
1138	8527	0.06771	35.14712	2.379811495
1138	8693	0.11930	3.37177	0.402252161
1139	8869	0.16263	208.65756	33.93397898
1139	9084	0.10763	151.05119	16.25763958
1140	8280	0.22810	38.57138	8.798131778
1140	8805	0.03905	123.78245	4.833704673
1141	11414	0.08874	157.52451	13.97872502
1141	11599	0.19551	0.00000	0
1141	11800	0.10130	17.72852	1.795899076
1142	11449	0.24202	1114.51868	269.7358109
1142	11811	0.30759	479.63885	147.5321139
1142	11812	0.32649	7.40190	2.416646331
1142	12388	0.31199	146.02737	45.55907917
1143	11375	0.49508	808.90833	400.474336
1143	12295	0.24500	0.00000	0
1143	12400	0.24893	120.43965	29.98104207
1144	10410	0.32056	1044.86755	334.9427418
1144	11476	0.35928	44.61205	16.02821732
1145	7812	0.07402	327.39182	24.23354252
1145	7904	0.09396	12.36783	1.162081307
1145	8041	0.07833	958.53040	75.08168623
1146	7250	0.50173	0.04842	0.024293767
1146	8085	0.50484	23.96957	12.10079772
1146	8137	0.49842	40.32093	20.09675793
1146	9076	0.50319	50.16409	25.24206845
1147	9076	0.50138	0.26258	0.13165236
1147	10083	0.50340	327.25626	164.7408013
1147	11459	0.49520	0.00000	0
1147	30200	0.49705	231.66420	115.1486906
1148	11453	0.44714	273.83139	122.4409677
1148	12055	0.50775	2.44199	1.239920423
1148	12302	0.50588	0.69725	0.35272483
1148	12958	0.51484	28.99269	14.92659652
1149	7264	0.28571	1323.21191	378.0548748
1149	7779	0.45293	460.62677	208.6316829
1150	11470	0.51254	90.35461	46.31035181
1150	30200	0.33214	140.87714	46.79093328
1151	9088	0.50136	333.41235	167.1596158
1151	10657	0.33997	379.41409	128.9894082
1152	11499	0.46941	180.84639	84.89110393
1152	12302	0.50557	0.68665	0.347149641
1152	12315	0.51621	11.80909	6.095970349
1152	13030	0.47777	0.08970	0.042855969
1153	12405	0.23268	359.42111	83.63010387
1153	13002	0.19968	1.48147	0.29581993
1154	12696	0.18035	64.72562	11.67326557

1154	12997	0.18892	30.68517	5.797042316
1155	9663	0.53066	44.42518	23.57466602
1156	7355	0.50331	0.00000	0
1156	7769	0.86394	94.75805	81.86526972
1156	8326	0.36750	252.78532	92.8986051
1201	4519	0.49883	5.02637	2.507304147
1201	4520	0.50107	0.04337	0.021731406
1201	4646	0.25208	15.35018	3.869473374
1202	11266	0.39338	0.02297	0.009035939
1202	12195	0.20378	402.89590	82.1021265
1203	6337	0.24433	0.00000	0
1203	6721	0.23501	0.01205	0.002831871
1203	6732	0.26354	17.24417	4.544528562
1203	7151	0.25185	23.15352	5.831214012
1204	8416	0.16520	205.72026	33.98498695
1204	8955	0.17182	405.73950	69.71416089
1205	9456	0.15985	91.92654	14.69445742
1205	9689	0.13372	629.46582	84.17216945
1205	10182	0.28443	3.57687	1.017369134
1206	11293	0.23809	1.23771	0.294686374
1206	11867	0.11382	54.62764	6.217717985
1206	11918	0.17573	8.81281	1.548675101
1206	12191	0.23771	93.98838	22.34197781
1207	12192	0.23924	0.00046	0.00011005
1207	12580	0.12641	3.29178	0.41611391
1207	12938	0.25047	0.21267	0.053267455
1208	12930	0.12616	910.47986	114.8661391
1208	13166	0.13125	3045.96631	399.7830782
1209	4427	0.24911	74.63919	18.59336862
1209	4518	0.25763	0.00000	0
1209	4521	0.23681	42.61563	10.09180734
1209	4635	0.23936	675.71289	161.7386374
1210	4635	0.25274	157.34642	39.76773419
1210	4889	0.25148	129.33400	32.52491432
1210	4938	0.26175	295.42215	77.32674776
1210	5056	0.25063	81.02355	20.30693234
1211	5056	0.50739	5.37940	2.729453766
1211	5481	0.14562	1166.46191	169.8601833
1211	5486	0.23157	279.87518	64.81069543
1211	5806	0.49062	5.58342	2.73933752
1212	5806	0.26284	154.04651	40.48958469
1212	6081	0.21305	3.91414	0.833907527
1212	6083	0.16398	92.82771	15.22188789
1212	6334	0.24436	210.62022	51.46715696
1213	6334	0.27828	2.15776	0.600461453
1213	6694	0.21968	250.72514	55.07929876
1213	6732	0.22131	180.04819	39.84646493
1213	7109	0.22486	510.49942	114.7908996
1214	7153	0.24423	63.88350	15.60226721
1214	7656	0.25237	68.90241	17.38890121
1214	7669	0.25303	513.53583	129.9399711
1214	8042	0.25325	0.71751	0.181709408
1215	8042	0.25095	59.14040	14.84128338
1215	8416	0.25921	55.22064	14.31374209

1215	8577	0.25106	144.65839	36.31793539
1215	8956	0.25176	1.00056	0.251900986
1216	8956	0.25139	530.36932	133.3295434
1216	9472	0.25880	20.17827	5.222136276
1216	9478	0.24035	190.44341	45.77307359
1216	10079	0.26844	152.81017	41.02036203
1217	10079	0.21862	626.36646	136.9362355
1217	10568	0.22827	5.80382	1.324837991
1217	10827	0.28425	151.93672	43.18801266
1217	11282	0.25965	569.90979	147.977077
1218	11867	0.17520	217.42871	38.09350999
1218	12197	0.23496	230.16348	54.07921126
1219	11282	0.24810	38.26260	9.49295106
1219	12196	0.23008	215.48372	49.5784943
1219	19287	0.19160	215.17018	41.22660649
1220	12197	0.25449	301.40378	76.70424797
1220	12590	0.24959	1283.64026	320.3837725
1220	12597	0.23760	3.23395	0.76838652
1220	12932	0.23745	304.35303	72.26862697
1221	12932	0.11787	229.20268	27.01611989
1221	13398	0.11331	42.41713	4.806285
1222	13969	0.05867	0.00000	0
1222	14055	0.04936	0.00000	0
1222	14148	0.08203	71.14529	5.836048139
1223	14544	0.22822	485.02698	110.6928574
1224	14823	0.08214	110.30176	9.060186566
1225	4403	0.25143	9.26783	2.330210497
1225	4521	0.24421	47.83073	11.68074257
1225	4642	0.25049	494.80014	123.9424871
1226	4642	0.25284	505.55225	127.8238309
1226	4938	0.22404	20.01114	4.483295806
1226	5059	0.24726	492.92502	121.8806404
1227	5069	0.49280	54.22166	26.72043405
1227	5480	0.19645	1198.01807	235.3506499
1227	5481	0.14347	509.67166	73.12259306
1227	5823	0.50419	14.29662	7.208212838
1228	5062	0.49863	0.00000	0
1228	5480	0.13508	247.76489	33.46808134
1228	5494	0.15129	608.15961	92.0084674
1228	5820	0.50035	2.10406	1.052766421
1229	5823	0.19699	583.17029	114.8787154
1229	6081	0.17839	4.06204	0.724627316
1229	6262	0.24273	261.61792	63.50251772
1230	6769	0.18320	166.89244	30.57469501
1230	7103	0.24969	330.31360	82.47600278
1231	7124	0.23673	382.95062	90.65590027
1232	5820	0.25032	558.95551	139.9177433
1233	7135	0.24587	456.92224	112.3434711
1233	7669	0.22010	137.47029	30.25721083
1233	7793	0.35885	514.60486	184.665954
1233	8046	0.25235	27.59246	6.962957281
1234	8046	0.24904	272.71075	67.91588518
1234	8406	0.27718	1.56321	0.433290548
1234	8576	0.22502	284.79431	64.08441564

1234	8971	0.25908	1561.38794	404.5243875
1235	8253	0.06412	94.19640	6.039873168
1236	14610	0.38151	28.14105	10.73609199
1236	15152	0.19591	0.11415	0.022363127
1236	16176	1.16321	4.15500	4.83313755
1237	8971	0.24716	1995.15527	493.1225765
1237	9472	0.25587	406.32428	103.9661935
1237	9543	0.25070	509.50607	127.7331717
1237	10009	0.24661	400.21069	98.69595826
1238	10009	0.25080	27.28417	6.842869836
1238	10568	0.25151	256.14987	64.4242538
1238	10645	0.24770	973.82556	241.2165912
1238	11264	0.24397	7.68584	1.875114385
1239	11264	0.25189	105.15815	26.4882864
1239	11835	0.26280	697.94232	183.4192417
1239	12207	0.23601	379.03241	89.45543908
1239	19287	0.23842	334.59439	79.77399446
1240	13449	0.12789	107.90621	13.8001252
1240	13670	0.27781	413.30435	114.8200815
1241	13443	0.14037	1057.05176	148.3783556
1241	13684	0.13716	0.00000	0
1242	14335	0.15966	423.97925	67.69252706
1242	29959	0.10666	117.71410	12.55538591
1243	14335	0.13106	167.90773	22.00598709
1243	14543	0.13094	64.08684	8.39153083
1243	14621	0.12147	97.13808	11.79936258
1244	14620	0.12098	64.28954	7.777748549
1244	14822	0.08252	0.79263	0.065407828
1244	14951	0.12951	9.14212	1.183995961
1245	14211	0.18711	432.66058	80.95512112
1245	14333	0.13050	16.15116	2.10772638
1246	14333	0.11830	4.22143	0.499395169
1246	14521	0.15749	843.66840	132.8693363
1246	14628	0.12684	129.56653	16.43421867
1247	14628	0.13911	182.23730	25.3510308
1247	14782	0.09670	14.98774	1.449314458
1247	14796	0.13194	1117.41223	147.4313696
1248	14944	0.15942	247.84142	39.51087918
1248	15082	0.10162	43.91504	4.462646365
1248	15168	0.20968	69.23602	14.51740867
1249	15378	0.19256	0.00000	0
1249	15391	0.18174	108.16018	19.65703111
1249	15555	0.17414	11.92001	2.075750541
1250	15793	0.25726	460.25302	118.4046919
1250	16022	0.21300	3135.31372	667.8218224
1250	16167	0.24750	289.94351	71.76101873
1251	16167	0.25059	577.61224	144.7438512
1252	4031	0.26864	542.28864	145.6804202
1253	4124	0.50293	3.52930	1.774990849
1253	4244	0.11517	275.55731	31.73593539
1254	4331	0.15726	112.07367	17.62470534
1254	4365	0.49972	0.00000	0
1254	4408	0.17561	1093.36719	192.0062122
1255	4414	0.27025	136.11974	36.78635974

1255	4563	0.26452	364.28622	96.36099091
1255	4641	0.26311	1136.51099	299.0274066
1256	4620	0.24928	1268.87573	316.305342
1256	4626	0.33243	0.00000	0
1257	4641	0.24821	164.23871	40.76569021
1257	4878	0.19930	1178.49902	234.8748547
1257	5049	0.24870	341.09073	84.82926455
1257	29953	0.32635	0.00000	0
1258	4853	0.14588	785.45685	114.5824453
1258	5060	0.16793	111.35326	18.69955295
1259	5049	0.25063	194.95491	48.86154909
1259	5287	0.22702	0.00000	0
1259	5489	0.25193	300.05255	75.59223892
1259	29952	0.28405	0.00000	0
1260	5060	0.24793	742.82416	184.168394
1260	5284	0.23392	0.00000	0
1260	5487	0.24822	174.55884	43.32899526
1261	5489	0.26428	170.52148	45.06541673
1261	5713	0.36389	0.00000	0
1261	5838	0.28010	1020.56104	285.8591473
1261	29951	0.14511	308.16315	44.7175547
1262	5487	0.25058	69.34308	17.37598899
1262	5826	0.25396	788.40497	200.2233262
1263	5838	0.22217	1292.95752	287.2563722
1263	6116	0.28957	1611.22058	466.5611434
1263	6143	0.24010	761.35925	182.8023559
1264	6701	0.27777	233.71481	64.91896277
1264	6728	0.22610	265.98666	60.13958383
1264	7122	0.27049	521.13177	140.9609325
1265	5826	0.50243	1201.13428	603.4858963
1265	6372	0.23713	0.00000	0
1265	7158	0.49572	2244.01855	1112.404876
1266	7187	0.35272	20.70464	7.302940621
1266	7792	0.22232	404.47101	89.92199494
1266	7829	0.21108	2224.77905	469.6063619
1266	8431	0.40021	788.44940	315.5453344
1267	8452	0.11209	371.17978	41.60554154
1267	8824	0.22279	0.00000	0
1267	8969	0.14009	808.61346	113.2786596
1268	7203	0.16800	1837.58203	308.713781
1268	7506	0.23558	365.78131	86.17076101
1268	7670	0.23513	0.00000	0
1269	7829	0.24270	93.68572	22.73752424
1269	8022	0.11453	1.84548	0.211362824
1269	8033	0.24702	325.34665	80.36712948
1270	8022	0.16026	1.83334	0.293811068
1270	8227	0.21561	237.28879	51.16183601
1270	8460	0.13288	479.58743	63.7275777
1271	8460	0.14443	37.28447	5.384996002
1271	8739	0.21477	44.17210	9.486841917
1271	8981	0.11883	366.55841	43.55813586
1272	8962	0.52072	1223.87341	637.2953621
1272	9996	0.16611	1140.48035	189.4451909
1272	10016	0.15964	626.34717	99.99006222

1272	11269	0.47330	6.97848	3.302914584
1273	11269	0.11895	99.87618	11.88027161
1273	11633	0.23925	0.00000	0
1273	11691	0.23522	394.54077	92.80387992
1273	11841	0.12018	73.16202	8.792611564
1274	11841	0.19902	124.59273	24.79644512
1274	12142	0.28462	756.98871	215.4541266
1274	12206	0.26619	244.95135	65.20359986
1274	12540	0.24646	100.34595	24.73126284
1275	12540	0.18512	1186.91858	219.7223675
1275	12790	0.31962	359.02335	114.7510431
1275	12823	0.23864	505.46213	120.6234827
1275	13200	0.21835	143.93237	31.42763299
1276	12996	0.09260	0.00000	0
1276	13005	0.12266	0.00000	0
1276	13200	0.09109	285.91965	26.04442092
1276	13268	0.05910	123.36664	7.290968424
1276	13338	0.15476	0.00000	0
1277	13200	0.16213	18.28196	2.964054175
1277	13233	0.10756	62.24632	6.695214179
1277	13339	0.06304	375.79547	23.69014643
1278	13626	0.16486	177.07057	29.19185417
1278	13722	0.08861	94.58086	8.380810005
1278	13869	0.11089	79.75852	8.844422283
1279	13626	0.10711	162.55919	17.41171484
1279	13676	0.12082	496.22668	59.95410748
1279	13871	0.10531	293.65381	30.92468273
1280	13869	0.14229	204.47755	29.09511059
1280	14211	0.17103	123.02071	21.04023203
1280	14305	0.14343	104.06832	14.92651914
1281	13871	0.13109	258.23581	33.85213233
1281	14020	0.06304	0.00000	0
1281	14167	0.10705	0.31489	0.033708975
1281	14309	0.12850	143.14299	18.39387422
1282	14309	0.12415	553.79767	68.75398073
1282	14522	0.10900	260.02902	28.34316318
1282	14629	0.13183	113.85253	15.00917903
1283	14630	0.11316	644.85553	72.97185177
1283	14796	0.12572	217.96223	27.40221156
1283	14924	0.11298	110.21864	12.45250195
1284	12245	0.11628	206.31668	23.99050355
1284	12464	0.25130	2.73389	0.687026557
1284	12473	0.24262	238.18898	57.78941033
1284	12648	0.13918	202.43735	28.17523037
1285	13250	0.25307	148.41205	37.55863749
1285	13318	0.24891	336.69818	83.80754398
1285	13493	0.08806	479.83716	42.25446031
1286	14925	0.19416	6.31172	1.225483555
1286	15168	0.24861	287.74945	71.53739076
1286	15205	0.25220	864.17157	217.94407
1287	15629	0.27682	202.29849	56.000268
1287	15692	0.23734	119.55566	28.37534034
1287	15807	0.18430	206.74644	38.10336889
1288	15828	0.25746	455.17740	117.1899734

1288	16022	0.13100	186.02165	24.36883615
1289	16070	0.13342	577.74536	77.08278593
1289	16238	0.31249	47.22065	14.75598092
1289	29937	0.22058	153.21814	33.79685732
1290	16587	0.57017	5.97779	3.408356524
1290	16645	0.60019	134.87642	80.95147852
1290	16696	0.41425	61.99574	25.6817353
1290	29934	0.58248	321.58237	187.3152989
1291	8978	0.29401	595.98260	175.2248442
1291	9584	0.26894	615.46704	165.5237057
1291	9999	0.37002	933.52710	345.4236975
1292	8990	0.22090	282.90488	62.49368799
1292	9420	0.08083	1346.38196	108.8280538
1292	9863	0.19195	606.15167	116.3508131
1293	10855	0.26099	659.35669	172.0855025
1293	11761	0.32724	212.57707	69.56372039
1294	10599	0.11949	3643.27319	435.3347135
1295	11277	0.09738	15.37561	1.497276902
1295	11546	0.10118	705.64105	71.39676144
1295	11700	0.08690	204.55598	17.77591466
1296	12092	0.06846	49.69505	3.402123123
1296	12223	0.07562	44.75230	3.384168926
1297	11814	0.10351	37.06196	3.83628348
1297	11843	0.08149	79.64824	6.490535078
1298	13482	0.12281	436.78836	53.64197849
1298	13683	0.20407	0.00000	0
1298	13690	0.23309	322.33069	75.13206053
1298	13786	0.06600	202.63213	13.37372058
1299	12215	0.11330	218.48964	24.75487621
1299	12422	0.10692	350.41333	37.46619324
1299	12452	0.08345	648.81989	54.14401982
1299	12520	0.07238	495.36511	35.85452666
1300	12223	0.11748	73.14783	8.593407068
1300	12436	0.09926	1534.25769	152.2904183
1300	12450	0.08678	152.45703	13.23022106
1300	12626	0.13330	1046.75684	139.5326868
1301	12520	0.21225	287.44754	61.01074037
1301	12823	0.08977	440.64102	39.55634437
1302	12782	0.03148	168.03185	5.289642638
1302	12786	0.03153	672.83203	21.21439391
1303	12624	0.12631	220.70163	27.87682289
1303	12787	0.06068	663.81824	40.2804908
1303	12794	0.06690	708.52173	47.40010374
1304	13233	0.06275	883.65173	55.44914606
1304	13239	0.03034	0.00000	0
1305	13236	0.02664	0.00000	0
1305	13240	0.03474	103.10590	3.581898966
1305	13346	0.06273	523.11334	32.81489982
1306	13237	0.03026	8.31693	0.251670302
1306	13240	0.02906	180.97836	5.259231142
1306	13350	0.06225	1206.64099	75.11340163
1307	13223	0.03478	33.42278	1.162444288
1307	13237	0.03328	630.32562	20.97723663
1307	13347	0.05668	1992.55994	112.9382974

1308	13221	0.06037	2168.20728	130.8946735
1308	13223	0.06665	825.01154	54.98701914
1308	13353	0.06740	1330.18689	89.65459639
1309	13353	0.03388	5.23090	0.177222892
1309	13408	0.05609	153.05980	8.585124182
1309	13468	0.02924	48.37907	1.414604007
1310	13458	0.12608	224.10728	28.25544586
1310	13646	0.03291	0.00000	0
1310	13676	0.06275	41.21473	2.586224308
1310	13775	0.06192	109.44512	6.77684183
1311	13463	0.12560	95.32872	11.97328723
1311	13677	0.03194	265.97510	8.495244694
1311	13780	0.06282	188.93604	11.86896203
1312	13467	0.12603	540.82416	68.16006888
1312	13677	0.03032	158.31718	4.800176898
1312	13680	0.03180	437.21100	13.9033098
1313	13680	0.03125	4.34575	0.135804688
1313	13681	0.03204	833.64056	26.70984354
1313	13777	0.06164	361.81647	22.30236721
1314	13468	0.12543	301.65988	37.83719875
1314	13681	0.06489	6.71790	0.435924531
1314	13700	0.06056	884.63135	53.57327456
1314	13781	0.06218	624.64111	38.84018422
1315	13874	0.13993	30.02640	4.201594152
1315	14166	0.10475	108.98256	11.41592316
1315	14167	0.08505	17.70172	1.505531286
1315	14314	0.11975	0.23027	0.027574833
1316	13888	0.12854	204.15108	26.24157982
1316	14166	0.02539	0.15146	0.003845569
1316	14168	0.03531	93.36584	3.29674781
1316	14344	0.13394	38.62096	5.172891382
1317	13880	0.12640	56.82269	7.182388016
1317	14151	0.06475	181.54776	11.75521746
1317	14171	0.06114	31.19731	1.907403533
1317	14329	0.13454	99.20624	13.34720753
1318	14314	0.12993	79.10107	10.27760203
1318	14522	0.13489	2.13780	0.288367842
1318	14529	0.10980	182.77135	20.06829423
1318	14638	0.12427	182.13068	22.6333796
1319	14329	0.12748	1.26218	0.160902706
1319	14512	0.06190	101.92734	6.309302346
1319	14515	0.06836	301.46814	20.60836205
1319	14655	0.12712	235.56039	29.94443678
1320	14638	0.12761	683.21130	87.18459399
1320	14825	0.15113	106.02232	16.02315322
1320	14842	0.15356	786.10272	120.7139337
1320	14960	0.12381	5.15808	0.638621885
1321	14683	0.11470	287.76544	33.00669597
1321	14842	0.09989	14.43057	1.441469637
1321	14862	0.10305	1204.37207	124.1105418
1321	14964	0.12496	113.88999	14.23169315
1322	14963	0.10038	350.23254	35.15634237
1322	15171	0.06979	163.63620	11.4201704
1323	14960	0.18742	316.32797	59.28618814

1323	15205	0.15236	180.58919	27.51456899
1323	15242	0.15988	177.37361	28.35849277
1324	14964	0.24038	947.34717	227.7233127
1324	15242	0.07617	332.17285	25.30160598
1324	15368	0.13867	4.37706	0.60696691
1324	15511	0.21005	672.16852	141.1889976
1325	15601	0.08038	0.01065	0.000856047
1326	15511	0.16276	115.69198	18.83002666
1326	15684	0.12191	292.28275	35.63219005
1326	15819	0.13327	277.43668	36.97398634
1327	29936	0.34051	99.14863	33.7611
1328	16067	0.21215	1255.89417	266.4379482
1328	16391	0.28801	127.11576	36.61061004
1329	4025	0.87397	425.81262	372.1474555
1329	4402	0.95951	372.98398	357.8818586
1330	4881	0.29792	2057.28809	612.9072678
1331	4862	0.30211	27.57435	8.330486879
1331	30198	0.19979	303.66318	60.66886673
1332	5827	0.35344	22.95484	8.11315865
1333	5827	0.25166	81.53093	20.51807384
1333	6075	0.22088	0.00000	0
1333	6339	0.25356	24.62402	6.243666511
1334	6339	0.12620	0.14424	0.018203088
1334	6538	0.24292	220.32265	53.52077814
1335	6971	0.23163	395.72806	91.66249054
1335	7171	0.11747	1909.37878	224.2947253
1336	7646	0.09886	551.55420	54.52664821
1336	7649	0.13973	0.00000	0
1336	8067	0.23293	850.74469	198.1639606
1337	7623	0.13463	501.27127	67.48615108
1337	7646	0.11338	172.16470	19.52003369
1337	8072	0.26112	0.00000	0
1337	29946	0.24750	624.27191	154.5072977
1338	8076	0.11270	564.75275	63.64763493
1338	8173	0.05245	0.00000	0
1338	8247	0.24302	1038.61316	252.4037701
1338	8276	0.23535	1252.98816	294.8907635
1338	8433	0.13678	18.51019	2.531823788
1339	8433	0.12609	53.23571	6.712490674
1339	8727	0.23243	0.00000	0
1339	8773	0.24310	67.20187	16.3367746
1339	8987	0.12422	924.10181	114.7919268
1340	8997	0.15659	1714.72485	268.5087643
1340	9316	0.03990	375.63647	14.98789515
1340	9735	0.19909	329.33636	65.56757591
1341	8989	0.14340	355.56329	50.98777579
1341	9252	0.15944	145.99377	23.27724669
1341	9548	0.12051	241.38902	29.0897908
1342	9735	0.22956	151.11018	34.68885292
1342	10604	0.16615	178.11842	29.59437548
1343	9548	0.30672	172.23270	52.82721374
1343	10121	0.15618	121.63022	18.99620776
1343	10606	0.17356	361.80734	62.79528193
1344	10607	0.16200	342.03510	55.4096862

1344	11307	0.08510	2350.06787	199.9907757
1345	10605	0.14422	58.98427	8.506711419
1345	11183	0.13601	93.05554	12.656484
1345	11318	0.12195	170.62463	20.80767363
1346	11348	0.23253	900.07751	209.2950234
1346	11842	0.18479	904.58124	167.1575673
1346	11866	0.25029	948.75830	237.4647149
1346	12240	0.24997	10.07037	2.517290389
1347	12240	0.12623	283.44592	35.77937848
1347	12455	0.21718	0.00000	0
1347	12464	0.22547	396.77200	89.46018284
1347	12629	0.12438	399.50543	49.69048538
1348	12629	0.14098	1151.15430	162.2897332
1348	12783	0.21092	770.66772	162.5492355
1348	12824	0.22522	483.25598	108.8389118
1349	13250	0.22123	138.87381	30.72305299
1349	13265	0.21697	324.53723	70.41484279
1349	13364	0.06489	37.20453	2.414201952
1350	13906	0.15419	525.60217	81.04259859
1350	14180	0.22590	277.81805	62.7590975
1350	14186	0.20798	363.01514	75.49988882
1350	14341	0.10464	110.66489	11.57997409
1351	14341	0.16876	253.62526	42.80179888
1351	14545	0.24407	0.00000	0
1351	14705	0.14657	226.14928	33.14669997
1352	14819	0.09574	15.87507	1.519879202
1352	14861	0.15541	4264.55273	662.7541398
1352	14904	0.21442	2175.09277	466.3833917
1353	15175	0.20935	295.21588	61.80344448
1353	15308	0.12672	132.49399	16.78963841
1354	15308	0.25478	599.97375	152.861312
1354	15589	0.19235	1310.75854	252.1244052
1354	15608	0.28391	17.38917	4.936959255
1354	15831	0.25363	162.07816	41.10788372
1355	15879	0.24285	2520.83545	612.184889
1355	16024	0.23743	10.95294	2.600556544
1355	16037	0.24170	29.28382	7.077899294
1355	16203	0.25437	172.13437	43.7858197
1356	16203	0.23658	831.94104	196.8206112
1356	16408	0.24122	185.11223	44.65277212
1356	16419	0.26755	7.83266	2.095628183
1356	16596	0.33419	0.00000	0
1357	5653	0.27548	9.70794	2.674343311
1357	5832	0.29097	37.35494	10.86916689
1358	5832	0.25104	158.45746	39.77916076
1358	6103	0.25060	62.70416	15.7136625
1358	6391	0.26711	0.90657	0.242153913
1359	6391	0.16944	0.88483	0.149925595
1359	6538	0.24902	441.00183	109.8182757
1359	6603	0.26655	298.95773	79.68718293
1360	6918	0.25209	160.90182	40.5617398
1360	6971	0.24813	600.03986	148.8878905
1360	7175	0.12288	221.42844	27.20912671
1361	7218	0.25325	469.89075	118.9998324

1361	7623	0.25100	651.74554	163.5881305
1361	7679	0.25004	709.21667	177.3325362
1361	8070	0.24865	5.24803	1.30492266
1362	8070	0.12616	5.17870	0.653344792
1362	8247	0.25002	375.28918	93.82980078
1362	8266	0.24993	238.22104	59.53858453
1362	8449	0.12446	1.05891	0.131791939
1363	8449	0.12618	1.04845	0.132293421
1363	8770	0.25063	28.00599	7.019141274
1363	8773	0.24962	51.00491	12.73184563
1363	8995	0.12323	508.06961	62.60941804
1364	8995	0.18879	146.42085	27.64279227
1364	9252	0.27064	495.31488	134.0520191
1364	9509	0.24583	8.93146	2.195620812
1364	9778	0.18131	209.55095	37.99368274
1365	9778	0.18200	296.39853	53.94453246
1365	10121	0.15045	613.12311	92.2443719
1365	10619	0.23395	53.97461	12.62736001
1366	10292	0.12062	133.81970	16.14133221
1366	10539	0.10316	61.25458	6.319022473
1367	10631	0.10708	90.17973	9.656445488
1367	10856	0.23073	181.32405	41.83689806
1367	10963	0.26930	400.71506	107.9125657
1368	11183	0.23739	2168.64307	514.8141784
1368	11334	0.05424	1222.14551	66.28917246
1369	11646	0.24061	328.92795	79.14335405
1369	11647	0.25810	707.10132	182.5028507
1369	29939	0.08988	827.93091	74.41443019
1370	11866	0.24560	706.94073	173.6246433
1370	11903	0.25668	955.94464	245.3718702
1370	12245	0.22825	793.84912	181.1960616
1371	12648	0.16741	566.07025	94.76582055
1371	12824	0.25110	261.38562	65.63392918
1371	12848	0.24822	66.72547	16.56259616
1372	13493	0.13209	4.29496	0.567321266
1372	13690	0.24939	444.89673	110.9527955
1372	13720	0.09377	0.00000	0
1372	13721	0.24821	244.70110	60.73726003
1372	13933	0.12276	4.73388	0.581131109
1373	13933	0.24558	477.50388	117.2654029
1373	14357	0.28700	265.90930	76.3159691
1373	14359	0.21451	422.65799	90.66436543
1374	14972	0.13898	512.62836	71.24508947
1375	14972	0.12771	341.89951	43.66398642
1375	15142	0.29103	0.00000	0
1375	15170	0.22352	205.95703	46.03551535
1375	15306	0.13720	89.24468	12.2443701
1376	15306	0.22476	298.64450	67.12333782
1376	15597	0.29314	91.13541	26.71543409
1376	15608	0.22410	781.69360	175.1775358
1376	29935	0.27309	0.00000	0
1377	15857	0.24566	764.60901	187.8338494
1377	16037	0.24970	29.01785	7.245757145
1377	16045	0.25035	600.06592	150.2265031

1377	16210	0.25104	20.06525	5.03718036
1378	16210	0.22755	618.01233	140.6287057
1378	16358	0.24669	519.89746	128.2535044
1378	16419	0.22812	7.64889	1.744864787
1378	16567	0.27886	0.00000	0
1379	5096	0.62096	0.00000	0
1379	5612	0.38698	41.10549	15.90700252
1379	5653	0.62220	54.73923	34.05874891
1379	5843	0.37602	16.23597	6.105049439
1380	5835	0.25244	217.76605	54.97286166
1380	6042	0.25324	0.34736	0.087965446
1380	6103	0.25267	225.01703	56.85505297
1380	6351	0.25252	88.62210	22.37885269
1381	6351	0.25213	4.16056	1.049001993
1381	6752	0.24778	216.31363	53.59819124
1381	6757	0.24627	434.86960	107.0953364
1381	7193	0.28253	618.62872	174.7811723
1382	7245	0.30769	1010.24652	310.8427517
1382	7679	0.26299	32.92898	8.65999245
1382	7688	0.25224	981.04913	247.4598326
1382	8084	0.19383	2627.38892	509.2667944
1383	8084	0.13399	13.84374	1.854922723
1383	8265	0.24567	71.08479	17.46340036
1383	8266	0.25663	429.49817	110.2221154
1383	8467	0.12040	200.31786	24.11827034
1384	8467	0.13373	34.83327	4.658253197
1384	8721	0.26355	39.85013	10.50250176
1384	8770	0.23949	798.18427	191.1571508
1384	9023	0.13162	450.13629	59.24693849
1385	9023	0.25274	418.56836	105.7889673
1385	9509	0.24135	1342.58655	324.0332638
1385	9518	0.25787	197.31674	50.88206774
1385	10042	0.24781	255.82587	63.39620884
1386	10042	0.15570	244.69171	38.09849925
1386	10354	0.25127	350.09210	87.96764197
1386	10418	0.25030	320.81308	80.29951392
1387	10964	0.13091	3807.06250	498.3825519
1387	11342	0.15781	1793.87756	283.0918177
1388	11052	0.09982	2318.51611	231.4342781
1388	11347	0.10335	0.00000	0
1389	11398	0.22150	1115.24683	247.0271728
1389	11804	0.25175	213.88503	53.8455563
1389	11903	0.24988	2148.68433	536.9132404
1390	12069	0.25016	307.98318	77.04507231
1390	12089	0.24834	146.65515	36.42033995
1390	12263	0.11487	26.71955	3.069274709
1391	12256	0.12572	109.11566	13.71802078
1391	12473	0.12216	283.36865	34.61631428
1392	12280	0.24108	220.26888	53.10242159
1392	12661	0.11859	412.30624	48.895397
1393	13208	0.16831	1087.97485	183.117047
1393	13501	0.16501	117.89229	19.45340677
1394	13218	0.14780	139.99478	20.69122848
1394	13523	0.16249	141.48544	22.98996915

1395	13501	0.15883	179.88055	28.57042776
1395	13721	0.17644	525.34863	92.69251228
1396	13955	0.18583	360.25192	66.94561429
1396	14359	0.14961	120.60540	18.04377389
1397	13957	0.11908	137.17786	16.33513957
1397	14265	0.16272	34.10869	5.550166037
1398	14265	0.12501	60.23140	7.529527314
1398	14530	0.10992	20.87714	2.294815229
1399	14815	0.20627	197.82756	40.8058908
1399	14970	0.12189	82.47604	10.05300452
1400	14998	0.12277	410.35001	50.37867073
1400	15170	0.23755	70.76675	16.81064146
1400	15331	0.13192	143.21423	18.89282122
1401	15331	0.25212	1330.84131	335.5317111
1401	15597	0.23064	322.49918	74.38121088
1401	15849	0.24040	207.38232	49.85470973
1402	15894	0.24721	150.50745	37.20694671
1402	16042	0.23836	0.42191	0.100566468
1402	16045	0.24694	21.71484	5.36226259
1402	16206	0.24842	0.55923	0.138923917
1403	16206	0.23199	0.55962	0.129826244
1403	16358	0.23915	424.90839	101.6168415
1403	16405	0.23952	0.05595	0.013401144
1403	16555	0.26543	134.49728	35.69961303
1404	5843	0.25436	37.98517	9.661907841
1404	6042	0.23058	0.33947	0.078274993
1404	6096	0.27654	45.14189	12.48353826
1404	6363	0.25256	0.34405	0.086893268
1405	6363	0.25187	0.34190	0.086114353
1405	6746	0.30543	328.70468	100.3962704
1405	6757	0.20457	456.68967	93.42500579
1405	7201	0.24749	0.00000	0
1406	7233	0.25032	7.18146	1.797663067
1406	7688	0.24735	1470.25574	363.6677573
1406	8090	0.24683	490.82126	121.1494116
1406	30188	0.24490	614.58984	150.5130518
1407	8090	0.12048	129.61975	15.61658748
1407	8265	0.27037	1.17250	0.317008825
1407	8481	0.13696	426.35922	58.39415877
1407	30190	0.22116	128.73962	28.47205436
1408	8481	0.12655	2.60598	0.329786769
1408	8721	0.25088	83.18186	20.86866504
1408	9038	0.12742	612.38245	78.02977178
1408	30186	0.23774	43.60753	10.36725418
1409	9038	0.24996	11.32514	2.830831994
1409	9518	0.24630	1465.26758	360.895405
1409	10054	0.24930	550.46753	137.2315552
1409	30184	0.24992	584.68030	146.1233006
1410	10054	0.14455	332.53818	48.06839392
1410	10354	0.23261	542.66833	126.2300802
1410	30182	0.26403	0.00000	0
1411	10897	0.24348	271.51883	66.10940473
1411	11052	0.26083	1354.50256	353.2949027
1411	11364	0.18120	651.01361	117.9636661

1412	11420	0.19115	3048.62476	582.7446229
1412	11776	0.19257	701.97375	135.179085
1413	12297	0.29942	768.74512	230.1776638
1413	13041	0.27014	380.35840	102.7500182
1414	12045	0.29940	531.34955	159.0860553
1414	13051	0.38316	243.69199	93.37302289
1415	13048	0.11731	136.31685	15.99132967
1415	13218	0.22415	321.92917	72.16042346
1415	13539	0.13494	57.02522	7.694983187
1415	30131	0.29177	0.00000	0
1416	13539	0.12071	537.94287	64.93508384
1416	13730	0.29360	2.17829	0.639545944
1417	13965	0.18583	198.07426	36.80813974
1417	14245	0.29939	126.58792	37.89915737
1418	14530	0.35978	400.56531	144.1153872
1418	14549	0.31785	347.16290	110.3457278
1418	14784	0.19734	183.29349	36.17113732
1419	14795	0.18910	5.31150	1.00440465
1419	14898	0.28359	317.54263	90.05191444
1419	15158	0.33425	663.99884	221.9416123
1419	15264	0.20544	115.86327	23.80295019
1420	15264	0.24972	8.38792	2.094631382
1420	15501	0.32167	618.55261	198.9698181
1420	15560	0.19125	474.42578	90.73393043
1420	15814	0.26265	172.55708	45.32211706
1421	15867	0.26476	242.90126	64.3105376
1421	16036	0.22713	154.65308	35.12635406
1421	16042	0.28013	0.42035	0.117752646
1421	16202	0.23485	0.03896	0.009149756
1422	5844	0.25220	0.02516	0.006345352
1422	6096	0.24835	11.07008	2.749254368
1422	6099	0.25089	1.08020	0.271011378
1422	6366	0.25063	0.02046	0.00512789
1423	6366	0.25216	0.04560	0.011498496
1423	6746	0.24994	364.36441	91.06924064
1423	6754	0.24936	0.08161	0.02035027
1423	7241	0.26485	42.45597	11.24446365
1424	7241	0.26536	299.40445	79.44996485
1424	7693	0.24138	196.93314	47.53572133
1424	8096	0.24727	6.78183	1.676943104
1424	30189	0.24577	620.92383	152.6044497
1425	8096	0.12042	6.98212	0.84078689
1425	8483	0.14966	918.10822	137.4040762
1425	30191	0.25025	0.00000	0
1426	9052	0.27277	652.82550	178.0712116
1426	9486	0.27000	578.79877	156.2756679
1426	10071	0.22761	1067.25964	242.9189667
1426	30185	0.23349	0.00000	0
1427	10071	0.17832	365.54355	65.18372584
1427	10406	0.17891	129.59142	23.18520095
1427	30183	0.12617	356.02341	44.91947364
1428	10896	0.17722	302.64886	53.63543097
1428	11039	0.09675	284.53421	27.52868482
1428	11374	0.12736	526.86963	67.10211608

1429	10116	0.24759	1033.30493	255.8359676
1429	10617	0.06150	1418.51636	87.23875614
1429	10678	0.14762	1762.76123	260.2188128
1429	11382	0.23371	0.00000	0
1430	11427	0.19891	548.71033	109.1439717
1430	11775	0.10262	1944.54065	199.5487615
1430	11925	0.17783	77.17258	13.7235999
1430	12277	0.28320	15.85637	4.490523984
1431	11431	0.15120	2164.21851	327.2298387
1431	11825	0.11709	1378.03381	161.3539788
1431	11925	0.15378	1213.57629	186.6237619
1431	12219	0.30947	23.71702	7.339706179
1432	12277	0.33675	15.22404	5.12669547
1432	12738	0.11018	439.69852	48.44598293
1432	12750	0.14791	338.55115	50.0751006
1433	12219	0.31587	300.23083	94.83391227
1433	12738	0.14050	2.56873	0.360906565
1433	12998	0.18557	147.07890	27.29343147
1434	13043	0.12592	281.14236	35.40144597
1434	13533	0.12231	179.19243	21.91702611
1435	12998	0.16899	0.28325	0.047866418
1435	13326	0.07070	116.41200	8.2303284
1436	13530	0.17867	260.28412	46.50496372
1436	13664	0.24711	0.13770	0.034027047
1436	13730	0.21234	2.16029	0.458715979
1436	30124	0.10295	335.06534	34.49497675
1437	14324	0.20908	38.22363	7.99179656
1437	14327	0.23524	0.09947	0.023399323
1437	14653	0.25343	0.10355	0.026242677
1437	30124	0.23731	142.43655	33.80161768
1438	14653	0.24737	0.10383	0.025684427
1438	14945	0.22941	0.00267	0.000612525
1438	14965	0.21828	108.93826	23.77904339
1438	15269	0.24607	0.06203	0.015263722
1439	15269	0.24242	0.06254	0.015160947
1439	15560	0.22604	71.84279	16.23934425
1439	15783	0.24654	12.20042	3.007891547
1440	15783	0.25536	119.96664	30.63468119
1440	16011	0.24701	1.41116	0.348570632
1440	16036	0.20442	709.11096	144.9564624
1440	16178	0.25246	0.00000	0
1441	8094	0.12135	0.00497	0.00060311
1441	8263	0.23348	17.69698	4.13189089
1441	8277	0.27118	6.11228	1.65752809
1441	8486	0.13000	0.00107	0.0001391
1442	9055	0.24465	2.79664	0.684197976
1442	9486	0.26740	97.96638	26.19621001
1442	9544	0.25125	29.68235	7.457690438
1442	10048	0.24420	0.00000	0
1443	10074	0.19338	0.00000	0
1443	10617	0.19987	480.93503	96.12448445
1443	11391	0.31293	140.92505	44.0996759
1444	10070	0.23351	0.00000	0
1444	10630	0.14445	730.84210	105.5701413

1444	11399	0.26366	0.00000	0
1445	11440	0.22655	154.67940	35.04261807
1445	11825	0.16406	433.15042	71.06265791
1446	11920	0.14802	188.50658	27.90274397
1446	12201	0.24462	0.10040	0.024559848
1446	29945	0.22448	440.19952	98.81598825
1447	12826	0.18421	0.00000	0
1447	13515	0.33250	0.00045	0.000149625
1448	12201	0.24762	0.09675	0.023957235
1448	12576	0.12815	16.53892	2.119462598
1449	13515	0.10371	0.00045	4.66695E-05
1449	13664	0.20905	0.13632	0.028497696
1449	19378	0.24730	0.18167	0.044926991
1449	30052	0.14050	30.93316	4.34610898
1450	14315	0.23102	12.38135	2.860339477
1450	14327	0.20266	0.10020	0.020306532
1450	14640	0.25600	0.00211	0.00054016
1450	30052	0.24080	70.34982	16.94023666
1451	10630	0.30406	1111.93359	338.0945274
1451	11436	0.26183	539.49585	141.2561984
1452	11456	0.27932	0.00000	0
1452	11920	0.32840	142.51392	46.80157133
1453	11468	0.37068	558.35602	206.9714095
1453	12055	0.30456	393.78894	119.9323596
1454	12207	0.21057	453.04184	95.39702025
1454	12528	0.23241	967.55908	224.8704058
1454	12590	0.28880	352.53015	101.8107073
1454	12952	0.27694	792.46710	219.4658387
1455	16071	0.05338	112.07939	5.982797838
1456	16391	0.14782	831.45117	122.9051119
1457	16238	0.25183	369.66837	93.09358562
1457	16477	0.27404	24.45154	6.700700022
1458	12947	0.12925	889.80145	115.0068374
1458	13229	0.28935	4.09771	1.185672389
1458	13253	0.23645	43.13816	10.20001793
1458	13449	0.11941	160.95216	19.21929743
1459	13398	0.13768	284.57489	39.18027086
1460	13253	0.06315	84.79782	5.354982333
1460	13443	0.10922	5.31775	0.580804655
1461	14781	0.09974	238.73741	23.81166927
1462	14951	0.10479	44.20091	4.631813359
1462	15140	0.10707	211.34109	22.62829051
1463	15686	0.03975	37.97012	1.50931227
1464	11249	0.24582	27.14343	6.672397963
1464	11818	0.08942	10.63367	0.950862771
1464	11918	0.13123	41.54298	5.451685265
1464	12192	0.23950	0.00046	0.00011017
1465	8955	0.26769	1120.23755	299.8763898
1465	9418	0.19228	126.15869	24.25779291
1465	9834	0.22203	15.94271	3.539759901
1465	10175	0.28641	757.84583	217.0546242
1466	10175	0.24112	364.35083	87.85227213
1466	10583	0.16441	158.59967	26.07537174
1466	10708	0.13393	0.00000	0

1466	17246	0.19959	389.58408	77.75708653
1467	10182	0.22631	3.55539	0.804620311
1467	10581	0.14634	903.69659	132.246959
1467	10584	0.18657	50.77013	9.472183154
1467	14197	0.22561	91.95848	20.74675267
1468	12191	0.24210	103.41997	25.03797474
1468	12580	0.11784	41.33289	4.870667758
1468	12597	0.10846	76.78433	8.328028432
1468	12930	0.24567	7.96835	1.957584545
1469	13229	0.07764	197.66187	15.34646759
1469	13268	0.08437	1.46759	0.123820568
1469	13452	0.13984	334.86188	46.8270853
1470	13452	0.12657	179.25638	22.68848002
1470	13609	0.11921	0.68818	0.082037938
1470	13670	0.08477	117.46680	9.957660636
1471	13396	0.06577	171.25694	11.26356894
1471	13397	0.05474	3.38237	0.185150934
1471	13549	0.04896	66.16149	3.23926655
1471	13564	0.05968	0.36667	0.021882866
1472	13364	0.05798	0.46763	0.027113187
1472	13416	0.17526	60.08847	10.53110525
1472	13482	0.06628	116.87151	7.746243683
1473	13786	0.05357	198.31404	10.62368312
1473	13830	0.14649	559.90857	82.02100642
1473	13906	0.09860	86.35928	8.515025008
1474	4894	0.24671	0.00000	0
1474	4923	0.26021	9.43952	2.456257499
1474	5050	0.24167	0.00000	0
1475	4670	0.32504	2.24762	0.730566405
1475	4889	0.24951	40.92225	10.2105106
1475	4894	0.24699	0.00000	0
1475	5055	0.24363	0.00000	0
1476	7168	0.15902	1773.86572	282.0801268
1477	16202	0.24718	0.03852	0.009521374
1477	16405	0.24906	0.05512	0.013728187
1477	16421	0.26105	7.57070	1.976331235
1477	16541	0.24261	15.62132	3.789888445
1478	16178	0.24706	0.00000	0
1478	16416	0.22861	0.00000	0
1478	16421	0.21198	1.94792	0.412920082
1478	16533	0.24690	0.31770	0.07844013
1479	8498	0.16449	165.14816	27.16522084
1479	8732	0.23492	912.39764	214.3404536
1479	9052	0.15788	2378.26001	375.4796904
1479	30187	0.25173	12.48464	3.142758427
1480	8486	0.17363	0.00106	0.000184048
1480	9055	0.08349	10.20016	0.851611358
1481	8419	0.11604	0.00000	0
1481	8726	0.09303	105.63672	9.827384062
1482	8390	0.11226	1.84759	0.207410453
1482	8558	0.06140	0.00000	0
1483	7151	0.16938	6.39277	1.082807383
1483	7652	0.25147	0.00000	0
1483	7656	0.27213	0.21731	0.05913657

1483	8052	0.32910	0.00000	0
1484	8949	0.26069	0.75513	0.19685484
1484	9456	0.19191	9.38020	1.800154182
1484	9525	0.18496	0.00000	0
1484	10187	0.29781	0.00033	9.82773E-05
1485	10187	0.21117	0.00033	6.96861E-05
1485	10584	0.17029	18.49531	3.14956634
1485	10618	0.20094	0.00000	0
1485	11266	0.23268	0.02286	0.005319065
1487	12938	0.26355	115.38647	30.41010417
1487	13440	0.20342	0.00000	0
1488	11957	0.09970	144.90373	14.44690188
1488	12094	0.09795	0.34964	0.034247238
1488	12142	0.11085	104.38068	11.57059838
1488	12215	0.09116	110.45984	10.06951901
1489	12092	0.03279	154.12439	5.053738748
1489	12094	0.03178	19.29967	0.613343513
1490	12450	0.03183	187.29625	5.961639638
1490	12452	0.03162	22.55441	0.713170444
1491	12782	0.02603	515.77808	13.42570342
1492	13892	0.12765	129.58398	16.54139505
1492	14346	0.13478	77.41120	10.43348154
1493	14326	0.11928	415.02380	49.50403886
1493	14521	0.12592	80.42088	10.12659721
1493	14630	0.12841	167.88902	21.55862906
1494	14629	0.11318	235.02151	26.5997345
1494	14825	0.13044	39.13077	5.104217639
1494	14935	0.11891	0.00000	0
1495	15555	0.14722	0.51818	0.07628646
1495	15689	0.16915	80.50956	13.61819207
1495	15692	0.17956	201.33408	36.1515474
1495	15793	0.10988	428.04248	47.0333077
1496	15433	0.29669	0.06576	0.019510334
1496	15460	0.20763	2.34693	0.487293076
1497	15601	0.07558	0.01033	0.000780741
1497	15629	0.06546	80.83511	5.291466301
1498	16171	0.10683	9.90517	1.058169311
1498	16297	0.08204	96.74935	7.937316674
1499	30121	0.13500	2.12093	0.28632555
1500	12949	0.31433	120.08073	37.74497586
1500	13494	0.18666	57.12407	10.66277891
1501	14349	0.54493	33.30506	18.14892635
1501	14606	0.29538	105.88956	31.27765823
1502	14606	0.39956	363.52844	145.2514235
1502	15152	0.36477	0.11571	0.042207537
1502	15564	0.36141	1.01443	0.366625146
1503	15564	0.26337	1.01033	0.266090612
1503	16016	0.80378	135.99350	109.3088554
1504	16539	0.26414	657.66937	173.7167874
1505	16733	0.18368	152.25720	27.9666025
1506	16829	0.70620	202.25926	142.8354894
1506	16940	0.81404	576.76379	469.5087956
1506	17041	0.54159	8.93179	4.837368146
1507	16696	0.39910	49.44865	19.73495622

1507	16846	0.61922	413.37363	255.9692192
1507	16959	0.36544	55.99901	20.46427821
1508	16563	0.51352	0.00000	0
1508	16694	0.50998	238.49512	121.6277413
1508	16714	0.46979	322.60181	151.5551043
1508	16855	0.49030	262.94791	128.9233603
1509	7235	0.50220	2.28041	1.145221902
1509	8085	0.49900	40.25960	20.0895404
1509	8098	0.50091	50.79227	25.44235597
1509	9039	0.49728	7.02205	3.491925024
1510	9039	0.33956	14.60496	4.959260218
1510	9544	0.34852	36.38502	12.68090717
1511	9059	0.48250	115.89857	55.92106003
1511	10083	0.32449	103.67392	33.6411503
1511	11438	0.51849	0.00000	0
1512	12591	0.37924	38.99691	14.78918815
1512	12940	0.33627	17.57775	5.910869993
1513	12945	0.61643	286.31204	176.4913308
1513	14286	1.00532	86.26719	86.72613145
1513	19378	0.98974	0.18712	0.185200149
1576	19076	0.41195	43.46308	17.90461581
1576	19189	0.61336	128.83424	79.02176945
1576	19326	0.43986	34.53842	15.19206942
1577	19236	0.51962	8.36549	4.346875914
1577	19326	0.47942	43.99660	21.09284997
1578	20397	1.01063	41.96223	42.4082885
1578	21114	0.37632	97.81042	36.80801725
1578	22856	1.98898	3.20261	6.369927238
1579	19107	0.40186	32.15832	12.92314248
1579	19189	0.47245	43.47569	20.54008974
1579	19226	0.52663	138.74081	73.06507277
1580	19407	0.47488	86.87431	41.25487233
1580	19410	0.52073	390.91025	203.5586945
1580	19533	0.13858	169.61591	23.50537281
1581	19532	0.18458	347.26016	64.09728033
1581	19646	0.15443	1036.70496	160.098347
1581	19764	0.19638	533.98663	104.8642944
1582	19526	0.18224	382.89673	69.77910008
1582	19645	0.11811	105.71346	12.48581676
1582	19646	0.13223	86.39290	11.42373317
1582	19763	0.19409	66.35551	12.87894094
1583	19764	0.24475	529.46326	129.5861329
1583	19923	0.12203	99.18668	12.10375056
1583	19925	0.12849	8.55754	1.099558315
1583	20124	0.25796	11.64979	3.005179828
1584	19763	0.26148	819.08813	214.1751642
1584	19923	0.13010	364.68408	47.44539881
1584	19944	0.12243	122.61383	15.01161121
1584	20120	0.24130	106.67416	25.74047481
1585	20124	0.29137	681.03589	198.4334273
1585	20300	0.13419	39.39468	5.286372109
1585	20397	0.21057	3.45572	0.72767096
1586	19229	0.28627	245.61894	70.31333395
1586	19300	0.13693	274.94165	37.64776013

1586	19333	0.14885	35.94109	5.349831247
1587	19222	0.20717	132.34874	27.41868847
1587	19333	0.50151	65.87595	33.03744768
1588	19539	0.29288	140.42706	41.12827733
1588	19751	0.37452	135.08719	50.5928544
1589	19752	0.47481	402.78876	191.2481311
1589	20108	0.44909	0.03805	0.017087875
1589	20114	0.42275	96.13627	40.64160814
1590	20108	0.06107	0.03822	0.002334095
1591	19780	0.51935	85.74957	44.53403918
1591	19794	0.72772	86.32386	62.8195994
1592	18870	0.54722	13.45029	7.360267694
1592	19065	0.54790	106.33923	58.26326412
1592	19073	0.45121	0.00000	0
1592	19228	0.53515	64.60940	34.57572041
1593	19777	0.23848	362.14417	86.36414166
1593	19920	0.12646	67.43198	8.527448191
1594	20120	0.25437	80.26724	20.41757784
1594	20288	0.11877	199.81236	23.731714
1594	20300	0.13657	8.51268	1.162576708
1594	20393	0.24689	0.00000	0
1595	19920	0.13416	99.33378	13.32661992
1595	19925	0.11689	397.68060	46.48488533
1596	19536	0.18377	259.05716	47.60693429
1596	19638	0.20637	688.62335	142.1112007
1596	19777	0.19439	33.38064	6.48886261
1626	16748	0.91490	135.26675	123.7555496
1626	17024	0.42227	116.93271	49.37717545
1627	17529	0.12022	940.36432	113.0505986
1628	16745	0.93584	82.63509	77.33322263
1628	17024	0.52239	253.84196	132.6045015
1629	17985	0.54104	59.15918	32.00748275
1629	18578	1.15582	135.57222	156.6970833
1630	18591	0.43180	488.09198	210.758117
1651	4213	0.53430	90.10112	48.14102842
1651	4464	0.43009	0.00000	0
1651	4538	0.38700	98.62984	38.16974808
1651	4753	0.46103	8.80724	4.060401857
1652	4756	0.51513	312.72449	161.0937665
1652	5018	0.25846	13.64859	3.527614571
1652	5161	0.27864	373.80930	104.1582234
1652	5555	0.49075	5.15461	2.529624858
1653	5544	0.51356	7.67707	3.942636069
1653	5899	0.50032	0.15269	0.076393861
1653	5919	0.50741	91.81696	46.58884367
1653	6466	0.50228	4.89121	2.456756959
1654	5918	0.24893	25.50619	6.349255877
1654	6128	0.24451	2.30994	0.564803429
1654	6481	0.27115	6.56957	1.781338906
1655	5906	0.25824	52.31671	13.51026719
1655	6138	0.24411	0.21875	0.053399063
1655	6471	0.25569	18.39363	4.703067255
1656	20388	0.21020	9.94341	2.090104782
1656	20471	0.26461	9.55194	2.527538843

1656	20520	0.26738	1.58234	0.423086069
1657	20522	0.40327	81.88602	33.02217529
1657	20823	0.23942	8.76335	2.098121257
1657	20908	0.28111	1.20438	0.338563262
1658	19775	0.53074	53.05317	28.15743945
1658	20117	0.33693	78.00632	26.2826694
1659	20659	0.14857	19.96887	2.966775016
1660	16959	0.59458	233.87381	139.0566899
1660	17322	0.79132	44.60962	35.3004845
1660	17622	0.67962	61.39013	41.72196015
1661	16850	0.31256	449.06931	140.3611035
1661	17000	0.26856	112.65504	30.25463754
1662	17618	0.74794	104.25602	77.9772476
1662	17780	0.50598	20.15077	10.1958866
1662	17914	0.76618	8.02216	6.146418549
1663	17780	0.48599	99.46316	48.33810113
1663	17782	0.50819	87.65421	44.54499298
1663	17889	0.67007	15.62637	10.47076175
1664	17782	0.46712	52.13313	24.35242769
1665	17889	0.24476	119.45456	29.23769811
1665	17965	0.50629	46.17772	23.37931786
1665	17973	0.48889	2.64211	1.291701158
1666	18100	0.24387	75.44830	18.39957692
1666	18201	0.25236	36.44054	9.196134674
1667	18812	0.54206	38.56985	20.90717289
1667	19038	0.33923	100.94881	34.24486482
1667	19099	0.38945	0.23612	0.091956934
1667	19202	0.47091	32.55966	15.33266949
1668	18764	0.50706	118.20382	59.93642897
1668	19000	0.75659	0.69540	0.526132686
1668	19032	0.34776	2.14958	0.747537941
1668	19179	0.50864	54.67656	27.81068548
1669	18666	0.20493	39.06819	8.006244177
1669	18764	0.25687	9.57491	2.459507132
1670	18158	0.24709	2.80815	0.693865784
1670	18327	0.18824	21.23737	3.997722529
1671	17877	0.48146	64.06500	30.8447349
1671	17954	0.61835	8.97074	5.547057079
1671	18154	0.57987	44.15685	25.60523261
1672	19675	0.34310	110.80101	38.01582653
1672	20007	0.41738	73.27695	30.58433339
1673	19377	0.13748	17.56478	2.414805954
1673	19495	0.15883	3.96205	0.629292402
1674	20598	0.24056	0.08784	0.02113079
1674	20840	0.19215	39.34220	7.55960373
1675	21543	0.12930	104.10287	13.46050109
1676	21452	0.20837	5.43965	1.133459871
1676	21566	0.10732	66.96020	7.186168664
1677	21566	0.23662	1.35763	0.321242411
1677	21800	0.20052	167.91025	33.66936333
1678	24441	0.69623	208.94887	145.4764718
1678	24581	0.67084	27.74333	18.6113355
1679	24455	0.45480	56.11384	25.52057443
1679	24634	0.33865	10.46136	3.542739564

1680	24634	0.11842	72.84955	8.626843711
1681	22519	0.36738	1346.26343	494.5902589
1681	22748	0.68678	140.56969	96.5404517
1681	22890	0.58467	976.53546	570.9509874
1681	23101	0.48937	14.75525	7.220776693
1682	4045	0.48808	3.40523	1.662024658
1682	4169	0.49463	65.62214	32.45867911
1682	4186	0.51269	493.95026	253.2433588
1683	5484	0.26078	0.00000	0
1683	5696	0.25052	0.00000	0
1683	5702	0.24625	11.98946	2.952404525
1683	5807	0.23987	67.05752	16.08508732
1684	6329	0.25194	0.00000	0
1684	6721	0.26022	0.01203	0.003130447
1684	6750	0.23858	11.10481	2.64938557
1684	7152	0.25083	25.53512	6.40497415
1685	7152	0.25699	146.12799	37.55343215
1685	7644	0.25603	61.11803	15.64804922
1685	7652	0.24444	0.00000	0
1685	8059	0.24399	0.94440	0.230424156
1686	3889	0.14996	326.17191	48.91273962
1687	4194	0.24570	173.41873	42.60898196
1687	4301	0.25000	268.84012	67.21003
1687	4427	0.25740	9.68339	2.492504586
1687	29908	0.24763	75.40432	18.67237176
1688	3823	0.43801	12.51458	5.481511186
1688	3841	0.56484	62.50332	35.30437527
1688	3881	0.50223	0.00000	0
1689	5849	0.26168	7.54680	1.974846624
1689	6099	0.25409	5.14390	1.307013551
1689	6101	0.24762	4.35528	1.078454434
1689	6364	0.23737	0.02617	0.006211973
1690	6364	0.25227	0.00137	0.00034561
1690	6754	0.25092	7.49621	1.880949013
1690	6784	0.25077	2.25985	0.566702585
1690	7232	0.24962	0.23852	0.059539362
1691	7232	0.25091	0.00507	0.001272114
1691	7693	0.25877	34.50062	8.927725437
1691	7697	0.25080	12.60532	3.161414256
1691	8094	0.24772	0.00491	0.001216305
1692	14640	0.25649	0.00211	0.000541194
1692	14945	0.22333	0.00267	0.000596291
1692	15262	0.23951	0.00356	0.000852656
1693	15262	0.25864	0.00356	0.000920758
1693	15549	0.25371	37.91949	9.620553808
1693	15774	0.23706	92.30556	21.88195605
1694	8059	0.23955	0.96488	0.231137004
1694	8390	0.25007	313.36172	78.36236532
1694	8949	0.25381	128.78816	32.68772289
1695	5050	0.26033	0.00000	0
1695	5282	0.25100	0.00000	0
1695	5285	0.24515	9.43952	2.314098328
1695	5484	0.23782	0.00000	0
1696	5055	0.25713	0.00000	0

1696	5273	0.25056	9.43952	2.365166131
1696	5282	0.25130	0.00000	0
1696	5482	0.23939	0.00000	0
1697	5482	0.25598	0.00000	0
1697	5679	0.26461	5.67245	1.500986995
1697	5696	0.23685	0.00000	0
1697	5809	0.24609	3.61407	0.889386486
1698	5807	0.27283	8.91932	2.433458076
1698	6089	0.23332	0.60213	0.140488972
1698	6118	0.26678	0.00000	0
1698	6329	0.22495	0.00000	0
1699	5809	0.26411	0.42510	0.112273161
1699	6083	0.26313	8.86141	2.331702813
1699	6118	0.23576	0.00000	0
1699	6337	0.23931	0.00000	0
1700	16163	0.25790	0.00000	0
1700	16415	0.25518	2.29128	0.58468883
1700	16416	0.29985	0.00000	0
1700	16538	0.24717	0.00000	0
1701	15774	0.24831	110.43095	27.42110919
1701	16011	0.30655	1.44214	0.442088017
1701	16013	0.24219	46.35989	11.22790176
1701	16163	0.25930	0.00000	0
1702	23431	6.80987	476.45547	3244.599811
1703	14144	1.79300	995.11945	1784.249174
1704	17970	4.47126	8.77525	39.23642432
1705	20916	1.89639	74.74375	141.7433001
1706	23554	3.51952	587.46484	2067.594254
1707	23136	7.22935	1.16104	8.393564524
1708	14071	0.58616	222.63385	130.4990575
1709	14071	0.90580	125.02634	113.2488588
1710	16709	2.77630	155.89452	432.8099559
1711	17970	2.21049	27.40830	60.58577307
1712	18092	1.50321	63.70615	95.76372174
1712	19478	2.12134	12.23021	25.94443368
1713	23406	2.03896	131.90741	268.9539327
1714	3753	0.55539	109.15306	60.62251799
1714	3839	0.78226	1164.56287	910.9909507
1715	6481	1.21593	349.82837	425.3668099
1715	8402	0.34051	374.50354	127.5222004
1716	8688	0.25320	243.95001	61.76814253
1717	8688	0.18749	438.38828	82.19341862
1718	13159	0.46278	138.51259	64.1008564
1718	14066	0.48579	111.81593	54.31906063
1719	11977	0.50615	516.31940	261.3350643
1719	12378	0.36326	79.73658	28.96511005
1720	14066	0.51580	89.15224	45.98472539
1720	14768	0.61617	142.15726	87.59303889
1721	15704	0.75757	289.06650	218.9881084
1722	16300	0.82479	110.80484	91.39072398
1722	16709	0.86582	8.77498	7.597553184
1723	16790	0.26394	40.27643	10.63056093
1724	17708	0.62660	164.60352	103.1405656
1725	3310	0.95199	234.81111	223.5378286

1725	3331	1.10189	347.99927	383.4569156
1726	3646	0.82894	542.56329	449.7524136
1726	3753	0.83714	847.61511	709.5725132
1727	3527	0.54631	104.54424	57.11356375
1727	3641	0.84650	905.55084	766.5487861
1728	3641	0.50523	20.47867	10.34643844
1728	3683	0.49366	86.06466	42.48668006
1728	3751	0.50203	109.82780	55.13685043
1729	3751	0.54695	59.63981	32.61999408
1729	3837	0.53472	50.89721	27.21575613
1729	3840	0.45685	8.21627	3.75360295
1730	4059	0.48474	126.22591	61.18674761
1730	4066	0.51086	74.97897	38.30375661
1730	4322	0.70549	111.21087	78.45815668
1731	6464	0.76144	393.40283	299.5526509
1731	8177	0.55433	124.94704	69.26189268
1731	8688	0.72697	92.49155	67.2385821
1732	11549	0.53684	52.56960	28.22146406
1732	11721	0.48099	21.09089	10.14450718
1732	12380	0.37671	92.17499	34.72324048
1733	11341	0.49987	26.40679	13.19996212
1733	11721	0.50897	39.08195	19.89154009
1734	15402	0.50458	103.29194	52.11904709
1734	16310	0.50389	23.16498	11.67260177
1735	16053	0.22537	29.26136	6.594632703
1735	16061	0.26566	39.21679	10.41833243
1735	16307	0.30151	12.36106	3.726983201
1736	16302	0.91044	32.03291	29.16404258
1736	16709	0.27133	32.33183	8.772595434
1737	18116	0.51622	65.33946	33.72953604
1738	16306	0.42855	49.58357	21.24903892
1738	16307	0.41745	37.00530	15.44786249
1739	16790	0.36525	41.15353	15.03132683
1740	19216	1.01703	3.69915	3.762146525
1740	19802	1.12939	77.87929	87.95609133
1740	20041	1.20736	394.20007	475.9413965
1741	17451	0.55114	125.18284	68.99327044
1742	17761	2.18581	336.38089	735.2647132
1742	19136	2.18170	0.04744	0.103499848
1743	19136	1.70011	0.04745	0.08067022
1744	3111	1.18757	614.06854	729.249376
1745	3155	0.62607	626.96606	392.5246412
1746	3329	1.04651	544.78900	570.1271364
1746	3331	0.95439	331.35028	316.2373937
1746	3635	1.75113	71.49328	125.1940274
1747	3635	0.51751	704.90021	364.7929077
1747	3683	1.06717	153.89320	164.2302062
1747	3703	0.93100	4.46899	4.16062969
1747	3745	0.49910	841.66217	420.073589
1748	3747	0.51196	207.40495	106.1830382
1748	3837	0.51132	118.71659	60.7021668
1748	3848	1.49257	33.22389	49.5889815
1749	4053	1.11963	177.94652	199.2342622
1749	4059	0.88195	75.14110	66.27069315

1749	4327	0.75324	370.80307	279.3037044
1750	6450	0.66425	1102.78564	732.5253614
1750	7538	1.08505	382.53247	415.0668566
1750	7864	0.92413	292.32602	270.1472449
1751	8561	0.25470	97.15569	24.74555424
1752	12682	0.99500	30.68457	30.53114715
1752	12831	1.00065	233.91035	234.0623917
1752	14131	0.74334	240.14307	178.5079497
1753	15411	0.77686	282.53784	219.4923464
1753	15418	1.22837	330.87708	406.4394788
1753	16313	1.08392	29.01583	31.45083845
1754	16313	1.38763	154.50114	214.3904169
1754	16916	1.43305	168.94588	242.1078933
1755	22785	2.63406	52.35406	137.9037353
1756	22785	2.44082	22.31577	54.46877773
1757	3388	1.36740	1299.29321	1776.653535
1757	3607	1.73525	70.60175	122.5116867
1758	3329	1.21063	76.27209	92.33728032
1758	3632	0.99701	197.92993	197.3381195
1759	3590	1.12539	0.00000	0
1759	3703	1.46248	18.24728	26.68628205
1759	3706	0.59191	81.07835	47.99108615
1759	3843	0.88388	35.95841	31.78291943
1760	3843	1.17758	69.25393	81.55204289
1760	4053	1.22893	142.27728	174.8488177
1760	4140	0.85526	108.55626	92.84382693
1760	4767	1.30271	18.26811	23.79804958
1761	4767	1.78246	6.55545	11.68482741
1761	6160	0.94874	513.16663	486.8617085
1761	6174	1.07352	556.85883	597.7990912
1762	12417	1.09991	48.37791	53.21134699
1762	12682	0.91541	49.29947	45.12922783
1762	13263	0.53114	155.95641	82.83468761
1763	15969	0.83454	0.00000	0
1763	16325	0.81376	586.01526	476.875778
1764	16663	0.99764	131.69734	131.3865343
1764	16911	0.51592	2.72433	1.405536334
1765	16788	0.27654	114.87112	31.76645952
1765	16913	0.31953	180.66446	57.7277149
1766	16913	0.25243	85.92518	21.69009319
1766	17004	0.20870	9.09824	1.898802688
1767	6048	0.60582	98.09253	59.42641652
1767	17856	0.72517	97.92039	71.00892922
1768	4012	1.10164	122.28689	134.7161295
1768	4688	1.22914	493.05569	606.0344708
1769	10081	1.74057	565.12317	983.636436
1769	10139	1.44462	213.48746	308.4082545
1770	10139	0.99833	193.56154	193.2382922
1770	12322	0.74731	280.77579	209.8265556
1771	10561	0.42502	1061.76587	451.2717301
1772	14753	0.25484	191.78374	48.8741683
1772	15224	1.00616	80.90048	81.39882696
1773	16648	0.98662	249.53467	246.1958961
1773	16903	0.99280	1.67202	1.659981456

1774	16911	1.75406	2.72030	4.771569418
1774	17750	0.50977	392.21136	199.937585
1775	16903	1.23362	1.65608	2.04297341
1775	17748	0.90519	152.17615	137.7483292
1776	19076	1.26733	381.56454	483.5681885
1776	19085	1.29046	96.64113	124.7115126
1777	19085	0.36026	41.51089	14.95471323
1777	19238	0.60655	16.80549	10.19336996
1778	4680	0.90873	151.28331	137.4756823
1778	5301	0.99108	738.48572	731.8984274
1779	10081	0.76694	84.22441	64.59506901
1779	12322	0.79698	29.96299	23.87990377
1779	13098	0.78499	102.73756	80.64795722
1780	11695	0.67196	88.66022	59.57612143
1780	13054	0.76515	117.31283	89.76191187
1780	29907	0.73301	15.21582	11.15334822
1781	13098	0.24944	126.63921	31.58888454
1781	13583	1.00766	5.58728	5.630078565
1782	13054	0.31192	12.14627	3.788664538
1782	13579	0.61896	71.27209	44.11457283
1783	14449	1.00515	34.94493	35.12489639
1783	14731	0.25726	136.07933	35.00776844
1784	14396	0.58068	48.44867	28.1331737
1784	14696	0.24332	8.52833	2.075113256
1785	14731	2.12568	836.58649	1778.31517
1785	16648	1.15694	75.30929	87.12832997
1785	16881	0.88961	743.97040	661.8435075
1786	14696	0.88767	132.95706	118.0219935
1786	16219	0.83930	153.95903	129.2178139
1787	16881	0.99293	594.83771	590.6322074
1787	17743	1.08095	176.05057	190.3018636
1788	17743	1.45785	43.47345	63.37776908
1788	17942	0.97918	325.35480	318.5809131
1789	3785	0.78028	146.71466	114.4785149
1790	4157	0.49425	11.23917	5.554959773
1790	4169	0.51444	59.48043	30.59911241
1790	4659	1.10065	0.02037	0.022420241
1791	4691	0.73693	0.02053	0.015129173
1791	5051	0.55546	28.44507	15.80009858
1791	5301	0.50475	6.23435	3.146788163
1792	6327	0.49804	25.09295	12.49729282
1792	6331	0.50355	127.94994	64.42919229
1793	8056	0.38348	95.78332	36.73098755
1793	8941	0.50684	12.62602	6.399371977
1794	8319	0.35061	1.59190	0.558136059
1794	8941	0.35415	6.49242	2.299290543
1795	8941	0.97360	286.68250	279.114082
1795	11695	0.50046	78.46971	39.27095107
1795	12966	0.99783	192.21638	191.7992705
1796	12966	0.25814	647.19885	167.0679111
1796	13374	0.06803	0.00000	0
1796	13494	0.51059	144.75471	73.91030738
1796	13579	0.50000	60.57662	30.28831
1797	14349	0.50634	87.48192	44.29559537

1797	14396	0.50080	24.37623	12.20761598
1798	14657	0.64051	798.67175	511.5572426
1798	15463	0.46159	270.38232	124.8057751
1798	15570	0.55131	259.57977	143.108923
1799	16545	0.55535	19.62789	10.90034871
1799	16834	0.50958	9.30894	4.743649645
1800	17416	0.54895	179.25604	98.40260316
1800	17741	0.45994	70.49563	32.42376006
1800	17744	0.70516	7.39200	5.21254272
1801	17521	0.48994	17.89158	8.765800705
1801	17630	0.23872	29.34775	7.00589488
1802	17607	1.59691	441.87689	705.6376244
1803	18835	0.53220	81.20361	43.21656124
1804	18835	0.49368	40.59993	20.04337344
1804	19065	0.48465	28.65744	13.8888283
1805	20381	0.14654	10.99716	1.611523826
1805	20519	0.14043	1.06626	0.149734892
1806	20821	1.05173	177.51056	186.6931813
1806	21921	0.70639	86.45838	61.07333505
1807	22856	1.03214	4.86572	5.022104241
1807	23482	0.52500	40.72916	21.382809
1808	3834	1.17855	184.67445	217.648073
1809	3710	0.21471	240.68690	51.6778843
1810	3830	0.28795	24.24825	6.982283588
1811	17041	0.68107	143.46635	97.71062699
1811	17626	0.55452	16.55751	9.181470445
1812	17322	0.37828	42.70758	16.15542336
1812	17624	0.44969	14.31080	6.435423652
1813	17626	0.39336	78.92098	31.04435669
1814	17624	1.04947	219.75610	230.6274343
1814	17833	0.51333	1.80482	0.926468251
1815	18844	0.96388	910.19189	877.3157589
1816	18854	1.10040	508.25211	559.2806218
1817	18844	1.01779	269.90250	274.7040655
1818	19800	0.15516	30.94315	4.801139154
1819	19800	0.48856	86.83685	42.42501144
1819	20117	0.47267	40.38344	19.08804058
1820	19807	0.18496	109.53156	20.25895734
1821	22423	1.21023	146.84979	177.7220214
1822	22864	1.76902	321.50870	568.7553205
1822	24042	1.84090	102.91702	189.4599421
1823	3651	0.29438	13.04894	3.841346957
1823	3660	0.30866	33.43741	10.32079097
1824	3823	0.28766	1.50775	0.433719365
1824	3825	0.26713	2.96898	0.793103627
1824	3888	0.39170	159.07317	62.30896069
1825	3649	0.52134	119.30964	62.20088772
1825	3651	0.50541	15.42521	7.796055386
1826	17622	0.88089	209.79765	184.8086519
1826	17833	0.50960	1.84733	0.941399368
1827	18884	0.49981	281.98398	140.938413
1828	18884	0.61995	316.59412	196.2725247
1828	19216	0.56276	3.66397	2.061935757
1829	21243	0.78735	494.05676	388.99559

1830	21340	1.79842	555.12256	998.3435144
1831	24521	5.01448	62.28336	312.3186631
1831	24659	2.80873	473.31918	1329.42578
1832	3716	1.02446	16.36871	16.76908865
1832	3841	1.15706	515.18347	596.0981858
1833	16548	0.50603	0.47219	0.238942306
1833	16692	0.49100	86.07858	42.26458278
1833	16694	0.50401	69.04695	34.80035327
1833	16839	0.51256	74.93125	38.4067615
1834	17914	0.57896	145.65146	84.32636928
1834	17973	0.60264	16.38422	9.873786341
1834	18100	0.52154	46.29537	24.14488727
1835	18682	0.34461	44.49738	15.33424212
1835	18825	0.38304	87.43317	33.49040144
1836	18825	0.50495	87.06078	43.96134086
1836	19038	0.50093	0.41050	0.205631765
1836	19053	0.50253	8.69218	4.368081215
1836	19206	0.49905	13.79774	6.885762147
1837	19205	0.35726	310.48267	110.9230387
1837	19335	0.95306	20.58991	19.62341962
1837	19673	0.95741	3.63831	3.483354377
1838	19673	1.02258	3.54446	3.624493907
1838	20041	0.89731	455.97778	409.1534218
1839	21068	2.19651	46.12217	101.3078076
1839	30203	1.36557	3.17364	4.333827575
1840	3691	1.19662	24.91033	29.80819908
1840	3716	1.19285	9.02267	10.76269191
1840	4024	1.16417	655.98145	763.6739246
1841	4024	1.24130	4.49355	5.577843615
1841	4402	1.11213	430.78528	479.0892334
1841	4425	1.43017	37.18404	53.17949849
1842	5339	0.33070	27.77071	9.183773797
1842	5612	0.44410	26.51603	11.77576892
1842	5848	0.38653	13.52176	5.226565893
1843	7235	0.61521	264.64160	162.8101587
1844	6666	0.48584	36.38498	17.67727868
1844	6749	0.51574	0.33378	0.172143697
1844	7250	0.30158	2.35606	0.710540575
1845	14605	0.70762	29.21301	20.67171014
1845	15267	0.46828	105.67500	49.485489
1845	15780	0.51178	11.37183	5.819875157
1846	14622	0.51130	111.37899	56.94807759
1846	15328	0.52302	0.41363	0.216336763
1846	15802	0.48821	217.54907	106.2096315
1847	15780	1.53526	106.01069	162.7539719
1847	16540	0.78653	354.73096	279.006542
1847	16812	0.62520	221.10049	138.2320263
1848	15802	0.99166	231.29230	229.3633222
1848	16560	0.49116	3.27673	1.609398707
1848	16817	1.02251	87.02155	88.98040509
1849	16817	0.52131	142.04317	74.04852495
1849	17026	0.26118	0.00000	0
1849	17370	0.50344	47.53781	23.93243507
1850	17862	0.29356	69.71073	20.4642819

1850	17884	0.30154	141.67511	42.72071267
1851	17348	0.98088	156.57655	153.5828064
1851	17877	0.98529	37.81625	37.25997296
1852	17370	0.96631	137.52736	132.8940632
1852	17878	1.10089	29.95214	32.9740114
1853	17884	0.14127	90.35244	12.7640892
1853	17939	0.25551	0.00000	0
1853	17964	0.12805	32.79258	4.199089869
1854	17881	0.12426	39.30975	4.884629535
1854	17956	0.13123	15.39132	2.019802924
1855	17876	0.56602	20.09756	11.37562091
1855	17878	0.70148	59.58442	41.79727894
1855	30201	0.62410	33.61212	20.97732409
1856	18448	0.52509	31.94064	16.77171066
1856	18758	0.47924	82.56362	39.56778925
1856	30201	0.52230	90.56036	47.29967603
1857	18758	0.49265	99.37985	48.9594831
1857	18998	0.45388	86.83891	39.41444447
1857	19000	0.56636	0.68977	0.390658137
1857	19166	0.51691	16.02288	8.282386901
1858	19179	0.35575	84.66091	30.11811873
1858	19183	0.36970	196.93057	72.80523173
1859	19805	0.73116	60.57909	44.29300744
1859	21068	1.60350	1.63667	2.624400345
1860	19175	0.49777	52.63776	26.2014978
1860	19687	0.62451	0.40477	0.252782913
1861	19166	0.37107	100.47482	37.28319146
1861	19321	0.35347	47.33782	16.73249924
1862	19687	0.47750	75.94424	36.2633746
1862	20035	0.62888	55.31678	34.78761661
1863	20035	0.41540	19.81474	8.231042996
1864	20051	0.81510	157.57974	128.4432461
1865	25983	4.83764	310.86517	1503.853781
1866	3201	1.49684	382.70193	572.8435569
1866	3578	3.21307	345.51505	1110.164042
1867	3619	1.47511	64.59676	95.28732664
1867	3689	2.08444	523.18097	1090.539341
1867	4021	2.26847	558.26489	1266.407155
1868	4019	1.23776	5.16501	6.393042778
1868	4425	0.98651	118.06572	116.4730134
1868	5086	0.97157	132.74121	128.9673774
1869	5510	0.83132	3.09521	2.573109977
1869	5514	0.67819	5.71411	3.875252261
1869	5867	0.41195	238.92274	98.42422274
1870	13030	0.31251	0.09010	0.028157151
1870	13535	0.50490	18.89592	9.540550008
1870	13917	0.62841	15.17995	9.53923238
1871	13926	0.60338	8.32105	5.020755149
1871	14286	0.55683	16.82864	9.370691611
1871	14654	0.27749	0.03350	0.009295915
1872	14654	0.48639	0.03300	0.01605087
1872	15328	0.53123	0.41491	0.220412639
1872	15812	0.50628	78.83405	39.91210283
1873	15801	0.85587	5.00394	4.282722128

1873	16560	1.15325	3.28577	3.789314253
1873	16703	0.71920	494.99744	356.0021588
1874	16703	0.88643	50.60273	44.85577795
1874	16830	1.10721	116.89066	129.4225077
1874	17396	0.73748	74.36314	54.84132849
1875	17566	1.37521	481.53705	662.2145665
1875	17863	1.63424	228.11649	372.7970926
1875	17876	1.34493	2.10385	2.829530981
1875	18146	1.18521	161.24568	191.1099924
1876	4016	1.04159	55.24391	57.54150422
1876	4467	0.76376	207.03725	158.1267701
1876	5095	1.00051	621.08081	621.3975612
1877	13013	0.23581	5.46893	1.289628383
1877	13535	0.20370	8.00326	1.630264062
1878	13927	0.73927	697.25647	515.4607906
1878	14623	0.53080	527.96155	280.2419907
1878	15801	0.92581	5.09306	4.715205879
1879	13002	1.26357	1.50482	1.901445407
1879	15899	0.74539	1.39707	1.041362007
1879	30051	0.54472	332.30862	181.0151515
1880	15899	0.74156	1.37261	1.017872672
1880	16556	0.50975	221.92616	113.1268601
1880	16722	0.75965	0.74490	0.565863285
1881	16722	0.95164	0.74129	0.705441216
1881	17038	0.50288	112.62379	56.63625152
1881	17567	1.07511	50.51097	54.30484896
1882	18751	0.70878	131.06348	92.89517335
1882	18998	0.75087	14.98065	11.24852067
1882	30077	0.51112	129.31288	66.09439923
1883	18746	0.51990	121.64410	63.24276759
1883	19002	0.71950	66.76219	48.03539571
1883	19154	0.53482	38.72800	20.71250896
1884	19157	0.22064	82.16115	18.12803614
1884	19266	0.41472	59.47460	24.66530611
1885	19683	0.83956	42.46711	35.65368687
1885	30077	0.51814	77.94322	40.38550001
1886	20014	0.49990	55.66569	27.82727843
1886	20029	0.39087	55.90878	21.85306484
1887	20029	0.44567	216.02702	96.276762
1888	20014	0.58124	117.40602	68.24107506
1888	20609	0.55577	7.11558	3.954625897
1889	21380	1.95655	242.71420	474.882468
1890	21014	0.78040	5.50087	4.292878948
1890	21027	0.14161	40.00473	5.665069815
1890	21380	0.54803	0.86006	0.471338682
1891	23856	2.52237	109.91541	277.2473327
1892	21380	0.79664	133.14197	106.066219
1893	3258	0.68372	133.18080	91.05837658
1893	3336	0.61933	258.89386	160.3407343
1894	3357	1.30038	48.82932	63.49667114
1894	3603	1.00634	454.77686	457.6601453
1895	3603	0.27556	79.45039	21.89334947
1895	3619	0.39335	183.99631	72.37494854
1896	4009	1.05206	0.00000	0

1896	4460	1.23893	229.05545	283.7836687
1896	5151	1.06063	151.95178	161.1646164
1897	3336	1.63716	329.69666	539.7661839
1897	3629	2.54749	163.50114	416.5175191
1898	13006	0.50162	136.74104	68.59204048
1898	13497	0.56317	334.89694	188.6039097
1898	14000	0.50068	21.22997	10.62942138
1898	14658	0.49582	82.81233	41.06000946
1899	14658	0.50676	88.43537	44.8155081
1899	15890	0.50536	137.65456	69.56510844
1899	30051	0.50818	189.32469	96.21102096
1900	15890	0.74310	36.90580	27.42469998
1900	16418	0.49524	84.43974	41.81793684
1900	16556	0.49959	240.26186	120.0324226
1900	16718	0.74852	0.00000	0
1901	16723	0.70224	128.67459	90.36044408
1901	17038	0.89310	60.96674	54.44939549
1902	15065	2.81622	209.37936	589.6583412
1902	15910	1.06539	1915.01978	2040.242923
1903	17579	1.72689	198.88289	343.4488739
1903	17701	1.28668	72.15389	92.83896719
1904	17999	0.49934	76.51764	38.20831836
1904	18157	0.49308	0.26336	0.129857549
1905	18157	0.51060	0.26144	0.133491264
1905	18457	0.50052	46.23454	23.14131196
1905	18773	0.49522	53.73556	26.61092402
1906	18190	0.45519	136.02437	61.91693298
1906	18531	0.95187	79.06960	75.26398015
1906	18783	0.52081	69.18891	36.03427622
1907	18760	0.47963	62.63548	30.04185527
1907	18991	0.27089	64.04295	17.34859473
1907	19002	0.23235	20.17554	4.687786719
1907	19174	0.53758	1.55866	0.837904443
1908	18783	1.29190	144.65733	186.8828046
1908	19705	1.26635	113.11052	143.237507
1908	19987	1.17403	148.61136	174.474195
1909	20350	0.50699	23.69529	12.01327508
1909	20503	0.26935	22.55629	6.075536712
1910	20503	0.34289	101.99772	34.97399821
1910	20650	0.34302	101.69701	34.88410837
1911	21971	0.24910	128.51932	32.01416261
1912	21971	0.49924	106.73674	53.28725008
1912	22457	0.70136	92.96302	65.20054371
1913	23151	0.26657	58.73174	15.65611993
1914	23151	0.50204	100.40562	50.40763746
1914	23162	0.50003	62.88520	31.44448656
1915	23553	0.40246	49.79337	20.03983969
1915	23710	0.66698	13.50049	9.00455682
1915	23799	0.29966	66.01210	19.78118589
1916	23799	0.96712	35.07206	33.91889067
1916	23808	0.78952	78.35134	61.85994996
1917	24705	0.39850	56.02781	22.32708229
1917	24886	2.71660	15.02962	40.82946569
1918	26108	1.45725	71.33246	103.9492273

1919	26394	2.88098	47.34652	136.4043772
1920	3123	0.38668	1.84821	0.714665843
1920	3171	0.58355	97.49664	56.89416427
1921	3171	0.46993	32.92595	15.47289168
1921	3253	0.58614	55.96855	32.8054059
1922	3212	0.54426	42.92718	23.36354699
1922	3296	0.71747	156.68419	112.4162058
1922	3307	1.13652	229.04668	260.3161328
1923	3064	2.47040	116.96002	288.9380334
1923	3208	1.94940	196.64153	383.3329986
1923	3629	2.79889	837.35645	2343.668594
1924	5029	1.41256	35.03953	49.4954385
1924	6309	1.53388	460.13995	705.7994665
1925	5029	1.37685	505.95566	696.6250505
1925	6330	1.63281	168.39915	274.9638161
1926	6314	1.07137	91.24006	97.75186308
1926	8813	0.69158	528.89594	365.7738542
1927	10337	0.91304	0.00000	0
1927	12296	1.00548	283.05209	284.6032155
1927	12318	1.00968	92.84375	93.7424775
1927	14019	0.97642	117.76641	114.9894781
1928	12296	0.30759	90.66234	27.88682916
1929	10038	0.92575	384.27554	355.7430812
1929	12318	0.94460	3.65284	3.450472664
1929	14016	1.16982	87.05607	101.8399318
1930	14017	1.49247	140.74522	210.0580185
1930	15918	0.68572	42.81481	29.35897151
1930	15928	0.82456	203.71335	167.9738799
1930	16751	1.55029	86.25301	133.7171789
1931	16735	1.74652	386.96332	675.8391776
1931	17615	1.02433	85.50854	87.58896278
1931	17757	1.26697	126.24628	159.9502494
1932	16751	2.41723	296.92618	717.7388701
1932	17757	1.19463	116.66967	139.3770879
1932	18612	2.69803	176.71634	476.7859868
1933	18238	0.51344	34.98600	17.96321184
1933	18531	0.91401	129.85739	118.690953
1933	18597	1.08252	35.45053	38.37590774
1933	18837	0.51997	203.72214	105.9294011
1934	18881	0.24607	278.73108	68.58735686
1934	18967	0.25208	180.23471	45.4335657
1935	18837	0.76083	85.58844	65.11825281
1935	19130	0.78692	2.66203	2.094804648
1935	19204	0.73665	98.85336	72.82032764
1936	18612	0.97256	346.01318	336.5185783
1936	18982	2.53072	255.41374	646.3806601
1936	19130	1.99647	2.70669	5.403825384
1936	19397	0.99209	10.08841	10.00861068
1937	20172	0.39197	47.62537	18.66771628
1938	19415	1.09678	15.95983	17.50442235
1938	20172	0.94877	37.05880	35.16027768
1938	20794	0.96897	228.55528	221.4632097
1939	20746	0.69442	47.67279	33.10493883
1939	20796	0.56328	142.10223	80.04334411

1940	19397	1.23826	10.14850	12.56648161
1940	20104	1.25235	196.16350	245.6653592
1940	20700	1.00595	280.85803	282.5291353
1941	1941	0.00000	0.00000	0
1941	1941	0.00000	0.00000	0
1941	20075	0.81231	327.54568	266.0686313
1941	20104	0.70255	77.11301	54.17574518
1941	20524	0.91707	412.02252	377.8534924
1942	20497	0.52709	31.44203	16.57277959
1942	20848	0.29525	29.57379	8.731661498
1943	20704	0.35689	35.57066	12.69481285
1944	20700	0.39418	139.56598	55.014118
1945	20728	0.39405	104.99270	41.37237344
1946	20746	0.27854	35.67922	9.938089939
1946	20969	0.24278	109.47521	26.57839148
1947	20758	0.26811	0.00000	0
1947	20962	0.24302	71.31496	17.33096158
1947	20969	0.25573	21.68832	5.546354074
1948	21631	0.23537	186.79179	43.96518361
1949	30202	0.45682	7.33738	3.351861932
1950	21952	0.16396	34.81034	5.707503346
1951	21867	0.22148	26.92349	5.963014565
1952	23186	0.25457	135.14752	34.40450417
1952	23842	0.76987	61.36433	47.24255674
1953	22483	0.79913	131.96658	105.4584531
1953	22569	0.78699	199.13354	156.7161046
1954	20848	0.16936	28.80035	4.877627276
1954	20961	0.40185	0.68611	0.275713304
1955	21705	0.62254	106.31940	66.18807928
1955	21923	0.95159	147.52884	140.3869689
1956	22457	0.75180	77.93219	58.58942044
1956	22483	0.74313	124.66410	92.64163263
1957	23162	0.83518	105.69777	88.27666355
1957	23199	0.71484	104.17806	74.47064441
1957	23809	0.80551	99.72662	80.33078968
1958	23842	1.29791	371.72232	482.4621164
1958	24327	1.54358	1.07187	1.654517095
1958	24577	1.50711	59.37648	89.48688677
1959	24886	1.58974	361.96365	575.428093
1960	25155	0.59732	151.54301	90.51967073
1961	25169	0.74425	130.52907	97.14626035
1962	25083	1.99649	497.82172	993.8960858
1962	25462	2.13422	110.58574	236.014298
1963	24874	1.01832	129.66849	132.0440167
1963	24977	1.01797	47.88275	48.74320302
1964	3280	1.51063	81.49905	123.1149099
1964	3428	1.45514	597.19110	868.9966573
1964	3664	1.95326	194.38187	379.6783314
1965	3731	0.91639	243.22365	222.8877206
1966	5461	1.60633	55.23436	88.7246095
1966	6326	0.79368	1244.21729	987.5103787
1967	5461	1.44971	55.56486	80.55293319
1967	5463	1.54499	216.59718	334.6404771
1967	6311	0.89868	1574.06982	1414.585066

1968	15922	1.45993	881.38837	1286.765323
1968	16745	2.06981	291.03506	602.3872775
1969	15334	1.13464	1389.91052	1577.048072
1969	15342	0.89619	100.30191	89.88956872
1969	16727	2.10667	7.55987	15.92615133
1970	16739	1.24426	0.00000	0
1970	17244	0.47216	197.32959	93.17113921
1970	29906	0.52957	329.64560	174.5704204
1971	16727	2.39026	7.47316	17.86279542
1971	17710	1.04443	241.93556	252.6847569
1971	17723	0.94806	67.14904	63.66131886
1972	17985	0.46551	101.83874	47.40695186
1972	18593	1.11896	26.54959	29.70792923
1973	17972	0.70688	159.47087	112.7267686
1973	18583	1.25231	369.82401	463.134306
1974	18583	0.89995	51.26672	46.13748466
1974	18982	0.48548	83.43932	40.50812107
1974	19067	0.52198	79.62239	41.56129513
1974	19456	1.11349	2.72002	3.02871507
1975	18037	1.01340	30.68451	31.09568243
1975	18184	1.05693	212.39603	224.487736
1975	18543	0.93795	34.30140	32.17299813
1976	18582	0.38334	118.42123	45.39559431
1976	18736	0.52583	56.75486	29.84340803
1976	18739	0.48170	99.27405	47.82030989
1977	19061	0.67280	29.05989	19.55149399
1977	19067	0.61458	102.57572	63.040986
1977	19421	0.59898	263.76453	157.9896782
1978	18543	1.06203	53.85515	57.19578495
1978	19061	1.04661	2.30679	2.414309482
1978	19127	0.96356	20.24031	19.5027531
1978	19416	0.95966	93.57230	89.79759342
1979	19456	0.43177	2.64858	1.143577387
1979	19660	0.44722	396.50223	177.3237273
1980	19421	0.52296	18.67121	9.764295982
1980	19801	0.50206	33.36420	16.75083025
1981	20406	0.43299	47.97379	20.77217133
1981	20759	0.58556	56.30578	32.97041254
1982	20756	0.37222	1.80320	0.671187104
1982	20944	0.38063	6.79962	2.588139361
1982	21109	0.27352	9.26858	2.535142002
1983	19416	0.51715	35.83633	18.53275806
1983	19801	0.99217	67.20605	66.67982663
1984	22741	0.60594	59.14453	35.83803651
1984	23239	0.61066	300.70178	183.626549
1984	23587	0.61364	116.70718	71.61619394
1985	23101	0.30599	14.45737	4.423810646
1985	23239	0.56971	49.66458	28.29440787
1985	23457	0.71649	188.55704	135.0992336
1985	23600	0.36977	13.84959	5.121162894
1986	23600	0.25350	87.60749	22.20849872
1986	23863	0.55868	1.13873	0.636185676
1987	23971	0.50614	22.37413	11.32444216
1987	23980	0.49431	106.53162	52.65964508

1988	24080	0.20172	16.27110	3.282206292
1989	24316	1.20671	172.87483	208.6097861
1990	3053	2.19501	0.31343	0.687981984
1990	3448	2.51139	22.96139	57.66500523
1990	3494	2.07426	419.52173	870.1971437
1991	3665	3.45865	65.06783	225.0468502
1991	4173	1.59929	851.60828	1361.968606
1991	6282	2.90705	348.70605	1013.705923
1992	6281	1.53695	74.21897	114.0708459
1992	9957	1.11238	325.88046	362.5029061
1992	9987	2.04295	426.75272	871.8344693
1993	12589	0.39666	146.97816	58.30035695
1993	13044	0.19114	18.84854	3.602709936
1994	15340	1.07842	337.21939	363.6641346
1994	15873	1.65569	146.15564	241.9884316
1994	16220	1.40813	192.80931	271.5005737
1994	16711	1.14653	76.90453	88.17335078
1995	17827	1.52969	183.52708	280.739539
1995	17864	1.56827	400.63834	628.3090895
1995	18546	1.53554	593.59619	911.4906936
1996	19413	1.81454	147.48424	267.6160528
1996	20422	1.43103	111.75372	159.9229259
1996	22286	2.06770	446.99493	924.2514168
1997	20451	0.51111	454.95984	232.5345238
1998	22580	1.05399	356.15680	375.3857056
1998	23582	1.01219	103.42456	104.6853054
1999	23582	0.79220	12.31203	9.753590166
1999	23971	0.75954	166.92300	126.7846954
2000	24217	0.70960	12.45716	8.839600736
2000	24316	0.49956	54.67173	27.31180944
2001	22022	0.45560	31.43322	14.32097503
2001	22502	0.33073	48.08893	15.90445182
2002	23185	0.67245	334.33951	224.8266035
2002	23201	0.45350	548.40723	248.7026788
2002	23818	1.00704	32.32689	32.55447131
2003	3448	2.82768	22.62264	63.96958668
2003	3702	2.01887	374.59393	756.2564475
2003	4008	2.66007	17.38946	46.25718086
2004	3467	2.85272	6.95090	19.82897145
2004	3702	2.53039	850.89807	2153.103967
2004	4597	2.65474	136.58217	362.59015
2004	5386	3.13859	67.31089	211.2612862
2005	4008	3.99776	17.48483	69.90015398
2005	7980	1.71721	787.57111	1352.424986
2006	12278	1.01472	139.74074	141.7977237
2007	12255	0.55748	16.28050	9.07605314
2007	13061	0.35456	14.40175	5.10628448
2007	13433	0.66627	69.42381	46.25500189
2007	14062	0.50770	163.24887	82.8814513
2008	12251	0.69597	27.18206	18.9178983
2008	13433	1.04936	1.79636	1.88502833
2008	13948	0.99294	6.92861	6.879694013
2008	14727	1.16302	175.89073	204.5644368
2009	5386	2.54464	68.01115	173.0638927

2009	7951	1.86164	3.66897	6.830301311
2009	7980	3.23049	85.97476	277.7406024
2009	13898	2.69177	620.35474	1669.852278
2010	13899	0.58776	18.19295	10.69308829
2010	14663	0.58211	16.70193	9.722360472
2010	14792	0.42004	7.45735	3.132385294
2010	15251	0.40800	346.60507	141.4148686
2011	14229	0.30549	428.74185	130.9763478
2011	14555	0.25200	16.81889	4.23836028
2011	14773	0.27839	176.73740	49.20192479
2011	15314	0.55218	0.00000	0
2012	14485	0.76691	92.17709	70.69153209
2012	15329	0.34603	58.43485	20.22021115
2013	15313	1.74274	415.17035	723.5339758
2013	16698	2.66431	118.92530	316.853866
2013	16712	2.36361	185.96094	439.5391374
2013	17796	3.26295	24.01310	78.35354465
2014	15329	0.52721	52.60907	27.73602779
2015	16025	0.50402	36.09587	18.1930404
2016	15271	0.57352	48.03662	27.5499623
2016	16182	0.51352	11.92736	6.124937907
2017	16001	0.51006	240.90614	122.8765858
2017	16014	0.50551	40.04562	20.24346137
2017	16190	0.36595	0.00000	0
2018	16159	0.17856	855.09094	152.6850382
2019	17056	1.03497	1166.32117	1207.107421
2019	17584	2.06909	0.00000	0
2019	17612	1.89912	181.44159	344.5793524
2019	17811	0.97554	1049.22778	1023.563669
2020	17796	1.01183	363.08572	367.3810241
2020	17892	2.71900	211.25139	574.3925294
2020	18240	2.38306	690.33612	1645.112394
2020	18503	1.01016	158.51558	160.1260983
2021	19383	1.79767	146.88858	264.0571936
2021	20439	2.46558	90.61387	223.4157456
2021	20451	2.53572	137.60678	348.9322642
2021	21573	1.60757	569.74481	915.9046642
2022	18514	1.05973	680.16589	720.7921986
2022	19018	2.11261	0.00000	0
2022	19091	1.85719	210.77570	391.4505223
2022	19372	0.95526	773.29010	738.6931009
2023	19332	0.37332	29.25728	10.92232777
2023	19567	0.43349	1682.56689	729.3759211
2024	19825	0.84228	319.60931	269.2005296
2024	20136	0.45901	0.76493	0.351110519
2025	22027	1.61652	379.31616	613.172159
2025	23660	1.24193	267.44385	332.1465406
2026	21999	1.08146	513.78888	555.6421222
2027	21554	3.83366	136.15205	521.960668
2027	24166	3.53666	847.79346	2998.357218
2028	24166	2.41895	289.65250	700.6549149
2028	24207	2.92490	622.38544	1820.415173
2028	24707	1.53660	0.21428	0.329262648
2029	24707	2.12058	0.21428	0.454397882

2030	25340	2.00000	354.52972	709.05944
2031	25963	1.56221	64.47290	100.7202091
2031	26523	2.66824	25.82179	68.89873295
2032	24974	0.54739	32.06289	17.55090536
2032	30074	1.38164	0.00000	0
2033	25449	1.63902	16.69357	27.3610951
2033	25462	3.90132	59.33061	231.4676954
2034	25449	1.30290	29.90197	38.95927671
2035	26153	2.59088	29.55032	76.56133308
2035	26558	1.12562	0.00000	0
2036	26718	2.05361	1400.47266	2876.024659
2037	26638	2.88593	114.53867	330.5505839
2038	26177	4.69520	622.51160	2922.816464
2039	26177	5.86867	1149.93237	6748.573602
2039	26394	4.33198	591.57977	2562.711732
2040	25748	1.66333	690.89252	1149.182255
2041	21970	0.65326	0.00000	0
2041	24093	0.62905	0.00000	0
2042	22132	0.63315	0.00000	0
2042	22506	0.54026	0.00000	0
2043	23254	0.24056	0.00000	0
2043	23394	0.35197	0.00000	0
2043	30203	0.30627	0.00000	0
2044	24259	0.37508	0.00000	0
2044	24570	0.45642	0.00000	0
2044	24803	0.55517	0.00000	0
2045	24175	0.39563	0.00000	0
2045	24313	0.48173	0.00000	0
2045	24570	0.69015	0.00000	0
2046	24313	0.71250	0.00000	0
2047	23254	0.08948	0.00000	0
2047	23403	0.10059	0.00000	0
2047	24259	0.08840	0.00000	0
2048	24144	0.33474	0.00000	0
2049	24139	0.62294	0.00000	0
2050	24521	1.24970	0.00000	0
2051	24570	0.60870	0.00000	0
2052	24962	0.78850	0.00000	0
3008	3014	0.12917	19751.41602	2551.290407
3014	3019	0.01820	19751.41602	359.4757716
3019	3026	0.20820	19751.41602	4112.244815
3026	3028	0.04714	19751.41602	931.0817512
3027	90	21.00000	20058.91602	421237.2364
3028	3046	0.26456	19751.41602	5225.434622
3029	3027	0.02850	20058.91602	571.6791066
3042	3043	25.00000	0.00000	0
3043	3042	25.00000	0.00000	0
3043	3044	0.01246	0.00000	0
3044	81	25.00000	447.35513	11183.87825
3044	3043	0.01246	0.00000	0
3044	3049	0.10492	428.86444	44.99645704
3046	3052	0.07751	19751.41602	1530.932256
3049	3044	0.10492	447.35513	46.93650024
3049	3077	0.07967	428.86444	34.16762993

3052	3151	1.23083	19751.41602	24310.63538
3053	82	9.00000	44.58677	401.28093
3053	1990	2.19501	0.31101	0.68267006
3053	3135	0.97755	46.10341	45.06838845
3056	83	18.00000	677.17084	12189.07512
3056	3120	0.78815	685.15924	540.008255
3064	84	17.00000	1679.62439	28553.61463
3064	1923	2.47040	117.33456	289.863297
3064	3073	0.17388	1758.33911	305.7400044
3073	3075	0.03187	1758.33911	56.03826744
3074	3064	0.13174	1777.86951	234.2165292
3075	3078	0.03658	1758.33911	64.32004464
3076	3074	0.04005	1777.86951	71.20367388
3077	3049	0.07967	447.35513	35.64078321
3077	3117	0.62053	428.86444	266.123251
3078	3081	0.07839	1758.33911	137.8362028
3080	3076	0.03643	1777.86951	64.76778625
3081	3084	0.09152	1758.33911	160.9231953
3083	85	2.00000	1058.73352	2117.46704
3083	3085	0.02215	1090.83252	24.16194032
3084	3080	0.20021	1777.86951	355.9472546
3084	3087	0.03044	1758.33911	53.52384251
3085	3083	0.02215	1058.73352	23.45094747
3085	3102	0.50305	1090.83252	548.7432992
3086	91	22.00000	625.89813	13769.75886
3086	3103	0.39403	571.56024	225.2118814
3087	3084	0.03044	1777.86951	54.11834788
3087	3090	0.15941	1758.33911	280.2968375
3090	3087	0.15941	1777.86951	283.4101786
3090	3121	1.17227	1758.33911	2061.248188
3092	86	2.00000	449.40253	898.80506
3092	3105	0.10011	464.90561	46.54170062
3102	3085	0.50305	1058.73352	532.5958972
3102	3123	0.40258	1090.83252	439.1473559
3103	3086	0.39403	625.89813	246.6226402
3103	3155	0.49531	571.56024	283.0995025
3105	3092	0.10011	449.40253	44.98968728
3105	3134	0.42617	464.90561	198.1288238
3111	1744	1.18757	616.51648	732.1564762
3111	3114	0.02614	614.06854	16.05175164
3114	3111	0.02614	616.51648	16.11574079
3114	3118	0.04876	614.06854	29.94198201
3117	3077	0.62053	447.35513	277.5972788
3117	3233	1.00093	428.86444	429.2632839
3118	3114	0.04876	616.51648	30.06134356
3118	3119	0.06431	614.06854	39.49074781
3119	3118	0.06431	616.51648	39.64817483
3119	3124	0.27021	614.06854	165.9274602
3120	3056	0.78815	677.17084	533.7121975
3120	3121	0.02128	685.15924	14.58018863
3121	3090	1.17227	1777.86951	2084.14309
3121	3120	0.02128	677.17084	14.41019548
3121	3152	0.20212	1774.84448	358.7315663
3121	3190	1.17452	680.22089	798.9330397

3123	1920	0.38668	1.85789	0.718408905
3123	3102	0.40258	1058.73352	426.2249405
3123	3160	0.23725	1088.97461	258.3592262
3124	3119	0.27021	616.51648	166.5889181
3124	3166	0.37770	614.06854	231.9336876
3134	3105	0.42617	449.40253	191.5218762
3134	3162	0.07383	464.90561	34.32398119
3135	3053	0.97755	44.27333	43.27939374
3135	3225	0.62798	46.10341	28.95201941
3151	3166	0.17107	638.73810	109.2689268
3151	3167	0.16125	19112.67773	3081.919284
3152	3121	0.20212	1603.34570	324.0682329
3152	3285	0.99884	1774.84448	1772.78566
3155	1745	0.62607	628.17017	393.2784983
3155	3103	0.49531	625.89813	310.0136028
3155	3210	0.50032	1174.73462	587.7432251
3160	3123	0.23725	1056.88525	250.7460256
3160	3161	0.01036	0.00000	0
3160	3165	0.11598	1088.97461	126.2992753
3161	3160	0.01036	0.00000	0
3162	3134	0.07383	449.40253	33.17938879
3162	3171	0.13294	464.90561	61.80455179
3163	3029	1.58942	20058.91602	31882.0423
3165	3160	0.11598	1056.88525	122.5775513
3165	3177	0.13915	1088.97461	151.530817
3166	3124	0.37770	616.51648	232.8582745
3166	3172	0.05848	836.75940	48.93368971
3166	3180	0.14742	938.90839	138.4138749
3167	3169	0.01257	19112.67773	240.2463591
3168	3163	0.14912	19398.67773	2892.730823
3169	3180	0.14092	19112.67773	2693.358546
3170	3168	0.01126	19398.67773	218.4291112
3171	1920	0.58355	97.76935	57.05330419
3171	1921	0.46993	75.30183	35.38658897
3171	3162	0.13294	449.40253	59.74357234
3171	3191	0.29210	586.89398	171.4317316
3172	3163	0.15690	660.24000	103.591656
3172	3166	0.05848	1139.37769	66.63080731
3172	3176	0.02960	1364.88831	40.40069398
3176	3172	0.02960	1376.44189	40.74267994
3176	3185	0.19456	1364.88831	265.5526696
3177	3165	0.13915	1056.88525	147.0655825
3177	3184	0.12567	1088.97461	136.8514392
3180	3182	0.03292	20051.58594	660.0982091
3181	3170	0.13608	19398.67773	2639.772065
3182	3373	2.32957	20051.58594	46711.57306
3183	3172	0.18054	951.30469	171.7485487
3183	3181	0.03770	19398.67773	731.3301504
3184	3177	0.12567	1056.88525	132.8187694
3184	3192	0.19329	1088.97461	210.4879024
3185	3176	0.19456	1376.44189	267.8005341
3185	3187	0.05144	1364.88831	70.20985467
3186	3190	0.05432	0.00000	0
3187	3185	0.05144	1376.44189	70.80417082

3187	3211	0.13529	1364.88831	184.6557395
3190	3121	1.17452	863.26166	1013.918085
3190	3186	0.05432	0.00000	0
3190	3280	1.14821	680.22089	781.0364281
3191	3171	0.29210	614.03949	179.360935
3191	3192	0.00999	215.64131	2.154256687
3191	3197	0.02304	371.25266	8.553661286
3192	3184	0.19329	1056.88525	204.28535
3192	3191	0.00999	586.36218	5.857758178
3192	3197	0.02172	1167.09448	25.34929211
3192	3199	0.03161	640.42065	20.24369675
3197	3191	0.02304	27.67732	0.637685453
3197	3192	0.02172	123.15738	2.674978294
3197	3207	0.05429	1538.34705	83.51686134
3199	3192	0.03161	2022.98926	63.94669051
3199	3202	0.03871	640.42065	24.79068336
3201	87	2.00000	1870.00427	3740.00854
3201	1866	1.49684	377.99741	565.8016432
3201	3358	0.99740	2222.91357	2217.133995
3202	3199	0.03871	2022.98926	78.30991425
3202	3215	0.04103	640.42065	26.27645927
3207	3197	0.05429	150.83470	8.188815863
3207	3222	0.03301	1538.34705	50.78083612
3208	1923	1.94940	109.69289	213.8353198
3208	3212	0.70540	2028.04089	1430.580044
3208	3287	0.49727	534.41357	265.747836
3210	3155	0.50032	1230.27661	615.5319935
3210	3257	0.29499	1174.73462	346.5349656
3211	3187	0.13529	1376.44189	186.2188233
3211	3304	0.58685	1364.88831	800.9847047
3212	1922	0.54426	44.29304	24.10692995
3212	3208	0.70540	644.10645	454.3526898
3212	3215	0.19024	2022.98926	384.8534768
3215	3202	0.04103	2022.98926	83.00324934
3215	3212	0.19024	640.42065	121.8336245
3222	3207	0.03301	150.83470	4.979053447
3222	3228	0.08729	1538.34705	134.282314
3225	3135	0.62798	44.27333	27.80276577
3225	3383	0.96019	46.10341	44.26803325
3228	3222	0.08729	150.83470	13.16636096
3228	3239	0.10678	1538.34705	164.264698
3233	3117	1.00093	447.35513	447.7711703
3233	3317	0.50159	428.86444	215.1141145
3239	3228	0.10678	150.83470	16.10612927
3239	3240	0.00999	1538.34705	15.36808703
3240	3239	0.00999	150.83470	1.506838653
3240	3243	0.03649	1538.34705	56.13428385
3243	3240	0.03649	150.83470	5.503958203
3243	3252	0.08809	1538.34705	135.5129916
3250	3251	0.00758	1594.31567	12.08491278
3250	3253	0.40018	165.15062	66.08997511
3251	3250	0.00758	165.15062	1.2518417
3251	3258	0.09846	1594.31567	156.9763209
3252	3243	0.08809	150.83470	13.28702872

3252	3254	0.07241	1538.34705	111.3917099
3253	1921	0.58614	14.31592	8.391133349
3253	3250	0.40018	1594.31567	638.0132448
3253	3254	0.03764	150.83470	5.677418108
3254	3252	0.07241	150.83470	10.92194063
3254	3253	0.03764	1538.34705	57.90338296
3257	3210	0.29499	1230.27661	362.9192972
3257	3268	0.12858	1174.73462	151.0473774
3258	1893	0.68372	353.01660	241.3645098
3258	3251	0.09846	165.15062	16.26073005
3258	3264	0.07213	1272.11877	91.75792688
3264	3258	0.07213	62.78957	4.529011684
3264	3307	0.23045	1272.11877	293.1597705
3268	3257	0.12858	1230.27661	158.1889665
3268	3294	0.08794	1174.73462	103.3061625
3280	1964	1.51063	80.71571	121.931573
3280	3190	1.14821	863.26166	991.2056706
3280	3281	0.01292	761.71997	9.841422012
3281	3280	0.01292	943.97736	12.19618749
3281	3347	0.93962	761.71997	715.7273182
3285	3152	0.99884	1603.34570	1601.485819
3285	3428	0.72226	1774.84448	1281.899174
3287	3208	0.49727	1831.39941	910.6999846
3287	3296	0.02300	534.41357	12.29151211
3294	3268	0.08794	1230.27661	108.1905251
3294	3298	0.01447	1174.73462	16.99840995
3296	1922	0.71747	345.11139	247.607069
3296	3287	0.02300	1831.39941	42.12218643
3296	3365	0.48099	691.09778	332.4111212
3298	3294	0.01447	1230.27661	17.80210255
3298	3316	0.12635	1174.73462	148.4277192
3304	3211	0.58685	1376.44189	807.7649231
3304	3324	0.16424	1364.88831	224.169256
3307	1922	1.13652	34.10796	38.7643787
3307	3264	0.23045	62.78957	14.46985641
3307	3328	0.19397	1470.34570	285.2029554
3310	92	21.00000	3655.72021	76770.12441
3310	1725	0.95199	235.63326	224.3205072
3310	3434	0.63200	3664.17627	2315.759403
3316	3298	0.12635	1230.27661	155.4454497
3316	3331	0.16881	1174.73462	198.3069512
3317	3233	0.50159	447.35513	224.3888597
3317	3342	0.27436	428.86444	117.6632478
3324	3304	0.16424	1376.44189	226.066816
3324	3329	0.05491	1364.88831	74.9460171
3328	3307	0.19397	66.07777	12.81710505
3328	3330	0.00895	1470.34570	13.15959402
3329	1746	1.04651	541.89160	567.0949783
3329	1758	1.21063	86.09005	104.2231972
3329	3324	0.05491	1376.44189	75.58042418
3329	3366	0.19618	748.84235	146.9078922
3330	3328	0.00895	66.07777	0.591396042
3330	3340	0.12875	1470.34570	189.3070089
3331	1725	1.10189	348.20911	383.6881362

3331	1746	0.95439	331.84354	316.7081561
3331	3316	0.16881	1230.27661	207.6829945
3331	3379	0.20486	1703.83472	349.0475807
3336	1893	0.61933	34.88620	21.60607025
3336	1897	1.63716	68.02763	111.3721147
3336	3337	0.40168	1938.77393	778.7667122
3336	3338	0.09135	66.07777	6.03620429
3337	3336	0.40168	48.82932	19.61376126
3337	3348	0.99812	1938.77393	1935.129035
3338	3336	0.09135	1470.34570	134.3160797
3338	3341	0.53711	66.07777	35.49103104
3340	3330	0.12875	66.07777	8.507512888
3340	3341	0.07665	1470.34570	112.7019979
3341	3338	0.53711	1470.34570	789.7373789
3341	3340	0.07665	66.07777	5.064861071
3342	101	0.25331	8.37496	2.121461118
3342	103	0.20740	8.04574	1.668686476
3342	3317	0.27436	447.35513	122.7363535
3342	3353	0.01795	418.16025	7.505976488
3347	3281	0.93962	943.97736	886.980007
3347	3385	0.21053	761.71997	160.3649053
3348	3337	0.99812	48.82932	48.73752088
3348	3357	0.59687	1938.77393	1157.195996
3351	3352	0.07998	1888.89905	151.074146
3351	3356	0.40664	0.00000	0
3352	3351	0.07998	0.00000	0
3352	3362	0.04125	1888.89905	77.91708581
3353	3342	0.01795	436.96436	7.843510262
3353	3375	0.07013	418.16025	29.32557833
3356	3351	0.40664	1888.89905	768.1019097
3356	3357	0.42169	0.00000	0
3357	1894	1.30038	49.87483	64.85623144
3357	3348	0.59687	48.82932	29.14475623
3357	3356	0.42169	1888.89905	796.5298404
3358	3201	0.99740	2227.61523	2221.82343
3358	3488	0.49953	2222.91357	1110.412016
3362	3555	0.90092	1888.89905	1701.746932
3365	3296	0.48099	2176.51074	1046.879901
3365	3547	0.75027	691.09778	518.5099314
3366	3329	0.19618	767.31653	150.5321569
3366	3393	0.08351	748.84235	62.53582465
3369	3183	2.30572	20349.98242	46921.36147
3373	3399	0.38190	20051.58594	7657.70067
3375	3353	0.07013	436.96436	30.64431057
3375	3389	0.05218	418.16025	21.81960185
3379	3331	0.20486	1760.07983	360.569954
3379	3440	0.26547	1703.83472	452.3170031
3383	3225	0.96019	44.27333	42.51080873
3383	3385	0.01962	46.10341	0.904548904
3385	3347	0.21053	943.97736	198.7355536
3385	3383	0.01962	44.27333	0.868642735
3385	3494	0.82478	1058.60986	873.1202403
3385	3664	1.76311	474.37048	836.367337
3387	3369	0.12889	160.86327	20.73366687

3387	3395	0.02089	0.00000	0
3387	3426	0.29966	0.00000	0
3388	1757	1.36740	1285.13928	1757.299451
3388	3390	0.47317	1318.21753	623.7409887
3388	3514	0.49376	35.31284	17.43606788
3389	3375	0.05218	436.96436	22.8008003
3389	3396	0.01851	418.16025	7.740146228
3390	3388	0.47317	1320.45215	624.7983438
3390	3404	0.08174	1318.21753	107.7511009
3393	3366	0.08351	767.31653	64.07860342
3393	3499	0.42146	748.84235	315.6070968
3395	3387	0.02089	139.80759	2.920580555
3395	3400	0.01672	0.00000	0
3396	3389	0.01851	436.96436	8.088210304
3396	3413	0.06957	418.16025	29.09140859
3399	3404	0.20643	262.06665	54.09841856
3399	3416	0.19398	19789.51953	3838.770998
3400	3395	0.01672	139.80759	2.337582905
3400	3403	0.03845	0.00000	0
3402	3369	0.40957	20189.11914	8268.857526
3403	3400	0.03845	139.80759	5.375601836
3403	3515	0.42000	0.00000	0
3404	3390	0.08174	1320.45215	107.9337587
3404	3427	0.05952	610.99103	36.36618611
3404	3432	0.15351	10047.03320	1542.320067
3405	3406	0.49644	242.45743	120.3655665
3405	3408	0.19654	236.60365	46.50208137
3406	3405	0.49644	236.60365	117.459516
3406	3411	0.49715	242.45743	120.5377113
3407	103	0.21961	164.99484	36.23451681
3407	104	0.26912	8.32181	2.239565507
3407	3410	0.02292	242.45743	5.557124296
3407	3412	0.07846	385.06253	30.2120061
3408	3405	0.19654	242.45743	47.65258329
3408	3409	0.05461	236.60365	12.92092533
3409	3408	0.05461	242.45743	13.24060025
3409	3410	0.02124	236.60365	5.025461526
3410	3407	0.02292	236.60365	5.422955658
3410	3409	0.02124	242.45743	5.149795813
3411	3406	0.49715	236.60365	117.6275046
3411	3418	0.50345	242.45743	122.0651931
3412	3407	0.07846	395.34634	31.01887384
3412	3413	0.12698	385.06253	48.89524006
3413	3396	0.06957	436.96436	30.39961053
3413	3412	0.12698	395.34634	50.20107825
3413	3414	0.12551	310.20291	38.93356723
3413	3429	0.06957	881.36743	61.31673211
3414	3413	0.12551	308.75787	38.75220026
3414	3415	0.12135	310.20291	37.64312313
3415	101	0.22259	174.00281	38.73128548
3415	102	0.27959	38.29485	10.70685711
3415	3414	0.12135	308.75787	37.46776752
3415	3417	0.25237	258.28787	65.18410975
3416	3420	0.01448	19789.51953	286.5522428

3417	3415	0.25237	263.14029	66.40871499
3417	3419	0.49918	258.28787	128.9321389
3418	3411	0.50345	236.60365	119.1181076
3418	3467	0.24045	242.45743	58.29888904
3419	3417	0.49918	263.14029	131.35437
3419	3422	0.24614	258.28787	63.57497632
3420	3432	0.14406	19789.51953	2850.878183
3421	3422	0.27441	263.14029	72.20832698
3421	3423	0.22132	258.28787	57.16427139
3422	3419	0.24614	263.14029	64.76935098
3422	3421	0.27441	258.28787	70.87677441
3423	3421	0.22132	263.14029	58.23820898
3423	3480	0.51558	258.28787	133.16806
3424	3402	0.19812	20072.01563	3976.667737
3425	3424	0.01623	20072.01563	325.7688137
3426	976	0.23285	336.09167	78.25894536
3426	3387	0.29966	21.05567	6.309542072
3426	3437	0.17837	311.94501	55.64163143
3427	3402	0.20495	117.10304	24.00026805
3427	3404	0.05952	10398.19238	618.9004105
3427	3437	0.07618	9475.67676	721.8570556
3428	1964	1.45514	587.19092	854.4449953
3428	3285	0.72226	1603.34570	1158.032465
3428	3493	0.25140	2279.56006	573.0813991
3429	3413	0.06957	911.90039	63.44091013
3429	3443	0.06789	881.36743	59.83603482
3432	3438	0.03954	29836.55469	1179.737372
3434	3310	0.63200	3864.76782	2442.533262
3434	3513	0.29877	3664.17627	1094.745944
3435	3425	0.13167	20072.01563	2642.882298
3437	3426	0.17837	336.09167	59.94867118
3437	3427	0.07618	9566.59375	728.7831119
3437	3446	0.04234	9110.46387	385.7370403
3437	3452	0.21739	29.12132	6.330683755
3438	3506	0.41096	29836.55469	12261.63052
3439	3427	0.18291	9813.38770	1794.966744
3439	3435	0.04230	20072.01563	849.0462611
3440	3379	0.26547	1760.07983	467.2483925
3440	3504	0.23598	1703.83472	402.0709172
3443	3429	0.06789	911.90039	61.90891748
3443	3454	0.07294	881.36743	64.28694034
3446	3437	0.04234	9052.28906	383.2739188
3446	3449	0.04724	9110.46387	430.3783132
3448	1990	2.51139	22.62264	56.81427187
3448	2003	2.82768	22.96139	64.92746328
3449	3446	0.04724	9052.28906	427.6301352
3449	3472	0.07570	9110.46387	689.662115
3452	977	0.17704	206.35457	36.53301307
3452	3437	0.21739	202.35995	43.99102953
3452	3491	0.20380	0.00000	0
3454	3443	0.07294	911.90039	66.51401445
3454	3466	0.03648	881.36743	32.15228385
3459	3460	0.01448	243.62331	3.527665529
3459	3470	0.47401	249.40833	118.2220425

3460	3459	0.01448	249.40833	3.611432618
3460	3469	0.74327	243.62331	181.0778976
3466	3454	0.03648	911.90039	33.26612623
3466	3478	0.01459	881.36743	12.8591508
3467	2004	2.85272	7.01965	20.02509595
3467	3418	0.24045	236.60365	56.89134764
3467	3475	1.13942	249.40833	284.1808394
3469	3460	0.74327	249.40833	185.3777294
3469	3477	1.51065	243.62331	368.0295533
3470	80	10.00000	249.40833	2494.0833
3470	3459	0.47401	243.62331	115.4798852
3472	3449	0.07570	9052.28906	685.2582818
3472	3496	0.07634	9110.46387	695.4928118
3473	3474	0.01586	243.62331	3.863865697
3473	3477	0.22341	249.40833	55.72031501
3474	3473	0.01586	249.40833	3.955616114
3474	3475	0.61432	243.62331	149.6626718
3475	3467	1.13942	243.62331	277.5892719
3475	3474	0.61432	249.40833	153.2165253
3477	3469	1.51065	249.40833	376.7686937
3477	3473	0.22341	243.62331	54.42788369
3478	102	0.24512	137.33310	33.66308947
3478	104	0.21531	293.16794	63.12198916
3478	3466	0.01459	911.90039	13.30462669
3478	3507	0.10997	1199.62134	131.9223588
3480	3423	0.51558	263.14029	135.6698707
3480	3483	2.05530	258.28787	530.8590592
3482	3483	1.00803	263.14029	265.2533065
3482	3486	1.50788	258.28787	389.4671134
3483	3480	2.05530	263.14029	540.832238
3483	3482	1.00803	258.28787	260.3619216
3486	3482	1.50788	263.14029	396.7839805
3486	3489	0.49442	258.28787	127.7026887
3488	3358	0.49953	2227.61523	1112.760636
3488	3567	0.49786	2222.91357	1106.69975
3489	3486	0.49442	263.14029	130.1018222
3489	3522	0.13391	258.28787	34.58732867
3491	3452	0.20380	177.23326	36.12013839
3493	3428	0.25140	2098.06128	527.4526058
3493	3731	2.01434	2279.56006	4591.809011
3494	1990	2.07426	413.44754	857.5976943
3494	3385	0.82478	1235.90771	1019.351961
3494	3530	0.34337	835.40924	286.8544707
3495	3491	0.03266	177.23326	5.788438272
3496	976	0.17948	3.41137	0.612272688
3496	977	0.24669	67.15239	16.56582309
3496	3472	0.07634	9052.28906	691.0517468
3496	3512	0.07438	9173.75293	682.3437429
3499	3393	0.42146	767.31653	323.3932247
3499	3523	0.08411	748.84235	62.98513006
3504	3440	0.23598	1760.07983	415.3436383
3504	3527	0.10908	1703.83472	185.8542913
3506	3700	3.22133	29836.55469	96113.38872
3507	3478	0.10997	1239.42090	136.2991164

3507	3537	0.12961	1199.62134	155.4829219
3510	3439	0.41691	29885.40234	12459.52309
3510	3495	0.13566	177.23326	24.04346405
3512	3496	0.07438	9116.02637	678.0500414
3512	3524	0.07814	9173.75293	716.837054
3513	3434	0.29877	3864.76782	1154.676682
3513	3550	0.24981	3664.17627	915.347874
3514	3388	0.49376	18.92432	9.344072243
3514	3592	1.14140	35.31284	40.30607558
3515	3403	0.42000	139.80759	58.7191878
3515	3521	0.02688	0.00000	0
3521	976	0.25035	109.42830	27.39537491
3521	3515	0.02688	139.80759	3.758028019
3521	3576	0.41331	107.95459	44.61871159
3522	3489	0.13391	263.14029	35.23711623
3522	3525	0.03138	258.28787	8.105073361
3523	3499	0.08411	767.31653	64.53899334
3523	3632	0.90806	748.84235	679.9937843
3524	3512	0.07814	9116.02637	712.3263006
3524	3544	0.07585	9173.75293	695.8291597
3525	3522	0.03138	263.14029	8.2573423
3525	3530	0.02522	258.28787	6.514020081
3527	1727	0.54631	103.64271	56.6210489
3527	3504	0.10908	1760.07983	191.9895079
3527	3640	0.89214	1600.19202	1427.595309
3530	3494	0.34337	1006.63287	345.6475286
3530	3525	0.02522	263.14029	6.636398114
3530	3552	0.29817	602.24597	179.5716809
3537	3507	0.12961	1239.42090	160.6413428
3537	3596	0.49766	1199.62134	597.0035561
3544	3524	0.07585	9116.02637	691.4506002
3544	3545	0.01581	9173.75293	145.0370338
3545	3544	0.01581	9116.02637	144.1243769
3545	3553	0.14264	9173.75293	1308.544118
3547	3365	0.75027	2176.51074	1632.970713
3547	3629	0.74733	691.09778	516.4781039
3550	3513	0.24981	3864.76782	965.4576491
3550	3586	0.24813	3664.17627	909.1920579
3552	3530	0.29817	778.32202	232.0722767
3552	3565	0.28194	602.24597	169.7972288
3553	3545	0.14264	9116.02637	1300.310001
3553	3554	0.02436	9173.75293	223.4726214
3554	3553	0.02436	9116.02637	222.0664024
3554	3557	0.08778	9173.75293	805.2720322
3555	3362	0.90092	0.00000	0
3555	3560	0.05415	1888.89905	102.2838836
3557	3554	0.08778	9116.02637	800.2047948
3557	3576	0.08173	9173.75293	749.770827
3560	3555	0.05415	0.00000	0
3560	3601	0.26215	1888.89905	495.174886
3565	3552	0.28194	778.32202	219.4401103
3565	3665	1.74198	602.24597	1049.100435
3567	3488	0.49786	2227.61523	1109.040518
3567	3568	0.00615	2222.91357	13.67091846

3568	3567	0.00615	2227.61523	13.69983366
3568	3613	0.49394	2222.91357	1097.985929
3572	3575	0.00783	0.00000	0
3575	89	14.00000	7408.07129	103712.9981
3575	3572	0.00783	0.00000	0
3575	3622	0.49153	7270.65186	3573.743509
3576	3521	0.41331	249.23590	103.0116898
3576	3557	0.08173	9116.02637	745.0528352
3576	3589	0.08079	9281.70801	749.8691901
3578	96	2.00000	62.90400	125.808
3578	1866	3.21307	337.67953	1084.987967
3578	3633	0.49859	405.11313	201.9853555
3582	88	14.00000	1607.76404	22508.69656
3582	3639	0.49654	1598.86438	793.9001192
3586	3550	0.24813	3864.76782	958.9648392
3586	3646	0.49515	3664.17627	1814.31688
3589	3576	0.08079	9365.26270	756.6195735
3589	3590	0.61376	8509.37012	5222.711005
3589	3600	0.10083	772.33734	77.87477399
3590	1759	1.12539	0.00000	0
3590	3589	0.61376	8574.72754	5262.824775
3590	3591	0.39291	8509.37012	3343.416614
3591	3590	0.39291	8574.72754	3369.096198
3591	3645	1.17138	8509.37012	9967.705971
3592	3514	1.14140	18.92432	21.60021885
3592	3604	0.57590	35.31284	20.33666456
3596	3537	0.49766	1239.42090	616.8102051
3596	3657	0.50215	1199.62134	602.3898559
3600	3589	0.10083	790.53522	79.70966623
3600	3705	0.89452	772.33734	690.8711974
3601	3560	0.26215	0.00000	0
3601	3603	0.12004	1888.89905	226.743442
3603	1894	1.00634	448.75070	451.5957794
3603	1895	0.27556	80.46831	22.1738475
3603	3601	0.12004	0.00000	0
3603	3610	0.12756	2399.88306	306.1290831
3604	3592	0.57590	18.92432	10.89851589
3604	3607	0.11018	35.31284	3.890768711
3607	1757	1.73525	66.31363	115.0707265
3607	3604	0.11018	18.92432	2.085081578
3607	3652	0.45851	105.91459	48.56289866
3610	3603	0.12756	505.97577	64.54226922
3610	3675	0.50693	2399.88306	1216.57272
3613	3568	0.49394	2227.61523	1100.308267
3613	3619	0.02224	2222.91357	49.4375978
3619	1867	1.47511	64.87952	95.70442875
3619	1895	0.39335	188.70406	74.226742
3619	3613	0.02224	2227.61523	49.54216272
3619	3726	0.98364	2285.65405	2248.26075
3622	3575	0.49153	7408.07129	3641.289281
3622	3649	0.07788	7270.65186	566.2383669
3629	1897	2.54749	420.14810	1070.323083
3629	1923	2.79889	911.52313	2551.252973
3629	3547	0.74733	2176.51074	1626.571771

3629	3738	1.00519	1639.70728	1648.217361
3632	1758	0.99701	187.61841	187.057431
3632	3523	0.90806	767.31653	696.7694482
3632	3635	0.85161	4524.58496	3853.181798
3632	3645	0.03953	4512.28418	178.3705936
3633	3578	0.49859	395.12720	197.0064706
3633	3691	0.49914	405.11313	202.2081677
3635	1746	1.75113	71.81705	125.7609908
3635	1747	0.51751	697.92078	361.1809829
3635	3632	0.85161	4325.50586	3683.644045
3635	3636	0.13558	3824.17798	518.4820505
3636	3635	0.13558	3618.44287	490.5884843
3636	3638	0.01153	3824.17798	44.09277211
3638	3636	0.01153	3618.44287	41.72064629
3638	3640	0.99919	3824.17798	3821.080396
3639	3582	0.49654	1607.76404	798.3191564
3639	3693	0.49061	1598.86438	784.4188535
3640	3527	0.89214	1655.53552	1476.969459
3640	3638	0.99919	3618.44287	3615.511931
3640	3642	0.48962	2988.16821	1463.066919
3640	3683	0.46207	1286.67944	594.5359688
3641	1727	0.84650	907.01422	767.7875372
3641	1728	0.50523	20.67551	10.44588792
3641	3642	0.00997	3119.50879	31.10150264
3641	3643	0.49889	2843.63208	1418.659608
3642	3640	0.48962	3119.50879	1527.373894
3642	3641	0.00997	2988.16821	29.79203705
3643	3641	0.49889	2976.63281	1485.012343
3643	3644	0.24959	2843.63208	709.7421308
3644	3643	0.24959	2976.63281	742.937783
3644	3646	0.75183	2843.63208	2137.927907
3645	3591	1.17138	8574.72754	10044.26435
3645	3632	0.03953	4719.52588	186.562858
3645	3703	0.51424	4879.29297	2509.127617
3646	1726	0.82894	539.67505	447.3582359
3646	3586	0.49515	3864.76782	1913.639786
3646	3644	0.75183	2976.63281	2237.921846
3646	3661	0.14577	2084.51563	303.8598434
3649	1825	0.52134	119.52128	62.31122412
3649	3622	0.07788	7408.07129	576.9405921
3649	3678	0.41979	7376.61865	3096.630743
3651	97	0.98854	2684.84570	2654.077368
3651	1823	0.29438	3.75865	1.106471387
3651	1825	0.50541	15.52967	7.848850515
3651	3680	0.35526	2698.00537	958.4933877
3652	3607	0.45851	85.23795	39.08245245
3652	3697	0.86492	105.91459	91.60764718
3657	3596	0.50215	1239.42090	622.3752049
3657	3668	0.25528	1199.62134	306.2393357
3660	1823	0.30866	42.31541	13.06107445
3660	3662	0.06647	33.43741	2.222584643
3661	3646	0.14577	2415.21973	352.06658
3661	3676	0.28430	2084.51563	592.6277936
3662	3660	0.06647	42.31541	2.812705303

3662	3681	0.25210	33.43741	8.429571061
3664	1964	1.95326	192.98232	376.9446464
3664	3385	1.76311	477.50006	841.8851308
3664	3727	0.64915	668.75238	434.1206075
3665	1991	3.45865	64.58759	223.3858682
3665	3565	1.74198	778.32202	1355.821392
3665	3714	1.16535	600.31348	699.5753139
3668	3657	0.25528	1239.42090	316.3993674
3668	3674	0.02974	1199.62134	35.67673865
3674	3668	0.02974	1239.42090	36.86037757
3674	3694	0.08248	1199.62134	98.94476812
3675	3610	0.50693	505.97577	256.4942971
3675	3725	0.50600	2399.88306	1214.340828
3676	3661	0.28430	2415.21973	686.6469692
3676	3699	0.07288	2084.51563	151.9194991
3678	3649	0.41979	7514.25000	3154.407008
3678	3734	0.50772	7376.61865	3745.256821
3680	3651	0.35526	2702.36621	960.0426198
3680	3707	0.18575	2698.00537	501.1544975
3681	3662	0.25210	42.31541	10.66771486
3681	3709	0.18629	33.43741	6.229055109
3683	1728	0.49366	86.34594	42.62553674
3683	1747	1.06717	151.20479	161.3612157
3683	3640	0.46207	1004.94745	464.3560682
3683	3750	0.53924	1071.33948	577.7091012
3689	1867	2.08444	519.73828	1083.36326
3689	3691	0.49642	397.48276	197.3183917
3689	3884	1.49756	891.73877	1335.432312
3691	1840	1.19662	25.04341	29.96744527
3691	3633	0.49914	395.12720	197.2237906
3691	3689	0.49642	407.33560	202.2095386
3693	3639	0.49061	1607.76404	788.7851157
3693	3716	0.40651	1598.86438	649.9543591
3694	3674	0.08248	1239.42090	102.2274358
3694	3702	0.02594	1199.62134	31.11817756
3697	3652	0.86492	85.23795	73.72400771
3697	3711	0.50801	105.91459	53.80567087
3699	3676	0.07288	2415.21973	176.0212139
3699	3759	0.49794	2084.51563	1037.963713
3700	3935	3.75822	29836.55469	112132.3366
3702	2003	2.01887	374.03488	755.1277982
3702	2004	2.53039	845.12817	2138.50387
3702	3694	0.02594	1239.42090	32.15057815
3702	3713	0.43440	1823.17126	791.9855953
3703	1747	0.93100	4.44311	4.13653541
3703	1759	1.46248	19.21010	28.09438705
3703	3645	0.51424	5151.89160	2649.308736
3703	3744	0.45899	4876.84033	2238.420943
3704	3510	3.21924	30062.63672	96778.84263
3705	3600	0.89452	790.53522	707.149565
3705	3706	0.08312	772.33734	64.1966797
3706	1759	0.59191	79.68921	47.16884029
3706	3705	0.08312	790.53522	65.70928749
3706	3810	0.79799	706.57220	563.8375499

3707	3680	0.18575	2702.36621	501.9645235
3707	3735	0.31796	2698.00537	857.8577874
3709	3681	0.18629	42.31541	7.882937729
3709	3710	0.10008	33.43741	3.346415993
3710	1809	0.21471	245.88774	52.79455666
3710	3709	0.10008	42.31541	4.234926233
3710	3825	0.71758	273.41907	196.2000563
3711	3697	0.50801	85.23795	43.30173098
3711	3777	0.84319	105.91459	89.30612314
3713	3702	0.43440	1856.64185	806.5252196
3713	3715	0.01066	1823.17126	19.43500563
3714	3665	1.16535	775.90924	904.2058328
3714	3761	0.13959	10.10766	1.410928259
3714	3782	0.59032	599.71271	354.022407
3715	3713	0.01066	1856.64185	19.79180212
3715	3721	0.01797	1823.17126	32.76238754
3716	1832	1.02446	18.88586	19.34780814
3716	1840	1.19285	9.15759	10.92363123
3716	3693	0.40651	1607.76404	653.5721599
3716	3743	0.09247	1600.85742	148.0312856
3721	3715	0.01797	1856.64185	33.36385404
3721	3742	0.08079	1823.17126	147.2940061
3725	3675	0.50600	505.97577	256.0237396
3725	3814	0.50767	2399.88306	1218.348633
3726	3619	0.98364	2295.34619	2257.794326
3726	3815	0.50738	2285.65405	1159.695152
3727	3664	0.64915	670.48236	435.243624
3727	3873	0.99323	668.75238	664.2249264
3731	1965	0.91639	240.44582	220.342145
3731	3493	2.01434	2098.06128	4226.208759
3731	3883	1.01250	2462.76978	2493.554402
3734	3678	0.50772	7514.25000	3815.13501
3734	3819	0.49491	7376.61865	3650.762336
3735	3707	0.31796	2702.36621	859.2443601
3735	3823	0.49923	2698.00537	1346.925221
3738	3629	1.00519	3455.93408	3473.870378
3738	3896	1.00190	1639.70728	1642.822724
3742	3721	0.08079	1856.64185	149.9980951
3742	3812	0.44321	1823.17126	808.0477341
3743	3716	0.09247	1612.40906	149.0994658
3743	3836	0.49449	1600.85742	791.6079856
3744	3703	0.45899	5150.37549	2363.970846
3744	3745	0.92825	4462.99023	4142.770681
3744	3798	0.37512	1180.98303	443.0103542
3745	1747	0.49910	825.95642	412.2348492
3745	3744	0.92825	4534.71875	4209.35268
3745	3746	0.06668	4912.18994	327.5448252
3746	3745	0.06668	4968.21289	331.2804355
3746	3747	0.55071	4912.18994	2705.192122
3747	1748	0.51196	215.08450	110.1146606
3747	3746	0.55071	4968.21289	2736.044521
3747	3748	0.07259	4825.66211	350.2948126
3748	3747	0.07259	4889.36426	354.9189516
3748	3749	0.06619	4825.66211	319.4105751

3749	3748	0.06619	4889.36426	323.6270204
3749	3750	0.31027	4825.66211	1497.258183
3750	3683	0.53924	787.20038	424.4899329
3750	3749	0.31027	4889.36426	1517.023049
3750	3751	0.49221	4987.53955	2454.916842
3750	3837	0.50824	838.97595	426.4011368
3751	1728	0.50203	109.09882	54.7708806
3751	1729	0.54695	60.00212	32.81815953
3751	3750	0.49221	4763.83887	2344.80913
3751	3752	0.50688	5021.90234	2545.501858
3752	3751	0.50688	4797.83545	2431.926833
3752	3759	1.00045	3293.16528	3294.647204
3752	3911	1.01329	1782.92896	1806.624086
3753	1714	0.55539	110.82693	61.55216865
3753	1726	0.83714	836.99585	700.6827059
3753	3754	0.10229	2591.24512	265.0584633
3753	3757	0.15560	3256.40820	506.6971159
3754	3753	0.10229	2567.84424	262.6647873
3754	3758	0.25166	2591.24512	652.1127469
3755	73	2.00000	2591.24512	5182.49024
3755	3758	0.49782	2567.84424	1278.32422
3757	3753	0.15560	3270.86377	508.9464026
3757	3759	0.74052	3256.40820	2411.4354
3758	3754	0.25166	2567.84424	646.2236814
3758	3755	0.49782	2591.24512	1289.973646
3759	3699	0.49794	2415.21973	1202.634512
3759	3752	1.00045	3125.45093	3126.857383
3759	3757	0.74052	3270.86377	2422.140039
3759	3839	0.50716	4486.94189	2275.597449
3761	3714	0.13959	8.63619	1.205525762
3761	3865	0.89082	10.10766	9.004105681
3777	3711	0.84319	85.23795	71.87178706
3777	3784	0.08198	105.91459	8.682878088
3782	3714	0.59032	776.77997	458.5487519
3782	3862	1.41274	599.71271	847.2381339
3784	3777	0.08198	85.23795	6.987807141
3784	3785	0.03662	105.91459	3.878592286
3785	1789	0.78028	145.24051	113.3282651
3785	3784	0.03662	85.23795	3.121413729
3785	3835	1.06851	129.60243	138.4814925
3785	4123	1.53343	139.07336	213.2592624
3798	601	0.50608	627.17908	317.4027888
3798	3744	0.37512	1382.79016	518.7122448
3798	3848	0.19897	1205.87744	239.9334342
3810	3706	0.79799	723.38098	577.2507882
3810	3842	0.10749	706.57220	75.94944578
3812	3742	0.44321	1856.64185	822.8822343
3812	3860	0.46958	1823.17126	856.1247603
3814	3725	0.50767	505.97577	256.8687192
3814	4011	1.00399	2399.88306	2409.458593
3815	3726	0.50738	2295.34619	1164.61275
3815	4013	1.00412	2285.65405	2295.070945
3819	3734	0.49491	7514.25000	3718.877468
3819	3841	0.07406	7376.61865	546.3123772

3823	1688	0.43801	12.57685	5.508786069
3823	1824	0.28766	1.56973	0.451548532
3823	3735	0.49923	2702.36621	1349.102283
3823	3886	0.50816	2707.70410	1375.946915
3825	1824	0.26713	1.85362	0.495157511
3825	3710	0.71758	287.49789	206.3027359
3825	3826	0.53022	292.94995	155.3279225
3825	3855	0.35609	552.67908	196.8034936
3826	3825	0.53022	289.51666	153.5075235
3826	3830	0.53662	292.94995	157.2028022
3830	1810	0.28795	24.09072	6.936922824
3830	3826	0.53662	289.51666	155.3604301
3830	3834	0.37393	272.87323	102.0354869
3834	1808	1.17855	183.91554	216.7536597
3834	3830	0.37393	269.28241	100.6927716
3834	3835	0.06575	133.95216	8.80735452
3835	3785	1.06851	133.95216	143.1292225
3835	3834	0.06575	129.60243	8.521359773
3836	3743	0.49449	1612.40906	797.3201561
3836	3893	0.49227	1600.85742	788.0540821
3837	1729	0.53472	50.59565	27.05450597
3837	1748	0.51132	120.53316	61.63101537
3837	3750	0.50824	842.23950	428.0598035
3837	3905	0.49855	1004.25153	500.6696003
3839	192	0.45279	1206.71729	546.3895217
3839	1714	0.78226	1161.61670	908.6862797
3839	3759	0.50716	4664.38721	2365.590617
3839	3853	0.25339	5294.05176	1341.459775
3840	192	0.55424	8.21627	4.553785485
3840	1729	0.45685	8.47689	3.872667197
3841	1688	0.56484	63.24691	35.72438464
3841	1832	1.15706	508.81018	588.7239069
3841	3819	0.07406	7514.25000	556.505355
3841	3882	0.43422	7887.54590	3424.930181
3842	3810	0.10749	723.38098	77.75622154
3842	3843	0.72964	692.03052	504.9331486
3842	3849	0.10932	303.05063	33.12949487
3843	1759	0.88388	35.39212	31.28238703
3843	1760	1.17758	58.96795	69.43947856
3843	3842	0.72964	686.45477	500.8648584
3843	3844	0.27608	700.06927	193.2751241
3844	3843	0.27608	683.64124	188.7396735
3844	3845	0.25097	700.06927	175.6963847
3845	3844	0.25097	683.64124	171.573442
3845	3846	0.09860	700.06927	69.02683002
3846	3845	0.09860	683.64124	67.40702626
3846	3847	0.13858	700.06927	97.01559944
3847	601	0.25864	622.81061	161.0837362
3847	3846	0.13858	683.64124	94.73900304
3847	3848	0.53574	77.25867	41.39055987
3848	1748	1.49257	32.13410	47.96239364
3848	3798	0.19897	1417.73291	282.0863171
3848	3847	0.53574	76.71136	41.09734401
3848	3899	0.42926	1207.78418	518.4534371

3849	3842	0.10932	325.43515	35.5765706
3849	4012	0.80449	303.05063	243.8012013
3853	3839	0.25339	5439.67871	1378.360188
3853	3870	0.14688	5294.05176	777.5903225
3855	3825	0.35609	569.07587	202.6422265
3855	3857	0.06446	497.85959	32.09202917
3855	3892	0.14979	54.81950	8.211412905
3857	3855	0.06446	510.90671	32.93304653
3857	3889	0.08901	497.85959	44.31448211
3860	3812	0.46958	1856.64185	871.8418799
3860	3861	0.01999	0.00000	0
3860	4299	1.29887	1823.17126	2368.062454
3861	3860	0.01999	0.00000	0
3861	3863	0.00829	0.00000	0
3862	3782	1.41274	776.77997	1097.388135
3862	3991	0.93551	599.71271	561.0372373
3863	3861	0.00829	0.00000	0
3865	3761	0.89082	8.63619	7.693290776
3865	4601	2.00571	10.10766	20.27303474
3870	3853	0.14688	5439.67871	798.9800089
3870	3914	0.10627	5294.05176	562.5988805
3873	3727	0.99323	670.48236	665.9431944
3873	3898	0.05714	668.75238	38.21251099
3881	1688	0.50223	0.00000	0
3881	3882	0.51842	2072.39722	1074.372167
3881	3886	0.48342	1825.15515	882.3165026
3882	3841	0.43422	8019.54736	3482.247855
3882	3881	0.51842	1825.15515	946.1969329
3882	4032	0.50047	6309.92822	3157.929776
3883	3731	1.01250	2278.49292	2306.974082
3883	4183	0.98428	2462.76978	2424.055039
3884	3689	1.49756	878.44324	1315.521458
3884	4023	0.48970	891.73877	436.6844757
3886	3823	0.50816	2712.18921	1378.226069
3886	3881	0.48342	2072.39722	1001.838264
3886	3888	0.21468	2085.11011	447.6314384
3886	3964	0.28538	2367.42603	675.6160404
3888	458	0.19247	107.54269	20.69874154
3888	1824	0.39170	163.29884	63.96415563
3888	3886	0.21468	3238.39380	695.218381
3888	3890	0.02802	2177.44214	61.01192876
3889	1686	0.14996	324.38153	48.64425424
3889	3857	0.08901	510.90671	45.47580626
3889	3892	0.03647	3292.17212	120.0655172
3889	3915	0.06091	2910.51685	177.2795813
3890	3888	0.02802	3337.52808	93.5175368
3890	3891	0.07515	2177.44214	163.6347768
3891	3890	0.07515	3337.52808	250.8152352
3891	3892	0.18340	2177.44214	399.3428885
3892	3855	0.14979	58.16914	8.713155481
3892	3889	0.03647	2130.88208	77.71326946
3892	3891	0.18340	3337.52808	612.1026499
3892	3924	0.09426	31.51316	2.970430462
3893	3836	0.49227	1612.40906	793.740608

3893	4030	0.48891	1600.85742	782.6752012
3896	3738	1.00190	3455.93408	3462.500355
3896	4180	0.97134	1639.70728	1592.713269
3898	3873	0.05714	670.48236	38.31136205
3898	4173	0.94730	668.75238	633.5091296
3899	3848	0.42926	1418.00256	608.6917789
3899	4053	0.49943	1207.78418	603.203653
3905	3837	0.49855	1009.03009	503.0519514
3905	4059	0.49425	1004.25153	496.3513187
3911	3752	1.01329	1726.57629	1749.522489
3911	3968	0.24542	1782.92896	437.5664254
3914	69	4.00000	1198.02222	4792.08888
3914	3870	0.10627	5439.67871	578.0746565
3914	3939	0.07622	5431.79150	414.0111481
3915	3889	0.06091	4083.06348	248.6993966
3915	3921	0.01755	2910.51685	51.07957072
3921	3915	0.01755	4083.06348	71.65776407
3921	3922	0.01750	2910.51685	50.93404488
3922	3921	0.01750	4083.06348	71.4536109
3922	3949	0.07136	1135.56934	81.0342281
3922	6226	0.02516	5001.56348	125.8393372
3923	3922	0.01146	3171.20996	36.34206614
3924	3892	0.09426	33.65879	3.172677545
3924	3942	0.04371	31.51316	1.377440224
3930	30208	0.04466	1915.71179	85.55568854
3932	3930	0.07768	1915.71179	148.8124918
3933	3704	3.49972	30062.63672	105210.811
3934	3933	0.05539	30062.63672	1665.169448
3935	3938	0.11016	29836.55469	3286.794865
3936	3934	0.01246	30062.63672	374.5804535
3937	3936	0.09539	30062.63672	2867.674917
3938	3923	0.25011	3171.20996	793.1513231
3938	3940	0.05168	26665.34375	1378.064965
3939	3914	0.07622	5614.47754	427.9354781
3939	3987	0.25370	5431.79150	1378.045504
3940	3952	0.17204	26665.34375	4587.505739
3941	3947	0.02397	5001.56348	119.8874766
3941	6226	0.01635	3138.06177	51.30730994
3942	454	0.05922	747.25684	44.25255006
3942	3924	0.04371	33.65879	1.471225711
3942	3954	0.06953	757.45532	52.6658684
3943	3937	0.22387	30062.63672	6730.122483
3945	3943	0.02251	30062.63672	676.7099526
3947	3941	0.02397	3138.06177	75.21934063
3947	3948	0.00755	5001.56348	37.76180427
3948	3932	0.05896	1915.71179	112.9503671
3948	3947	0.00755	3138.06177	23.69236636
3948	30209	0.01479	4150.92627	61.39219953
3949	3922	0.07136	1000.40826	71.38913343
3949	3954	0.07026	1135.56934	79.78510183
3952	3953	0.01339	28581.05664	382.7003484
3953	8375	0.14071	28581.05664	4021.64048
3954	3942	0.06953	753.64465	52.40091251
3954	3949	0.07026	1000.40826	70.28868435

3954	3978	0.23110	783.60419	181.0909283
3957	3945	0.19642	3365.53101	661.057601
3957	3962	0.03414	3573.48364	121.9987315
3957	30209	0.05607	4203.13623	235.6698484
3962	3957	0.03414	2938.16772	100.309046
3962	3975	0.07917	3573.48364	282.9126998
3964	459	0.10110	693.19934	70.08245327
3964	3886	0.28538	1465.86938	418.3298037
3964	4034	0.21385	3019.32031	645.6816483
3965	3977	0.09172	28581.05664	2621.454515
3967	3945	0.39685	26697.10547	10594.74631
3968	3911	0.24542	1726.57629	423.7363531
3968	4066	0.25568	1782.92896	455.8592765
3975	452	0.11732	103.27583	12.11632038
3975	3962	0.07917	2938.16772	232.6147384
3975	6333	0.02795	3508.24146	98.05534881
3977	3993	0.12031	28581.05664	3438.586924
3978	3954	0.23110	644.63257	148.9745869
3978	3995	0.13525	783.60419	105.9824667
3979	3957	0.29719	4053.05688	1204.527974
3979	3967	0.09890	26697.10547	2640.343731
3987	3939	0.25370	5614.47754	1424.392952
3987	4049	0.12406	5431.79150	673.8680535
3991	3862	0.93551	776.77997	726.6854297
3991	4277	1.54185	599.71271	924.6670419
3993	4048	0.18788	28581.05664	5369.808922
3994	3979	0.11948	30750.16211	3674.029369
3995	460	0.04061	226.71503	9.206897368
3995	3978	0.13525	644.63257	87.18655509
3995	4035	0.19824	830.31201	164.6010529
4008	2003	2.66007	17.48483	46.51087174
4008	2005	3.99776	17.38946	69.51888761
4009	1896	1.05206	0.00000	0
4009	4010	0.79458	0.00000	0
4010	4009	0.79458	0.00000	0
4010	4011	0.49784	0.00000	0
4011	3814	1.00399	505.97577	507.9946133
4011	4010	0.49784	0.00000	0
4011	4013	0.50677	1667.24023	844.9073314
4011	4460	1.06452	771.32538	821.0912935
4012	1768	1.10164	121.41917	133.7602144
4012	3849	0.80449	325.43515	261.8093238
4012	4140	0.35635	191.75531	68.33200472
4013	3815	1.00412	2295.34619	2304.803016
4013	4011	0.50677	283.97501	143.9100158
4013	4017	0.49849	1999.21423	996.5883015
4013	4467	1.06335	2074.72974	2206.163869
4016	1876	1.04159	69.98402	72.89465539
4016	4017	0.23650	1076.45166	254.5808176
4016	4022	0.27028	2007.79724	542.667438
4017	4013	0.49849	1076.45166	536.600388
4017	4016	0.23650	1999.21423	472.8141654
4019	1868	1.23776	7.57834	9.380166118
4019	4020	0.76702	959.33643	735.8302285

4019	4023	0.73465	1815.40295	1333.685777
4020	4019	0.76702	1822.98132	1398.263132
4020	4021	0.49780	1015.98499	505.757328
4020	4429	1.02044	288.97183	294.8784142
4021	1867	2.26847	554.57990	1258.047866
4021	4020	0.49780	2049.75269	1020.366889
4021	4022	0.49918	1289.73242	643.8086294
4022	4016	0.27028	1099.77490	297.24716
4022	4021	0.49918	2319.81519	1158.005347
4022	4437	1.03407	308.62769	319.1426354
4023	3884	0.48970	878.44324	430.1736546
4023	4019	0.73465	954.17145	700.9820557
4023	4028	0.99973	2259.25464	2258.644641
4023	4425	1.01457	774.55396	785.8392112
4024	1840	1.16417	648.79596	755.3087928
4024	1841	1.24130	4.51463	5.604010219
4024	4027	0.25918	2521.22485	653.4510566
4024	4028	0.24139	1596.40417	385.3560026
4025	1329	0.87397	420.56131	367.5579681
4025	4026	0.24959	3128.36426	780.8084357
4025	4030	1.00598	2096.01318	2108.547339
4026	4025	0.24959	2485.83130	620.4386342
4026	4032	0.75635	3128.36426	2366.138308
4027	4024	0.25918	1851.20996	479.7965974
4027	4030	1.00042	2521.22485	2522.283764
4028	4023	0.99973	1596.40417	1595.973141
4028	4024	0.24139	2259.25464	545.3614775
4029	4031	0.15004	2872.50171	430.9901566
4029	4032	0.29304	3945.45313	1156.175585
4030	3893	0.48891	1612.40906	788.3229135
4030	4025	1.00598	2733.29468	2749.639782
4030	4027	1.00042	1851.20996	1851.987468
4030	4402	0.99793	1349.84814	1347.053954
4031	1252	0.26864	530.67731	142.5611526
4031	4029	0.15004	3945.45313	591.9757876
4031	4034	0.56221	2516.72778	1414.929525
4032	3882	0.50047	6194.68750	3100.255253
4032	4026	0.75635	2485.83130	1880.158504
4032	4029	0.29304	2872.50171	841.7579011
4032	4079	0.11124	12636.10254	1405.640047
4034	3964	0.21385	2103.05298	449.7378798
4034	4031	0.56221	3578.06787	2011.625537
4034	4035	0.03378	685.23944	23.14738828
4035	3995	0.19824	685.23944	135.8418666
4035	4034	0.03378	830.31201	28.0479397
4040	4041	0.06477	300.98013	19.49448302
4040	4091	0.15511	287.64056	44.61592726
4041	452	0.34360	5.53760	1.90271936
4041	4040	0.06477	287.64056	18.63047907
4041	4045	0.48222	305.96753	147.5436623
4043	4051	0.02199	0.00000	0
4045	451	0.24815	288.52051	71.59636456
4045	1682	0.48808	3.38016	1.649788493
4045	4041	0.48222	293.17819	141.3763868

4045	4047	0.51120	75.56116	38.62686499
4047	4045	0.51120	58.66633	29.9902279
4047	4169	0.43221	75.56116	32.65828896
4048	4090	0.23335	28581.05664	6669.389567
4049	3987	0.12406	5614.47754	696.5320836
4049	4129	0.27595	5431.79150	1498.902864
4051	4043	0.02199	0.00000	0
4051	4080	0.15971	0.00000	0
4053	1749	1.11963	177.46030	198.6898757
4053	1760	1.22893	147.65312	181.4553488
4053	3899	0.49943	1418.00256	708.1930185
4053	4319	0.75663	1080.25244	817.3514037
4054	3994	0.18460	30750.16211	5676.479926
4055	4062	0.04115	409.71103	16.85960888
4055	4073	0.04633	372.30179	17.24874193
4059	1730	0.48474	127.29837	61.70661187
4059	1749	0.88195	76.75152	67.69100306
4059	3905	0.49425	1009.03009	498.713122
4059	4323	0.74583	890.91656	664.4722979
4060	4065	0.02007	2679.45581	53.77667811
4060	6333	0.21605	2414.74951	521.7066316
4062	4055	0.04115	372.30179	15.32021866
4062	4067	0.02875	409.71103	11.77919211
4065	4060	0.02007	2414.74951	48.46402267
4065	4081	0.10101	2679.45581	270.6518314
4066	1730	0.51086	75.61082	38.62654351
4066	3968	0.25568	1726.57629	441.4510258
4066	4126	0.23293	1803.71619	420.1396121
4067	4062	0.02875	372.30179	10.70367646
4067	4068	0.00940	409.71103	3.851283682
4068	4067	0.00940	372.30179	3.499636826
4068	4075	0.05617	409.71103	23.01346856
4073	4055	0.04633	409.71103	18.98191202
4073	4087	0.05971	372.30179	22.23013988
4075	453	0.21130	0.00000	0
4075	4068	0.05617	372.30179	20.91219154
4075	4085	0.08988	409.71103	36.82482738
4079	4032	0.11124	10805.37793	1201.990241
4079	4092	0.04636	12636.10254	585.8097138
4080	4051	0.15971	0.00000	0
4080	4095	0.04905	0.00000	0
4081	4065	0.10101	2414.74951	243.913848
4081	4089	0.02960	2679.45581	79.31189198
4085	4075	0.08988	372.30179	33.46248489
4085	4094	0.05814	409.71103	23.82059928
4087	4073	0.05971	409.71103	24.4638456
4087	4098	0.05243	372.30179	19.51978285
4089	4081	0.02960	2414.74951	71.4765855
4089	4093	0.01074	2679.45581	28.7773554
4090	4158	0.47638	28581.05664	13615.44376
4091	4040	0.15511	300.98013	46.68502796
4091	4089	0.01022	2414.74951	24.67873999
4091	4093	0.00896	59.54831	0.533552858
4092	4079	0.04636	10805.37793	500.9373208

4092	4104	0.04047	12636.10254	511.3830698
4093	4091	0.00896	845.45911	7.575313626
4093	4098	0.16911	764.69183	129.3170354
4093	4185	0.36151	1734.74463	627.1275312
4094	455	0.17677	239.53806	42.34314287
4094	4085	0.05814	372.30179	21.64562607
4094	4100	0.07104	310.60977	22.06571806
4094	4103	0.03514	349.08563	12.26686904
4095	4080	0.04905	0.00000	0
4095	4110	0.07642	0.00000	0
4096	4054	0.24598	30750.16211	7563.924876
4098	453	0.12687	354.98080	45.0364141
4098	4087	0.05243	409.71103	21.4811493
4098	4093	0.16911	605.89148	102.4623082
4100	4094	0.07104	294.65088	20.93199852
4100	4103	0.06274	168.07036	10.54473439
4100	4107	0.03264	588.16815	19.19780842
4101	4092	0.04019	10805.37793	434.268139
4103	4094	0.03514	307.34543	10.80011841
4103	4100	0.06274	277.55841	17.41401464
4103	4117	0.06027	517.15601	31.16899272
4104	4112	0.04922	12636.10254	621.948967
4107	4100	0.03264	462.72122	15.10322062
4107	4114	0.09644	588.16815	56.72293639
4108	4096	0.10919	30750.16211	3357.610201
4110	4095	0.07642	0.00000	0
4110	4113	0.01673	0.00000	0
4111	4101	0.04996	10805.37793	539.8366814
4112	4133	0.06829	12636.10254	862.9194425
4113	4110	0.01673	0.00000	0
4113	4120	0.01339	0.00000	0
4114	4107	0.09644	462.72122	44.62483446
4114	4122	0.04141	588.16815	24.35604309
4117	4103	0.06027	584.90381	35.25215263
4117	4131	0.05426	517.15601	28.0608851
4120	4113	0.01339	0.00000	0
4120	4124	0.01072	0.00000	0
4122	456	0.08212	359.95502	29.55950624
4122	4114	0.04141	462.72122	19.16128572
4122	4130	0.07178	677.57751	48.63651367
4123	3785	1.53343	112.57282	172.6225394
4123	4157	0.13669	139.07336	19.00993758
4124	455	0.45682	111.12774	50.76537419
4124	1253	0.50293	3.45489	1.737567828
4124	4120	0.01072	0.00000	0
4124	4127	0.01607	467.08722	7.506091625
4125	137	0.25196	924.98901	233.060231
4125	4449	0.06240	901.59650	56.2596216
4125	4452	0.06240	0.00000	0
4126	4066	0.23293	1747.99536	407.1605592
4126	4210	0.24752	1803.71619	446.4558313
4127	4124	0.01607	107.59844	1.729106931
4127	4148	0.08758	467.08722	40.90749873
4129	182	0.28147	64.73347	18.2205298

4129	4049	0.27595	5614.47754	1549.315077
4129	4159	0.12585	5371.17139	675.9619194
4130	4122	0.07178	561.94818	40.33664036
4130	4141	0.09951	677.57751	67.42573802
4131	453	0.18198	240.42320	43.75221394
4131	4117	0.05426	584.90381	31.73688073
4131	4135	0.00765	401.68808	3.072913812
4132	4111	0.06849	10805.37793	740.0603344
4133	4151	0.06925	12636.10254	875.0501009
4135	4131	0.00765	362.67764	2.774483946
4135	4145	0.06303	401.68808	25.31839968
4140	1760	0.85526	111.18653	95.09339165
4140	4012	0.35635	213.27213	75.99952353
4140	4459	0.70668	290.18771	205.0698509
4141	4130	0.09951	561.94818	55.91946339
4141	4153	0.09377	677.57751	63.53644311
4145	4135	0.06303	362.67764	22.85957165
4145	4161	0.06024	401.68808	24.19768994
4148	4127	0.08758	107.59844	9.423471375
4148	4154	0.01340	467.08722	6.258968748
4151	4155	0.01619	12636.10254	204.5785001
4152	4132	0.07759	10805.37793	838.3892736
4153	4141	0.09377	561.94818	52.69388084
4153	4154	0.05041	677.57751	34.15668228
4154	4148	0.01340	107.59844	1.441819096
4154	4153	0.05041	561.94818	28.32780775
4154	4238	0.42178	790.43518	333.3897502
4154	30207	0.11703	444.01501	51.96307662
4155	4230	0.18213	4250.77344	774.1933666
4155	4242	0.20452	8385.32910	1714.967508
4157	1790	0.49425	11.23770	5.554233225
4157	4123	0.13669	112.57282	15.38757877
4157	4424	0.59642	145.63214	86.85792094
4158	4160	0.03930	28581.05664	1123.235526
4159	140	0.25238	33.88937	8.552999201
4159	4129	0.12585	5553.21631	698.8722726
4159	4218	0.12563	5337.28223	670.5227666
4160	4172	0.04840	28581.05664	1383.323141
4161	4145	0.06024	362.67764	21.84770103
4161	4189	0.06191	401.68808	24.86850903
4169	1682	0.49463	62.41077	30.87023917
4169	1790	0.51444	58.80446	30.2513664
4169	4047	0.43221	58.66633	25.35617449
4169	4411	0.55650	129.82358	72.24682227
4170	4108	0.39660	30750.16211	12195.51429
4172	4181	0.04517	28581.05664	1291.006328
4173	1991	1.59929	840.11884	1343.59366
4173	3898	0.94730	670.48236	635.1479396
4173	4613	1.00053	1366.81128	1367.53569
4178	4170	0.06517	30750.16211	2003.988065
4180	3896	0.97134	3455.93408	3356.887009
4180	4622	1.00017	1639.70728	1639.98603
4181	4201	0.07225	19744.37500	1426.531094
4181	4206	0.14418	8836.68066	1274.072618

4182	4091	0.35301	1642.17810	579.7052911
4183	3883	0.98428	2278.49292	2242.675011
4183	4624	0.99996	2462.76978	2462.671269
4185	4186	0.00827	545.99139	4.515348795
4185	4198	0.04880	73.76581	3.599771528
4185	29908	0.25236	1597.76318	403.2115161
4186	1682	0.51269	485.58673	248.9554606
4186	4182	0.01450	1642.17810	23.81158245
4186	4185	0.00827	238.57993	1.973056021
4187	4188	0.11101	11.60446	1.288211105
4187	4194	0.07654	11.38371	0.871309163
4188	4187	0.11101	11.38371	1.263705647
4188	4189	0.06137	11.60446	0.71216571
4189	4161	0.06191	362.67764	22.45337269
4189	4188	0.06137	11.38371	0.698618283
4189	4191	0.09446	61.07083	5.768750602
4189	4282	0.19410	458.06897	88.91118708
4190	456	0.17108	64.45073	11.02623089
4190	457	0.24563	3.26665	0.80238724
4190	4192	0.04738	60.51970	2.867423386
4190	4193	0.04364	0.00000	0
4191	4189	0.09446	60.51970	5.716690862
4191	4192	0.08894	61.07083	5.43163962
4192	4190	0.04738	61.07083	2.893535925
4192	4191	0.08894	60.51970	5.382622118
4193	4190	0.04364	0.00000	0
4193	4195	0.09102	0.00000	0
4194	453	0.21873	66.57732	14.5624572
4194	1687	0.24570	4.31594	1.060426458
4194	4187	0.07654	11.60446	0.888205368
4194	4197	0.14756	244.19582	36.0335352
4195	4193	0.09102	0.00000	0
4195	4199	0.08489	0.00000	0
4197	4194	0.14756	73.76581	10.88488292
4197	4198	0.05240	244.19582	12.79586097
4198	4185	0.04880	244.19582	11.91675602
4198	4197	0.05240	73.76581	3.865328444
4199	4195	0.08489	0.00000	0
4200	4186	0.01562	1326.40320	20.71841798
4201	4255	0.22620	19744.37500	4466.177625
4206	4152	0.32461	109.98351	35.70174718
4206	4229	0.14245	8726.69727	1243.118026
4207	4178	0.09745	30750.16211	2996.603298
4208	4212	0.07880	454.27936	35.79721357
4208	4221	0.07251	473.72845	34.35004991
4210	4126	0.24752	1747.99536	432.6638115
4210	4211	0.24868	73.04710	18.16535283
4210	4261	0.11939	1730.66907	206.6245803
4211	165	0.11877	20.02718	2.378628169
4211	4210	0.24868	78.66727	19.5629767
4211	4220	0.25229	81.42641	20.54306898
4212	4208	0.07880	473.72845	37.32980186
4212	4213	0.51893	90.97868	47.21156641
4212	4350	0.28590	363.30066	103.8676587

4213	1651	0.53430	90.97868	48.60990872
4213	4212	0.51893	90.10112	46.7561742
4213	4215	0.23193	0.00000	0
4214	4215	0.25856	0.00000	0
4214	4464	0.49804	0.00000	0
4215	4213	0.23193	0.00000	0
4215	4214	0.25856	0.00000	0
4216	184	0.07923	30.50156	2.416638599
4216	4221	0.21753	454.27936	98.81938918
4216	4226	0.13089	494.44147	64.71744401
4217	140	0.12043	264.30527	31.83028367
4217	150	0.24838	181.22685	45.013125
4217	4218	0.25086	1066.44592	267.5286235
4217	4220	0.24972	883.14435	220.5388071
4218	4159	0.12563	5518.16553	693.2471355
4218	4217	0.25086	1046.45190	262.5129236
4218	4219	0.09377	877.42676	82.27630729
4218	4267	0.11963	4047.66455	484.2221101
4219	4218	0.09377	899.65033	84.36021144
4219	4223	0.13031	877.42676	114.3374811
4220	4211	0.25229	86.78759	21.89564108
4220	4217	0.24972	891.93097	222.7330018
4220	4266	0.11693	796.35675	93.11799478
4221	4208	0.07251	454.27936	32.93979639
4221	4216	0.21753	473.72845	103.0501497
4223	137	0.23663	327.28421	77.44526261
4223	182	0.26531	169.46339	44.960332
4223	4219	0.13031	899.65033	117.2334345
4223	4224	0.12411	443.42715	55.03374359
4224	4223	0.12411	460.60770	57.16602165
4224	4225	0.05171	443.42715	22.92961793
4225	4224	0.05171	460.60770	23.81802417
4225	4226	0.09998	443.42715	44.33384646
4226	4216	0.13089	475.59583	62.25073819
4226	4225	0.09998	460.60770	46.05155785
4226	4253	0.09234	33.83378	3.124211245
4229	4280	0.21055	8726.69727	1837.40611
4230	4318	0.21199	0.00000	0
4230	4368	0.38761	4250.77344	1647.642293
4237	4274	0.09315	444.01501	41.35999818
4237	30207	0.07575	411.51822	31.17250517
4238	4154	0.42178	347.81381	146.7009088
4238	4244	0.03256	790.43518	25.73656946
4242	4280	0.09323	8385.32910	781.764232
4243	4255	0.14085	9399.54980	1323.926589
4244	1253	0.11517	271.90887	31.31574456
4244	4238	0.03256	347.81381	11.32481765
4244	4270	0.12759	918.15552	117.1474628
4249	4152	0.25819	10695.39453	2761.443914
4253	4226	0.09234	32.16866	2.970454064
4253	4309	0.11516	33.83378	3.896298105
4255	4351	0.31515	29143.92578	9184.70821
4259	4243	0.04989	9399.54980	468.9435395
4261	165	0.24977	0.00000	0

4261	4210	0.11939	1669.32813	199.3010854
4261	4328	0.12669	1730.66907	219.2584645
4262	4259	0.00684	9399.54980	64.29292063
4266	165	0.25212	0.00000	0
4266	4220	0.11693	810.50458	94.77230054
4266	4330	0.12401	796.35675	98.75620057
4267	4218	0.11963	4186.33008	500.8106675
4267	4320	0.11853	4047.66455	479.7696791
4269	4207	0.22632	20632.66602	4669.584974
4270	4244	0.12759	471.88574	60.20790157
4270	4333	0.28157	918.15552	258.5250498
4274	4237	0.09315	411.51822	38.33292219
4274	4331	0.10808	444.01501	47.98914228
4277	3991	1.54185	776.77997	1197.678197
4277	4317	0.16190	539.41858	87.3318681
4277	4390	0.29753	60.29416	17.93932142
4280	4431	0.33037	17112.02539	5653.299828
4282	4189	0.19410	419.38892	81.40338937
4282	4301	0.04992	458.06897	22.86680298
4292	4249	0.08477	10695.39453	906.6485943
4299	3860	1.29887	1856.64185	2411.5364
4299	4302	0.01739	1823.17126	31.70494821
4301	457	0.24623	194.51221	47.89474147
4301	1687	0.25000	267.94769	66.9869225
4301	4282	0.04992	419.38892	20.93589489
4301	4410	0.25420	684.96851	174.1189952
4302	4299	0.01739	1856.64185	32.28700177
4302	4317	0.01964	1823.17126	35.80708355
4306	4200	0.23909	1326.40320	317.1297411
4309	137	0.27257	33.83378	9.222073415
4309	4253	0.11516	32.16866	3.704542886
4309	4355	0.08678	0.00000	0
4317	4277	0.16190	715.44440	115.8304484
4317	4302	0.01964	1856.64185	36.46444593
4317	4335	0.06580	663.62506	43.66652895
4317	4354	0.06901	1632.57666	112.6641153
4318	4366	0.10493	0.00000	0
4319	4053	0.75663	1295.36047	980.1085924
4319	4325	0.99562	1884.29810	1876.044874
4319	4485	0.31798	2546.51514	809.7408842
4320	4267	0.11853	4186.33008	496.2057044
4320	4336	0.02064	4047.66455	83.54379631
4322	175	0.37973	95.94605	36.43359357
4322	1730	0.70549	112.36266	79.270733
4322	4323	0.49781	2204.18530	1097.265484
4322	4328	0.49850	2369.55859	1181.224957
4323	4059	0.74583	898.37799	670.0372563
4323	4322	0.49781	2229.33716	1109.786332
4323	4329	0.50265	2030.30176	1020.53118
4323	4502	0.37609	1054.53455	396.5998989
4325	4319	0.99562	1859.01917	1850.876666
4325	4327	0.14332	1884.29810	270.0576037
4326	165	0.12674	49.44783	6.267017974
4326	166	0.42057	76.13386	32.0196175

4326	4328	0.25398	3951.97559	1003.72276
4326	4330	0.24797	4036.85596	1001.019172
4327	1749	0.75324	371.45270	279.7930317
4327	4325	0.14332	1859.01917	266.4346274
4327	4329	0.35449	2054.93091	728.4524583
4328	4261	0.12669	1669.32813	211.4871808
4328	4322	0.49850	2346.79321	1169.876415
4328	4326	0.25398	4042.36694	1026.680355
4328	4506	0.38653	596.69623	230.6409938
4329	4323	0.50265	2054.93091	1032.911022
4329	4327	0.35449	2030.30176	719.7216709
4330	150	0.24713	520.67072	128.673355
4330	4266	0.12401	810.50458	100.510673
4330	4326	0.24797	3946.48511	978.6099127
4330	4392	0.16528	2778.93115	459.3017405
4331	1254	0.15726	108.17743	17.01198264
4331	4274	0.10808	411.51822	44.47688922
4331	4409	0.21195	335.83759	71.1807772
4333	4270	0.28157	471.88574	132.8688678
4333	4446	0.29613	918.15552	271.8933941
4335	4317	0.06580	844.34277	55.55775427
4335	4354	0.07276	1.83094	0.133219194
4335	4759	1.46470	665.48352	974.7337117
4336	137	0.23041	104.12686	23.99186981
4336	150	0.25314	939.11743	237.7281862
4336	4320	0.02064	4186.33008	86.40585285
4336	4373	0.10399	4908.34033	510.4183109
4350	4212	0.28590	383.62735	109.6790594
4350	4435	0.19363	363.30066	70.3459068
4351	4368	0.12209	29143.92578	3558.181898
4352	4207	0.36598	10117.49512	3702.800864
4354	4317	0.06901	1661.35547	114.650141
4354	4335	0.07276	1.85849	0.135223732
4354	4390	0.10496	1634.40771	171.5474332
4355	4309	0.08678	0.00000	0
4356	4269	0.31893	20632.66602	6580.376174
4362	4306	0.11115	1326.40320	147.4297157
4363	4262	0.21467	9399.54980	2017.801356
4363	4292	0.15431	7586.38770	1170.655486
4365	1254	0.49972	0.00000	0
4366	4356	0.15571	0.00000	0
4368	4401	0.15375	33394.69922	5134.435005
4373	4336	0.10399	5025.36865	522.5880859
4373	4445	0.12077	4908.34033	592.7802617
4387	4356	0.12365	20632.66602	2551.229153
4388	4441	0.09958	0.00000	0
4390	4277	0.29753	61.33559	18.24917809
4390	4354	0.10496	1663.21399	174.5709404
4390	5178	1.14407	1694.70178	1938.857465
4391	4387	0.04454	20632.66602	918.9789445
4392	4330	0.16528	2684.93970	443.7668336
4392	4453	0.07901	2778.93115	219.5633502
4401	4504	0.22470	33394.69922	7503.788915
4402	1329	0.95951	361.44531	346.8103894

4402	1841	1.11213	419.31097	466.3283091
4402	4030	0.99793	1328.66638	1325.916041
4402	4925	0.80927	2129.08740	1723.00656
4403	457	0.25065	377.55450	94.63403543
4403	1225	0.25143	9.21931	2.318011113
4403	4405	0.15877	465.73633	73.94495711
4403	4410	0.24312	25.46801	6.191782591
4405	4403	0.15877	404.74786	64.26181773
4405	4406	0.05516	465.73633	25.69001596
4406	4405	0.05516	404.74786	22.32589196
4406	4407	0.01862	465.73633	8.672010465
4407	4406	0.01862	404.74786	7.536405153
4407	4409	0.01242	465.73633	5.784445219
4408	1254	0.17561	1076.29675	189.0084723
4408	4409	0.15095	1203.30835	181.6393954
4408	4413	0.07590	135.17995	10.26015821
4409	4331	0.21195	299.44455	63.46727237
4409	4407	0.01242	404.74786	5.026968421
4409	4408	0.15095	1183.17725	178.6006059
4409	4563	0.36542	1707.46362	623.941356
4410	4301	0.25420	676.89410	172.0664802
4410	4403	0.24312	55.10770	13.39778402
4410	4427	0.24012	187.03120	44.90993174
4410	30125	0.08725	464.78949	40.552883
4411	4169	0.55650	109.04140	60.6815391
4411	4520	0.25291	129.82358	32.83368162
4412	4414	0.03238	2.12093	0.068675713
4412	4417	0.08967	2.12093	0.190183793
4413	4408	0.07590	138.24066	10.49246609
4413	4415	0.04068	135.17995	5.499120366
4414	1255	0.27025	133.05902	35.95920016
4414	4412	0.03238	2.12093	0.068675713
4414	4415	0.07033	138.24066	9.722465618
4415	4413	0.04068	138.24066	5.623630049
4415	4414	0.07033	135.17995	9.507205884
4417	4412	0.08967	2.12093	0.190183793
4417	4418	0.05585	2.12093	0.118453941
4418	4417	0.05585	2.12093	0.118453941
4418	30121	0.14538	2.12093	0.308340803
4422	4423	0.00896	70.03201	0.62748681
4422	4427	0.25576	255.55711	65.36128645
4422	4481	0.09314	1672.63171	155.7889175
4423	4362	0.13887	1326.40320	184.1976124
4423	4422	0.00896	250.08099	2.24072567
4424	4157	0.59642	119.13014	71.0515981
4424	4665	0.49842	145.63214	72.58597122
4425	1841	1.43017	45.13807	64.55511357
4425	1868	0.98651	118.04971	116.4572194
4425	4023	1.01457	562.87744	571.0785643
4425	4672	0.49807	864.04291	430.3538522
4427	1209	0.24911	9.68339	2.412229283
4427	1687	0.25740	83.73781	21.55411229
4427	4410	0.24012	181.92937	43.68488032
4427	4422	0.25576	251.56035	64.33907512

4428	4292	0.56820	3109.00659	1766.537544
4428	4391	0.10087	20632.66602	2081.217021
4429	4020	1.02044	118.84892	121.2781919
4429	4696	0.50884	288.97183	147.040426
4431	4484	0.09050	17112.02539	1548.638298
4433	4439	0.05136	0.00000	0
4433	4443	0.16496	193.88792	31.98375128
4434	4363	0.16371	16985.93750	2780.767828
4435	4350	0.19363	383.62735	74.28176378
4435	4433	0.09044	193.88792	17.53522348
4435	4503	0.14056	304.79269	42.84166051
4436	4442	0.01571	522.63074	8.210528925
4437	4022	1.03407	430.68802	445.3615608
4437	4700	0.50058	308.62769	154.4928491
4438	4352	0.21048	10117.49512	2129.530373
4439	4433	0.05136	0.00000	0
4439	4435	0.13857	189.28809	26.22965063
4440	4441	0.03531	326.92255	11.54363524
4440	4450	0.00668	0.00000	0
4441	4388	0.09958	0.00000	0
4441	4450	0.03587	334.37918	11.99418119
4441	13861	0.14617	326.92255	47.78626913
4442	4440	0.20217	326.92255	66.09393193
4442	4454	0.00573	195.70822	1.121408101
4443	183	0.19649	532.01593	104.5358101
4443	4436	0.00871	522.63074	4.552113745
4445	4373	0.12077	5025.36865	606.9137719
4445	4447	0.25374	2196.87939	557.4361764
4445	4448	0.04483	1044.78613	46.83776221
4445	4477	0.06008	6473.22461	388.9113346
4446	4333	0.29613	471.88574	139.7395242
4446	4636	0.47027	918.15552	431.7809964
4447	150	0.23539	259.01843	60.97034824
4447	151	0.24051	731.62567	175.9632899
4447	4445	0.25374	2320.11499	588.7059776
4447	4453	0.24547	1722.95935	422.9348316
4448	4445	0.04483	1020.73639	45.75961236
4448	4449	0.07791	1044.78613	81.39928739
4449	186	0.10496	144.04248	15.1186987
4449	4125	0.06240	924.98901	57.71931422
4449	4448	0.07791	1020.73639	79.52557214
4450	4440	0.00668	0.00000	0
4450	4454	0.19987	334.37918	66.83236671
4452	4125	0.06240	0.00000	0
4453	4392	0.07901	2684.93970	212.1370857
4453	4447	0.24547	1826.60547	448.3768447
4453	4512	0.18254	1210.16431	220.9033931
4454	4465	0.01230	530.08740	6.52007502
4459	4140	0.70668	314.33478	222.1341023
4459	4752	0.49521	290.18771	143.7038559
4460	1896	1.23893	212.28804	263.0100214
4460	4011	1.06452	260.68320	277.5024801
4460	4864	0.68568	944.48920	647.6173547
4464	1651	0.43009	0.00000	0

4464	4214	0.49804	0.00000	0
4464	4757	0.49830	0.00000	0
4465	4468	0.00576	530.08740	3.053303424
4466	132	0.12894	9.13137	1.177398848
4466	4439	0.12065	189.28809	22.83760806
4466	4443	0.01803	340.82843	6.145136593
4467	1876	0.76376	299.56940	228.7991249
4467	4013	1.06335	1623.91919	1726.794471
4467	5102	0.98955	2281.76685	2257.922386
4468	4466	0.00576	530.08740	3.053303424
4477	4445	0.06008	6491.06738	389.9833282
4477	4492	0.03005	6473.22461	194.5203995
4481	4518	0.14972	1672.63171	250.4264196
4482	4423	0.09314	1506.45215	140.3109533
4483	4542	0.47967	11638.83789	5582.801371
4484	4542	0.18808	17112.02539	3218.429735
4485	4319	0.31798	2786.90186	886.1790534
4485	4740	0.43318	2546.51514	1103.099428
4486	4434	0.08418	16985.93750	1429.876219
4492	4477	0.03005	6491.06738	195.0565748
4492	4501	0.02949	6473.22461	190.8953937
4498	4483	0.05129	11638.83789	596.9559954
4499	4428	0.17084	23741.67383	4056.027557
4500	4499	0.00781	23741.67383	185.4224726
4501	186	0.12808	237.15662	30.37501989
4501	4492	0.02949	6491.06738	191.421577
4501	4537	0.13311	6709.77148	893.1376817
4502	175	0.49604	65.24216	32.36272105
4502	4323	0.37609	1062.51843	399.6025563
4502	4737	0.37202	1118.53589	416.1177218
4503	132	0.27438	0.00000	0
4503	4435	0.14056	329.71924	46.34533637
4503	4540	0.12368	304.79269	37.6967599
4504	4556	0.24519	33394.69922	8188.046302
4505	4482	0.06971	1506.45215	105.0147794
4506	166	0.26833	9.47049	2.541216582
4506	175	0.50360	78.51524	39.54027486
4506	4328	0.38653	602.98145	233.0704199
4506	4611	0.29741	680.99213	202.5338694
4512	4453	0.18254	1219.81909	222.6657767
4512	4522	0.04885	1210.16431	59.11652654
4517	4409	0.24459	1589.95093	388.886098
4518	1209	0.25763	61.18729	15.76368152
4518	4633	0.24736	1611.44446	398.6069016
4519	1201	0.49883	0.00000	0
4519	4505	0.08002	1506.45215	120.546301
4520	1201	0.50107	0.10646	0.053343912
4520	4411	0.25291	109.04140	27.57766047
4520	4645	0.24668	129.71712	31.99861916
4521	1209	0.23681	41.26046	9.770889533
4521	1225	0.24421	45.93397	11.21753481
4521	4554	0.07515	385.57755	28.97615288
4521	30125	0.16772	491.45663	82.42710598
4522	151	0.23038	1735.13916	399.7413597

4522	166	0.23889	51.79451	12.37319049
4522	4512	0.04885	1219.81909	59.58816255
4522	4586	0.15544	1094.25537	170.0910547
4523	4498	0.23696	11638.83789	2757.939026
4524	138	0.13567	193.12741	26.20159571
4524	139	0.13188	28.47734	3.755591599
4524	4526	0.07875	1305.26526	102.7896392
4524	4531	0.11431	1219.39355	139.3888767
4525	187	0.13240	0.00000	0
4525	4527	0.03655	1576.12451	57.60735084
4525	4547	0.06237	1555.84668	97.03815743
4526	4524	0.07875	1322.29321	104.1305903
4526	4533	0.01590	1305.26526	20.75371763
4527	4525	0.03655	1555.84668	56.86619615
4527	4528	0.03034	1576.12451	47.81961763
4528	4527	0.03034	1555.84668	47.20438827
4528	4530	0.03172	1576.12451	49.99466946
4529	132	0.11287	777.45850	87.7517409
4529	133	0.12815	266.83881	34.1953935
4529	4534	0.11998	956.64032	114.7777056
4529	4535	0.05309	202.57239	10.75456819
4530	4528	0.03172	1555.84668	49.35145669
4530	4532	0.03172	1576.12451	49.99466946
4531	4524	0.11431	1206.72290	137.9404947
4531	4534	0.13583	962.39917	130.7226793
4531	4721	0.27044	87.69352	23.71583555
4531	13861	0.10808	334.37918	36.13970177
4532	4530	0.03172	1555.84668	49.35145669
4532	4533	0.03447	1322.29321	45.57944695
4532	4582	0.13297	269.60822	35.84980501
4533	4526	0.01590	1322.29321	21.02446204
4533	4532	0.03447	1305.26526	44.99249351
4534	4529	0.11998	962.39917	115.4686524
4534	4531	0.13583	956.64032	129.9404547
4535	4529	0.05309	202.80009	10.76665678
4535	4536	0.02206	202.57239	4.468746923
4536	4535	0.02206	202.80009	4.473769985
4536	4539	0.08620	202.57239	17.46174002
4537	151	0.26913	2373.24023	638.7101431
4537	4501	0.13311	6728.22412	895.5939126
4537	4550	0.04552	9044.56934	411.7087964
4538	177	0.13554	4.15957	0.563788118
4538	1651	0.38700	99.10927	38.35528749
4538	4565	0.08451	101.77380	8.600903838
4539	4536	0.08620	202.80009	17.48136776
4539	4540	0.08825	202.57239	17.87701342
4540	177	0.11847	78.38649	9.28644747
4540	4503	0.12368	329.71924	40.7796756
4540	4539	0.08825	202.80009	17.89710794
4540	4566	0.08733	456.45154	39.86191299
4541	4486	0.18471	16985.93750	3137.472516
4542	4557	0.05525	28750.86328	1588.485196
4547	4525	0.06237	1576.12451	98.30288569
4547	4559	0.08224	1555.84668	127.952831

4550	4537	0.04552	9010.55371	410.1604049
4550	4559	0.01947	9044.56934	176.097765
4554	4521	0.07515	408.99274	30.73580441
4554	4656	0.17067	385.57755	65.80652046
4556	4571	0.07667	33394.69922	2560.371589
4557	4577	0.06583	28750.86328	1892.66933
4558	4438	0.32222	10117.49512	3260.059278
4558	4541	0.05691	16985.93750	966.6697031
4559	152	0.10953	163.33929	17.89055243
4559	4547	0.08224	1576.12451	129.6204797
4559	4550	0.01947	9010.55371	175.4354807
4559	4579	0.06399	8398.85352	537.4426367
4560	4500	0.28331	23741.67383	6726.253613
4560	4523	0.13253	11638.83789	1542.495186
4563	1255	0.26452	339.65280	89.84495866
4563	4564	0.00965	0.00000	0
4563	4661	0.13787	2071.74976	285.6321394
4564	4517	0.12087	1589.95093	192.1773689
4564	4563	0.00965	339.65280	3.27764952
4565	4538	0.08451	102.26505	8.642419376
4565	4573	0.02725	101.77380	2.77333605
4566	4540	0.08733	481.63058	42.06079855
4566	4574	0.03115	456.45154	14.21846547
4571	4871	0.88222	33394.69922	29461.47155
4572	4560	0.06912	35380.51172	2445.50097
4573	4565	0.02725	102.26505	2.786722613
4573	4719	0.13517	101.77380	13.75676455
4574	133	0.24875	0.00000	0
4574	4566	0.03115	481.63058	15.00279257
4574	13258	0.10008	456.45154	45.68167012
4575	4572	0.01996	35380.51172	706.1950139
4576	4558	0.06473	27103.43359	1754.405256
4577	4614	0.06639	28750.86328	1908.769813
4579	187	0.12136	276.21021	33.52087109
4579	4559	0.06399	8380.19043	536.2483856
4579	4716	0.11962	8312.30371	994.3177698
4582	139	0.12488	268.51572	33.53224311
4582	187	0.12825	11.53105	1.478857163
4582	4532	0.13297	266.35828	35.41766049
4582	4612	0.05732	3.39130	0.194389316
4583	133	0.25225	14.34710	3.619055975
4583	139	0.12451	13.81545	1.72016168
4586	4522	0.15544	1075.58252	167.1885469
4586	4629	0.07180	1094.25537	78.56753557
4590	79	10.00000	54.47186	544.7186
4590	4591	1.00181	53.26522	53.36163005
4591	4590	1.00181	54.47186	54.57045407
4591	4594	0.99767	53.26522	53.14111204
4594	4591	0.99767	54.47186	54.34494057
4594	4597	0.99079	53.26522	52.77464732
4597	2004	2.65474	141.04585	374.4400598
4597	4594	0.99079	54.47186	53.97017417
4597	5006	0.49576	187.20543	92.80896398
4599	4840	0.69053	0.00000	0

4601	3865	2.00571	8.63619	17.32169264
4601	4605	0.50414	10.10766	5.095675712
4603	4576	0.05022	27103.43359	1361.134435
4604	4575	0.11451	35380.51172	4051.422397
4605	4601	0.50414	8.63619	4.353848827
4605	4608	0.48470	10.10766	4.899182802
4608	4605	0.48470	8.63619	4.185961293
4608	6282	1.99902	10.10766	20.20541449
4611	4506	0.29741	689.14893	204.9597833
4611	4749	0.06288	680.99213	42.82078513
4612	4582	0.05732	3.47606	0.199247759
4612	4715	0.05897	3.39130	0.199984961
4613	4173	1.00053	1357.05188	1357.771117
4613	5463	0.99995	1366.81128	1366.742939
4614	4882	0.27944	6449.06250	1802.126025
4614	4898	0.30128	22301.80078	6719.086539
4616	4603	0.01674	27103.43359	453.7114783
4620	1256	0.24928	1236.26172	308.1753216
4620	4652	0.01841	1268.87573	23.36000219
4622	4180	1.00017	3455.93408	3456.521589
4622	5029	0.48812	1639.70728	800.3739175
4624	4183	0.99996	2278.49292	2278.40178
4624	5474	0.99886	2462.76978	2459.962222
4626	1256	0.33243	0.00000	0
4629	4586	0.07180	1075.58252	77.22682494
4629	4720	0.04064	1094.25537	44.47053824
4630	4637	0.16000	7064.50537	1130.320859
4631	4635	0.19375	6590.66016	1276.940406
4632	4631	0.04413	6590.66016	290.8458329
4633	4632	0.00621	6590.66016	40.92799959
4633	4667	0.00837	2533.69214	21.20700321
4634	4519	0.24738	1501.42578	371.4227095
4634	4633	0.00827	7512.90820	62.13175081
4635	1209	0.23936	664.22638	158.9892263
4635	1210	0.25274	220.24527	55.66478954
4635	4630	0.08274	7064.50537	584.5171743
4635	4673	0.00948	146.63785	1.390126818
4636	4446	0.47027	471.88574	221.9137069
4636	4655	0.10186	918.15552	93.52332127
4637	4656	0.00940	7064.50537	66.40635048
4638	4639	0.03103	9156.25000	284.1184375
4638	4641	0.02669	8483.16797	226.4157531
4639	4638	0.03103	8483.16797	263.2327021
4639	4648	0.07516	9156.25000	688.18375
4640	4641	0.03418	10128.63379	346.1967029
4640	4765	0.22434	9600.39551	2153.752729
4641	1255	0.26311	1136.62280	299.0568249
4641	1257	0.24821	19.28348	4.786352571
4641	4638	0.02669	9156.25000	244.3803125
4641	4640	0.03418	9600.39551	328.1415185
4642	1225	0.25049	488.22064	122.2943881
4642	1226	0.25284	530.80005	134.2074846
4642	4650	0.16894	7750.80176	1309.420449
4642	4654	0.04550	7809.91797	355.3512676

4644	4646	0.25550	7690.51563	1964.926743
4645	4520	0.24668	108.99803	26.88763404
4645	4644	0.25334	7690.51563	1948.31523
4645	4689	0.00948	238.80705	2.263890834
4646	1201	0.25208	19.99089	5.039303551
4646	4647	0.23729	7701.01563	1827.373999
4646	4687	0.00836	2.42817	0.020299501
4647	4634	0.25023	7701.01563	1927.025141
4648	4639	0.07516	8483.16797	637.5949046
4648	4651	0.11169	9156.25000	1022.661563
4650	4642	0.16894	7235.86523	1222.427072
4650	4656	0.07377	7750.80176	571.7766458
4651	4648	0.11169	8483.16797	947.4850306
4651	4660	0.04827	9156.25000	441.9721875
4652	4620	0.01841	1236.26172	22.75957827
4652	4655	0.11307	471.88574	53.35612062
4652	4677	0.13497	214.63733	28.96960043
4652	4853	0.18867	1920.19348	362.2829039
4653	4659	0.03572	7763.36279	277.3073189
4654	4642	0.04550	8343.52246	379.6302719
4654	4657	0.10411	7809.91797	813.0905599
4655	4636	0.10186	471.88574	48.06628148
4655	4652	0.11307	918.15552	103.8158446
4656	4554	0.17067	408.99274	69.80279094
4656	4650	0.07377	7235.86523	533.789778
4656	4681	0.00915	7554.89648	69.12730279
4656	4928	0.30676	269.12827	82.55778811
4657	4654	0.10411	8343.52246	868.6441233
4657	4658	0.05447	7809.91797	425.4062318
4658	4657	0.05447	8343.52246	454.4716684
4658	4663	0.02690	7809.91797	210.0867934
4659	1790	1.10065	0.02053	0.022596345
4659	4645	0.50332	7763.36279	3907.455759
4659	4691	0.00892	0.02037	0.0001817
4660	4651	0.04827	8483.16797	409.4825179
4660	4661	0.03861	9156.25000	353.5228125
4661	4660	0.03861	8483.16797	327.5351153
4661	4662	0.01034	9333.16113	96.50488608
4661	29953	0.24151	1045.54822	252.5103506
4662	4564	0.13778	1929.60376	265.8608061
4662	4661	0.01034	7633.87744	78.93429273
4662	4663	0.01034	8343.52246	86.27202224
4663	4658	0.02690	8343.52246	224.4407542
4663	4662	0.01034	7809.91797	80.75455181
4665	4424	0.49842	119.13014	59.37684438
4665	4679	0.91218	8488.51953	7743.057745
4665	4686	0.13594	7763.36279	1055.351538
4665	5301	0.75467	938.99707	708.6329188
4666	4667	0.00621	7029.63916	43.65405918
4667	4668	0.00827	7174.12891	59.33004609
4667	4889	0.25551	2389.20215	610.4650413
4668	4634	0.00837	1313.31787	10.99247057
4668	4670	0.04068	8145.47754	331.3580263
4670	1475	0.32504	31.86986	10.35897929

4670	4687	0.44684	8115.85547	3626.488858
4672	4425	0.49807	660.30438	328.8778025
4672	5081	0.50983	864.04291	440.5149968
4673	4635	0.00948	671.89539	6.369568297
4673	4666	0.23788	7029.63916	1672.210563
4675	4673	0.08274	7554.89648	625.0921348
4677	4652	0.13497	167.13698	22.55847819
4677	4765	0.07877	214.63733	16.90698248
4679	4665	0.91218	8020.32813	7315.982914
4679	4680	0.26938	8488.51953	2286.637391
4680	1778	0.90873	135.77605	123.3837699
4680	4679	0.26938	8020.32813	2160.515992
4680	4688	2.77046	8639.80273	23936.22787
4681	4675	0.15997	7554.89648	1208.55679
4686	4653	0.32697	7763.36279	2538.386731
4686	4665	0.13594	8723.68359	1185.897547
4687	4646	0.00836	17.56912	0.146877843
4687	4689	0.50883	8100.71436	4121.886488
4688	1768	1.22914	488.29266	600.1800401
4688	4680	2.77046	8156.10400	22596.15989
4688	4693	0.08834	8458.10840	747.1892961
4689	4645	0.00948	145.24055	1.376880414
4689	4691	0.50332	8723.68359	4390.804425
4689	4923	0.29351	209.43762	61.47203585
4691	1791	0.73693	0.02037	0.015011264
4691	4659	0.00892	0.02053	0.000183128
4691	4686	0.36216	8723.68359	3159.369249
4693	4688	0.08834	7969.64600	704.0385276
4693	4752	1.00678	8458.10840	8515.454375
4696	4429	0.50884	118.84892	60.47508445
4696	5086	0.50160	288.97183	144.9482699
4697	4668	0.01673	2284.66650	38.22247055
4700	4437	0.50058	430.68802	215.5938091
4700	5093	0.50169	308.62769	154.8354258
4701	4703	0.01323	3236.31201	42.81640789
4701	29919	0.01313	262.39374	3.445229806
4701	29961	0.01368	3596.19995	49.19601532
4701	29964	0.01263	481.63058	6.082994225
4702	139	0.11801	450.13968	53.12098364
4702	141	0.19135	469.74161	89.88505707
4702	4715	0.11527	4916.36621	566.709533
4702	4721	0.08126	4581.24316	372.2718192
4703	4701	0.01323	3325.73608	43.99948834
4703	22461	0.01104	3236.31201	35.72888459
4704	4723	0.05314	3236.31201	171.9776202
4704	22461	0.17822	3325.73608	592.7126842
4705	4709	0.01989	1443.11560	28.70356928
4705	4716	0.05723	1470.32117	84.14648056
4706	4712	0.03448	3912.85986	134.915408
4706	4717	0.03310	3999.24487	132.3750052
4707	187	0.11772	43.48707	5.11929788
4707	188	0.20052	55.15215	11.05910912
4707	4711	0.05723	4951.36182	283.366437
4707	4722	0.07103	4859.73193	345.186759

4708	4710	0.03993	291.81656	11.65223524
4708	4714	0.03724	281.94751	10.49972527
4709	152	0.10653	191.83444	20.43612289
4709	153	0.20076	344.21445	69.10449298
4709	4705	0.01989	1470.32117	29.24468807
4709	4718	0.03873	1066.38940	41.30126146
4710	159	0.08735	78.96503	6.897595371
4710	4708	0.03993	281.94751	11.25816407
4710	4713	0.04282	373.57562	15.99650805
4711	4707	0.05723	4904.25000	280.6702275
4711	4715	0.05999	4951.36182	297.0321956
4712	4706	0.03448	3999.24487	137.8939631
4712	4726	0.12549	3912.85986	491.0247838
4713	4710	0.04282	360.91254	15.45427496
4713	4727	0.02690	1081.12024	29.08213446
4713	4766	0.03322	965.09491	32.06045291
4714	4708	0.03724	291.81656	10.86724869
4714	4724	0.03448	501.99942	17.30894
4714	4772	0.04500	313.29562	14.0983029
4715	4612	0.05897	3.47606	0.204983258
4715	4702	0.11527	4997.32568	576.0417311
4715	4711	0.05999	4904.25000	294.2059575
4715	4796	0.06510	53.25583	3.466954533
4716	4579	0.11962	8301.30176	993.0017165
4716	4705	0.05723	1443.11560	82.58950579
4716	4722	0.06068	4858.74902	294.8288905
4716	4792	0.06344	7040.81396	446.6692376
4717	4706	0.03310	3912.85986	129.5156614
4717	4723	0.05516	3999.24487	220.598347
4718	4709	0.03873	1081.12024	41.8717869
4718	4732	0.05241	1066.38940	55.88946845
4719	131	0.53313	51.08757	27.23631619
4719	4573	0.13517	102.26505	13.82316681
4719	4731	0.06619	3451.03345	228.4239041
4719	30123	0.22408	3542.34399	793.7684413
4720	4629	0.04064	1075.58252	43.71167361
4720	4724	0.03447	503.04523	17.33996908
4720	4728	0.04896	826.30194	40.45574298
4721	4531	0.27044	88.23841	23.8631956
4721	4702	0.08126	4479.04980	363.9675867
4721	4725	0.04275	4540.22314	194.0945392
4722	4707	0.07103	4858.74902	345.1169429
4722	4716	0.06068	4859.73193	294.8885335
4723	133	0.12178	321.35239	39.13429405
4723	134	0.18915	777.24658	147.0161906
4723	4704	0.05314	3325.73608	176.7296153
4723	4717	0.05516	3912.85986	215.8333499
4724	4714	0.03448	503.04523	17.34499953
4724	4720	0.03447	501.99942	17.30392001
4725	4721	0.04275	4438.57471	189.7490689
4725	4726	0.00965	4540.22314	43.8131533
4726	4712	0.12549	3999.24487	501.8652387
4726	4725	0.00965	4438.57471	42.83224595
4726	4799	0.06788	695.80225	47.23105673

4727	4713	0.02690	1066.38940	28.68587486
4727	4729	0.06964	1081.12024	75.28921351
4728	4720	0.04896	808.67480	39.59271821
4728	4730	0.04137	826.30194	34.18411126
4729	4727	0.06964	1066.38940	74.26335782
4729	4732	0.05033	1081.12024	54.41278168
4730	4728	0.04137	808.67480	33.45487648
4730	4733	0.03793	1174.86804	44.56274476
4730	4773	0.05660	341.96533	19.35523768
4731	4719	0.06619	3398.41284	224.9409459
4731	4736	0.05585	3451.03345	192.7402182
4732	4718	0.05241	1081.12024	56.66151178
4732	4729	0.05033	1066.38940	53.6713785
4733	4730	0.03793	1150.64014	43.64378051
4733	4735	0.07929	1174.86804	93.15528689
4734	175	0.36854	32.41942	11.94785305
4734	178	0.28994	19.11731	5.542872861
4734	4737	0.50285	722.79236	363.4561382
4734	4742	0.24663	787.80292	194.2958342
4735	166	0.32569	52.95622	17.24731129
4735	189	0.17886	27.04539	4.837338455
4735	4733	0.07929	1150.64014	91.2342567
4735	4744	0.16316	1175.96423	191.8703238
4736	4731	0.05585	3398.41284	189.8013571
4736	4748	0.03999	3451.03345	138.0068277
4737	4502	0.37202	1127.76062	419.5495059
4737	4734	0.50285	755.05316	379.6784815
4737	4743	1.00183	4985.38770	4994.510959
4737	4940	0.29767	4912.95850	1462.440357
4738	4739	0.01241	5130.22510	63.66609349
4738	4740	0.12204	4985.38770	608.4167149
4739	4738	0.01241	4985.38770	61.86866136
4739	4747	0.36129	5130.22510	1853.499026
4740	4485	0.43318	2786.90186	1207.230148
4740	4738	0.12204	5130.22510	626.0926712
4740	4776	0.35417	8088.13037	2864.573133
4740	5109	0.50285	3142.47754	1580.194831
4741	4743	0.16479	5130.22510	845.4097942
4741	4747	0.33303	4985.38770	1660.283666
4742	4734	0.24663	755.69946	186.3781578
4742	4745	0.03447	787.80292	27.15556665
4743	4737	1.00183	5130.22510	5139.613412
4743	4741	0.16479	4985.38770	821.5420391
4744	171	0.13228	179.17462	23.70121873
4744	4735	0.16316	1148.48718	187.3871683
4744	4749	0.12575	996.78955	125.3462859
4745	4742	0.03447	755.69946	26.04896039
4745	4746	0.07905	787.80292	62.27582083
4746	176	0.27645	148.96138	41.1803735
4746	4745	0.07905	755.69946	59.73804231
4746	4749	0.13607	828.18762	112.6914895
4747	4739	0.36129	4985.38770	1801.170722
4747	4741	0.33303	5130.22510	1708.518865
4748	4736	0.03999	3398.41284	135.9025295

4748	4750	0.04895	3451.03345	168.9280874
4749	4611	0.06288	689.14893	43.33368472
4749	4744	0.12575	975.21478	122.6332586
4749	4746	0.13607	795.30573	108.2172507
4749	4802	0.07960	1448.71240	115.317507
4750	4748	0.04895	3398.41284	166.3523085
4750	4751	0.03793	3451.03345	130.8976988
4751	4750	0.03793	3398.41284	128.901799
4751	4753	0.04965	3451.03345	171.3438108
4752	4459	0.49521	314.33478	155.6617264
4752	4693	1.00678	7969.64600	8023.6802
4752	4767	0.88575	8550.40430	7573.520609
4752	5098	0.49576	813.27448	403.1889562
4753	1651	0.46103	8.99807	4.148380212
4753	4751	0.04965	3398.41284	168.7311975
4753	4754	0.05447	4291.34375	233.7494941
4753	5161	0.53647	868.16028	465.7419454
4754	4753	0.05447	4274.80762	232.8487711
4754	4755	0.07033	4291.34375	301.8102059
4755	4754	0.07033	4274.80762	300.6472199
4755	4756	0.07516	4291.34375	322.5373963
4756	1652	0.51513	306.99387	158.1417523
4756	4755	0.07516	4274.80762	321.2945407
4756	4757	0.25581	3984.34985	1019.236535
4757	93	2.00000	4014.45093	8028.90186
4757	4464	0.49830	0.00000	0
4757	4756	0.25581	3962.08325	1013.540516
4757	5018	0.41366	275.52859	113.9751565
4759	4335	1.46470	846.17371	1239.390633
4759	4897	0.39496	665.48352	262.8393711
4765	4640	0.22434	10128.63379	2272.257704
4765	4677	0.07877	167.13698	13.16537991
4765	4812	0.12306	12114.70313	1490.835367
4765	4878	0.19712	2722.71631	536.701839
4766	153	0.15783	165.91533	26.18641653
4766	4713	0.03322	967.16272	32.12914556
4766	4814	0.11924	851.44012	101.5257199
4767	1760	1.30271	18.13761	23.62804592
4767	1761	1.78246	6.55378	11.6818507
4767	4752	0.88575	8076.54834	7153.802692
4767	4768	0.11776	8562.11914	1008.27515
4768	4767	0.11776	8088.13037	952.4582324
4768	4776	0.67730	8562.11914	5799.123294
4772	159	0.04150	70.26347	2.915934005
4772	4714	0.04500	322.11887	14.49534915
4772	4808	0.08364	243.03217	20.3272107
4773	4730	0.05660	348.56613	19.72884296
4773	4808	0.07427	341.96533	25.39776506
4776	4740	0.35417	8562.11914	3032.445736
4776	4768	0.67730	8088.13037	5478.0907
4792	4716	0.06344	7001.62354	444.1829974
4792	4801	0.03397	2956.87744	100.4451266
4792	4817	0.06344	4233.74805	268.5889763
4796	4715	0.06510	87.18774	5.675921874

4796	4825	0.06399	53.25583	3.407840562
4799	4726	0.06788	680.53888	46.19497917
4799	4819	0.05953	695.80225	41.42110794
4801	4792	0.03397	3049.70483	103.5984731
4801	4839	0.08892	2956.87744	262.925542
4802	4749	0.07960	1402.41260	111.632043
4802	4809	0.01782	1448.71240	25.81605497
4807	4697	0.10596	2284.66650	242.0832623
4808	189	0.09535	178.52550	17.02240643
4808	4772	0.08364	248.04248	20.74627303
4808	4773	0.07427	348.56613	25.88800648
4808	4816	0.03431	575.75195	19.7540494
4809	4802	0.01782	1402.41260	24.99099253
4809	4830	0.02950	1448.71240	42.7370158
4812	4765	0.12306	12616.97461	1552.644896
4812	4853	0.10666	12114.70313	1292.154236
4813	4815	0.01994	227.87483	4.54382411
4813	4851	0.07603	222.40775	16.90966123
4814	159	0.03956	195.17813	7.721246823
4814	4766	0.11924	873.46002	104.1513728
4814	4841	0.06045	1049.21863	63.42526618
4815	171	0.12210	220.60258	26.93557502
4815	4813	0.01994	222.40775	4.434810535
4815	4886	0.10794	9.37204	1.011617998
4816	159	0.08621	2.81226	0.242444935
4816	4808	0.03431	589.48541	20.22524442
4816	4841	0.04045	572.93970	23.17541087
4817	4792	0.06344	4101.72998	260.2137499
4817	4852	0.03786	4233.74805	160.2897012
4819	4799	0.05953	680.53888	40.51247953
4819	4844	0.02837	695.80225	19.73990983
4825	4796	0.06399	87.18774	5.579143483
4825	4861	0.06178	53.25583	3.290145177
4830	171	0.12623	330.58984	41.7303555
4830	4809	0.02950	1402.41260	41.3711717
4830	4873	0.07680	1434.91687	110.2016156
4839	4801	0.08892	3049.70483	271.1797535
4839	4872	0.09141	2956.87744	270.2881668
4840	4599	0.69053	0.00000	0
4840	4887	0.17463	0.00000	0
4841	4814	0.06045	1068.63818	64.59917798
4841	4816	0.04045	586.56476	23.72654454
4841	4856	0.05165	555.72803	28.70335275
4841	4877	0.09294	1125.30054	104.5854322
4844	4819	0.02837	680.53888	19.30688803
4844	4860	0.03450	695.80225	24.00517763
4851	4813	0.07603	227.87483	17.32532332
4851	4885	0.07236	222.40775	16.09342479
4852	4817	0.03786	4101.72998	155.291497
4852	4863	0.02894	4233.74805	122.5246686
4853	1258	0.14588	804.19434	117.3158703
4853	4652	0.18867	1488.80994	280.8937714
4853	4812	0.10666	12616.97461	1345.726512
4853	4884	0.16228	14644.65625	2376.534816

4856	4841	0.05165	565.00653	29.18258727
4856	4879	0.03118	555.72803	17.32759998
4860	134	0.24823	567.56866	140.8875685
4860	141	0.12756	174.01370	22.19718757
4860	4844	0.03450	680.53888	23.47859136
4860	4903	0.06236	1362.45801	84.9628815
4861	141	0.12342	502.99673	62.07985642
4861	188	0.11615	10.71657	1.244729606
4861	4825	0.06178	87.18774	5.386458577
4861	4904	0.06237	543.92175	33.92439955
4862	1331	0.30211	25.45436	7.6900167
4862	4866	0.05330	47.72356	2.543665748
4862	5008	0.30835	35.01350	10.79641273
4863	188	0.13328	433.76221	57.81182735
4863	4852	0.02894	4101.72998	118.7040656
4863	4895	0.03897	4181.49512	162.9528648
4864	4460	0.68568	417.07965	285.9831744
4864	5100	0.30839	944.48920	291.2710244
4866	4862	0.05330	7.43914	0.396506162
4866	30198	0.33511	47.72356	15.99264219
4870	134	0.25038	83.81830	20.98642595
4870	4901	0.05165	346.28354	17.88554484
4870	30122	0.18015	252.00471	45.39864851
4871	4966	0.31127	33394.69922	10394.76803
4872	153	0.07853	228.00931	17.90557111
4872	154	0.12992	25.67743	3.336011706
4872	4839	0.09141	3049.70483	278.7735185
4872	4919	0.08991	2753.83667	247.597455
4873	4830	0.07680	1394.50464	107.0979564
4873	4951	0.11132	1434.91687	159.734946
4876	4662	0.23685	763.92474	180.9355747
4877	168	0.15953	118.32440	18.87629153
4877	189	0.10442	5.94423	0.620696497
4877	4841	0.09294	1149.06665	106.7942545
4877	4921	0.09284	1012.65601	94.01498397
4878	1257	0.19930	1174.26929	234.0318695
4878	4765	0.19712	2701.18213	532.4570215
4878	5053	0.25473	1563.23645	398.2032209
4879	4856	0.03118	565.00653	17.61690361
4879	4920	0.07765	555.72803	43.15228153
4880	4604	0.77739	35380.51172	27504.45601
4881	1330	0.29792	1997.78784	595.1809533
4881	4882	0.09859	2355.97656	232.2757291
4881	30198	0.12520	303.76001	38.03075325
4882	4881	0.09859	2248.84985	221.7141067
4882	4883	0.13031	6723.39307	876.125351
4882	5067	0.26269	10317.52148	2710.309718
4883	4616	0.28099	6181.89844	1737.051643
4883	4882	0.13031	10484.72656	1366.264718
4883	4884	0.03724	14734.28223	548.7046702
4884	4853	0.16228	14734.28223	2391.07932
4884	4883	0.03724	14644.65625	545.3669988
4885	167	0.09971	59.16291	5.899133756
4885	189	0.09669	81.63426	7.893216599

4885	4851	0.07236	227.87483	16.4890227
4885	4921	0.07153	353.72159	25.30170533
4886	4815	0.10794	9.69887	1.046896028
4886	4913	0.03172	9.37204	0.297281109
4887	4840	0.17463	0.00000	0
4887	4896	0.01793	15.15400	0.27171122
4887	5096	0.27273	8.97355	2.447356292
4889	1210	0.25148	62.58979	15.74008039
4889	1475	0.24951	10.97765	2.739033452
4889	4807	0.13274	2284.66650	303.2666312
4889	5057	0.23988	2472.35059	593.0674595
4894	1474	0.24671	0.00000	0
4894	1475	0.24699	0.00000	0
4895	154	0.14558	271.32516	39.49951679
4895	4863	0.03897	4105.58105	159.9944935
4895	4908	0.02226	3910.16968	87.04037708
4896	4887	0.01793	8.97355	0.160895752
4896	5165	0.54391	15.15400	8.24241214
4897	4759	0.39496	846.17371	334.2047685
4897	4899	0.00794	665.48352	5.283939149
4898	5067	0.22614	22301.80078	5043.329228
4899	4897	0.00794	846.17371	6.718619257
4899	4970	0.22944	665.48352	152.6885388
4901	4870	0.05165	335.82303	17.3452595
4901	4939	0.04621	346.28354	16.00176238
4903	4860	0.06236	1350.24182	84.2010799
4903	4944	0.06292	1362.45801	85.72585799
4904	4861	0.06237	579.63171	36.15162975
4904	4932	0.03060	543.92175	16.64400555
4908	4895	0.02226	3836.01855	85.38977292
4908	4922	0.01670	3910.16968	65.29983366
4913	167	0.07914	7.27064	0.57539845
4913	4886	0.03172	9.69887	0.307648156
4913	4959	0.06456	14.73913	0.951558233
4919	4872	0.08991	2842.63257	255.5810944
4919	4960	0.08876	2753.83667	244.4305428
4920	153	0.18017	597.57959	107.6659147
4920	168	0.09308	399.84268	37.21735665
4920	4879	0.07765	565.00653	43.87275705
4920	4960	0.07690	1569.33337	120.6817362
4921	4877	0.09284	1030.72034	95.69207637
4921	4885	0.07153	361.00458	25.82265761
4921	4962	0.09333	989.76349	92.37462652
4921	4963	0.09027	282.82858	25.53093592
4922	4908	0.01670	3836.01855	64.06150979
4922	4933	0.01226	3910.16968	47.93868028
4923	1474	0.26021	9.43952	2.456257499
4923	4689	0.29351	738.84064	216.8571162
4923	5051	0.19360	200.54074	38.82468726
4925	4402	0.80927	2084.89282	1687.241212
4925	5002	0.12951	2129.08740	275.7381092
4928	4656	0.30676	267.99841	82.21119225
4928	4938	0.02009	269.12827	5.406786944
4932	4904	0.03060	579.63171	17.73673033

4932	4947	0.03341	543.92175	18.17242567
4933	4922	0.01226	3836.01855	47.02958742
4933	4952	0.03396	3910.16968	132.7893623
4938	1210	0.26175	290.89761	76.14244942
4938	1226	0.22404	20.14566	4.513433666
4938	4928	0.02009	267.99841	5.384088057
4938	5069	0.17319	571.44373	98.9683396
4939	4901	0.04621	335.82303	15.51838222
4939	4980	0.08014	346.28354	27.7511629
4940	178	0.50679	12.94878	6.562312216
4940	4737	0.29767	4809.60693	1431.675695
4940	5110	0.20552	4900.00977	1007.050008
4944	4903	0.06292	1350.24182	84.95721531
4944	4983	0.06286	1362.45801	85.64411051
4947	4932	0.03341	579.63171	19.36549543
4947	4984	0.06177	543.92175	33.5980465
4948	4950	0.06619	42.99900	2.84610381
4948	4956	0.02694	14.86972	0.400590257
4948	5016	0.10344	27.46127	2.840593769
4950	171	0.18302	30.52262	5.586249912
4950	172	0.11248	2.59670	0.292076816
4950	4948	0.06619	42.33099	2.801888228
4950	4955	0.05931	14.39866	0.853984525
4951	176	0.14447	295.53970	42.69662046
4951	4873	0.11132	1394.50464	155.2362565
4951	4955	0.06481	14.52774	0.941542829
4951	4964	0.02282	1476.25110	33.6880501
4952	4933	0.03396	3836.01855	130.27119
4952	4972	0.04896	3910.16968	191.4419075
4955	4950	0.05931	14.52774	0.861640259
4955	4951	0.06481	14.39866	0.933177155
4956	4948	0.02694	14.73913	0.397072162
4956	4959	0.03245	14.86972	0.482522414
4959	4913	0.06456	14.86972	0.959989123
4959	4956	0.03245	14.73913	0.478284769
4960	4919	0.08876	2842.63257	252.3120669
4960	4920	0.07690	1525.75916	117.3308794
4960	4995	0.07724	1204.39087	93.0271508
4960	4998	0.09470	3002.83350	284.3683325
4962	4921	0.09333	1012.50671	94.49725124
4962	4969	0.03822	989.76349	37.82876059
4963	4921	0.09027	285.43274	25.76601344
4963	4975	0.05640	282.82858	15.95153191
4964	4951	0.02282	1442.26892	32.91257675
4964	5019	0.08459	1476.25110	124.8760805
4966	5074	0.24955	1543.82532	385.2616086
4966	5153	0.29208	31850.87305	9303.003
4968	4880	0.30194	35380.51172	10682.79171
4969	167	0.06009	26.34215	1.582899794
4969	190	0.15251	0.58692	0.089511169
4969	4962	0.03822	1012.50671	38.69800646
4969	5141	0.19166	1015.05017	194.5445156
4970	4899	0.22944	846.17371	194.146096
4970	4971	0.00881	665.48352	5.862909811

4971	4970	0.00881	846.17371	7.454790385
4971	4974	0.01117	665.48352	7.433450918
4972	4952	0.04896	3836.01855	187.8114682
4972	4993	0.01393	3910.16968	54.46866364
4974	4971	0.01117	846.17371	9.451760341
4974	5022	0.11908	665.48352	79.24577756
4975	168	0.09138	47.15424	4.308954451
4975	190	0.08132	115.40560	9.384783392
4975	4963	0.05640	285.43274	16.09840654
4975	5000	0.02256	263.93488	5.954370893
4977	4980	0.07033	17.96409	1.26341445
4977	4981	0.05240	18.35690	0.96190156
4978	4979	0.02827	17.96409	0.507844824
4978	4991	0.06277	18.35690	1.152262613
4979	4978	0.02827	18.35690	0.518949563
4979	4982	0.03310	17.96409	0.594611379
4980	4939	0.08014	335.82303	26.91285762
4980	4977	0.07033	18.35690	1.291040777
4980	5082	0.10524	364.24762	38.33341953
4981	4977	0.05240	17.96409	0.941318316
4981	4985	0.06688	18.35690	1.227709472
4982	134	0.18916	57.42543	10.86259434
4982	135	0.33171	58.22163	19.31269689
4982	4979	0.03310	18.35690	0.60761339
4982	4985	0.05792	17.96409	1.040480093
4983	4944	0.06286	1350.24182	84.87620081
4983	4986	0.03999	17.96409	0.718383959
4983	4988	0.12687	578.24469	73.36190382
4983	5037	0.06621	1285.84851	85.13602985
4984	4947	0.06177	579.63171	35.80385073
4984	4987	0.02827	1207.67493	34.14097027
4984	4988	0.12480	563.07819	70.27215811
4984	5009	0.03004	337.99109	10.15325234
4985	4981	0.06688	17.96409	1.201438339
4985	4982	0.05792	18.35690	1.063231648
4986	4983	0.03999	18.35690	0.734092431
4986	4991	0.08619	17.96409	1.548324917
4987	4984	0.02827	1259.90479	35.61750841
4987	4990	0.02965	1207.67493	35.80756167
4988	141	0.18920	7.46676	1.412710992
4988	142	0.17044	31.51775	5.37188531
4988	4983	0.12687	586.30115	74.3840269
4988	4984	0.12480	554.40717	69.19001482
4989	4990	0.02689	1259.90479	33.8788398
4989	4992	0.03517	1207.67493	42.47392729
4990	4987	0.02965	1259.90479	37.35617702
4990	4989	0.02689	1207.67493	32.47437887
4991	4978	0.06277	17.96409	1.127605929
4991	4986	0.08619	18.35690	1.582181211
4992	143	0.19032	172.44279	32.81931179
4992	188	0.18033	35.75335	6.447401606
4992	4989	0.03517	1259.90479	44.31085146
4992	4994	0.09722	1339.72021	130.2475988
4993	4972	0.01393	3836.01855	53.4357384

4993	4994	0.03172	1396.60974	44.30046095
4993	5020	0.04620	3098.75439	143.1624528
4993	5025	0.08276	1465.23206	121.2626053
4994	4992	0.09722	1396.60974	135.7783989
4994	4993	0.03172	1339.72021	42.49592506
4995	154	0.13502	247.89926	33.47135809
4995	160	0.06653	118.88535	7.909442336
4995	4960	0.07724	1182.47705	91.33452734
4995	5027	0.07199	926.33588	66.68692
4998	160	0.06359	56.99964	3.624607108
4998	168	0.07765	194.95105	15.13794903
4998	4960	0.09470	3069.96899	290.7260634
4998	5040	0.08688	3243.28955	281.7769961
5000	4975	0.02256	263.67725	5.94855876
5000	5040	0.07492	263.93488	19.77400121
5002	4925	0.12951	2084.89282	270.0144691
5002	5041	0.05088	2129.08740	108.3279669
5006	4597	0.49576	192.87576	95.62008678
5006	5668	0.77481	187.20543	145.0486392
5008	4862	0.30835	73.17792	22.56441163
5008	5270	0.43851	35.01350	15.35376989
5009	4984	0.03004	330.14221	9.917471988
5009	5032	0.03394	337.99109	11.47141759
5016	172	0.09526	58.69970	5.591733422
5016	4948	0.10344	28.25987	2.923200953
5016	5065	0.04917	72.10217	3.545263699
5018	1652	0.25846	13.64759	3.527356111
5018	4757	0.41366	272.64166	112.7809491
5018	5577	0.59044	261.88101	154.6250235
5019	172	0.09248	101.41053	9.378445814
5019	4964	0.08459	1442.26892	122.0015279
5019	5046	0.03617	1507.54565	54.52792616
5020	4993	0.04620	3068.82202	141.7795773
5020	5036	0.01782	3098.75439	55.21980323
5022	4974	0.11908	846.17371	100.7623654
5022	5023	0.01602	665.48352	10.66104599
5023	5022	0.01602	846.17371	13.55570283
5023	5024	0.03672	665.48352	24.43655485
5024	5023	0.03672	846.17371	31.07149863
5024	5026	0.01072	665.48352	7.133983334
5025	154	0.11447	209.79611	24.01536071
5025	155	0.07050	2.37612	0.16751646
5025	4993	0.08276	1477.90283	122.3112382
5025	5090	0.08791	1563.09473	137.4116577
5026	5024	0.01072	846.17371	9.070982171
5026	5105	0.13992	665.48352	93.11445412
5027	4995	0.07199	904.07959	65.08468968
5027	5090	0.07549	926.33588	69.92909558
5029	1924	1.41256	35.22352	49.75533541
5029	1925	1.37685	500.37997	688.9481617
5029	4622	0.48812	3455.93408	1686.910543
5029	6345	1.52899	2038.50317	3116.850962
5032	5009	0.03394	330.14221	11.20502661
5032	5123	0.06403	337.99109	21.64156949

5035	160	0.03758	9.87049	0.370933014
5035	5101	0.07756	819.37646	63.55083824
5035	5107	0.08977	758.65161	68.10415503
5036	5020	0.01782	3068.82202	54.6864084
5036	5094	0.05120	3098.75439	158.6562248
5037	4983	0.06621	1265.18311	83.76777371
5037	5111	0.06067	1285.84851	78.0124291
5040	4998	0.08688	3314.53613	287.966899
5040	5000	0.07492	263.67725	19.75469957
5040	5088	0.06402	2935.38501	187.9233483
5040	5107	0.07549	437.14221	32.99986543
5041	5002	0.05088	2084.89282	106.0793467
5041	5074	0.01899	2129.08740	40.43136973
5046	5019	0.03617	1475.11462	53.35489581
5046	5128	0.04619	1507.54565	69.63353357
5048	5049	0.17184	1267.28247	217.7698196
5048	5061	0.14141	1363.12305	192.7592305
5049	1257	0.24870	316.26230	78.65443401
5049	1259	0.25063	192.41502	48.22497646
5049	5048	0.17184	1363.12305	234.2390649
5049	5053	0.21223	1054.45117	223.7861718
5050	1474	0.24167	0.00000	0
5050	1695	0.26033	0.00000	0
5051	1791	0.55546	28.00854	15.55762363
5051	4923	0.19360	729.94373	141.3171061
5051	5285	0.24922	210.43736	52.44519886
5052	5056	0.10926	1233.36230	134.7571649
5052	5057	0.13712	1136.80005	155.8780229
5053	4878	0.25473	1537.47278	391.6404412
5053	5049	0.21223	1122.92346	238.3180459
5053	5060	0.23719	801.70721	190.1569331
5055	1475	0.24363	0.00000	0
5055	1696	0.25713	0.00000	0
5056	1210	0.25063	78.03988	19.55913512
5056	1211	0.50739	5.38030	2.729910417
5056	5052	0.10926	1136.80005	124.2067735
5056	5058	0.12791	1309.00549	167.4348922
5057	4889	0.23989	2271.12598	544.8204113
5057	5052	0.13712	1233.36230	169.1186386
5057	5273	0.24295	1250.31104	303.7630672
5058	5056	0.12791	1209.46057	154.7021015
5058	5069	0.12910	991.94049	128.0595173
5058	5292	0.25632	1368.25000	350.70984
5059	1226	0.24726	457.52118	113.126687
5059	5062	0.14411	1335.91748	192.519068
5059	5069	0.20891	1045.93420	218.5061137
5059	5480	0.49270	1964.01270	967.6690573
5060	1258	0.16793	74.01299	12.42900141
5060	1260	0.24793	737.45587	182.8374338
5060	5053	0.23719	844.41577	200.2869765
5060	5073	0.09277	0.00000	0
5061	5048	0.14141	1267.28247	179.2064141
5061	5063	0.00896	1357.08435	12.15947578
5061	29952	0.24144	960.13794	231.8157042

5062	1228	0.49863	0.00000	0
5062	5059	0.14411	1411.55176	203.4187241
5062	5064	0.11997	1335.91748	160.2700201
5063	4876	0.26071	763.92474	199.162819
5063	5061	0.00896	1321.93604	11.84454692
5063	5064	0.01172	1411.55176	16.54338663
5064	5062	0.11997	1411.55176	169.3438646
5064	5063	0.01172	1335.91748	15.65695287
5065	5016	0.04917	86.95957	4.275802057
5065	5133	0.03789	72.10217	2.731951221
5067	5159	0.05301	32619.32422	1729.150377
5069	1227	0.49280	53.45394	26.34210163
5069	4938	0.17319	565.92383	98.01234812
5069	5058	0.12910	962.17468	124.2167512
5069	5059	0.20891	1081.98767	226.0380441
5072	4616	0.52975	20921.53516	11083.18325
5073	5060	0.09277	0.00000	0
5073	5084	0.13607	0.00000	0
5074	5041	0.01899	2084.89282	39.59211465
5074	5191	0.21475	8203.64063	1761.731825
5074	19164	0.10112	2361.42139	238.786931
5081	4672	0.50983	660.30438	336.6429821
5081	5492	0.48467	864.04291	418.7756772
5082	4980	0.10524	354.17990	37.27389268
5082	5222	0.14139	364.24762	51.50097099
5084	5073	0.13607	0.00000	0
5084	5284	0.23721	0.00000	0
5085	1002	0.50353	0.00000	0
5085	5086	0.24836	63.51554	15.77471951
5085	5089	0.25162	58.91159	14.82333428
5086	1868	0.97157	130.59708	126.884205
5086	4696	0.50160	118.84892	59.61461827
5086	5085	0.24836	58.91159	14.63128249
5086	5514	0.50431	365.91464	184.5344121
5088	5040	0.06402	2982.72192	190.9538573
5088	5125	0.02311	2935.38501	67.83674758
5089	5085	0.25162	63.51554	15.98178017
5089	5091	0.24995	109.87853	27.46413857
5089	5513	0.49530	53.54834	26.5224928
5090	5025	0.08791	1573.71411	138.3452074
5090	5027	0.07549	904.07959	68.24896825
5090	5130	0.02375	1039.98132	24.69955635
5090	5148	0.02350	1497.72705	35.19658568
5091	1014	0.48700	0.00000	0
5091	5089	0.24995	111.29446	27.81805028
5091	5093	0.24858	109.87853	27.31360499
5093	4700	0.50169	430.68802	216.0718728
5093	5091	0.24858	111.29446	27.66557687
5093	5095	0.25522	518.39191	132.3039833
5093	5448	0.42904	801.15460	343.7273696
5094	155	0.04215	90.36742	3.808986753
5094	5036	0.05120	3068.82202	157.1236874
5094	5166	0.03674	3081.36450	113.2093317
5095	1028	0.41644	11.59465	4.828476046

5095	1876	1.00051	508.49612	508.755453
5095	5093	0.25522	633.29395	161.6292819
5095	5097	0.25986	124.33832	32.31055584
5096	1379	0.62096	0.00000	0
5096	4887	0.27273	15.15400	4.13295042
5096	5377	0.63897	8.97355	5.733829244
5097	5095	0.25986	126.93104	32.98430005
5097	5099	0.24778	82.24496	20.37865619
5097	5264	0.20281	168.27039	34.1269178
5098	4752	0.49576	822.81610	407.9193097
5098	5868	0.98547	813.27448	801.4576018
5099	1044	0.40128	7.17096	2.877562829
5099	5097	0.24778	116.35817	28.83122736
5099	5102	0.26109	86.48210	22.57961149
5100	4864	0.30839	417.07965	128.6231933
5100	5103	0.25574	57.92101	14.8127191
5100	5164	0.02909	967.52783	28.14538457
5101	5035	0.07756	766.56653	59.45490007
5101	5126	0.05567	1092.44495	60.81641037
5101	5223	0.13704	328.38458	45.00182284
5102	4467	0.98955	1923.48853	1903.388075
5102	5099	0.26109	123.52914	32.25222316
5102	5103	0.25282	57.38756	14.50872292
5102	5307	0.23977	2203.49731	528.33255
5103	1056	0.24114	1.12788	0.271976983
5103	5100	0.25574	57.53648	14.7143794
5103	5102	0.25282	56.79313	14.35843913
5104	5106	0.18547	6.70976	1.244459187
5104	5156	0.10591	4.80676	0.509083952
5105	5026	0.13992	846.17371	118.3966255
5105	5157	0.03319	665.48352	22.08739803
5106	5104	0.18547	4.80676	0.891509777
5106	5118	0.32966	11.65330	3.841626878
5106	5518	0.49516	5.07497	2.512922145
5107	161	0.09171	269.34039	24.70120717
5107	5035	0.08977	811.33453	72.83350076
5107	5040	0.07549	460.79434	34.78536473
5107	5127	0.09624	582.44873	56.05486578
5109	4740	0.50285	3053.71313	1535.559647
5109	5181	0.05847	3142.47754	183.7406618
5110	4940	0.20552	4796.76709	985.8315723
5110	5132	0.52612	4775.94434	2512.719836
5110	5332	0.26196	391.12311	102.4586099
5111	5037	0.06067	1265.18311	76.75865928
5111	5184	0.06399	1285.84851	82.28144615
5118	1095	0.48896	1.92254	0.940045158
5118	5106	0.32966	9.88173	3.257611112
5118	5147	0.17508	9.99904	1.750631923
5123	5032	0.06403	330.14221	21.13900571
5123	5170	0.03060	337.99109	10.34252735
5124	190	0.08430	76.86845	6.480010335
5124	5125	0.02206	3624.29907	79.95203748
5124	5129	0.06275	4384.42480	275.1226562
5124	5163	0.02285	1605.37341	36.68278242

5125	5088	0.02311	2982.72192	68.93070357
5125	5124	0.02206	3517.83374	77.6034123
5125	5127	0.01931	641.57709	12.38885361
5126	5101	0.05567	1039.98132	57.89576008
5126	5130	0.04413	1092.44495	48.20959564
5127	5107	0.09624	641.57709	61.74537914
5127	5125	0.01931	582.44873	11.24708498
5128	5046	0.04619	1475.11462	68.1355443
5128	5134	0.06205	5389.65430	334.4280493
5128	5139	0.10136	4420.46045	448.0578712
5128	5182	0.06124	2751.57837	168.5066594
5129	5124	0.06275	4434.24512	278.2488813
5129	5149	0.03107	4384.42480	136.2240785
5130	5090	0.02375	806.80817	19.16169404
5130	5126	0.04413	1039.98132	45.89437565
5130	5140	0.01518	285.63675	4.335965865
5131	5133	0.02206	5462.60352	120.5050337
5131	5135	0.03724	5378.97021	200.3128506
5132	178	0.21608	16.68469	3.605227815
5132	180	0.31051	65.96445	20.48262137
5132	5110	0.52612	4665.40332	2454.561995
5132	5138	0.22138	4853.46777	1074.460695
5133	5065	0.03789	86.95957	3.294898107
5133	5131	0.02206	5378.97021	118.6600828
5133	5141	0.02552	5531.85254	141.1728768
5134	5128	0.06205	5317.04980	329.9229401
5134	5142	0.02552	5389.65430	137.5439777
5135	5131	0.03724	5462.60352	203.4273551
5135	5142	0.03793	5378.97021	204.0243401
5136	5137	0.01310	4496.62158	58.9057427
5136	5144	0.04413	4451.04736	196.42472
5137	5136	0.01310	4451.04736	58.30872042
5137	5143	0.08067	4496.62158	362.7424629
5138	5132	0.22138	4743.11963	1050.031824
5138	5145	0.12135	4853.46777	588.9683139
5139	5128	0.10136	4523.29395	458.4810748
5139	5146	0.01725	4420.46045	76.25294276
5140	5148	0.01931	285.63675	5.515645643
5141	4969	0.19166	1038.25195	198.9913687
5141	5133	0.02552	5463.07715	139.4177289
5141	5144	0.02758	4496.62158	124.0168232
5142	172	0.08377	20.21981	1.693813484
5142	173	0.11094	119.99929	13.31272123
5142	5134	0.02552	5317.04980	135.6911109
5142	5135	0.03793	5462.60352	207.1965515
5143	169	0.24307	640.54083	155.6962595
5143	190	0.11252	97.55753	10.97717328
5143	5137	0.08067	4451.04736	359.0659905
5143	5149	0.03103	4434.24512	137.5946261
5144	5136	0.04413	4496.62158	198.4359103
5144	5141	0.02758	4451.04736	122.7598862
5145	176	0.22994	133.69472	30.74176392
5145	179	0.15768	208.83344	32.92885682
5145	5138	0.12135	4743.11963	575.5775671

5145	5146	0.00965	4523.29395	43.64978662
5146	5139	0.01725	4523.29395	78.02682064
5146	5145	0.00965	4420.46045	42.65744334
5147	5118	0.17508	8.99124	1.574186299
5147	5150	0.24829	9.99904	2.482661642
5148	5090	0.02350	1719.26343	40.40269061
5148	5155	0.01303	1783.36389	23.23723149
5149	5129	0.03107	4434.24512	137.7719959
5149	5143	0.03103	4384.42480	136.0487015
5150	1096	0.49910	2.63361	1.314434751
5150	5147	0.24829	8.99124	2.23243498
5150	5151	0.24747	7.36543	1.822722962
5151	1896	1.06063	167.33209	177.4774346
5151	5150	0.24747	7.39113	1.829082941
5151	5330	0.25153	149.03043	37.48562406
5153	5191	0.17410	31850.87305	5545.236998
5154	19788	0.14776	35380.51172	5227.824412
5155	5148	0.01303	1719.26343	22.40200249
5155	5167	0.02080	1783.36389	37.09396891
5156	1074	0.49972	0.00000	0
5156	5104	0.10591	6.70976	0.710630682
5156	5310	0.30228	4.80676	1.452987413
5157	5105	0.03319	846.17371	28.08450543
5157	5168	0.02791	665.48352	18.57364504
5158	5154	0.01324	35380.51172	468.4379752
5159	5290	0.19861	32619.32422	6478.523983
5160	4883	0.31880	10032.85742	3198.474945
5160	5072	0.05133	20921.53516	1073.9024
5161	131	0.22047	6.66022	1.468378703
5161	1652	0.27864	373.72314	104.1342157
5161	4753	0.53647	832.26636	446.4859341
5161	5544	0.48450	1236.93652	599.2957439
5162	5158	0.01212	35380.51172	428.811802
5163	5124	0.02285	1661.51880	37.96570458
5163	5199	0.06344	1605.37341	101.8448891
5164	5100	0.02909	440.50281	12.81422674
5164	5228	0.10123	967.52783	97.94284223
5165	4896	0.54391	8.97355	4.880803581
5165	20474	0.04735	15.15400	0.7175419
5166	5094	0.03674	3050.96216	112.0923498
5166	5189	0.03786	3081.36450	116.66046
5167	5155	0.02080	1719.26343	35.76067934
5167	5176	0.02018	1783.36389	35.9882833
5168	5157	0.02791	846.17371	23.61670825
5168	5424	0.82297	665.48352	547.6729725
5170	142	0.12575	299.15613	37.61888335
5170	143	0.12586	92.79998	11.67980548
5170	5123	0.03060	330.14221	10.10235163
5170	5187	0.03282	122.11495	4.007812659
5176	155	0.05559	41.68832	2.317453709
5176	156	0.25833	682.35803	176.2735499
5176	5167	0.02018	1719.26343	34.69473602
5176	5190	0.04059	1068.79224	43.38227702
5178	4390	1.14407	1724.54956	1973.005415

5178	5426	0.35126	1694.70178	595.2809472
5181	5109	0.05847	3053.71313	178.5506067
5181	5353	0.23775	3142.47754	747.1240351
5182	5128	0.06124	2688.91870	164.6693812
5182	5234	0.06919	2751.57837	190.3817074
5184	142	0.12658	34.21774	4.331281529
5184	5111	0.06399	1265.18311	80.95906721
5184	5201	0.02893	1319.50696	38.17333635
5187	5170	0.03282	123.32242	4.047441824
5187	5208	0.03174	122.11495	3.875928513
5189	5166	0.03786	3050.96216	115.5094274
5189	5203	0.03005	3081.36450	92.59500323
5190	5176	0.04059	1006.96295	40.87262614
5190	5198	0.01911	1068.79224	20.42461971
5191	5210	0.07431	40054.51563	2976.451056
5195	5205	0.02692	7779.45361	209.4228912
5196	5162	0.17338	33933.20703	5883.339435
5198	5190	0.01911	1006.96295	19.24306197
5198	5203	0.03023	164.51692	4.973346492
5198	5224	0.04416	904.27539	39.93280122
5199	161	0.12697	1165.46643	147.9792726
5199	5163	0.06344	1661.51880	105.4067527
5199	5259	0.10409	439.90689	45.78990818
5201	5184	0.02893	1299.40088	37.59166746
5201	5229	0.03452	1319.50696	45.54938026
5203	143	0.13453	288.85431	38.85957032
5203	5189	0.03005	3050.96216	91.68141291
5203	5198	0.03023	1006.96295	30.44048998
5203	5224	0.02671	3201.05225	85.5001056
5205	5162	0.10289	1447.30261	148.9129655
5205	5218	0.03115	7779.45361	242.32998
5207	5217	0.01843	2361.42139	43.52099622
5207	19164	0.02815	8977.04199	252.703732
5208	5187	0.03174	123.32242	3.914253611
5208	5230	0.03118	122.11495	3.807544141
5210	5932	1.99975	40054.51563	80099.01763
5215	5195	0.15481	7779.45361	1204.337213
5215	5196	0.07148	33933.20703	2425.545639
5217	5207	0.01843	8977.04199	165.4468839
5217	19984	0.02931	1471.20374	43.12098162
5217	20245	0.01931	8662.24707	167.2679909
5217	20474	0.06078	8.97355	0.545412369
5218	5205	0.03115	1447.30261	45.0834763
5218	19939	0.01142	159.43288	1.82072349
5218	19984	0.01425	7789.04883	110.9939458
5222	5082	0.14139	354.17990	50.07749606
5222	5237	0.02862	364.24762	10.42476688
5223	161	0.09506	372.70544	35.42937913
5223	5101	0.13704	328.03821	44.9543563
5223	5257	0.07094	564.92773	40.07597317
5224	5203	0.02671	4017.41382	107.3051231
5224	5247	0.03897	4105.32764	159.9846181
5228	5164	0.10123	440.50281	44.59209946
5228	5236	0.01957	967.52783	18.93451963

5229	5201	0.03452	1299.40088	44.85531838
5229	5241	0.02785	1319.50696	36.74826884
5230	5208	0.03118	123.32242	3.845193056
5230	5244	0.03060	122.11495	3.73671747
5234	173	0.09534	39.67846	3.782944376
5234	179	0.12607	417.61331	52.64850999
5234	5182	0.06919	2688.91870	186.0462849
5234	5305	0.09221	2736.74268	252.3550425
5236	5228	0.01957	440.50281	8.620639992
5236	5308	0.09282	967.52783	89.80593318
5237	131	0.30968	61.40711	19.01655382
5237	135	0.25259	143.86719	36.33941352
5237	5222	0.02862	354.17990	10.13662874
5237	5315	0.10391	254.42642	26.4374493
5241	5229	0.02785	1299.40088	36.18831451
5241	5254	0.03563	1319.50696	47.01403298
5244	5230	0.03060	123.32242	3.773666052
5244	5252	0.03227	122.11495	3.940649437
5247	5224	0.03897	4017.41382	156.5586166
5247	5251	0.02949	4105.32764	121.0661121
5250	161	0.10234	229.19044	23.45534963
5250	162	0.16430	181.86322	29.88012705
5250	5257	0.10192	308.35046	31.42707888
5250	5259	0.11459	380.03506	43.54821753
5251	5247	0.02949	4017.41382	118.4735336
5251	5302	0.03172	4105.32764	130.2209927
5252	5244	0.03227	123.32242	3.979614493
5252	5326	0.06594	122.11495	8.052259803
5254	135	0.24923	902.28821	224.8772906
5254	5241	0.03563	1299.40088	46.29765335
5254	5304	0.03116	450.28906	14.03100711
5257	5223	0.07094	561.44269	39.82874443
5257	5250	0.10192	323.85599	33.0074025
5257	5279	0.01447	415.96765	6.019051896
5259	5199	0.10409	525.29449	54.67790346
5259	5250	0.11459	361.17670	41.38723805
5259	5335	0.07903	696.42041	55.038105
5264	5097	0.20281	136.74989	27.73424519
5264	5350	0.09502	168.27039	15.98905246
5270	5008	0.43851	73.17792	32.0892497
5270	5377	0.13170	35.01350	4.61127795
5273	1696	0.25056	9.43952	2.365166131
5273	5057	0.24295	1145.64880	278.335376
5273	5306	0.02084	1241.71680	25.87737811
5278	5063	0.24207	804.41058	194.7236691
5279	5257	0.01447	427.98819	6.192989109
5279	5316	0.04620	415.96765	19.21770543
5282	1695	0.25100	0.00000	0
5282	1696	0.25130	0.00000	0
5284	1260	0.23392	0.00000	0
5284	5084	0.23721	0.00000	0
5285	1695	0.24515	9.43952	2.314098328
5285	5051	0.24922	739.40381	184.2742175
5285	5488	0.24876	201.85841	50.21429807

5287	1259	0.22702	0.00000	0
5290	5662	0.44298	32619.32422	14449.70824
5292	5058	0.25632	1298.47083	332.8240431
5292	5481	0.23815	1368.25000	325.8487375
5301	1778	0.99108	741.26752	734.6554137
5301	1791	0.50475	6.11952	3.08882772
5301	4665	0.75467	420.36584	317.2374885
5301	5805	0.73674	1067.84607	786.7249136
5302	5251	0.03172	4017.41382	127.4323664
5302	5340	0.05901	4105.32764	242.255384
5304	5254	0.03116	448.21896	13.96650279
5304	5323	0.03283	450.28906	14.78298984
5305	5234	0.09221	2670.56787	246.2530633
5305	5370	0.09575	2736.74268	262.0431116
5306	5273	0.02084	1137.05444	23.69621453
5306	5486	0.23256	1241.71680	288.773659
5307	1056	0.25041	15.36660	3.847950306
5307	5102	0.23977	1882.86047	451.4534549
5307	5525	0.26537	2215.53906	587.9376004
5308	5236	0.09282	440.50281	40.88747082
5308	5331	0.02069	967.52783	20.0181508
5310	5156	0.30228	6.70976	2.028226253
5310	5331	0.02261	4.80676	0.108680844
5315	5237	0.10391	252.64806	26.25265991
5315	5425	0.15026	254.42642	38.23011387
5316	5279	0.04620	427.98819	19.77305438
5316	5337	0.02393	415.96765	9.954105865
5323	5304	0.03283	448.21896	14.71502846
5323	5382	0.09307	450.28906	41.90840281
5326	5252	0.06594	123.32242	8.131880375
5326	5415	0.12526	122.11495	15.29611864
5330	5151	0.25153	164.43643	41.36069524
5330	5578	0.25098	149.03043	37.40365732
5331	1056	0.25067	8.05447	2.019013995
5331	5308	0.02069	440.50281	9.114003139
5331	5310	0.02261	6.70976	0.151707674
5331	5493	0.20288	969.75470	196.7438335
5332	180	0.38204	13.03088	4.978317395
5332	5110	0.26196	398.42184	104.3705852
5332	5532	0.24295	378.09222	91.85750485
5335	169	0.13713	321.27588	44.05656142
5335	5259	0.07903	762.94958	60.29590531
5335	5368	0.04731	830.19934	39.27673078
5337	156	0.13898	122.35373	17.0047214
5337	5316	0.02393	427.98819	10.24175739
5337	5366	0.04062	326.55988	13.26486233
5339	1842	0.33070	31.99088	10.57938402
5339	5585	0.50772	127.44200	64.70485224
5339	20280	0.51454	145.12695	74.67362085
5340	5302	0.05901	4017.41382	237.0675895
5340	5365	0.03552	4105.32764	145.8212378
5350	5264	0.09502	136.74989	12.99397455
5350	5408	0.08213	168.27039	13.82004713
5353	5181	0.23775	3053.71313	726.0202967

5353	5523	0.20603	3142.47754	647.4446476
5365	145	0.14274	195.70105	27.93436788
5365	156	0.14068	353.45535	49.72409864
5365	5340	0.03552	4017.41382	142.6985389
5365	5406	0.05022	4232.93945	212.5782192
5366	5337	0.04062	327.69739	13.31106798
5366	5389	0.03830	326.55988	12.5072434
5368	5335	0.04731	899.39386	42.55032352
5368	5388	0.03586	830.19934	29.77094833
5370	5305	0.09575	2670.56787	255.7068736
5370	5393	0.04076	2736.74268	111.5496316
5377	5096	0.63897	15.15400	9.68295138
5377	5270	0.13170	73.17792	9.637532064
5377	5407	0.03466	37.39460	1.296096836
5382	144	0.12502	80.53333	10.06827692
5382	5323	0.09307	448.21896	41.71573861
5382	5429	0.05561	369.75574	20.5621167
5386	2004	3.13859	68.01115	213.4591153
5386	2009	2.54464	67.31089	171.2819831
5388	162	0.10941	177.96718	19.47138916
5388	5368	0.03586	899.39386	32.25226382
5388	5410	0.02372	862.24615	20.45247868
5389	162	0.10760	16.84674	1.812709224
5389	5366	0.03830	327.69739	12.55081004
5389	5416	0.02906	309.71313	9.000263558
5392	144	0.11930	2.46927	0.294583911
5392	145	0.12835	2.50687	0.321756765
5393	174	0.15007	236.45943	35.48546666
5393	191	0.11249	38.67648	4.350717235
5393	5370	0.04076	2670.56787	108.8523464
5393	5551	0.14513	2631.83911	381.95881
5406	5365	0.05022	4145.19092	208.171488
5406	5475	0.08493	4232.93945	359.5035475
5407	5377	0.03466	81.73948	2.833090377
5407	5653	0.27356	37.39460	10.22966678
5408	5350	0.08213	136.74989	11.23126847
5408	5437	0.04079	168.27039	6.863749208
5410	5388	0.02372	935.07813	22.18005324
5410	5433	0.03230	862.24615	27.85055065
5415	5326	0.12526	123.32242	15.44736633
5415	5576	0.12640	122.11495	15.43532968
5416	5389	0.02906	311.59818	9.055043111
5416	5449	0.03617	309.71313	11.20232391
5424	5168	0.82297	846.17371	696.3755781
5424	5683	1.09197	665.48352	726.6880393
5425	5315	0.15026	252.64806	37.9628975
5425	5538	0.10350	254.42642	26.33313447
5426	5178	0.35126	1724.54956	605.7652784
5426	7980	2.00996	1694.70178	3406.28279
5429	5382	0.05561	368.69717	20.50324962
5429	5569	0.10375	369.75574	38.36215803
5433	5410	0.03230	935.07813	30.2030236
5433	5464	0.02783	862.24615	23.99631035
5437	1028	0.25537	436.28775	111.4148027

5437	1044	0.24938	72.89170	18.17773215
5437	5408	0.04079	136.74989	5.578028013
5437	5589	0.12180	454.87784	55.40412091
5448	1014	0.25804	28.52976	7.36181927
5448	1028	0.25581	688.89063	176.2251121
5448	5093	0.42904	809.72888	347.4060787
5448	5469	0.02741	1546.71484	42.39545376
5449	5416	0.03617	311.59818	11.27050617
5449	5491	0.04231	309.71313	13.10396253
5461	1966	1.60633	55.56486	89.25550156
5461	1967	1.44971	55.23436	80.07380404
5463	1967	1.54499	212.85103	328.8527128
5463	4613	0.99995	1357.05188	1356.984027
5463	6298	0.99883	1153.96033	1152.610196
5464	5433	0.02783	935.07813	26.02322436
5464	5502	0.02950	862.24615	25.43626143
5467	5160	0.42345	30954.39063	13107.63671
5469	5448	0.02741	1444.02393	39.58069592
5469	5605	0.12569	1546.71484	194.4065882
5474	4624	0.99886	2278.49292	2275.895438
5474	6320	1.00167	2462.76978	2466.882606
5475	146	0.05592	94.46387	5.28241961
5475	5406	0.08493	4145.19092	352.0510648
5475	5566	0.05533	4225.77637	233.8122066
5480	1227	0.19645	1191.27405	234.0257871
5480	1228	0.13508	240.73416	32.51837033
5480	5059	0.49270	1816.92114	895.1970457
5480	5522	0.04387	2475.67334	108.6077894
5481	1211	0.14562	1152.63867	167.8472431
5481	1227	0.14347	491.19873	70.47228179
5481	5292	0.23815	1298.47083	309.2308282
5481	5816	0.50420	2032.99158	1025.034355
5482	1696	0.23939	0.00000	0
5482	1697	0.25598	0.00000	0
5484	1683	0.26078	0.00000	0
5484	1695	0.23782	0.00000	0
5486	1211	0.23157	271.36758	62.8405905
5486	5306	0.23256	1137.05444	264.4333806
5486	5679	0.22576	1248.77271	281.922927
5487	1260	0.24822	158.30986	39.29567345
5487	1262	0.25058	70.20142	17.59107182
5487	5490	0.24303	235.23334	57.16875862
5488	5285	0.24876	730.82489	181.7999996
5488	5600	0.08715	201.85841	17.59196043
5489	1259	0.25193	295.32813	74.40201579
5489	1261	0.26428	18.22759	4.817187485
5489	5490	0.25762	219.84270	56.63587637
5489	5494	0.25051	664.47327	166.4571989
5490	5487	0.24303	219.84270	53.42837138
5490	5489	0.25762	235.23334	60.60081305
5491	5449	0.04231	311.59818	13.183719
5491	5553	0.04340	309.71313	13.44154984
5492	5081	0.48467	660.30438	320.0297239
5492	5510	0.01162	864.04291	10.04017861

5493	5331	0.20288	443.75049	90.02809941
5493	5584	0.05644	969.75470	54.73295527
5494	1228	0.15129	599.25165	90.66078213
5494	5489	0.25051	492.06430	123.2670278
5494	5495	0.00896	376.72159	3.375425446
5494	29951	0.24697	1602.40393	395.7456986
5495	5278	0.25773	804.41058	207.3207388
5495	5494	0.00896	837.67065	7.505529024
5502	5464	0.02950	935.07813	27.58480484
5502	5542	0.03900	862.24615	33.62759985
5510	1869	0.83132	3.13928	2.60974625
5510	5492	0.01162	660.30438	7.672736896
5510	5861	0.50322	860.90363	433.2239247
5513	1002	0.24971	13.05367	3.259631936
5513	1014	0.24780	142.97034	35.42805025
5513	5089	0.49530	56.73636	28.10151911
5513	5882	0.50463	196.03510	98.92519251
5514	1002	0.24906	18.18371	4.528834813
5514	1869	0.67819	7.85007	5.323838973
5514	5086	0.50431	189.04364	95.33659809
5514	5878	0.49604	380.52121	188.753741
5516	5612	0.09179	8662.24707	795.1076586
5516	20245	0.35586	8953.84277	3186.314488
5518	1074	0.23713	279.94443	66.38322269
5518	1095	0.35402	23.58902	8.35098486
5518	5106	0.49516	4.94353	2.447838315
5518	5890	0.49849	305.76474	152.4206652
5522	5480	0.04387	2314.80713	101.5505888
5522	5837	0.46407	2475.67334	1148.885727
5523	5353	0.20603	3053.71313	629.1565162
5523	5527	0.49919	2558.75928	1277.307045
5523	6174	0.81507	1038.76135	846.6632135
5525	1044	0.28083	65.96571	18.52515034
5525	5307	0.26537	1895.06262	502.8927675
5525	5608	0.07606	1182.39368	89.9328633
5525	5620	0.08159	1099.44482	89.70370286
5526	5527	0.49781	2472.91260	1231.040621
5526	5530	0.49781	2558.75928	1273.775957
5527	5523	0.49919	2472.91260	1234.453241
5527	5526	0.49781	2558.75928	1273.775957
5529	169	0.26075	138.40800	36.089886
5529	5542	0.14370	3012.45093	432.8891986
5529	5550	0.07488	3059.92896	229.1274805
5530	5526	0.49781	2472.91260	1231.040621
5530	5532	0.49864	2558.75928	1275.899727
5531	180	0.23216	75.74706	17.58543745
5531	5532	0.36322	2337.87988	849.16473
5531	5533	0.13529	2411.55737	326.2595966
5532	5332	0.24295	384.68402	93.45898266
5532	5530	0.49864	2472.91260	1233.093139
5532	5531	0.36322	2423.37915	880.2197749
5532	5803	0.45267	302.63586	136.9941747
5533	5531	0.13529	2327.40356	314.8744276
5533	5545	0.12383	2411.55737	298.6231491

5534	170	0.50695	6.72043	3.406921989
5534	5550	0.02684	3150.85889	84.56905261
5534	5560	0.02694	3055.66260	82.31955044
5535	162	0.15062	78.27918	11.79041009
5535	163	0.12319	276.63022	34.0780768
5535	5536	0.06067	3121.25269	189.3664007
5535	5537	0.06068	2983.56226	181.0425579
5536	5535	0.06067	3130.56250	189.9312269
5536	5553	0.03517	3121.25269	109.7744571
5537	5535	0.06068	2984.76709	181.115667
5537	5542	0.06688	2983.56226	199.5406439
5538	5425	0.10350	252.64806	26.14907421
5538	5539	0.00896	2692.51440	24.12492902
5538	5561	0.05379	2826.26831	152.0249724
5538	5689	0.19249	291.91983	56.19164808
5539	5538	0.00896	2723.76050	24.40489408
5539	5541	0.28266	2692.51440	761.0661203
5540	135	0.30143	1072.36755	323.2437506
5540	136	0.24975	51.00124	12.73755969
5540	5547	0.08550	2793.38232	238.8341884
5540	5568	0.12067	3575.46191	431.4509887
5541	131	0.47786	0.00000	0
5541	5539	0.28266	2723.76050	769.8981429
5541	5544	0.20344	2692.51440	547.7651295
5542	5502	0.03900	935.07813	36.46804707
5542	5529	0.14370	2931.09570	421.1984521
5542	5537	0.06688	2984.76709	199.621223
5542	5645	0.12909	429.86795	55.49165367
5543	174	0.19679	67.15226	13.21489325
5543	5551	0.14011	2988.51050	418.7202062
5543	5556	0.02882	3146.63281	90.68595758
5544	1653	0.51356	7.54065	3.872576214
5544	5161	0.48450	1201.12903	581.947015
5544	5541	0.20344	2723.76050	554.1218361
5544	5555	0.29730	1489.16565	442.7289477
5545	181	0.50595	0.63555	0.321556523
5545	5533	0.12383	2327.40356	288.2023828
5545	5565	0.06992	2411.33008	168.6001992
5546	5549	0.03310	3415.25586	113.044969
5546	5557	0.05792	3426.45068	198.4600234
5547	5540	0.08550	2826.26831	241.6459405
5547	5554	0.04206	2793.38232	117.4896604
5548	145	0.12651	218.34689	27.62306505
5548	148	0.10567	338.67062	35.78732442
5548	5558	0.05999	2585.56177	155.1078506
5548	5563	0.01794	2761.10938	49.53430228
5549	156	0.21721	340.92047	74.05133529
5549	157	0.10664	125.66901	13.40134323
5549	5546	0.03310	3426.45068	113.4155175
5549	5559	0.08688	2972.62329	258.2615114
5550	5529	0.07488	3150.85889	235.9363137
5550	5534	0.02684	3059.92896	82.12849329
5551	5393	0.14513	2571.43604	373.1925125
5551	5543	0.14011	3080.85254	431.6582494

5551	5552	0.08964	2334.85620	209.2965098
5551	5908	0.50637	3396.50488	1719.888176
5552	191	0.08033	44.70130	3.590855429
5552	5551	0.08964	2419.50854	216.8847455
5552	5567	0.16134	2327.18335	375.4677617
5553	5491	0.04340	311.59818	13.52336101
5553	5536	0.03517	3130.56250	110.1018831
5553	5557	0.03310	3415.25586	113.044969
5554	5547	0.04206	2826.26831	118.8728451
5554	5561	0.07102	2793.38232	198.3860124
5555	1652	0.49075	5.08752	2.49670044
5555	5544	0.29730	1484.46777	441.332268
5555	5577	0.22909	1494.32019	342.3338123
5556	5543	0.02882	3055.66260	88.06419613
5556	5560	0.05102	3146.63281	160.541206
5557	5546	0.05792	3415.25586	197.8116194
5557	5553	0.03310	3426.45068	113.4155175
5557	5646	0.12908	0.00000	0
5558	5548	0.05999	2506.88721	150.3881637
5558	5570	0.02965	2585.56177	76.66190648
5559	5549	0.08688	2982.61938	259.1299717
5559	5564	0.03310	2972.62329	98.3938309
5560	5534	0.02694	3146.63281	84.7702879
5560	5556	0.05102	3055.66260	155.8999059
5561	5538	0.05379	2793.38232	150.256035
5561	5554	0.07102	2826.26831	200.7215754
5562	146	0.05600	17.78790	0.9961224
5562	5563	0.05121	2833.36377	145.0965587
5562	5566	0.05636	2743.32153	154.6136014
5563	5548	0.01794	2833.36377	50.83054603
5563	5562	0.05121	2761.10938	141.3964113
5564	5559	0.03310	2982.61938	98.72470148
5564	5566	0.03241	2972.62329	96.34272083
5565	5545	0.06992	2327.18335	162.7166598
5565	5567	0.05378	2411.33008	129.6813317
5566	5475	0.05533	4137.04541	228.9027225
5566	5562	0.05636	2815.06274	158.656936
5566	5564	0.03241	2982.61938	96.66669411
5566	5616	0.07679	3936.56885	302.289122
5567	5552	0.16134	2411.33008	389.0439951
5567	5565	0.05378	2327.18335	125.1559206
5568	5540	0.12067	3543.67920	427.6157691
5568	5569	0.12618	3575.46191	451.1517838
5569	5429	0.10375	368.69717	38.25233139
5569	5568	0.12618	3543.67920	447.1414415
5569	5573	0.09584	2031.25598	194.6755731
5569	5637	0.11098	2484.81323	275.7645723
5570	5558	0.02965	2506.88721	74.32920578
5570	5572	0.02000	2585.56177	51.7112354
5571	144	0.14886	452.24899	67.32178465
5571	147	0.10749	89.55382	9.626140112
5571	5573	0.02344	2097.52856	49.16606945
5571	5575	0.08688	2467.03931	214.3363753
5572	5570	0.02000	2506.88721	50.1377442

5572	5576	0.00967	2585.56177	25.00238232
5573	5569	0.09584	2097.52856	201.0271372
5573	5571	0.02344	2031.25598	47.61264017
5574	5575	0.01379	2544.50659	35.08874588
5574	5576	0.03034	2467.03931	74.84997267
5575	5571	0.08688	2544.50659	221.0667325
5575	5574	0.01379	2467.03931	34.02047208
5576	5415	0.12640	123.32242	15.58795389
5576	5572	0.00967	2506.88721	24.24159932
5576	5574	0.03034	2544.50659	77.20032994
5577	94	2.00000	1683.41772	3366.83544
5577	5018	0.59044	258.99307	152.9198683
5577	5555	0.22909	1489.55530	341.2422237
5577	5899	0.49788	207.52095	103.3205306
5578	1096	0.25218	17.34445	4.373923401
5578	1112	0.54646	46.92882	25.64472298
5578	5330	0.25098	164.43643	41.2702552
5578	5895	0.48628	206.50687	100.4201607
5584	1074	0.26136	67.80013	17.72024198
5584	5493	0.05644	443.75049	25.04527766
5584	5655	0.12407	919.35315	114.0641453
5585	5339	0.50772	117.35625	59.58411525
5585	5850	0.45064	127.44200	57.43046288
5589	5437	0.12180	568.67126	69.26415947
5589	5614	0.04693	454.87784	21.34741703
5600	5488	0.08715	730.82489	63.69138916
5600	5702	0.17093	201.85841	34.50365802
5605	5469	0.12569	1444.02393	181.4993678
5605	5621	0.01454	1546.71484	22.48923377
5608	5525	0.07606	1234.57056	93.90143679
5608	5620	0.02160	8.71881	0.188326296
5608	5681	0.15804	1190.95056	188.2178265
5612	1379	0.38698	40.79587	15.78718577
5612	1842	0.44410	21.61217	9.597964697
5612	5516	0.09179	8953.84277	821.8732279
5612	5846	0.38820	8643.47070	3355.395326
5614	5589	0.04693	568.67126	26.68774223
5614	5723	0.17040	454.87784	77.51118394
5616	5566	0.07679	3929.57520	301.7520796
5616	5634	0.02877	3936.56885	113.2550858
5620	5525	0.08159	726.41187	59.26794447
5620	5608	0.02160	8.55694	0.184829904
5620	5746	0.18633	1108.16357	206.484118
5621	5605	0.01454	1444.02393	20.99610794
5621	5636	0.02850	1546.71484	44.08137294
5634	148	0.12745	101.83227	12.97852281
5634	157	0.13747	207.03645	28.46130078
5634	5616	0.02877	3929.57520	113.0538785
5634	5741	0.15040	3918.49023	589.3409306
5636	5621	0.02850	1444.02393	41.15468201
5636	5737	0.14636	1546.71484	226.377184
5637	147	0.11414	47.09510	5.375434714
5637	5569	0.11098	2385.69946	264.7649261
5637	5671	0.05925	2494.48535	147.798257

5645	163	0.12340	34.25217	4.226717778
5645	5542	0.12909	422.54947	54.54691108
5645	5688	0.06287	464.99594	29.23429475
5646	157	0.11133	1.93729	0.215678496
5646	163	0.13069	40.50113	5.29309268
5646	5557	0.12908	0.00000	0
5646	5740	0.12692	37.56911	4.768271441
5653	1357	0.27548	9.83213	2.708555172
5653	1379	0.62220	54.32984	33.80402645
5653	5407	0.27356	81.73948	22.36065215
5653	5839	0.32351	68.57371	22.18428092
5655	1134	0.18389	257.79489	47.40590232
5655	5584	0.12407	411.90271	51.10476923
5655	5748	0.12964	1126.70715	146.0663149
5661	5467	0.21647	30954.39063	6700.69694
5662	5698	0.04798	32619.32422	1565.075176
5668	5006	0.77481	192.87576	149.4420676
5668	5683	0.01798	187.20543	3.365953631
5671	5637	0.05925	2396.02856	141.9646922
5671	5744	0.08623	2494.48535	215.0994717
5679	1697	0.26461	5.80507	1.536079573
5679	5486	0.22576	1135.60278	256.3736836
5679	5811	0.27562	1242.96753	342.5867106
5681	5608	0.15804	1243.28943	196.4894615
5681	5759	0.15956	1190.95056	190.0280714
5683	5424	1.09197	846.17371	923.9963061
5683	5668	0.01798	192.87576	3.467906165
5683	5692	0.00674	0.00000	0
5683	5845	1.03989	822.60663	855.4204085
5688	5645	0.06287	456.80164	28.71911911
5688	5734	0.06176	464.99594	28.71814925
5689	185	0.04380	22.17609	0.971312742
5689	5538	0.19249	291.78122	56.16496704
5689	5745	0.07062	279.31082	19.72493011
5692	5683	0.00674	0.00000	0
5696	1683	0.25052	0.00000	0
5696	1697	0.23685	0.00000	0
5698	5824	0.25941	1663.47668	431.5224856
5698	5925	0.31410	30955.84766	9723.23175
5701	5495	0.24725	1265.35962	312.860166
5702	1683	0.24625	14.28211	3.516969588
5702	5600	0.17093	730.82489	124.9198984
5702	5804	0.24057	204.06262	49.09134449
5708	5661	0.06695	29614.48047	1982.689467
5713	1261	0.36389	0.00000	0
5723	1029	0.25321	456.53635	115.5995692
5723	1045	0.25486	48.93795	12.47232594
5723	5614	0.17040	568.67126	96.9015827
5723	5760	0.03352	627.23993	21.02508245
5734	5688	0.06176	456.80164	28.21206929
5734	5926	0.26649	464.99594	123.9167681
5737	1029	0.25608	680.37756	174.2310856
5737	5636	0.14636	1444.02393	211.3473424
5737	5784	0.12235	2308.63892	282.4619719

5738	5740	0.06206	38.52819	2.391059471
5738	5742	0.06481	37.56911	2.434854019
5740	5646	0.12692	38.52819	4.889997875
5740	5738	0.06206	37.56911	2.331538967
5741	5634	0.15040	3917.89844	589.2519254
5741	5743	0.07447	38.52819	2.869194309
5741	5761	0.03282	3956.05933	129.8378672
5742	5738	0.06481	38.52819	2.497011994
5742	5743	0.05171	37.56911	1.942698678
5743	5741	0.07447	37.56911	2.797771622
5743	5742	0.05171	38.52819	1.992292705
5744	136	0.23099	191.07762	44.13701944
5744	5671	0.08623	2396.02856	206.6095427
5744	5774	0.09881	2307.57495	228.0114808
5745	5689	0.07062	279.39761	19.73105922
5745	5919	0.25035	279.31082	69.92546379
5746	1045	0.25480	62.41395	15.90307446
5746	1057	0.13620	18.86799	2.569820238
5746	5620	0.18633	734.96881	136.9467384
5746	5787	0.14839	1033.54297	153.3674413
5748	5655	0.12964	622.33667	80.6797259
5748	5778	0.09892	1126.70715	111.4538713
5759	1134	0.14141	582.66376	82.3944823
5759	5681	0.15956	1243.28943	198.3792615
5759	5772	0.08134	1695.24500	137.8912283
5760	5723	0.03352	888.36163	29.77788184
5760	5871	0.19275	627.23993	120.9004965
5761	5741	0.03282	3956.42651	129.8499181
5761	5780	0.08067	3956.05933	319.1353062
5772	1057	0.18734	95.25240	17.84458462
5772	5759	0.08134	1755.02393	142.7536465
5772	5854	0.12868	1787.42163	230.0054153
5774	149	0.23840	41.53388	9.901676992
5774	5744	0.09881	2209.86328	218.3565907
5774	5917	0.15546	2266.04102	352.278737
5778	5748	0.09892	622.33667	61.5615434
5778	5783	0.00950	1126.70715	10.70371793
5780	149	0.25754	124.07410	31.95404371
5780	5761	0.08067	3956.42651	319.1649266
5780	5796	0.05677	3831.98511	217.5417947
5783	5778	0.00950	622.33667	5.912198365
5783	5862	0.09611	1126.70715	108.2878242
5784	5737	0.12235	2083.48486	254.9143726
5784	5885	0.10337	2308.63892	238.6440052
5787	5746	0.14839	685.47729	101.7179751
5787	5853	0.05587	1033.54297	57.74404573
5796	5780	0.05677	3832.21094	217.5546151
5796	5911	0.08179	3831.98511	313.4180621
5803	181	0.61323	38.03444	23.32385964
5803	5532	0.45267	308.88068	139.8210174
5803	5909	0.05602	264.60144	14.82297267
5804	5702	0.24057	735.32172	176.8963462
5804	5807	0.25119	167.92525	42.18114355
5804	6089	0.26461	191.63124	50.70754242

5805	5301	0.73674	551.88177	406.5933752
5805	6327	0.49662	1067.84607	530.3137153
5806	1211	0.49062	5.45289	2.675296892
5806	1212	0.26284	156.49716	41.13371353
5806	5810	0.20194	104.22993	21.04819206
5806	5816	0.16006	253.23093	40.53214266
5807	1683	0.23987	63.97110	15.34474776
5807	1698	0.27283	8.91858	2.433256181
5807	5804	0.25119	225.89133	56.74164318
5807	5808	0.24515	243.90208	59.79259491
5808	5807	0.24515	298.78101	73.2461646
5808	5809	0.23531	243.90208	57.39259844
5809	1697	0.24609	3.48144	0.85674757
5809	1699	0.26411	0.43997	0.116200477
5809	5808	0.23531	298.78101	70.30615946
5809	5811	0.26259	246.10081	64.6236117
5810	5806	0.20194	104.63731	21.13045838
5810	5811	0.01448	104.22993	1.509249386
5811	5679	0.27562	1129.93030	311.4313893
5811	5809	0.26259	300.86197	79.0033447
5811	5810	0.01448	104.63731	1.515148249
5811	6083	0.25709	1269.19458	326.2972346
5812	5813	0.01103	3924.99951	43.2927446
5812	5815	0.09377	3927.07983	368.2422757
5812	6029	0.20527	1075.76819	220.8229364
5813	5701	0.24974	1265.35962	316.0109115
5813	5812	0.01103	3520.59180	38.83212755
5813	5814	0.01655	3520.14697	58.25843235
5814	5813	0.01655	3528.40698	58.39513552
5814	5820	0.12008	3520.14697	422.6992482
5815	5812	0.09377	3656.03271	342.8261872
5815	5834	0.09450	3927.07983	371.1090439
5816	5481	0.50420	1930.91626	973.5679783
5816	5806	0.16006	255.14368	40.83829742
5816	5822	0.12687	877.91736	111.3813755
5816	6081	0.25377	1359.66699	345.0426921
5817	5821	0.07787	3243.96387	252.6074666
5817	5824	0.02694	7126.86719	191.9978021
5818	5819	0.01724	6419.47510	110.6717507
5818	5821	0.11376	6416.51318	729.9425394
5819	5818	0.01724	6416.51318	110.6206872
5819	5826	0.09239	6419.47510	593.0953045
5820	1228	0.50035	2.10714	1.054307499
5820	1232	0.25032	547.08972	136.9474987
5820	5814	0.12008	3528.40698	423.6911102
5820	5837	0.13711	3231.66016	443.0929245
5821	5661	0.30976	1339.91125	415.0509088
5821	5817	0.07787	7126.86719	554.9691481
5821	5818	0.11376	6419.47510	730.2794874
5822	5816	0.12687	886.67017	112.4918445
5822	5823	0.02144	877.91736	18.8225482
5823	1227	0.50419	13.98937	7.05330046
5823	1229	0.19699	632.54254	124.604555
5823	5822	0.02144	886.67017	19.01020844

5823	5837	0.19921	1250.53418	249.118914
5824	5817	0.02694	3243.96387	87.39238666
5824	5825	0.11307	4105.29590	464.1858074
5824	6080	0.25699	5063.82178	1301.351559
5825	5824	0.11307	3622.73804	409.6229902
5825	5827	0.15307	4105.29590	628.3976434
5826	1262	0.25396	771.45068	195.9176147
5826	1265	0.50243	1201.29456	603.5664258
5826	5819	0.09239	6416.51318	592.8216527
5826	5828	0.04275	5395.23340	230.6462279
5827	1332	0.35344	22.96039	8.115120242
5827	1333	0.25166	81.74084	20.57089979
5827	5825	0.15307	3622.73804	554.5325118
5827	30021	0.18240	4042.95264	737.4345615
5828	5826	0.04275	5375.47754	229.8016648
5828	5831	0.18271	5395.23340	985.7630945
5829	5830	0.04275	5185.36426	221.6743221
5829	5831	0.09170	5165.94482	473.71714
5830	5829	0.04275	5165.94482	220.8441411
5830	5833	0.02896	5185.36426	150.168149
5831	5828	0.18271	5375.47754	982.1535013
5831	5829	0.09170	5185.36426	475.4979026
5831	5965	0.11771	273.48776	32.19224423
5832	1357	0.29097	38.22133	11.12126039
5832	1358	0.25104	159.07513	39.93422064
5832	5839	0.24162	3946.32813	953.5118028
5832	30021	0.25857	3560.61035	920.6670182
5833	5830	0.02896	5165.94482	149.605762
5833	5838	0.09369	5185.36426	485.8167775
5834	5815	0.09450	3656.03271	345.4950911
5834	5838	0.05938	3927.07983	233.1900003
5835	1380	0.25244	222.03458	56.05040938
5835	5840	0.07816	3853.04639	301.1541058
5835	5841	0.02045	4296.65186	87.86653054
5837	5522	0.46407	2314.80713	1074.232545
5837	5820	0.13711	3228.05713	442.5989131
5837	5823	0.19921	1308.35193	260.636788
5837	6194	0.37423	1212.56470	453.7780877
5838	1261	0.28010	1301.12463	364.4450089
5838	1263	0.22217	1302.86072	289.4565662
5838	5833	0.09369	5165.94482	483.9973702
5838	5834	0.05938	3656.03271	217.0952223
5839	5653	0.32351	112.63339	36.438028
5839	5832	0.24162	3465.46973	837.3267962
5839	5840	0.16341	4297.88086	702.3167113
5839	5870	0.01507	988.29852	14.8936587
5840	5835	0.07816	4297.88086	335.922368
5840	5839	0.16341	3853.04639	629.6263106
5841	5835	0.02045	3856.08594	78.85695747
5841	5842	0.24324	4296.65186	1045.117598
5842	5841	0.24324	3856.08594	937.954344
5842	5843	0.19450	4296.65186	835.6987868
5843	1379	0.37602	16.06292	6.039979178
5843	1404	0.25436	37.71215	9.592462474

5843	5842	0.19450	3856.08594	750.0087153
5843	5847	0.29798	4274.09082	1273.593583
5844	1422	0.25220	0.02559	0.006453798
5844	5846	0.26704	728.15271	194.4458997
5844	5848	0.23285	530.92554	123.626012
5845	5683	1.03989	1008.96710	1049.214798
5845	6102	1.00383	1209.20520	1213.836456
5845	7951	1.42743	759.59265	1084.265336
5846	5612	0.38820	8929.85254	3466.568756
5846	5844	0.26704	530.90039	141.7716401
5846	5847	0.00965	3833.07861	36.98920859
5846	6096	0.25471	4462.80811	1136.721854
5847	5843	0.29798	3833.07861	1142.180764
5847	5846	0.00965	4274.09082	41.24497641
5848	1842	0.38653	13.50547	5.220269319
5848	5844	0.23285	728.17828	169.5563125
5848	5849	0.24562	50.81841	12.48201786
5848	6099	0.25717	493.61581	126.9431779
5849	1689	0.26168	7.41008	1.939069734
5849	5848	0.24562	37.19284	9.135305361
5849	5850	0.25494	43.40833	11.06651965
5850	5585	0.45064	117.35625	52.8854205
5850	5849	0.25494	29.64605	7.557963987
5850	6101	0.25880	170.85033	44.2160654
5852	5853	0.01379	2685.56250	37.03390688
5852	5855	0.11928	2657.45728	316.9815044
5853	5787	0.05587	685.47729	38.29761619
5853	5852	0.01379	2657.45728	36.64633589
5853	5857	0.12686	2874.22803	364.6245679
5853	6057	0.22799	1885.70886	429.922763
5854	5772	0.12868	1844.97168	237.4109558
5854	5856	0.09101	2337.79224	212.7624718
5854	5858	0.09377	2706.93018	253.828843
5854	5948	0.07601	604.06262	45.91479975
5855	1057	0.13869	140.61107	19.5013493
5855	1058	0.23053	212.40044	48.96467343
5855	5852	0.11928	2685.56250	320.333895
5855	5856	0.09377	2308.29712	216.4490209
5856	5854	0.09101	2308.29712	210.0781209
5856	5855	0.09377	2337.79224	219.2147783
5857	5853	0.12686	2841.06812	360.4179017
5857	5859	0.10549	2874.22803	303.2023149
5858	1090	0.22687	254.75003	57.79513931
5858	5854	0.09377	2765.42383	259.3137925
5858	5862	0.08828	2452.18042	216.4784875
5859	1045	0.20475	1493.48755	305.7915759
5859	1046	0.16513	791.13055	130.6393877
5859	5857	0.10549	2841.06812	299.704276
5859	5864	0.10481	3411.31860	357.5403025
5861	5510	0.50322	657.20917	330.7207985
5861	5863	0.49987	4736.33691	2367.552731
5861	5874	0.12847	5431.82227	697.826207
5862	5783	0.09611	622.33667	59.81277735
5862	5858	0.08828	2507.89917	221.3973387

5862	5872	0.06352	2174.58154	138.1294194
5862	5950	0.07432	1487.23694	110.5314494
5863	5861	0.49987	4655.49121	2327.140391
5863	5867	0.34457	4736.33691	1631.999609
5864	5859	0.10481	3369.58667	353.1663789
5864	5866	0.04550	3411.31860	155.2149963
5866	5864	0.04550	3369.58667	153.3161935
5866	5869	0.05861	3411.31860	199.9373831
5867	1869	0.41195	236.70213	97.50944245
5867	5863	0.34457	4655.49121	1604.142606
5867	5878	0.65246	4734.41211	3089.014525
5868	5098	0.98547	822.81610	810.8605821
5868	6160	0.32664	813.27448	265.6479761
5869	5866	0.05861	3369.58667	197.4914747
5869	5871	0.06619	3411.31860	225.7951781
5870	5839	0.01507	996.33459	15.01476227
5870	5934	0.06138	988.29852	60.66176316
5871	5760	0.19275	888.36163	171.2317042
5871	5869	0.06619	3369.58667	223.0329417
5871	5876	0.19238	3215.55249	618.607988
5871	5912	0.03576	390.70544	13.97162653
5872	5862	0.06352	2028.56128	128.8542125
5872	5875	0.05449	2174.58154	118.4929481
5874	5861	0.12847	5308.97363	682.0438422
5874	5898	0.04410	5431.82227	239.5433621
5875	5872	0.05449	2028.56128	110.5363041
5875	5881	0.08347	2174.58154	181.5123211
5876	5871	0.19238	3177.81592	611.3482267
5876	5877	0.06452	3215.55249	207.4674467
5877	1029	0.23872	6.25576	1.493375027
5877	1030	0.24789	348.82935	86.47130757
5877	5876	0.06452	3177.81592	205.0326832
5877	5880	0.12236	3251.17651	397.8139578
5878	5514	0.49604	200.31786	99.36567127
5878	5867	0.65246	4651.34570	3034.817015
5878	5883	0.24960	4885.06885	1219.313185
5878	6141	0.29267	659.31091	192.960524
5880	5877	0.12236	3397.21509	415.6832384
5880	5885	0.13307	3251.17651	432.6340582
5881	1074	0.47773	672.77795	321.4062101
5881	1075	0.24121	925.94379	223.3469016
5881	5875	0.08347	2028.56128	169.32401
5881	5887	0.14830	615.69507	91.30757888
5882	5513	0.50463	206.15907	104.0340515
5882	5883	0.24959	4743.07764	1183.824748
5882	5886	0.24616	4053.56934	997.8266287
5882	6114	0.26312	667.44781	175.6188678
5883	1002	0.49818	0.06787	0.033811477
5883	1003	0.26265	2.89168	0.759499752
5883	5878	0.24960	4745.85449	1184.565281
5883	5882	0.24959	4882.24561	1218.559682
5885	5784	0.10337	2083.48486	215.36983
5885	5880	0.13307	3397.21509	452.067412
5885	5886	0.25235	4125.57178	1041.088039

5885	5894	0.00894	1735.33813	15.51392288
5886	1014	0.51358	196.92229	101.1353497
5886	1015	0.25048	33.64983	8.428609418
5886	5882	0.24616	3902.78711	960.710075
5886	5885	0.25235	4316.87988	1089.364638
5887	5881	0.14830	493.66104	73.20993223
5887	5890	0.14967	615.69507	92.15108113
5890	5518	0.49849	297.31638	148.2092423
5890	5887	0.14967	493.66104	73.88624786
5890	5892	0.34039	68.88270	23.44698225
5890	5897	0.01062	852.33240	9.051770088
5891	1096	0.48877	38.55648	18.84525073
5891	1097	0.34536	7.65300	2.64304008
5891	5893	0.23959	83.41248	19.98479608
5891	5895	0.26099	45.12762	11.77785754
5892	1095	0.50313	5.58855	2.811767162
5892	5890	0.34039	77.82392	26.49048413
5892	5893	0.15948	75.25508	12.00168016
5893	5891	0.23959	75.25508	18.03036462
5893	5892	0.15948	83.41248	13.30262231
5894	5885	0.00894	1464.91455	13.09633608
5894	6002	0.13351	1735.33813	231.6849937
5895	5578	0.48628	223.11621	108.4969506
5895	5891	0.26099	49.49083	12.91661172
5895	5901	0.01232	184.56642	2.273858294
5897	5890	0.01062	712.90875	7.571090925
5897	5937	0.04359	852.33240	37.15316932
5898	5874	0.04410	5308.97363	234.1257371
5898	5993	0.16048	5431.82227	871.6988379
5899	1653	0.50032	0.15137	0.075733438
5899	5577	0.49788	205.55009	102.3392788
5899	6448	0.50282	207.36958	104.2695722
5901	5895	0.01232	205.53899	2.532240357
5901	6388	0.47290	184.56642	87.28146002
5906	149	0.15026	60.68933	9.119178726
5906	1655	0.25824	52.51303	13.56096487
5906	5911	0.25511	2865.68506	731.0649157
5906	5917	0.23998	2706.11011	649.4123042
5908	170	0.24726	255.35704	63.13958171
5908	181	0.39015	106.90622	41.70946173
5908	5551	0.50637	3343.79175	1693.195828
5908	6458	0.50303	3231.99561	1625.790752
5909	5803	0.05602	271.37067	15.20218493
5909	6008	0.12411	264.60144	32.83968472
5911	158	0.13246	930.34326	123.2332682
5911	5796	0.08179	3832.21094	313.4365328
5911	5906	0.25511	2780.75293	709.39788
5911	6137	0.25793	4973.87256	1282.910949
5912	5871	0.03576	647.83191	23.1664691
5912	5977	0.08325	390.70544	32.52622788
5917	5774	0.15546	2167.94116	337.0281327
5917	5906	0.23998	2790.69580	669.7111781
5917	5918	0.19407	934.58569	181.3750449
5918	136	0.26638	84.92542	22.62243338

5918	1654	0.24893	25.82961	6.429764817
5918	5917	0.19407	921.07159	178.7523635
5918	5924	0.02315	854.57953	19.78351612
5919	1653	0.50741	91.52565	46.44103007
5919	5745	0.25035	279.39761	69.94719166
5919	5924	0.27995	838.73029	234.8025447
5919	6128	0.24206	1035.69067	250.6992836
5924	5918	0.02315	838.73029	19.41660621
5924	5919	0.27995	854.57953	239.2395394
5925	6080	0.19359	30955.84766	5992.742548
5926	170	0.24790	262.77124	65.1409904
5926	5734	0.26649	456.80164	121.733069
5926	6123	0.22916	311.78180	71.44791729
5932	5938	0.01643	40054.51563	658.0956918
5934	5870	0.06138	996.33459	61.15501713
5934	5963	0.03907	988.29852	38.61282318
5937	5897	0.04359	712.90875	31.07569241
5937	5984	0.05477	852.33240	46.68224555
5938	6006	0.19485	3115.10913	606.979014
5938	6039	0.24059	36939.40625	8887.25175
5939	5215	1.99856	41712.66016	83365.25409
5948	5854	0.07601	632.61456	48.08503271
5948	6005	0.07879	604.06262	47.59409383
5950	5862	0.07432	1184.60559	88.03988745
5950	5973	0.03912	1487.23694	58.18070909
5954	5939	0.01618	38672.24609	625.7169417
5963	5934	0.03907	996.33459	38.92679243
5963	6069	0.13057	988.29852	129.0421378
5965	5831	0.11771	273.15155	32.15266895
5965	6065	0.12496	273.48776	34.17503049
5973	5950	0.03912	1184.60559	46.34177068
5973	5979	0.00726	1487.23694	10.79734018
5977	5912	0.08325	647.83191	53.93200651
5977	6056	0.10336	390.70544	40.38331428
5979	5973	0.00726	1184.60559	8.600236583
5979	5997	0.02906	1487.23694	43.21910548
5984	5937	0.05477	712.90875	39.04601224
5984	6018	0.05142	852.33240	43.82693201
5993	5898	0.16048	5308.97363	851.9840881
5993	6006	0.02580	5431.82227	140.1410146
5997	5979	0.02906	1184.60559	34.42463845
5997	6041	0.05309	1487.23694	78.95740914
6002	5894	0.13351	1464.91455	195.5807416
6002	6054	0.07150	1735.33813	124.0766763
6005	5948	0.07879	632.61456	49.84370118
6005	6035	0.03800	604.06262	22.95437956
6006	5993	0.02580	5308.97363	136.9715197
6006	6098	0.14304	5541.90723	792.7144102
6006	6133	0.26230	3920.57446	1028.366681
6008	5909	0.12411	271.37067	33.67981385
6008	6456	0.37791	264.60144	99.99553019
6018	5984	0.05142	712.90875	36.65776793
6018	6043	0.03465	852.33240	29.53331766
6022	5954	0.17152	38672.24609	6633.063649

6022	6027	0.10758	2567.08447	276.1669473
6027	5939	0.16644	3040.41821	506.0472069
6027	6098	0.07638	2567.08447	196.0739118
6029	6143	0.11212	1622.89722	181.9592363
6031	6022	0.02073	41239.32813	854.8912721
6035	6005	0.03800	632.61456	24.03935328
6035	6062	0.03576	604.06262	21.60127929
6039	6133	0.21683	36939.40625	8009.571457
6041	5997	0.05309	1184.60559	62.89071077
6041	6053	0.01956	1487.23694	29.09035455
6042	1380	0.25324	0.33947	0.085967383
6042	1404	0.23058	0.34736	0.080094269
6043	6018	0.03465	712.90875	24.70228819
6043	6086	0.03130	852.33240	26.67800412
6046	6031	0.05048	41239.32813	2081.761284
6048	1767	0.60582	98.15108	59.46188729
6048	17753	0.23878	500.00900	119.392149
6048	17762	0.23880	404.76044	96.65679307
6053	1075	0.24561	1127.85742	277.0130609
6053	1090	0.08828	344.97668	30.45454131
6053	6041	0.01956	1184.60559	23.17088534
6053	6108	0.04303	2834.85718	121.9839045
6054	6002	0.07150	1464.91455	104.7413903
6054	6104	0.04078	1735.33813	70.76708894
6056	1030	0.25819	7.62807	1.969491393
6056	1046	0.28795	184.13739	53.02236145
6056	5977	0.10336	647.83191	66.95990622
6056	6220	0.15759	558.80072	88.06140546
6057	1058	0.15966	288.14648	46.005467
6057	5853	0.22799	1542.69788	351.7196897
6057	6276	0.21953	2162.88867	474.8189497
6062	1058	0.16097	326.83749	52.61103077
6062	1090	0.09308	342.09589	31.84228544
6062	6035	0.03576	632.61456	22.62229667
6062	6109	0.04109	1186.10278	48.73696323
6065	5965	0.12496	273.15155	34.13301769
6065	6116	0.04527	273.48776	12.3807909
6069	5963	0.13057	996.33459	130.0914074
6069	6103	0.02988	988.29852	29.53035978
6075	1333	0.22088	0.00000	0
6076	5813	0.25158	852.69202	214.5202584
6076	6029	0.04907	547.12891	26.84761561
6079	5708	0.48928	29614.48047	14489.773
6080	6178	0.10378	36019.66797	3738.121142
6081	1212	0.21305	4.06204	0.865417622
6081	1229	0.17839	3.91414	0.698243435
6081	5816	0.25377	1250.75171	317.4032614
6081	6185	0.11378	1359.66699	154.7029101
6083	1212	0.16398	93.59769	15.34814921
6083	1699	0.26313	8.84655	2.327792702
6083	5811	0.25709	1211.32581	311.4197525
6083	6336	0.24483	1250.66528	306.2003805
6086	1075	0.25397	775.15411	196.8658893
6086	1097	0.49796	32.75429	16.31032625

6086	6043	0.03130	712.90875	22.31404388
6086	6115	0.03242	1629.50085	52.82841756
6089	1698	0.23332	0.60287	0.140661628
6089	5804	0.26461	664.92426	175.9456084
6089	6331	0.23478	191.31487	44.91690518
6090	473	0.24172	0.00000	0
6090	17108	0.22532	0.00000	0
6090	17126	0.26633	0.00000	0
6096	1404	0.27654	47.10608	13.02671536
6096	1422	0.24835	11.16636	2.773165506
6096	5846	0.25471	4110.92529	1047.093781
6096	30199	0.24809	4454.48096	1105.112181
6098	6006	0.14304	6224.52344	890.3558329
6098	6027	0.07638	3040.41821	232.2271429
6098	6154	0.08675	5171.68799	448.6439331
6099	1422	0.25089	1.08378	0.271909564
6099	1689	0.25409	5.36452	1.363070887
6099	5848	0.25717	704.47784	181.1705661
6099	6754	0.48913	499.83643	244.484993
6101	1689	0.24762	4.35371	1.07806567
6101	5850	0.25880	147.00229	38.04419265
6101	6367	0.24061	175.20561	42.15622182
6102	78	10.00000	1209.20520	12092.052
6102	5845	1.00383	1182.51624	1187.045277
6103	1358	0.25060	66.22665	16.59639849
6103	1380	0.25267	226.38945	57.20182233
6103	6069	0.02988	996.33459	29.77047755
6103	6346	0.22571	1274.17358	287.5937187
6104	1015	0.24906	190.08676	47.34300845
6104	1030	0.25598	267.02267	68.35246307
6104	6054	0.04078	1464.91455	59.73921535
6104	6169	0.07206	2078.01538	149.7417883
6108	6053	0.04303	2536.77222	109.1573086
6108	6149	0.03800	2834.85718	107.7245728
6109	6062	0.04109	1219.26855	50.09974472
6109	6150	0.03716	1186.10278	44.0755793
6110	1090	0.04136	0.00000	0
6114	1003	0.25093	66.90038	16.78731235
6114	1015	0.25084	633.41913	158.8868546
6114	5882	0.26312	689.18616	181.3386624
6114	6414	0.23961	46.83563	11.2222853
6115	6086	0.03242	1480.63550	48.00220291
6115	6147	0.03018	1629.50085	49.17833565
6116	1263	0.28957	1762.66846	510.415906
6116	6065	0.04527	273.15155	12.36557067
6116	6171	0.06296	1884.70825	118.6612314
6118	1698	0.26678	0.00000	0
6118	1699	0.23576	0.00000	0
6123	164	0.25774	28.30270	7.294737898
6123	5926	0.22916	309.83765	71.00239587
6123	6464	0.26441	283.47910	74.95470883
6128	1654	0.24451	2.12782	0.520273268
6128	5919	0.24206	1019.63696	246.8133225
6128	6486	0.27262	1035.62219	282.3313214

6133	6181	0.17890	40859.98047	7309.850506
6136	6046	0.21164	41239.32813	8727.891405
6137	6138	0.00967	65.22611	0.630736484
6137	6469	0.25149	4908.64648	1234.475503
6138	164	0.25520	77.24699	19.71343185
6138	1655	0.24411	0.21517	0.052525149
6138	5911	0.25907	4855.53320	1257.922986
6138	6137	0.00967	0.00000	0
6141	1003	0.24993	96.78665	24.18988743
6141	5878	0.29267	535.25531	156.6531716
6141	6578	0.31613	783.53174	247.697889
6143	1263	0.24010	547.12891	131.3656513
6143	6264	0.12718	1837.12756	233.6458831
6144	6076	0.06638	1399.82092	92.92011267
6147	6115	0.03018	1480.63550	44.68557939
6147	6173	0.03409	1629.50085	55.54968398
6149	6108	0.03800	2536.77222	96.39734436
6149	6161	0.02459	2834.85718	69.70913806
6150	6109	0.03716	1219.26855	45.30801932
6150	6213	0.07264	1186.10278	86.15850594
6154	6098	0.08675	6327.63818	548.9226121
6154	6205	0.06778	5171.68799	350.537012
6154	6313	0.98123	0.00000	0
6160	1761	0.94874	504.99951	479.1132351
6160	5868	0.32664	822.81610	268.7646509
6160	9138	1.70585	986.45667	1682.747111
6161	6149	0.02459	2536.77222	62.37922889
6161	6180	0.01453	2834.85718	41.19047483
6169	6104	0.07206	1589.94043	114.5711074
6169	6200	0.03072	2078.01538	63.83663247
6171	6116	0.06296	2035.82007	128.1752316
6171	6234	0.05412	1884.70825	102.0004105
6173	6147	0.03409	1480.63550	50.4748642
6173	6206	0.03410	1629.50085	55.56597899
6174	1761	1.07352	554.76984	595.5565186
6174	5523	0.81507	1035.84326	844.2847659
6174	6447	0.19165	945.60297	181.2248092
6175	5821	0.36068	5225.77637	1884.833021
6175	6079	0.10211	29614.48047	3023.934601
6178	6651	0.32739	36019.66797	11792.4791
6180	6161	0.01453	2536.77222	36.85930036
6180	6207	0.03297	2834.85718	93.46524122
6181	6211	0.08800	40859.98047	3595.678281
6185	6081	0.11378	1250.75171	142.3105296
6185	6318	0.12047	1359.66699	163.7990823
6193	6194	0.02590	0.00000	0
6194	5837	0.37423	1105.91333	413.8659455
6194	6193	0.02590	0.00000	0
6194	6201	0.05383	1212.56470	65.2723578
6200	6169	0.03072	1589.94043	48.84297001
6200	6401	0.14134	2078.01538	293.7066938
6201	6194	0.05383	1105.91333	59.53131455
6201	6219	0.05056	1212.56470	61.30727123
6205	6154	0.06778	6327.63818	428.8873158

6205	6666	0.31249	5171.68799	1616.10078
6206	6173	0.03410	1480.63550	50.48967055
6206	6243	0.03185	1629.50085	51.89960207
6207	6180	0.03297	2536.77222	83.63738009
6207	6252	0.03856	2834.85718	109.3120929
6210	6136	0.20155	41239.32813	8311.786585
6211	6296	0.16877	40234.76563	6790.421395
6211	6313	0.33290	625.21228	208.133168
6213	6150	0.07264	1219.26855	88.56766747
6213	6294	0.07655	1186.10278	90.79616781
6219	6201	0.05056	1105.91333	55.91497796
6219	6262	0.10774	1212.56470	130.6417208
6220	6056	0.15759	824.35944	129.9108041
6220	6418	0.13186	558.80072	73.68346294
6226	3922	0.02516	3138.06177	78.95363413
6226	3941	0.01635	5001.56348	81.7755629
6234	6171	0.05412	2035.82007	110.1785822
6234	6280	0.05523	1884.70825	104.0924366
6243	6206	0.03185	1480.63550	47.15824068
6243	6270	0.03241	1629.50085	52.81212255
6252	6207	0.03856	2536.77222	97.8179368
6252	6295	0.04023	2834.85718	114.0463044
6259	6210	0.09096	37980.41406	3454.698463
6262	1229	0.24273	215.91214	52.40835374
6262	6219	0.10774	1105.91333	119.1511022
6262	6318	0.15468	1474.18262	228.0265677
6264	6265	0.01034	0.00000	0
6264	29950	0.27616	1837.12756	507.341147
6265	6144	0.12662	1399.82092	177.2453249
6265	6264	0.01034	0.00000	0
6270	6243	0.03241	1480.63550	47.98739656
6270	6328	0.04136	1629.50085	67.39615516
6276	1046	0.34976	828.50372	289.7774611
6276	6057	0.21953	1830.84436	401.9252624
6276	6426	0.08433	2978.45776	251.1733429
6280	6234	0.05523	2035.82007	112.4383425
6280	6569	0.16289	1884.70825	307.0001268
6281	1992	1.53695	74.16324	113.9851917
6281	6282	0.92579	23.45132	21.71099754
6281	6283	0.07258	60.27457	4.374728291
6282	1991	2.90705	344.02048	1000.084736
6282	4608	1.99902	8.63619	17.26391653
6282	6281	0.92579	23.67215	21.91543975
6282	6299	0.00897	335.14157	3.006219883
6283	6281	0.07258	59.99800	4.35465484
6283	6288	0.50469	60.27457	30.41997273
6288	6283	0.50469	59.99800	30.28039062
6288	6297	0.49711	60.27457	29.96309149
6290	1090	0.22799	4.22069	0.962275113
6290	1135	0.13671	4.33934	0.593231171
6290	6294	0.09308	240.54155	22.38960747
6290	6295	0.08965	239.32323	21.45532757
6294	6213	0.07655	1219.26855	93.3350075
6294	6290	0.09308	239.32323	22.27620625

6294	6374	0.04584	1003.29266	45.99093553
6295	6252	0.04023	2536.77222	102.0543464
6295	6290	0.08965	240.54155	21.56454996
6295	6380	0.04754	3052.09082	145.0963976
6296	6304	0.00791	40234.76563	318.2569961
6297	6288	0.49711	59.99800	29.82560578
6297	6298	0.99353	60.27457	59.88459353
6298	5463	0.99883	1140.45471	1139.120378
6298	6297	0.99353	59.99800	59.60981294
6298	6307	1.00387	491.26382	493.165011
6298	8025	1.00222	1412.21179	1415.3469
6299	6282	0.00897	329.20532	2.95297172
6299	8003	0.99098	335.14157	332.118593
6304	6310	0.01304	40234.76563	524.6613438
6306	6210	0.30982	3258.91528	1009.677132
6307	6298	1.00387	475.56427	477.4047037
6307	6311	0.49780	491.26382	244.5511296
6309	1924	1.53388	457.41177	701.6147658
6309	6314	0.25856	1028.23499	265.860439
6309	6345	1.27728	997.30444	1273.837015
6310	6465	0.11629	40234.76563	4678.900895
6311	1967	0.89868	1544.58496	1388.087612
6311	6307	0.49780	475.56427	236.7358936
6311	6320	1.50097	1282.52209	1925.027181
6313	6154	0.98123	0.00000	0
6313	6306	0.10567	3258.91528	344.3695776
6313	6316	0.01542	625.21228	9.640773358
6314	1926	1.07137	84.93726	90.99923225
6314	6309	0.25856	1254.71301	324.4185959
6314	6317	0.24338	1071.12329	260.6899863
6316	6313	0.01542	3258.91528	50.25247362
6316	6400	0.20874	625.21228	130.5068113
6316	6493	0.09126	0.00000	0
6317	6314	0.24338	1291.29858	314.2762484
6317	6332	0.75499	1071.12329	808.6873727
6318	6185	0.12047	1250.75171	150.6780585
6318	6262	0.15468	1321.82544	204.4599591
6318	6334	0.18866	1138.58459	214.8053687
6318	6580	0.14812	2121.05322	314.1704029
6320	5474	1.00167	2278.49292	2282.298003
6320	6311	1.50097	1237.33765	1857.206693
6320	6323	1.00042	327.98209	328.1198425
6320	8043	1.00107	3395.95459	3399.588261
6323	6320	1.00042	262.41272	262.5229333
6323	6326	0.99628	793.67230	790.719839
6323	10019	2.00235	474.05737	949.2287748
6326	1966	0.79368	1227.36340	974.1337833
6326	6323	0.99628	734.13049	731.3995246
6326	6330	0.96525	1226.64172	1184.01592
6327	1792	0.49804	24.98703	12.44454042
6327	5805	0.49662	551.88177	274.0755246
6327	7159	0.50361	1071.25525	539.4948565
6328	6270	0.04136	1480.63550	61.23908428
6328	6378	0.02403	1629.50085	39.15690543

6329	1684	0.25194	0.00000	0
6329	1698	0.22495	0.00000	0
6330	1925	1.63281	167.43391	273.3877626
6330	6326	0.96525	1150.24609	1110.275038
6330	6345	2.01823	1059.20789	2137.72514
6331	1792	0.50355	126.52312	63.71071708
6331	6089	0.23478	664.60864	156.0368165
6331	6750	0.26168	249.67397	65.33468447
6332	6317	0.75499	1291.29858	974.9175149
6332	6343	0.37579	1071.12329	402.5174211
6333	455	0.34786	838.79852	291.7844532
6333	3975	0.02795	2869.90820	80.21393419
6333	4060	0.21605	2679.45581	578.8964278
6334	1212	0.24436	218.62047	53.42209805
6334	1213	0.27828	2.14193	0.59605628
6334	6318	0.18866	1037.92017	195.8140193
6334	6335	0.06757	922.12189	62.30777611
6335	6334	0.06757	829.44196	56.04539324
6335	6336	0.12066	922.12189	111.2632272
6336	6083	0.24483	1193.55164	292.217248
6336	6335	0.12066	829.44196	100.0804669
6336	6732	0.25047	2172.16553	544.0623003
6337	1203	0.24433	0.00000	0
6337	1699	0.23931	0.00000	0
6339	1333	0.25356	26.83373	6.803960579
6339	1334	0.12620	0.14201	0.017921662
6339	6348	0.05381	24.48201	1.317376958
6340	6341	0.09170	406.32065	37.25960361
6340	6352	0.11732	410.92255	48.20943357
6341	6340	0.09170	410.92255	37.68159784
6341	6348	0.19376	26.68949	5.171355582
6341	6538	0.10156	424.00580	43.06202905
6343	6332	0.37579	1291.29858	485.2570934
6343	6349	0.10275	1071.12329	110.057918
6344	6346	0.10204	118.93768	12.13640087
6344	6347	0.09309	115.98131	10.79670015
6345	5029	1.52899	3849.33813	5885.599507
6345	6309	1.27728	768.09821	981.0764817
6345	6330	2.01823	981.84692	1981.592909
6345	9148	1.55293	2378.34644	3693.405537
6346	6103	0.22571	1287.10461	290.5123815
6346	6344	0.10204	115.98131	11.83473287
6346	6356	0.07865	406.32065	31.95711912
6346	6603	0.15178	764.14478	115.9818947
6347	6344	0.09309	118.93768	11.07190863
6347	6350	0.02898	115.98131	3.361138364
6348	6339	0.05381	26.68949	1.436161457
6348	6341	0.19376	24.48201	4.743634258
6349	6343	0.10275	1291.29858	132.6809291
6349	6358	0.03940	1071.12329	42.20225763
6350	6347	0.02898	118.93768	3.446813966
6350	6351	0.02954	115.98131	3.426087897
6351	1380	0.25252	90.88637	22.95062615
6351	1381	0.25213	4.24786	1.071012942

6351	6350	0.02954	118.93768	3.513419067
6351	6354	0.09879	200.35555	19.79312478
6352	6340	0.11732	406.32065	47.66953866
6352	6353	0.10963	410.92255	45.04943916
6353	6352	0.10963	406.32065	44.54493286
6353	6356	0.10412	410.92255	42.78525591
6354	6351	0.09879	205.66348	20.31749519
6354	6361	0.05247	200.35555	10.51265571
6356	6346	0.07865	410.92255	32.31905856
6356	6353	0.10412	406.32065	42.30610608
6358	6349	0.03940	1291.29858	50.87716405
6358	6375	0.24971	1071.12329	267.4701967
6361	6354	0.05247	205.66348	10.7911628
6361	6365	0.09455	200.35555	18.94361725
6363	1404	0.25256	0.34190	0.086350264
6363	1405	0.25187	0.34405	0.086655874
6364	1689	0.23737	0.02633	0.006249952
6364	1690	0.25227	0.00134	0.000338042
6364	6366	0.50226	0.02483	0.012471116
6365	6361	0.09455	205.66348	19.44548203
6365	6660	0.18511	200.35555	37.08781586
6366	1422	0.25063	0.02064	0.005173003
6366	1423	0.25216	0.04529	0.011420326
6366	6364	0.50226	0.02496	0.01253641
6367	6101	0.24061	151.35600	36.41776716
6367	6784	0.26216	175.20561	45.93190272
6372	1265	0.23713	0.00000	0
6374	6294	0.04584	1035.23999	47.45540114
6374	6459	0.03866	1003.29266	38.78729424
6375	1112	0.77247	15.88903	12.273799
6375	6358	0.24971	1291.29858	322.4501684
6375	6377	0.07998	1037.66809	82.99269384
6375	6764	0.24989	71.88250	17.96271793
6376	6380	0.10204	346.86505	35.3941097
6376	6385	0.09861	361.94800	35.69169228
6377	6375	0.07998	1264.56689	101.1400599
6377	6395	0.10553	1037.66809	109.5051135
6378	6328	0.02403	1480.63550	35.57967107
6378	6382	0.10618	346.86505	36.83013101
6378	6387	0.49712	1027.41589	510.7489872
6378	6485	0.05421	1248.69836	67.6919381
6379	6259	0.16311	37980.41406	6194.985337
6380	6295	0.04754	2755.22412	130.9833547
6380	6376	0.10204	361.94800	36.93317392
6380	6500	0.06671	3251.14478	216.8838683
6381	6383	0.06274	346.86505	21.76231324
6381	6386	0.03517	361.94800	12.72971116
6382	6378	0.10618	361.94800	38.43163864
6382	6384	0.02689	346.86505	9.327201195
6383	6381	0.06274	361.94800	22.70861752
6383	6385	0.03378	346.86505	11.71710139
6384	6382	0.02689	361.94800	9.73278172
6384	6386	0.03309	346.86505	11.4777645
6385	6376	0.09861	346.86505	34.20436258

6385	6383	0.03378	361.94800	12.22660344
6386	6381	0.03517	346.86505	12.19924381
6386	6384	0.03309	361.94800	11.97685932
6387	6378	0.49712	827.34656	411.2905219
6387	6388	0.50125	1027.41589	514.9922149
6388	5901	0.47290	205.53899	97.19938837
6388	6387	0.50125	827.34656	414.7074632
6388	6395	0.55641	1264.56689	703.6176633
6388	7380	0.54825	426.94754	234.0739888
6391	1358	0.26711	0.88483	0.236346941
6391	1359	0.16944	0.90657	0.153609221
6395	6377	0.10553	1264.56689	133.4497439
6395	6388	0.55641	1037.66809	577.368902
6396	1003	0.23508	0.00089	0.000209221
6396	1133	0.07704	0.00089	6.85656E-05
6400	6316	0.20874	3258.91528	680.2659755
6400	6412	0.01542	625.21228	9.640773358
6401	6200	0.14134	1589.94043	224.7221804
6401	6402	0.14134	857.94653	121.2621626
6401	6431	0.01285	2896.09546	37.21482666
6402	6401	0.14134	838.96674	118.579559
6402	6403	0.10894	857.94653	93.46469498
6403	1015	0.24838	760.14313	188.8043506
6403	1016	0.13022	18.63226	2.426292897
6403	6402	0.10894	838.96674	91.39703666
6403	6404	0.03240	86.44006	2.800657944
6404	6403	0.03240	46.83563	1.517474412
6404	6409	0.11997	86.44006	10.370214
6408	6414	0.02760	0.00000	0
6409	6404	0.11997	46.83563	5.618870531
6409	6414	0.09515	86.44006	8.224771709
6412	6400	0.01542	3258.91528	50.25247362
6412	6553	0.51633	625.21228	322.8158565
6414	6114	0.23961	86.44006	20.71190278
6414	6408	0.02760	0.00000	0
6414	6409	0.09515	46.83563	4.456410195
6418	6220	0.13186	824.35944	108.7000358
6418	6421	0.15927	2419.04712	385.2816348
6418	6467	0.03135	2226.99463	69.81628165
6421	6418	0.15927	2100.18042	334.4957355
6421	6428	0.05934	2419.04712	143.5462561
6422	6175	0.17687	34840.25781	6162.196399
6423	6425	0.03610	1706.13635	61.59152224
6423	6428	0.02183	1654.98401	36.12830094
6425	6423	0.03610	1654.98401	59.74492276
6425	6431	0.23237	1706.13635	396.4549036
6426	1059	0.20606	23.73805	4.891462583
6426	6276	0.08433	2646.53613	223.1823918
6426	6472	0.03057	2954.71948	90.3257745
6428	1030	0.26390	318.15283	83.96053184
6428	1031	0.17033	406.80133	69.29047054
6428	6421	0.05934	2100.18042	124.6247061
6428	6423	0.02183	1706.13635	37.24495652
6431	6401	0.01285	2427.00024	31.18695308

6431	6425	0.23237	1654.98401	384.5686344
6431	6619	0.12402	4437.57227	550.3477129
6447	6174	0.19165	940.59595	180.2652138
6447	6453	0.49988	509.73203	254.8048472
6447	6520	0.05067	546.06366	27.66904565
6448	5899	0.50282	205.39740	103.2779207
6448	6466	0.49142	207.36958	101.905559
6450	1750	0.66425	1096.34949	728.2501487
6450	6454	0.05704	498.75003	28.44870171
6450	6455	0.52775	918.59296	484.7874346
6453	6447	0.49988	498.75003	249.315165
6453	6454	0.50337	509.73203	256.5838119
6454	6450	0.05704	509.73203	29.07511499
6454	6453	0.50337	498.75003	251.0558026
6455	6450	0.52775	901.17487	475.5950376
6455	6456	0.41374	918.59296	380.0586513
6456	6008	0.37791	271.37067	102.5536899
6456	6455	0.41374	901.17487	372.8520907
6456	6461	0.50195	892.42267	447.9515592
6456	7864	0.81578	247.44521	201.8608534
6458	5908	0.50303	3185.61914	1602.461996
6458	6460	0.24986	883.68756	220.7981737
6458	6462	0.40985	861.94678	353.2688878
6458	8177	1.01026	2246.04907	2269.093533
6459	6374	0.03866	1035.23999	40.02237801
6459	6509	0.03943	1003.29266	39.55982958
6460	170	0.50450	0.00000	0
6460	6458	0.24986	882.87054	220.5940331
6460	6464	0.24865	883.68756	219.7289118
6461	6456	0.50195	881.31445	442.3757882
6461	6462	0.09374	892.42267	83.65570109
6462	181	0.50647	19.31956	9.784777553
6462	6458	0.40985	873.10309	357.8413014
6462	6461	0.09374	881.31445	82.61441654
6463	164	0.26159	18.55122	4.85281364
6463	6464	0.25780	853.92096	220.1408235
6463	6469	0.24829	846.36578	210.1441595
6464	1731	0.76144	396.73721	302.0915812
6464	6123	0.26441	281.73553	74.49369149
6464	6460	0.24865	882.87054	219.5257598
6464	6463	0.25780	853.14716	219.9413378
6465	6593	0.16388	40234.76563	6593.673391
6466	1653	0.50228	4.84003	2.431050268
6466	6448	0.49142	205.39740	100.9363903
6466	6486	0.49980	212.26079	106.0879428
6467	6418	0.03135	2811.41992	88.13801449
6467	6473	0.01261	2202.07056	27.76810976
6467	6516	0.03464	24.92396	0.863365974
6469	6463	0.24829	835.47784	207.4407929
6469	6474	0.00912	624.74878	5.697708874
6469	6871	0.26492	4898.14990	1297.617872
6471	1655	0.25569	18.24447	4.664928534
6471	6474	0.23034	393.59979	90.66177563
6471	6482	0.19235	380.69012	73.22574458

6472	6426	0.03057	2623.15747	80.18992386
6472	6583	0.07694	2954.71948	227.3361168
6473	6467	0.01261	2786.68018	35.14003707
6473	6484	0.04763	2202.07056	104.8846208
6474	6138	0.25259	4803.50293	1213.316805
6474	6469	0.00912	603.36432	5.502682598
6474	6471	0.23034	393.98434	90.75035288
6481	1654	0.27115	6.51426	1.766341599
6481	1715	1.21593	350.30627	425.9479029
6481	6482	0.31055	380.15640	118.05757
6481	6486	0.25070	24.85609	6.231421763
6482	6471	0.19235	380.15640	73.12308354
6482	6481	0.31055	380.69012	118.2233168
6484	6473	0.04763	2786.68018	132.729577
6484	6505	0.12139	2202.07056	267.3093453
6485	6378	0.05421	1284.81946	69.65006293
6485	6501	0.01341	1248.69836	16.74504501
6486	6128	0.27262	1019.38641	277.9051231
6486	6466	0.49980	210.23743	105.0766675
6486	6481	0.25070	24.74497	6.203563979
6486	7388	0.49976	1272.73914	636.0641126
6493	6316	0.09126	0.00000	0
6493	6593	0.09983	0.00000	0
6495	6379	0.12233	37980.41406	4646.144052
6500	1076	0.26233	654.37500	171.6621938
6500	6380	0.06671	2969.36108	198.0860776
6500	6518	0.01247	3685.81665	45.96213363
6501	6485	0.01341	1284.81946	17.22942896
6501	6575	0.04247	1248.69836	53.03221935
6505	1047	0.20612	2840.54565	585.4932694
6505	6484	0.12139	2786.68018	338.2751071
6505	6542	0.08359	2073.51709	173.3252936
6509	1059	0.16035	184.71883	29.61966439
6509	1135	0.09055	199.73752	18.08623244
6509	6459	0.03943	1035.23999	40.81951281
6509	6572	0.03453	1273.68311	43.98027779
6516	6467	0.03464	24.73985	0.856988404
6516	6582	0.04247	24.92396	1.058520581
6518	1135	0.09277	25.27507	2.344768244
6518	6500	0.01247	3416.43921	42.60299695
6518	6614	0.06312	3660.54175	231.0533953
6520	6447	0.05067	552.03864	27.97179789
6520	7415	0.49723	546.06366	271.5192337
6538	1334	0.24292	224.38100	54.50663252
6538	1359	0.24902	457.31659	113.8809772
6538	6341	0.10156	430.81516	43.75358765
6538	6954	0.26949	1011.18225	272.5035046
6542	1048	0.18951	2.99935	0.568406819
6542	6505	0.08359	2660.51465	222.3924196
6542	6559	0.08848	2070.51782	183.1994167
6553	6412	0.51633	3258.91528	1682.675727
6553	6557	0.02629	625.21228	16.43683084
6557	1001	0.19060	36.62957	6.981596042
6557	6553	0.02629	3258.91528	85.67688271

6557	6597	0.12529	610.43201	76.48102653
6559	6542	0.08848	2657.38379	235.1253177
6559	6583	0.08509	2070.51782	176.1803613
6569	6280	0.16289	2035.82007	331.6147312
6569	6701	0.10097	1884.70825	190.298992
6572	6509	0.03453	1311.77197	45.29548612
6572	6624	0.03929	1273.68311	50.04300939
6575	6501	0.04247	1284.81946	54.56628247
6575	6647	0.05533	1248.69836	69.09048026
6578	6141	0.31613	632.04199	199.8074343
6578	6623	0.03184	783.53174	24.9476506
6580	6318	0.14812	1960.44495	290.381106
6580	6694	0.10010	2121.05322	212.3174273
6582	6516	0.04247	24.73985	1.05070143
6582	6595	0.01398	24.92396	0.348436961
6583	6472	0.07694	2623.15747	201.8257357
6583	6559	0.08509	2657.38379	226.1167867
6583	6590	0.05503	661.03412	36.37670762
6583	6631	0.03563	5039.62842	179.5619606
6585	6495	0.10289	164.12996	16.88733158
6585	6749	0.11315	0.00000	0
6590	6583	0.05503	727.60583	40.04014882
6590	6598	0.03884	661.03412	25.67456522
6593	6658	0.08038	40234.76563	3234.070461
6595	6582	0.01398	24.73985	0.345863103
6595	6633	0.02179	24.92396	0.543093088
6597	6557	0.12529	3247.36963	406.8629409
6597	6623	0.11091	610.43201	67.70301423
6597	6724	0.21020	0.00000	0
6598	6590	0.03884	727.60583	28.26021044
6598	6630	0.09108	661.03412	60.20698765
6603	1359	0.26655	301.54758	80.37750745
6603	6346	0.15178	769.51752	116.7973692
6603	6752	0.10172	809.74713	82.36747806
6614	6518	0.06312	3393.08008	214.1712146
6614	6665	0.03972	3660.54175	145.3967183
6618	6495	0.15725	37816.28516	5946.610841
6619	1016	0.23446	97.31305	22.8160177
6619	1031	0.27331	614.57458	167.9693785
6619	6431	0.12402	3917.32495	485.8266403
6619	6805	0.12179	5212.91504	634.8809227
6623	6578	0.03184	632.04199	20.12421696
6623	6597	0.11091	3212.29834	356.2760089
6623	6670	0.25415	745.43890	189.4532964
6623	6724	0.11463	787.72797	90.2972572
6624	6572	0.03929	1311.77197	51.5395207
6624	6669	0.03807	1273.68311	48.489116
6630	1059	0.11064	233.86641	25.8749796
6630	1060	0.18824	91.60143	17.24305318
6630	6598	0.09108	727.60583	66.270339
6630	6655	0.08915	517.46313	46.13183804
6631	6583	0.03563	5228.36035	186.2864793
6631	6674	0.04070	5039.62842	205.1128767
6633	6595	0.02179	24.73985	0.539081332

6633	6672	0.03743	24.92396	0.932903823
6647	1076	0.25670	304.32239	78.11955751
6647	6575	0.05533	1284.81946	71.08906072
6647	6761	0.08271	1492.59619	123.4526309
6651	6709	0.04587	30485.87500	1398.387086
6651	7174	0.31577	5533.79297	1747.405806
6654	6422	0.15399	34840.25781	5365.0513
6655	6630	0.08915	591.17267	52.70304353
6655	6669	0.09108	517.46313	47.13054188
6658	7011	0.44655	40234.76563	17966.83459
6660	6365	0.18511	205.66348	38.07036678
6660	6757	0.06958	200.35555	13.94073917
6665	6614	0.03972	3393.08008	134.7731408
6665	6719	0.03807	3660.54175	139.3568244
6666	1844	0.48584	36.49680	17.73160531
6666	6205	0.31249	6327.63818	1977.323655
6666	7230	0.31345	5163.06738	1618.36347
6667	6746	0.05302	4454.48096	236.1765805
6667	30199	0.18983	4104.65918	779.1874521
6669	6624	0.03807	1311.77197	49.9391589
6669	6655	0.09108	591.17267	53.84400678
6669	6686	0.09302	494.70718	46.01766188
6669	6720	0.03740	934.28217	34.94215316
6670	1004	0.14075	86.44060	12.16651445
6670	6623	0.25415	3293.57788	837.0628182
6670	6673	0.01852	811.79846	15.03450748
6672	6633	0.03743	24.73985	0.926012586
6672	6811	0.07268	24.92396	1.811473413
6673	6670	0.01852	3380.01831	62.5979391
6673	6798	0.39606	811.79846	321.5208981
6674	6631	0.04070	5228.36035	212.7942662
6674	6730	0.03477	5039.62842	175.2278802
6686	1061	0.18869	36.84544	6.952366074
6686	1135	0.11420	87.62572	10.00685722
6686	6669	0.09302	488.95401	45.48250201
6686	6719	0.08937	546.40778	48.8324633
6694	1213	0.21968	237.33742	52.13828443
6694	6580	0.10010	1960.44495	196.2405395
6694	6769	0.05605	1888.59509	105.8557548
6699	6265	0.28188	1399.82092	394.5815209
6701	1264	0.27777	198.47914	55.13155072
6701	6569	0.10097	2035.82007	205.5567525
6701	6778	0.04631	1686.22913	78.08927101
6709	7176	0.26487	30485.87500	8074.793711
6715	6654	0.04686	34840.25781	1632.614481
6719	6665	0.03807	3393.08008	129.1745586
6719	6686	0.08937	538.91113	48.16248769
6719	6733	0.09264	500.22610	46.3409459
6719	6846	0.07436	3670.68042	272.951796
6720	6669	0.03740	1051.83374	39.33858188
6720	6789	0.03862	934.28217	36.08197741
6721	1203	0.23501	0.01203	0.00282717
6721	1684	0.26022	0.01205	0.003135651
6724	6597	0.21020	35.07128	7.371983056

6724	6623	0.11463	689.96570	79.09076819
6724	6892	0.05788	787.72797	45.5936949
6728	1264	0.22610	117.18738	26.49606662
6728	7131	0.24562	1985.92676	487.7833308
6729	6699	0.02157	1399.82092	30.19413724
6730	6674	0.03477	5228.36035	181.7900894
6730	6818	0.03960	5039.62842	199.5692854
6732	1203	0.26354	17.25508	4.547403783
6732	1213	0.22131	180.90552	40.03620063
6732	6336	0.25047	2022.37183	506.5434723
6732	7140	0.24309	2162.17310	525.6026589
6733	6719	0.09264	472.74438	43.79503936
6733	6755	0.04627	500.22610	23.14546165
6746	1405	0.30543	209.85931	64.09732905
6746	1423	0.24994	362.39700	90.57750618
6746	6667	0.05302	4104.65918	217.6290297
6746	6762	0.01116	4429.96484	49.43840761
6749	1844	0.51574	0.34138	0.176063321
6749	6585	0.11315	164.12996	18.57130497
6749	7257	0.26100	0.33378	0.08711658
6750	1684	0.23858	12.78699	3.050720074
6750	6331	0.26168	721.54089	188.8128201
6750	7145	0.23759	245.24147	58.26692086
6752	1381	0.24778	220.71466	54.68867845
6752	6603	0.10172	817.70972	83.17743272
6752	6822	0.03333	598.52618	19.94887758
6754	1423	0.24936	0.08214	0.02048243
6754	1690	0.25092	7.44295	1.867585014
6754	6099	0.48913	710.92267	347.7336056
6754	7238	0.25419	501.03558	127.3582341
6755	6733	0.04627	472.74438	21.87388246
6755	6766	0.04064	500.22610	20.3291887
6757	1381	0.24627	431.65033	106.3025268
6757	1405	0.20457	83.44424	17.07018818
6757	6660	0.06958	205.66348	14.31006494
6757	6856	0.05443	922.94006	50.23562747
6761	6647	0.08271	1523.59973	126.0169337
6761	6875	0.06204	1492.59619	92.60066763
6762	6746	0.01116	3959.33008	44.18612369
6762	6915	0.08818	4429.96484	390.6342996
6764	6375	0.24989	65.08691	16.26456794
6764	7207	0.23983	71.88250	17.23957998
6766	6755	0.04064	472.74438	19.2123316
6766	6790	0.05878	500.22610	29.40329016
6769	1230	0.18320	170.83234	31.29648469
6769	6694	0.05605	1714.59912	96.10328068
6769	6969	0.12996	1847.68347	240.1249438
6778	6701	0.04631	1802.10522	83.45549274
6778	6905	0.07587	1686.22913	127.9342041
6784	1690	0.25077	2.24908	0.564001792
6784	6367	0.26216	151.35600	39.67948896
6784	7246	0.24044	177.46545	42.6697928
6789	6720	0.03862	1051.83374	40.62181904
6789	6854	0.03697	934.28217	34.54041182

6790	1076	0.17596	10.18683	1.792474607
6790	1077	0.15557	172.21379	26.79129931
6790	6766	0.05878	472.74438	27.78791466
6790	6800	0.03552	421.19296	14.96077394
6798	6673	0.39606	3380.01831	1338.690052
6798	6829	0.07092	811.79846	57.57274678
6800	6790	0.03552	393.37744	13.97276667
6800	6835	0.09119	421.19296	38.40858602
6805	6619	0.12179	4547.41357	553.8294987
6805	6847	0.02629	5212.91504	137.0475364
6811	1031	0.25202	4.32042	1.088832248
6811	1048	0.20847	29.26975	6.101864783
6811	6672	0.07268	24.73985	1.798092298
6811	6942	0.08658	0.00000	0
6818	6730	0.03960	5228.36035	207.0430699
6818	6865	0.03697	5039.62842	186.3150627
6822	6752	0.03333	610.88983	20.36095803
6822	6918	0.06473	598.52618	38.74259963
6829	6798	0.07092	3380.01831	239.7108985
6829	6842	0.05898	811.79846	47.87987317
6835	6800	0.09119	393.37744	35.87208875
6835	6853	0.08586	421.19296	36.16362755
6842	1005	0.31832	614.46533	195.5966038
6842	6829	0.05898	3380.01831	199.3534799
6842	6863	0.09739	956.64923	93.16806851
6846	6719	0.07436	3423.20361	254.5494204
6846	6961	0.07559	3670.68042	277.4667329
6847	6805	0.02629	4547.41357	119.5515028
6847	6867	0.01689	5212.91504	88.04613503
6853	6835	0.08586	393.37744	33.775387
6853	6872	0.08038	421.19296	33.85549012
6854	6789	0.03697	1051.83374	38.88629337
6854	6911	0.03929	934.28217	36.70794646
6856	6757	0.05443	551.78333	30.03356665
6856	7204	0.19070	922.94006	176.0046694
6863	6842	0.09739	3538.42334	344.6070491
6863	6901	0.12708	956.64923	121.5709841
6865	1048	0.19776	707.18463	139.8528324
6865	1060	0.17868	537.96698	96.12393999
6865	6818	0.03697	5228.36035	193.2924821
6865	6930	0.03971	5932.81543	235.5921007
6867	6847	0.01689	4547.41357	76.8058152
6867	6901	0.02077	5212.91504	108.2722454
6871	6874	0.00898	0.00000	0
6871	7375	0.23764	4898.14990	1163.996342
6872	6853	0.08038	393.37744	31.61967863
6872	6875	0.01036	421.19296	4.363559066
6874	6474	0.26381	4782.50293	1261.672098
6874	6871	0.00898	0.00000	0
6875	1098	0.49731	2254.12134	1120.997084
6875	6761	0.06204	1523.59973	94.52412725
6875	6872	0.01036	393.37744	4.075390278
6875	6984	0.07321	3022.01001	221.2413528
6892	1001	0.28352	29.36759	8.326299117

6892	1004	0.20797	226.47031	47.09903037
6892	6724	0.05788	725.03699	41.96514098
6892	7050	0.11259	1046.63269	117.8403746
6901	6863	0.12708	3538.42334	449.662838
6901	6867	0.02077	4547.41357	94.44977985
6901	6957	0.18665	1096.62842	204.6856946
6901	6987	0.05811	3442.28687	200.03129
6905	6778	0.07587	1802.10522	136.725723
6905	7022	0.07590	1686.22913	127.984791
6911	6854	0.03929	1051.83374	41.32654764
6911	6973	0.04200	934.28217	39.23985114
6915	6762	0.08818	3959.33008	349.1337265
6915	30168	0.13653	4429.96484	604.8230996
6918	1360	0.25209	366.83176	92.47461838
6918	6822	0.06473	610.88983	39.5428987
6918	6959	0.02288	435.25336	9.958596877
6930	6865	0.03971	6146.96924	244.0961485
6930	6980	0.03601	5932.81543	213.6406836
6942	6811	0.08658	0.00000	0
6954	6538	0.26949	1038.36475	279.8289165
6954	6971	0.01913	1011.18225	19.34391644
6957	7046	0.33718	1096.62842	369.7611707
6959	6918	0.02288	653.54694	14.95315399
6959	7191	0.12388	435.25336	53.91918624
6961	6846	0.07559	3423.20361	258.7599609
6961	7016	0.03697	3670.68042	135.7050551
6963	6901	0.19594	2470.53271	484.0761792
6969	6769	0.12996	1677.62732	218.0244465
6969	7101	0.09327	1847.68347	172.3334372
6971	1335	0.23163	818.21851	189.5239535
6971	1360	0.24813	626.17493	155.3727854
6971	6954	0.01913	1038.36475	19.86391767
6971	7181	0.10808	1218.00464	131.6419415
6973	1060	0.18495	3.92619	0.726148841
6973	1061	0.09225	252.81038	23.32175756
6973	6911	0.04200	1051.83374	44.17701708
6973	7023	0.03103	934.28217	28.99077574
6978	1032	0.12229	197.23863	24.12031206
6978	6963	0.07711	2470.53271	190.5027773
6980	6930	0.03601	6146.96924	221.3523623
6980	7030	0.03765	5932.81543	223.3705009
6984	6875	0.07321	3056.99146	223.8023448
6984	7142	0.09389	3022.01001	283.7365198
6987	6901	0.05811	3984.65552	231.5483323
6987	7033	0.03107	3442.28687	106.9518531
7011	7065	0.08919	40234.76563	3588.538747
7016	1061	0.08973	148.28885	13.30595851
7016	1077	0.27686	543.97473	150.6048437
7016	6961	0.03697	3423.20361	126.5558375
7016	7064	0.03917	4273.67822	167.3999759
7022	6905	0.07590	1802.10522	136.7797862
7022	7146	0.07140	1686.22913	120.3967599
7023	6973	0.03103	1300.67773	40.36002996
7023	7066	0.04027	934.28217	37.62354299

7027	6618	0.53043	37816.28516	20058.89214
7030	6980	0.03765	6146.96924	231.4333919
7030	7073	0.03519	5932.81543	208.775775
7033	1017	0.14901	256.56799	38.23119619
7033	1032	0.20189	247.82317	50.03301979
7033	6987	0.03107	3984.65552	123.803247
7033	7303	0.09308	3676.35938	342.1955311
7046	7062	0.00841	130.47171	1.097267081
7046	29955	0.18922	1077.17542	203.823133
7050	1132	0.04592	46.90107	2.153697134
7050	6892	0.11259	934.41693	105.2060021
7050	7260	0.07072	999.73157	70.70101663
7062	6978	0.25174	2667.77124	671.584732
7062	7046	0.00841	111.01880	0.933668108
7062	7266	0.06592	266.66617	17.57863393
7064	7016	0.03917	4034.74561	158.0409855
7064	7310	0.07559	4273.67822	323.0473366
7065	7180	0.08247	3046.02979	251.2060768
7065	7288	0.12087	37188.73828	4495.002796
7066	7023	0.04027	1300.67773	52.37829219
7066	7170	0.03519	934.28217	32.87738956
7073	7030	0.03519	6146.96924	216.3118476
7073	7251	0.04778	5932.81543	283.4699212
7089	7027	0.08567	37248.00000	3191.03616
7099	1049	0.12080	457.88403	55.31239082
7099	7062	0.18754	2784.44263	522.1943708
7101	6969	0.09327	1677.62732	156.4723001
7101	7103	0.15582	2380.52954	370.9341129
7101	7136	0.00848	1187.59912	10.07084054
7103	1230	0.24969	338.29114	84.46791475
7103	7126	0.17807	3070.31982	546.7318503
7103	7155	0.01060	0.00000	0
7109	1213	0.22486	540.72095	121.5865128
7109	7110	0.09515	1191.60791	113.3814926
7109	7143	0.00781	2.83464	0.022138538
7110	7101	0.11446	1191.60791	136.3914414
7111	7109	0.07515	686.76294	51.61023494
7112	7111	0.02827	686.76294	19.41478831
7112	7153	0.03213	62.65533	2.013115753
7114	7112	0.03517	749.41827	26.35704056
7115	7122	0.11449	2159.92554	247.2898751
7118	7114	0.05999	746.59845	44.78844102
7122	1264	0.27049	699.23547	189.1362023
7122	7141	0.11523	2498.23804	287.8719693
7122	7187	0.01060	20.67697	0.219175882
7124	1231	0.23673	391.46063	92.67047494
7124	7133	0.12275	3387.08691	415.7649182
7126	7124	0.03103	3067.99878	95.20000214
7126	7190	0.03464	2.32090	0.080395976
7128	7118	0.08827	746.59845	65.90224518
7131	7115	0.18275	2159.92554	394.7263924
7131	7185	0.00840	2720.89038	22.85547919
7132	6729	0.24556	1399.82092	343.7400251
7132	7131	0.00896	2894.88916	25.93820687

7133	7132	0.01724	3387.08691	58.39337833
7135	1233	0.24587	373.95160	91.94347989
7135	7155	0.05313	3156.84009	167.722914
7136	7101	0.00848	2206.46460	18.71081981
7136	7144	0.08757	1019.57990	89.28461184
7136	7669	0.25824	2003.15466	517.2946594
7140	6732	0.24309	2013.24768	489.4003785
7140	7128	0.00808	746.59845	6.032515476
7140	7147	0.01934	451.97717	8.741238468
7140	7605	0.22364	2151.62500	481.189415
7141	7146	0.08920	2498.23804	222.8428332
7141	7192	0.00837	0.00000	0
7142	6984	0.09389	3056.99146	287.0209282
7142	7325	0.04304	3022.01001	130.0673108
7143	7109	0.00781	537.90112	4.201007747
7143	7153	0.07516	484.51340	36.41602714
7144	7110	0.03209	0.00000	0
7144	7143	0.12342	1019.57990	125.8365513
7145	6750	0.23759	718.79059	170.7774563
7145	7152	0.24543	245.02049	60.13537886
7145	7644	0.24318	367.61517	89.39665704
7146	7022	0.07140	1802.10522	128.6703127
7146	7149	0.10135	5133.97217	520.3280794
7146	7196	0.00893	142.95854	1.276619762
7147	7140	0.01934	439.25470	8.495185898
7147	7151	0.23381	451.97717	105.6767821
7149	7158	0.11033	5133.97217	566.4311495
7149	7199	0.00948	0.00000	0
7151	1203	0.25185	23.05976	5.807600556
7151	1483	0.16938	6.53403	1.106734001
7151	7147	0.23381	439.25470	102.7021414
7151	7161	0.24675	429.14130	105.8906158
7152	1684	0.25083	23.84108	5.980058096
7152	1685	0.25699	151.64426	38.97105838
7152	7145	0.24543	253.87325	62.30811175
7152	7161	0.25316	416.46634	105.4326186
7153	1214	0.24423	65.48997	15.99461537
7153	7156	0.02827	545.56226	15.42304509
7155	7103	0.01060	697.76770	7.39633762
7155	7136	0.15448	2459.07227	379.8774843
7156	7114	0.03834	2.81983	0.108112282
7156	7157	0.03516	542.74243	19.08282384
7157	7166	0.05999	542.74243	32.55911838
7158	1265	0.49572	2240.02417	1110.424782
7158	7160	0.04197	7903.88867	331.7262075
7158	7203	0.00948	695.04156	6.588993989
7159	6327	0.50361	555.18512	279.5967783
7159	8319	0.66755	1071.25525	715.1164421
7160	7162	0.02009	7903.88867	158.7891234
7161	7151	0.24675	416.46634	102.7630694
7161	7152	0.25316	429.14130	108.6414115
7162	7163	0.06689	7903.88867	528.6911131
7163	7167	0.05999	7903.88867	474.1542813
7163	7208	0.00948	0.00000	0

7164	7140	0.00829	542.74243	4.499334745
7165	6715	0.26752	5101.54883	1364.766343
7165	7174	0.08277	9594.64258	794.1485663
7166	7164	0.08825	542.74243	47.89701945
7167	7165	0.05792	7903.88867	457.7932318
7168	1476	0.15902	1728.36572	274.8447168
7168	7171	0.08868	6562.44092	581.9572608
7168	7214	0.01004	2308.24805	23.17481042
7169	7177	0.03790	2065.88379	78.29699564
7170	7066	0.03519	1300.67773	45.77084932
7170	7316	0.03629	934.28217	33.90509995
7171	1335	0.11747	1464.64221	172.0515204
7171	7181	0.21610	7007.17725	1514.251004
7172	7191	0.12565	4320.66992	542.8921754
7172	7216	0.02650	8.68049	0.230032985
7173	7172	0.00896	4329.35010	38.7909769
7174	7168	0.15306	8096.76855	1239.291394
7174	7219	0.00948	7031.66650	66.66019842
7175	1360	0.12288	8.79747	1.081033114
7175	7173	0.08412	4329.35010	364.1849304
7176	7385	0.07443	30485.87500	2269.063676
7177	7115	0.05276	0.00000	0
7177	7185	0.22962	2065.88379	474.3682359
7178	7175	0.02104	4116.71924	86.61577281
7179	7178	0.07067	4116.71924	290.9285487
7179	7218	0.00893	476.01031	4.250772068
7180	7254	0.07532	3046.02979	229.4269638
7181	6971	0.10808	1693.81262	183.067268
7181	7183	0.08412	4583.93213	385.6003708
7181	7225	0.00949	3114.80151	29.55946633
7182	7251	0.07018	1077.17542	75.59617098
7183	7179	0.10481	4583.93213	480.4419265
7185	7186	0.00896	2872.22754	25.73515876
7185	7484	0.15151	1914.54663	290.0729599
7186	7132	0.00840	907.62305	7.62403362
7186	7188	0.01793	3399.14673	60.94670087
7187	1266	0.35272	20.67697	7.293180858
7187	7122	0.01060	537.09320	5.69318792
7187	7169	0.02906	2065.88379	60.03458294
7188	7189	0.09032	3399.14673	307.0109327
7189	7124	0.03651	327.59818	11.96060955
7189	7190	0.03241	3071.54858	99.54888948
7190	7135	0.15607	3073.86938	479.7387941
7191	6959	0.12388	653.54694	80.96139493
7191	7193	0.10343	3279.04810	339.151945
7191	7231	0.00949	1800.31958	17.08503281
7192	7141	0.00837	0.00000	0
7192	7187	0.11516	2582.27222	297.3744689
7193	1381	0.28253	645.52032	182.378856
7193	7194	0.03517	2633.52783	92.62117378
7193	7239	0.03919	618.62872	24.24405954
7194	7200	0.11349	2633.52783	298.8790734
7196	7146	0.00893	2894.56885	25.84849983
7196	7192	0.08921	2582.27222	230.3645047

7196	7424	0.09437	1307.03015	123.3444353
7198	7219	0.05530	7920.78516	438.0194193
7199	7149	0.00948	0.00000	0
7199	7196	0.10136	5371.66797	544.4722654
7200	7210	0.07891	2633.52783	207.8116811
7201	1405	0.24749	510.43042	126.3264246
7201	7213	0.31441	3050.16455	959.0022362
7202	7201	0.04206	3425.01147	144.0559824
7202	7243	0.04525	0.00000	0
7203	1268	0.16800	932.01709	156.5788711
7203	7158	0.00948	3460.96338	32.80993284
7203	7199	0.11033	5371.66797	592.6561271
7204	6856	0.19070	551.78333	105.225081
7204	7202	0.13376	3425.01147	458.1295342
7204	7249	0.00949	1239.19812	11.75999016
7207	6764	0.23983	65.08691	15.60979363
7207	7280	0.01733	71.88250	1.245723725
7208	7163	0.00948	0.00000	0
7208	7211	0.04688	7232.02490	339.0373273
7209	7165	0.00948	6792.30225	64.39102533
7209	7212	0.06550	7232.02490	473.697631
7210	7204	0.17237	2633.52783	453.9411921
7211	29949	0.04620	7232.02490	334.1195504
7212	7208	0.05240	7232.02490	378.9581048
7213	30168	0.01894	3959.33008	74.98971172
7213	30171	0.01260	713.55060	8.99073756
7214	7168	0.01004	728.42023	7.313339109
7214	7198	0.09782	7920.78516	774.8112044
7214	7487	0.14705	1165.60315	171.4019432
7215	29948	0.03315	3397.52026	112.6277966
7216	7217	0.03103	3397.52026	105.4250537
7217	7215	0.08412	3397.52026	285.7994043
7218	1361	0.25325	484.69083	122.7479527
7218	7179	0.00893	8.79747	0.078561407
7218	7224	0.10481	3849.93311	403.5114893
7219	7209	0.08276	6309.22168	522.1511862
7219	7649	0.23261	758.37695	176.4060623
7219	7807	0.32803	7884.85303	2586.468339
7220	7099	0.11309	2882.79297	326.015057
7224	7225	0.08412	3849.93311	323.8563732
7225	7181	0.00949	1167.36426	11.07828683
7225	7430	0.09430	1137.83911	107.2982281
7225	29946	0.21531	5850.25146	1259.617642
7230	6666	0.31345	6319.12939	1980.731107
7230	7235	0.50794	4784.01172	2429.990913
7230	7250	0.51540	23.97356	12.35597282
7230	8085	0.49517	382.56937	189.4368749
7231	7191	0.00949	976.99152	9.271649525
7231	7216	0.10365	3388.83984	351.2532494
7231	7406	0.07812	2122.39429	165.8014419
7232	1690	0.24962	0.23204	0.057921825
7232	1691	0.25091	0.00522	0.00130975
7232	7238	0.26476	134.50378	35.61122079
7232	7246	0.24008	250.86913	60.22866073

7233	1406	0.25032	662.77661	165.906241
7233	7242	0.05561	2567.93066	142.802624
7235	1509	0.50220	3.47692	1.746109224
7235	1843	0.61521	261.58755	160.9312766
7235	7230	0.50794	6015.76221	3055.646257
7235	7240	0.07605	4804.84521	365.4084782
7237	7244	0.08412	22.52747	1.895010776
7237	30169	0.14335	18.99777	2.72333033
7238	6754	0.25419	712.06909	181.000842
7238	7232	0.26476	250.63582	66.3583397
7238	7241	0.15844	169.35410	26.8324636
7238	7485	0.13731	531.72742	73.01149204
7239	7231	0.13860	3537.68945	490.3237578
7240	7235	0.07605	6034.73828	458.9418462
7240	7246	0.41851	4804.84521	2010.875769
7241	1423	0.26485	41.55412	11.00560868
7241	1424	0.26536	113.86956	30.21642644
7241	7238	0.15844	359.32056	56.93074953
7241	7244	0.07033	18.99777	1.336113164
7242	7201	0.04150	135.58363	5.626720645
7242	7243	0.03792	2432.34692	92.23459521
7243	7249	0.17582	2432.34692	427.6552355
7244	7237	0.08412	18.99777	1.598092412
7244	7241	0.07033	22.52747	1.584356965
7245	1382	0.30769	0.00000	0
7245	7194	0.04961	0.00000	0
7245	7239	0.04482	2919.06079	130.8323046
7246	6784	0.24044	153.60509	36.93280784
7246	7232	0.24008	134.73076	32.34616086
7246	7240	0.41851	6034.73828	2525.598318
7246	7697	0.25404	4899.08203	1244.562799
7247	7213	0.00726	1622.71606	11.7809186
7247	7233	0.22089	3223.52588	712.0446316
7249	7204	0.00949	1659.52490	15.7488913
7249	7252	0.17237	1908.81433	329.0223261
7249	7432	0.08985	2040.34045	183.3245894
7250	1146	0.50173	0.04884	0.024504493
7250	1844	0.30158	2.18730	0.659645934
7250	7230	0.51540	1.23126	0.634591404
7250	7257	0.48455	24.97885	12.10350177
7251	7073	0.04778	6146.96924	293.7021903
7251	7269	0.00630	3385.32544	21.32755027
7251	7302	0.02915	3949.66895	115.1328499
7252	7245	0.14757	1908.81433	281.6837307
7253	7027	0.12978	568.28540	73.75207921
7253	7300	0.00972	1362.58984	13.24437324
7254	7255	0.01656	3046.02979	50.44225332
7255	7256	0.21166	3046.02979	644.7226654
7255	7309	0.01975	0.00000	0
7256	1132	0.07247	198.36461	14.37548329
7256	7255	0.21166	0.00000	0
7256	7260	0.02898	3186.39795	92.34181259
7257	6749	0.26100	164.47134	42.92701974
7257	7250	0.48455	2.06822	1.002156001

7257	7264	0.45326	0.33913	0.153714064
7257	7779	0.28871	39.61698	11.4378183
7258	7284	0.05456	0.00000	0
7259	7260	0.18616	709.16290	132.0177655
7259	7262	0.02796	2296.24292	64.20295204
7259	7284	0.03833	11.45819	0.439192423
7260	7050	0.07072	896.28516	63.38528652
7260	7256	0.02898	124.94720	3.620969856
7260	7259	0.18616	2258.89624	420.516124
7260	7354	0.03464	2811.63696	97.39510429
7260	7364	0.11493	1288.76758	148.118058
7262	1004	0.17716	41.24571	7.307089984
7262	7259	0.02796	720.62109	20.14856568
7262	7263	0.02653	2262.90112	60.03476671
7263	7262	0.02653	713.06195	18.91753353
7263	7267	0.01452	2262.90112	32.85732426
7264	1149	0.28571	1216.55237	347.5811776
7264	7257	0.45326	14.97952	6.789617235
7264	7300	0.14626	1322.87769	193.4840909
7266	7062	0.06592	130.54204	8.605331277
7266	7404	0.06836	266.66617	18.22929938
7267	7263	0.01452	713.06195	10.35365951
7267	7270	0.02760	2262.90112	62.45607091
7269	7220	0.05962	2882.79297	171.8721169
7269	7251	0.00630	6471.97266	40.77342776
7269	7436	0.08670	3395.28564	294.371265
7270	7267	0.02760	713.06195	19.68050982
7270	7277	0.02485	2262.90112	56.23309283
7271	7272	0.02804	2262.90112	63.4517474
7271	7276	0.05930	713.06195	42.28457364
7272	1007	0.14160	294.32562	41.67650779
7272	7271	0.02804	713.06195	19.99425708
7272	7273	0.04160	2017.31250	83.9202
7273	7272	0.04160	475.52661	19.78190698
7273	7274	0.07653	2017.31250	154.3849256
7274	7273	0.07653	475.52661	36.39205146
7274	7283	0.10550	2017.31250	212.8264688
7276	7271	0.05930	2262.90112	134.1900364
7276	7277	0.03585	713.06195	25.56327091
7277	7270	0.02485	713.06195	17.71958946
7277	7276	0.03585	2262.90112	81.12500515
7279	7283	0.06412	475.52661	30.49076623
7279	7297	0.06487	2017.31250	130.8630619
7280	7207	0.01733	65.08691	1.12795615
7280	7685	0.23479	71.88250	16.87729218
7281	7289	0.03656	475.52661	17.38525286
7281	7293	0.02075	2017.31250	41.85923438
7283	7274	0.10550	475.52661	50.16805736
7283	7279	0.06412	2017.31250	129.3500775
7284	7258	0.05456	0.00000	0
7284	7259	0.03833	37.34671	1.431499394
7284	7364	0.05201	11.45819	0.595940462
7288	7457	0.19103	37188.73828	7104.164674
7289	7281	0.03656	2017.31250	73.752945

7289	7297	0.05861	475.52661	27.87061461
7293	7281	0.02075	475.52661	9.867177158
7293	7303	0.10070	2017.31250	203.1433688
7297	7279	0.06487	475.52661	30.84741119
7297	7289	0.05861	2017.31250	118.2346856
7300	7253	0.00972	568.28540	5.523734088
7300	7264	0.14626	1230.85852	180.0253671
7300	7307	0.01835	1220.86523	22.40287697
7302	7327	0.03513	3949.66895	138.7518702
7303	7033	0.09308	4023.71533	374.5274229
7303	7293	0.10070	475.52661	47.88552963
7303	7534	0.14978	3204.24170	479.9313218
7307	7300	0.01835	334.54153	6.138837076
7307	7477	0.26145	1220.86523	319.1952144
7309	7254	0.02499	0.00000	0
7310	7064	0.07559	4034.74561	304.9864207
7310	7381	0.03630	4273.67822	155.1345194
7316	7170	0.03629	1300.67773	47.20159482
7316	7411	0.05928	934.28217	55.38424704
7325	7142	0.04304	3056.99146	131.5729124
7325	7387	0.03241	3022.01001	97.94334442
7327	29956	0.02737	3949.66895	108.1024392
7330	7089	0.13115	37248.00000	4885.0752
7330	7253	0.11439	1362.58984	155.8666518
7335	1062	0.11365	100.71671	11.44645409
7335	7337	0.02968	6142.79492	182.3181532
7337	7269	0.06497	6142.79492	399.097386
7354	7260	0.03464	1479.82642	51.26118719
7354	7502	0.10465	2811.63696	294.2378079
7355	1156	0.50331	0.00000	0
7355	7997	0.40339	0.00000	0
7364	7260	0.11493	1005.41418	115.5522517
7364	7284	0.05201	37.34671	1.942402387
7364	7568	0.18305	1300.22583	238.0063382
7369	1060	0.20885	331.80667	69.29782303
7369	7382	0.00730	206.39633	1.506693209
7369	7411	0.17732	4081.59790	723.7489396
7374	6874	0.23652	4782.50293	1131.157593
7374	7375	0.00898	0.00000	0
7375	7374	0.00898	0.00000	0
7375	7643	0.17368	4898.14990	850.7106746
7380	6388	0.54825	474.74960	260.2814682
7380	7597	0.14621	426.94754	62.42399982
7381	7310	0.03630	4034.74561	146.4612656
7381	7428	0.03532	4273.67822	150.9463147
7382	1063	0.13914	200.85614	27.94712332
7382	7335	0.09642	6034.95654	581.8905096
7382	7369	0.00730	331.80667	2.422188691
7383	1098	0.24389	2.99192	0.729699369
7383	1099	0.06454	2.94917	0.190339432
7384	6715	0.33655	29738.70898	10008.56251
7385	7807	0.26345	30485.87500	8031.503769
7387	1077	0.31979	284.87158	91.09908257
7387	7325	0.03241	3056.99146	99.07709322

7387	7447	0.04416	3301.28809	145.7848821
7388	6486	0.49976	1254.36877	626.8833365
7388	8185	0.49734	1272.73914	632.9840839
7404	1033	0.26138	153.04538	40.00300142
7404	1049	0.16434	135.44864	22.2596295
7404	7266	0.06836	130.54204	8.923853854
7404	7501	0.06853	11.21783	0.76875789
7406	7231	0.07812	1150.21655	89.85491689
7406	7514	0.07422	2122.39429	157.5241042
7411	7316	0.05928	1300.67773	77.10417583
7411	7425	0.00739	2192.86353	16.20526149
7411	7437	0.09390	4683.85986	439.8144409
7415	6520	0.49723	552.03864	274.490173
7415	7538	0.08526	546.06366	46.55738765
7424	7196	0.09437	1269.24475	119.7786271
7424	7506	0.06081	1307.03015	79.48050342
7425	7382	0.17664	5980.79395	1056.447443
7425	7411	0.00739	3161.52124	23.36364196
7425	7527	0.07436	4097.12598	304.6622879
7428	7381	0.03532	4034.74561	142.5072149
7428	7462	0.02688	4273.67822	114.8764706
7430	7225	0.09430	1190.72034	112.2849281
7430	7623	0.12052	1137.83911	137.1323695
7432	7249	0.08985	1937.13440	174.0515258
7432	7688	0.15403	2040.34045	314.2736395
7436	7269	0.08670	3221.93091	279.3414099
7436	7474	0.03610	3395.28564	122.5698116
7437	7450	0.00685	0.00000	0
7437	7462	0.08579	4683.85986	401.8283374
7447	1099	0.57199	96.30737	55.08685257
7447	7387	0.04416	3341.86304	147.5766718
7447	7525	0.05756	3368.19482	193.8732938
7450	1061	0.21545	5.32854	1.148033943
7450	1064	0.10953	5.14539	0.563574567
7450	7425	0.09380	6070.14258	569.379374
7450	7437	0.00685	0.00000	0
7457	7502	0.13713	1105.42578	151.5870372
7457	7562	0.14576	36083.31250	5259.50363
7462	1078	0.28941	53.38578	15.45037859
7462	7428	0.02688	4034.74561	108.453962
7462	7450	0.08579	5824.82471	499.7117119
7462	7567	0.11559	4005.70776	463.01976
7462	7576	0.07481	373.18805	27.91819802
7474	1049	0.17974	570.28680	102.5033494
7474	1062	0.09244	481.76794	44.53462837
7474	7436	0.03610	3221.93091	116.3117059
7474	7547	0.04413	4230.67334	186.6996145
7477	7307	0.26145	334.54153	87.46588302
7477	7493	0.01960	1220.86523	23.92895851
7484	7489	0.00980	0.00000	0
7484	7792	0.17223	1914.54663	329.7423661
7485	7238	0.13731	668.92651	91.85029909
7485	7693	0.11160	531.72742	59.34078007
7487	7214	0.14705	1032.03711	151.761057

7487	7646	0.09476	1165.60315	110.4525545
7489	7186	0.15295	1434.54236	219.413254
7489	7484	0.00980	0.00000	0
7493	1136	0.24444	9.64228	2.356958923
7493	7477	0.01960	334.54153	6.557013988
7493	7553	0.06927	1224.25903	84.80442301
7501	7404	0.06853	19.52324	1.337927637
7501	7596	0.05531	11.21783	0.620458177
7502	7354	0.10465	1479.82642	154.8638349
7502	7544	0.02685	3340.34790	89.68834112
7502	7549	0.04095	1548.74536	63.42112249
7506	1268	0.23558	310.20724	73.0786216
7506	7424	0.06081	1269.24475	77.18277325
7506	7662	0.09093	1672.81140	152.1087406
7514	7406	0.07422	1150.21655	85.36907234
7514	7585	0.04185	2122.39429	88.82220104
7516	7330	0.24369	38610.58984	9409.014638
7525	7447	0.05756	3409.93872	196.2760727
7525	7546	0.01453	3213.58643	46.69341083
7525	7653	0.40993	410.66293	168.3430549
7527	7425	0.07436	4976.43506	370.0477111
7527	7586	0.03532	4097.12598	144.7104896
7534	1018	0.14311	41.67279	5.963792977
7534	1033	0.26141	168.98730	44.17497009
7534	7303	0.14978	2009.81140	301.0295515
7534	7734	0.10167	3176.76636	322.9818358
7538	1750	1.08505	377.30853	409.3986205
7538	7415	0.08526	552.03864	47.06681445
7538	8144	0.35800	928.59613	332.4374145
7544	7502	0.02685	2451.85693	65.83235857
7544	7582	0.10681	0.00000	0
7544	7640	0.05043	3340.34790	168.4537446
7546	7525	0.01453	3268.60083	47.49277006
7546	7651	0.05477	3213.58643	176.0081288
7547	7474	0.04413	3711.92651	163.8073169
7547	7607	0.03177	4230.67334	134.408492
7549	7739	0.14573	1548.74536	225.6986613
7553	7493	0.06927	337.83606	23.40190388
7553	7882	0.23020	1224.25903	281.8244287
7562	7573	0.00890	36083.31250	321.1414813
7567	7462	0.11559	4868.94141	562.8009376
7567	7606	0.02046	312.38623	6.391422266
7567	7625	0.04998	3693.32153	184.5922101
7568	7364	0.18305	1042.76086	190.8773754
7568	7592	0.02912	1300.22583	37.86257617
7573	7582	0.00881	36083.31250	317.8939831
7574	7516	0.07128	38610.58984	2752.162844
7576	1064	0.09725	280.75006	27.30294334
7576	7462	0.07481	414.47736	31.0070513
7576	7737	0.07901	92.43797	7.30352401
7578	7209	0.19593	313.08826	61.34338278
7582	7739	0.14876	36083.31250	5367.753568
7585	7514	0.04185	1150.21655	48.13656262
7585	7679	0.05022	2122.39429	106.5866412

7586	1063	0.09053	791.84003	71.68527792
7586	1064	0.09167	703.88660	64.52528462
7586	7527	0.03532	4976.43506	175.7676863
7586	7655	0.03807	4747.89746	180.7524563
7590	7574	0.01863	36521.67188	680.3987471
7592	7568	0.02912	1042.76086	30.36519624
7592	7611	0.05588	1300.22583	72.65661938
7596	7501	0.05531	19.52324	1.079830404
7596	7703	0.05867	11.21783	0.658150086
7597	1113	0.41484	668.88757	277.4813195
7597	7380	0.14621	474.74960	69.41313902
7597	7835	0.13784	997.03821	137.4317469
7601	7590	0.00968	36521.67188	353.5297838
7605	7140	0.22364	2219.27808	496.3193498
7605	7656	0.02751	2151.62500	59.19120375
7606	1079	0.13753	312.38623	42.96247821
7606	7567	0.02046	340.97946	6.976439752
7607	7547	0.03177	3711.92651	117.9279052
7607	7673	0.03697	4230.67334	156.4079934
7611	7592	0.05588	1042.76086	58.26947686
7611	7636	0.04349	1300.22583	56.54682135
7613	7601	0.00880	36521.67188	321.3907125
7623	1337	0.13463	546.71759	73.60458914
7623	1361	0.25100	651.71692	163.5809469
7623	7430	0.12052	1190.72034	143.5056154
7623	7742	0.05691	1837.16931	104.5533054
7625	7567	0.04998	4527.96191	226.3075363
7625	7606	0.04966	0.00000	0
7625	7639	0.04153	3693.32153	153.3836431
7636	7611	0.04349	1042.76086	45.3496698
7636	7686	0.05163	1300.22583	67.1306596
7639	7625	0.04153	4527.96191	188.0462581
7639	7663	0.08973	3693.32153	331.4017409
7640	7544	0.05043	2451.85693	123.647145
7640	7574	0.11563	2088.91675	241.5414438
7640	7677	0.02041	1898.82288	38.75497498
7643	7374	0.17472	4782.50293	835.5989119
7643	7944	0.19035	4898.14990	932.3628335
7644	1685	0.25603	59.72561	15.29154793
7644	7145	0.24318	832.31152	202.4015154
7644	8056	0.25873	398.99100	103.2309414
7646	1336	0.09886	101.68225	10.05230724
7646	1337	0.11338	750.14246	85.05115211
7646	7487	0.09476	1032.03711	97.79583654
7646	7928	0.17432	677.94836	118.1799581
7649	1336	0.13973	458.84790	64.11481707
7649	7671	0.01386	299.52902	4.151472217
7651	1100	0.47496	134.52596	63.89444996
7651	7546	0.05477	3268.60083	179.0212675
7651	7787	0.07042	3079.06055	216.8274439
7652	1483	0.25147	0.00000	0
7652	1685	0.24444	0.00000	0
7653	7525	0.40993	397.39252	162.9031157
7653	7705	0.17360	410.66293	71.29108465

7655	7586	0.03807	5647.66064	215.0064406
7655	7785	0.06709	4747.89746	318.5364406
7656	1214	0.25237	68.54087	17.29765936
7656	1483	0.27213	0.07606	0.020698208
7656	7605	0.02751	2219.27808	61.05233998
7656	8058	0.25194	2220.74463	559.4944021
7662	7506	0.09093	1579.45203	143.6195731
7662	7829	0.09645	1672.81140	161.3426595
7663	1078	0.08837	115.98469	10.24956706
7663	7639	0.08973	4527.96191	406.2940222
7663	7735	0.17011	3732.97852	635.016976
7663	7798	0.07559	381.56516	28.84251044
7669	1214	0.25303	528.25201	133.6636061
7669	1233	0.22010	237.74240	52.32710224
7669	7136	0.25824	1582.52783	408.6719868
7669	7899	0.14167	2077.83521	294.3669142
7670	1268	0.23513	928.83972	218.3980834
7670	7578	0.04955	313.08826	15.51352328
7671	8064	0.24661	299.52902	73.86685162
7673	7607	0.03697	3711.92651	137.2299231
7673	7696	0.07035	1655.93188	116.4948078
7673	7699	0.10927	2723.15771	297.559443
7673	7802	0.07680	1865.13232	143.2421622
7677	7640	0.02041	3099.24878	63.2556676
7677	7882	0.12221	1898.82288	232.0551442
7679	1361	0.25004	721.02985	180.2863037
7679	1382	0.26299	1008.28589	265.1691062
7679	7585	0.05022	1150.21655	57.76387514
7679	7842	0.09877	1283.31506	126.7530285
7685	7280	0.23479	65.08691	15.2817556
7685	7769	0.04044	71.88250	2.9069283
7686	7636	0.05163	1042.76086	53.8377432
7686	7738	0.05045	1300.22583	65.59639312
7688	1382	0.25224	982.29987	247.7753192
7688	1406	0.24735	1457.10767	360.4155822
7688	7432	0.15403	1937.13440	298.3768116
7688	7883	0.11887	1740.26135	206.8648667
7693	1424	0.24138	431.22040	104.0879802
7693	1691	0.25877	35.50724	9.188208495
7693	7485	0.11160	668.92651	74.65219852
7693	7888	0.12267	740.55072	90.84335682
7696	7673	0.07035	1539.91321	108.3328943
7696	7701	0.02117	1655.93188	35.0560779
7697	1691	0.25080	12.78884	3.207441072
7697	7246	0.25404	5988.97607	1521.439481
7697	8098	0.24287	4890.63916	1187.789533
7699	7673	0.10927	2335.65991	255.2175584
7699	7700	0.07998	2723.15771	217.7981536
7700	1049	0.16629	754.95831	125.5420174
7700	1050	0.12905	151.12389	19.502538
7700	7699	0.07998	2335.65991	186.8060796
7700	7703	0.13376	3385.49268	452.8435009
7701	7696	0.02117	1539.91321	32.59996266
7701	7757	0.09121	1655.93188	151.0375468

7703	1035	0.18318	562.73309	103.0814474
7703	7596	0.05867	19.52324	1.145428491
7703	7700	0.13376	3225.76978	431.4789658
7703	7709	0.13510	2809.70801	379.5915522
7705	1099	0.14090	35.65540	5.02384586
7705	7653	0.17360	397.39252	68.98734147
7705	7835	0.43084	447.58728	192.8385037
7709	7703	0.13510	2675.17065	361.4155548
7709	7720	0.12278	2809.70801	344.9759495
7713	7719	0.05724	1745.66785	99.92202773
7713	7758	0.07292	1512.76855	110.3110827
7714	7719	0.06412	1512.76855	96.99871943
7714	7727	0.05865	1745.66785	102.3834194
7718	7723	0.03746	1745.66785	65.39271766
7718	7727	0.05862	1512.76855	88.6784924
7719	7713	0.05724	1512.76855	86.5908718
7719	7714	0.06412	1745.66785	111.9322225
7720	1033	0.13746	552.10077	75.89177184
7720	1035	0.23012	215.06596	49.49097872
7720	7709	0.12278	2675.17065	328.4574524
7720	7729	0.05174	3310.29761	171.2747983
7723	1018	0.13034	429.37500	55.9647375
7723	1019	0.12370	50.58479	6.257338523
7723	7718	0.03746	1512.76855	56.66830988
7723	7730	0.06532	1821.79358	118.9995566
7727	7714	0.05865	1512.76855	88.72387546
7727	7718	0.05862	1745.66785	102.3310494
7729	7720	0.05174	3093.17700	160.040978
7729	7732	0.11997	3310.29761	397.1364043
7730	7723	0.06532	1598.30188	104.4010788
7730	7734	0.05932	1821.79358	108.0687952
7732	1034	0.19651	674.96106	132.6365979
7732	7729	0.11997	3093.17700	371.0884447
7732	7733	0.03930	3040.49170	119.4913238
7733	7732	0.03930	2891.92603	113.652693
7733	7734	0.04550	3040.49170	138.3423724
7734	7534	0.10167	2060.59961	209.5011623
7734	7730	0.05932	1598.30188	94.81126752
7734	7733	0.04550	2891.92603	131.5826344
7734	7869	0.09386	5440.03906	510.6020662
7735	1080	0.11836	119.26189	14.1158373
7735	7663	0.17011	4549.92773	773.9882062
7735	7775	0.15077	3725.70386	561.724371
7737	7576	0.07901	85.27988	6.737963319
7737	7790	0.03520	92.43797	3.253816544
7738	7686	0.05045	1042.76086	52.60728539
7738	7756	0.04305	1300.22583	55.97472198
7739	8357	0.83237	37632.05859	31323.79661
7742	7623	0.05691	1935.46802	110.147485
7742	7838	0.07142	1837.16931	131.2106321
7750	7613	0.12763	36521.67188	4661.260982
7756	1006	0.09475	728.16431	68.99356837
7756	1007	0.13552	344.39322	46.67216917
7756	7738	0.04305	1042.76086	44.89085502

7756	7758	0.05172	1745.66785	90.2859412
7757	1062	0.14272	247.46046	35.31755685
7757	1065	0.07689	291.18582	22.3892777
7757	7701	0.09121	1539.91321	140.4554839
7757	7773	0.09506	1663.88635	158.1690364
7758	7713	0.07292	1745.66785	127.2940996
7758	7756	0.05172	1512.76855	78.24038941
7769	1113	0.33989	41.22471	14.01186668
7769	1156	0.86394	80.34406	69.4124472
7769	7685	0.04044	65.08691	2.63211464
7769	8039	0.18596	91.34736	16.98695507
7773	1063	0.11404	534.31641	60.9334434
7773	7757	0.09506	1516.80261	144.1872561
7773	7795	0.08769	1129.56995	99.05198892
7775	7735	0.15077	4544.30225	685.1444502
7775	7787	0.03153	3725.70386	117.4714427
7779	1149	0.45293	529.67780	239.906966
7779	7257	0.28871	166.20352	47.98461826
7779	8137	0.22021	497.84286	109.6299762
7785	7655	0.06709	5647.66064	378.9015523
7785	7795	0.00905	4747.89746	42.96847201
7787	7651	0.07042	3136.54907	220.8757855
7787	7775	0.03153	4544.30225	143.2818499
7787	7796	0.07081	2575.82715	182.3943205
7787	7865	0.05812	5183.65576	301.2740728
7790	7737	0.03520	85.27988	3.001851776
7790	7834	0.03630	92.43797	3.355498311
7792	1266	0.22232	479.84131	106.67832
7792	7793	0.00980	404.47101	3.963815898
7792	8425	0.44315	1949.31018	863.8368063
7793	1233	0.35885	521.35968	187.0899212
7793	7489	0.17223	1434.54236	247.0712307
7793	7792	0.00980	514.60486	5.043127628
7795	7773	0.08769	1136.40210	99.65110015
7795	7785	0.00905	5647.66064	51.11132879
7795	7812	0.09186	402.75928	36.99746746
7795	7904	0.07833	5359.64697	419.8211472
7796	7787	0.07081	2652.81006	187.8454803
7796	7823	0.10874	2575.82715	280.0954443
7798	7663	0.07559	399.72882	30.2155015
7798	7895	0.06866	381.56516	26.19826389
7802	1065	0.18550	415.81598	77.13386429
7802	7673	0.07680	1849.90186	142.0724628
7802	7905	0.06877	2283.95581	157.0676411
7807	7902	0.06360	38370.73047	2440.378458
7808	7384	0.26398	29738.70898	7850.424397
7812	1064	0.11530	24.50632	2.825578696
7812	1145	0.07402	331.16617	24.5129199
7812	7795	0.09186	342.52032	31.4639166
7812	7834	0.09012	316.79761	28.54980061
7823	7796	0.10874	2652.81006	288.4665659
7823	7830	0.01688	2575.82715	43.47996229
7829	1266	0.21108	2241.84888	473.2094616
7829	1269	0.24270	101.30556	24.58685941

7829	7662	0.09645	1579.45203	152.3381483
7829	7972	0.10376	1933.35059	200.6044572
7830	7823	0.01688	2652.81006	44.77943381
7830	7849	0.05742	2575.82715	147.903995
7834	1079	0.12693	231.51773	29.38654547
7834	7790	0.03630	85.27988	3.095659644
7834	7812	0.09012	259.48932	23.38517752
7835	7597	0.13784	1061.45618	146.3111199
7835	7705	0.43084	433.04791	186.5743615
7835	7856	0.01286	1119.76428	14.40016864
7835	7941	0.42979	156.11311	67.09585355
7837	7670	0.10025	1241.92798	124.50328
7838	7742	0.07142	1935.46802	138.231126
7838	8079	0.15009	1837.16931	275.7407417
7842	7679	0.09877	1298.30737	128.2338189
7842	8081	0.14899	1283.31506	191.2011108
7849	1101	0.09487	406.14359	38.53084238
7849	7830	0.05742	2652.81006	152.3243536
7849	7866	0.07295	2594.00464	189.2326385
7856	7835	0.01286	1110.60486	14.2823785
7856	8045	0.12745	1119.76428	142.7139575
7863	7793	0.05172	1551.43103	80.24001287
7864	1750	0.92413	292.28412	270.1085238
7864	6456	0.81578	247.90456	202.235582
7864	8164	0.19114	539.77118	103.1718633
7865	7787	0.05812	5982.76025	347.7180257
7865	7920	0.03801	5183.65576	197.0307554
7866	7849	0.07295	2559.77661	186.7357037
7866	7874	0.03987	2594.00464	103.422965
7869	1019	0.14272	145.50836	20.76695314
7869	7734	0.09386	3951.81494	370.9173503
7869	7943	0.05363	5500.68848	295.0019232
7874	7866	0.03987	2559.77661	102.0582934
7874	7886	0.02668	2594.00464	69.2080438
7882	7553	0.23020	337.83606	77.76986101
7882	7677	0.12221	3099.24878	378.7591934
7882	7925	0.03221	2010.03796	64.74332269
7883	7688	0.11887	1625.15796	193.1825267
7883	8087	0.12891	1740.26135	224.3370906
7886	7874	0.02668	2559.77661	68.29483995
7886	7908	0.10283	2625.60498	269.9909601
7888	7693	0.12267	1113.04370	136.5370707
7888	8105	0.12950	740.55072	95.90131824
7895	1079	0.14641	508.13882	74.39660464
7895	1080	0.17462	208.98088	36.49224127
7895	7798	0.06866	399.72882	27.44538078
7895	8129	0.13489	719.36011	97.03448524
7899	7669	0.14167	1772.19666	251.0671008
7899	8044	0.09778	2077.83521	203.1707268
7902	8036	0.08759	38370.73047	3360.892282
7903	7209	0.39081	7402.01709	2892.782299
7903	7808	0.06360	29738.70898	1891.381891
7904	1065	0.18091	563.55127	101.9520603
7904	1145	0.09396	12.45510	1.170281196

7904	7795	0.07833	6326.48096	495.5532536
7904	7948	0.03574	5566.41260	198.9435863
7905	1050	0.14570	232.27147	33.84195318
7905	7802	0.06877	2265.71777	155.813411
7905	7918	0.00822	2410.04321	19.81055519
7908	1100	0.06654	857.21069	57.03879931
7908	7886	0.10283	2547.64844	261.9746891
7908	7911	0.01066	2294.32495	24.45750397
7911	7908	0.01066	2193.27588	23.38032088
7911	7936	0.11708	2294.32495	268.6195651
7918	7905	0.00822	2392.52905	19.66658879
7918	7935	0.07305	331.43552	24.21136474
7918	8002	0.06024	2278.02271	137.2280881
7920	7865	0.03801	5982.76025	227.4047171
7920	7995	0.04778	5183.65576	247.6750722
7925	7882	0.03221	2324.04102	74.85736125
7925	7986	0.04156	2010.03796	83.53717762
7928	7646	0.17432	672.48822	117.2281465
7928	8076	0.08983	677.94836	60.90010118
7935	7918	0.07305	339.50580	24.80089869
7935	7945	0.04976	331.43552	16.49223148
7936	1103	0.29298	1443.09814	422.7988931
7936	7911	0.11708	2193.27588	256.78874
7936	7970	0.13881	1289.54199	179.0013236
7941	1113	0.20462	108.42837	22.18661307
7941	7835	0.42979	215.15097	92.4697354
7941	8009	0.23614	272.50119	64.34843101
7943	7869	0.05363	4012.72534	215.20246
7943	8026	0.04972	5500.68848	273.4942312
7944	7643	0.19035	4782.50293	910.3494327
7944	8179	0.13707	4898.14990	671.3894068
7945	7935	0.04976	339.50580	16.89380861
7945	7956	0.05860	331.43552	19.42212147
7948	7904	0.03574	6516.49902	232.899675
7948	8020	0.04094	5566.41260	227.8889318
7951	2009	1.86164	3.59700	6.69631908
7951	5845	1.42743	972.64221	1388.37867
7951	9928	1.01756	755.99567	769.270954
7956	1065	0.07380	14.36197	1.059913386
7956	1131	0.10674	135.28812	14.44065393
7956	7945	0.05860	339.50580	19.89503988
7956	7965	0.03107	211.00137	6.555812566
7965	7956	0.03107	216.58278	6.729226975
7965	7992	0.06237	211.00137	13.16015545
7970	7936	0.13881	1152.46252	159.9733224
7970	8004	0.11630	1289.54199	149.9737334
7972	7829	0.10376	1864.68079	193.4792788
7972	8140	0.07866	1933.35059	152.0773574
7980	2005	1.71721	778.02686	1336.035504
7980	2009	3.23049	83.03773	268.2525564
7980	5426	2.00996	1724.54956	3466.275634
7980	9897	0.98651	2326.61987	2295.233768
7986	7925	0.04156	2324.04102	96.58714479
7986	8515	0.31726	2010.03796	637.7046432

7992	7965	0.06237	216.58278	13.50826799
7992	8020	0.09016	211.00137	19.02388352
7995	1080	0.20299	119.31163	24.21906777
7995	1101	0.23149	771.95148	178.6990481
7995	7920	0.04778	5982.76025	285.8562847
7995	8061	0.04280	6063.42529	259.5146024
7997	7355	0.40339	0.00000	0
7997	8367	0.25872	0.00000	0
8002	7918	0.06024	2252.43848	135.686894
8002	8124	0.06105	2278.02271	139.0732864
8003	6299	0.99098	329.20532	326.235888
8003	9957	1.00107	335.14157	335.5001715
8004	1104	0.25970	123.07089	31.96151013
8004	7970	0.11630	1152.46252	134.0313911
8004	8045	0.13813	1203.91895	166.2973246
8009	7941	0.23614	323.57935	76.41002771
8009	8039	0.09244	272.50119	25.19001
8020	7948	0.04094	6516.49902	266.7854699
8020	7992	0.09016	216.58278	19.52710344
8020	8041	0.09420	2955.34863	278.3938409
8020	8118	0.04931	6388.38086	315.0110602
8022	1269	0.11453	1.83334	0.20997243
8022	1270	0.16026	1.84548	0.295756625
8025	6298	1.00222	1414.12915	1417.268517
8025	9987	1.00051	1412.21179	1412.932018
8026	1034	0.12522	1366.51941	171.1155605
8026	7943	0.04972	4012.72534	199.5127039
8026	8138	0.05084	6963.36865	354.0176622
8033	1269	0.24702	322.07889	79.55992741
8033	7837	0.12909	1241.92798	160.3204829
8033	8064	0.06562	958.59827	62.90321848
8036	8063	0.01506	38370.73047	577.8632009
8039	7769	0.18596	77.38978	14.39140349
8039	8009	0.09244	323.57935	29.91167511
8039	30070	0.12005	227.05713	27.25820846
8041	1067	0.30493	546.68616	166.7010108
8041	1145	0.07833	937.42896	73.42881044
8041	8020	0.09420	2806.22559	264.3464506
8041	8065	0.08595	2252.51001	193.6032354
8042	1214	0.25325	0.72220	0.18289715
8042	1215	0.25095	70.10844	17.59371302
8042	8044	0.25338	60.57702	15.34900533
8042	8047	0.10695	27.93999	2.988181931
8043	6320	1.00107	3232.06274	3235.521047
8043	10002	0.99772	3395.95459	3388.211814
8044	7899	0.09778	1772.19666	173.2853894
8044	8042	0.25338	97.33091	24.66170598
8044	8046	0.18199	308.55927	56.15470155
8044	8337	0.19581	1672.32935	327.45881
8045	7856	0.12745	1110.60486	141.5465894
8045	8004	0.13813	1064.74121	147.0727033
8045	8062	0.03919	1130.76123	44.3145326
8045	8423	0.25825	1694.19836	437.5267265
8046	1233	0.25235	28.27420	7.13499437

8046	1234	0.24904	302.89465	75.43288364
8046	8044	0.18199	277.78412	50.553932
8046	8048	0.02628	33.25710	0.873996588
8047	8042	0.10695	2.15882	0.230885799
8047	8053	0.05725	27.93999	1.599564428
8048	8046	0.02628	33.34756	0.876373877
8048	8050	0.03310	33.25710	1.10081001
8049	8050	0.05378	33.34756	1.793431777
8049	8054	0.05518	33.25710	1.835126778
8050	8048	0.03310	33.34756	1.103804236
8050	8049	0.05378	33.25710	1.788566838
8052	1483	0.32910	0.00000	0
8053	8047	0.05725	2.15882	0.123592445
8053	8058	0.09862	27.93999	2.755441814
8054	8049	0.05518	33.34756	1.840118361
8054	8055	0.11032	33.25710	3.668923272
8055	8054	0.11032	33.34756	3.678902819
8055	8057	0.04000	33.25710	1.330284
8056	1793	0.38348	95.01508	36.43638288
8056	7644	0.25873	862.29498	223.1015802
8056	8945	0.49282	424.01434	208.962747
8057	8055	0.04000	33.34756	1.3339024
8057	8253	0.12767	33.25710	4.245933957
8058	7656	0.25194	2287.89502	576.4122713
8058	8053	0.09862	2.15882	0.212902828
8058	8416	0.24889	2248.68457	559.6751026
8059	1685	0.24399	0.96488	0.235421071
8059	1694	0.23955	0.94440	0.22623102
8061	7995	0.04280	6863.48291	293.7570685
8061	8121	0.02711	6063.42529	164.3794596
8062	8045	0.03919	1263.80310	49.52844349
8062	8192	0.34766	1130.76123	393.1204492
8063	8168	0.06137	38370.73047	2354.811729
8064	8033	0.06562	207.71252	13.63009556
8064	8067	0.12641	765.33789	96.74636267
8064	8276	0.14081	1121.09045	157.8607463
8065	8041	0.08595	2085.23584	179.2260204
8065	8088	0.03395	2252.51001	76.47271484
8067	1336	0.23293	822.42303	191.5669964
8067	8064	0.12641	836.01355	105.6804729
8067	8069	0.03910	456.83319	17.86217773
8068	8070	0.06711	171.54816	11.51259702
8068	8075	0.08481	200.25989	16.98404127
8069	8067	0.03910	499.18719	19.51821913
8069	8076	0.06758	456.83319	30.87278698
8070	1361	0.24865	5.17870	1.287683755
8070	1362	0.12616	5.24803	0.662091465
8070	8068	0.06711	200.25989	13.43944122
8070	8071	0.03701	171.54816	6.348997402
8071	8070	0.03701	200.25989	7.411618529
8071	8073	0.02276	171.54816	3.904436122
8072	1337	0.26112	0.00000	0
8072	8074	0.06826	261.19458	17.82914203
8072	8076	0.12273	307.22055	37.7051781

8073	8071	0.02276	200.25989	4.557915096
8073	8078	0.06068	171.54816	10.40954235
8074	8072	0.06826	307.22055	20.97087474
8074	8079	0.05309	261.19458	13.86682025
8075	8068	0.08481	171.54816	14.54899945
8075	8077	0.03999	200.25989	8.008393001
8076	1338	0.11270	573.88495	64.67683387
8076	7928	0.08983	672.48822	60.4096168
8076	8069	0.06758	499.18719	33.7350703
8076	8072	0.12273	261.19458	32.0564108
8077	8075	0.03999	171.54816	6.860210918
8077	8079	0.06205	200.25989	12.42612617
8078	8073	0.06068	200.25989	12.15177013
8078	8081	0.12549	171.54816	21.5275786
8079	7838	0.15009	1935.46802	290.4943951
8079	8074	0.05309	307.22055	16.310339
8079	8077	0.06205	171.54816	10.64456333
8079	8247	0.11775	2118.94800	249.506127
8081	7842	0.14899	1298.30737	193.4348151
8081	8078	0.12549	200.25989	25.1306136
8081	8082	0.11032	2045.83228	225.6962171
8081	8160	0.05023	3408.41235	171.2045523
8082	8081	0.11032	2217.44385	244.6284055
8082	8083	0.09102	2045.83228	186.2116541
8083	8082	0.09102	2217.44385	201.8317392
8083	8084	0.06306	2045.83228	129.0101836
8084	1382	0.19383	2633.19971	510.3930998
8084	1383	0.13399	14.41382	1.931307742
8084	8083	0.06306	2217.44385	139.8320092
8084	8086	0.09349	561.44055	52.48907702
8085	1146	0.50484	25.33607	12.79066158
8085	1509	0.49900	38.34452	19.13391548
8085	7230	0.49517	329.62341	163.2196239
8085	9067	0.51128	319.08176	163.1401223
8086	8084	0.09349	739.43292	69.12958369
8086	8087	0.14548	561.44055	81.67837121
8087	7883	0.12891	1625.15796	209.4991126
8087	8086	0.14548	739.43292	107.5727012
8087	8091	0.12480	151.28653	18.88055894
8087	8265	0.12204	2075.05518	253.2397342
8088	8065	0.03395	2085.23584	70.79375677
8088	8097	0.02641	2252.51001	59.48878936
8089	8090	0.05765	178.21037	10.27382783
8089	8092	0.05930	507.98883	30.12373762
8090	1406	0.24683	7.85196	1.938099287
8090	1407	0.12048	264.53378	31.87102981
8090	8089	0.05765	507.98883	29.28555605
8090	8091	0.11404	169.56332	19.33700101
8091	8087	0.12480	169.56332	21.16150234
8091	8090	0.11404	151.28653	17.25271588
8092	8089	0.05930	178.21037	10.56787494
8092	30165	0.13567	507.98883	68.91884457
8093	30167	0.06640	0.00000	0
8094	1441	0.12135	0.00491	0.000595829

8094	1691	0.24772	0.00497	0.001231168
8096	1424	0.24727	6.98212	1.726468812
8096	1425	0.12042	6.78183	0.816667969
8097	1079	0.18319	744.07568	136.3072238
8097	1081	0.25706	193.08638	49.63478484
8097	8088	0.02641	2085.23584	55.07107853
8097	8112	0.03095	1347.97571	41.71984822
8098	1509	0.50091	50.78922	25.44082819
8098	7697	0.24287	5980.71680	1452.536689
8098	8277	0.13088	4935.83008	646.0014409
8105	7888	0.12950	1113.04370	144.1391592
8105	8263	0.11465	740.55072	84.90414005
8112	8097	0.03095	1143.53699	35.39246984
8112	8119	0.03017	1347.97571	40.66842717
8118	8020	0.04931	7493.17139	369.4882812
8118	8183	0.04772	6388.38086	304.8535346
8119	8112	0.03017	1143.53699	34.50051099
8119	8135	0.05603	1347.97571	75.52707903
8121	8061	0.02711	6863.48291	186.0690217
8121	8131	0.11514	1294.42590	149.0401981
8121	8213	0.07237	6442.11523	466.2158792
8124	1131	0.20196	11.24420	2.270878632
8124	8002	0.06105	2252.43848	137.5113692
8124	8193	0.05589	2289.18799	127.9427168
8127	8128	0.09170	1316.55835	120.7284007
8127	8131	0.09034	1470.85291	132.8768519
8128	1082	0.11464	100.11095	11.47671931
8128	8127	0.09170	1470.85291	134.8772118
8128	8129	0.09446	1300.86670	122.8798685
8129	7895	0.13489	789.54248	106.5013851
8129	8128	0.09446	1456.95239	137.6237228
8129	8135	0.09929	1143.53699	113.5417877
8129	8219	0.07711	259.33279	19.99715144
8131	1084	0.10925	84.47190	9.228555075
8131	8121	0.11514	1446.91882	166.5982329
8131	8127	0.09034	1316.55835	118.9378813
8135	8119	0.05603	1143.53699	64.07237755
8135	8129	0.09929	1347.97571	133.8405082
8137	1146	0.49842	39.61500	19.7449083
8137	7779	0.22021	693.48041	152.7113211
8137	9086	0.49515	520.69617	257.8227086
8138	8026	0.05084	5370.23096	273.022542
8138	8340	0.16313	6963.36865	1135.934328
8139	1034	0.14358	0.00000	0
8140	7972	0.07866	1864.68079	146.6757909
8140	8458	0.22593	1933.35059	436.8018988
8144	7538	0.35800	929.34717	332.7062869
8144	8244	0.08017	928.59613	74.44555174
8160	8081	0.05023	3280.50488	164.7797601
8160	8266	0.07653	3408.41235	260.8457971
8164	7864	0.19114	540.18866	103.2516605
8164	9150	0.49871	539.77118	269.1892852
8166	8033	0.07874	1989.54590	156.6568442
8168	8307	0.09596	29641.40430	2844.389157

8168	8783	0.32644	8729.32520	2849.600918
8169	7903	0.16459	37140.72656	6112.992185
8173	1338	0.05245	0.00000	0
8177	1731	0.55433	125.09129	69.34185479
8177	6458	1.01026	2189.33350	2211.796062
8177	10218	0.99884	2370.99609	2368.245735
8179	7944	0.13707	4782.50293	655.5376766
8179	8233	0.04673	4898.14990	228.8905448
8183	1131	0.16872	474.35431	80.03305918
8183	8118	0.04772	7493.17139	357.5741387
8183	8279	0.07645	6474.63672	494.9859772
8185	7388	0.49734	1254.36877	623.8477641
8185	8402	0.17307	1272.73914	220.272963
8192	1114	0.06543	896.67749	58.66960817
8192	1115	0.26583	315.34430	83.82797527
8192	8062	0.34766	1263.80310	439.3737857
8192	8214	0.09708	272.61105	26.46508073
8193	1051	0.12838	823.99573	105.7845718
8193	8124	0.05589	2263.68262	126.5172216
8193	8203	0.00931	2350.08716	21.87931146
8203	8193	0.00931	2398.33740	22.32852119
8203	8237	0.02850	2350.08716	66.97748406
8208	8240	0.11986	227.05713	27.2150676
8208	30070	0.48771	264.17770	128.8421061
8213	8121	0.07237	7089.67969	513.0801192
8213	8269	0.03698	6442.11523	238.2294212
8214	8192	0.09708	345.39148	33.53060488
8214	8278	0.19011	272.61105	51.82608672
8219	8129	0.07711	281.16223	21.68041956
8219	8274	0.03660	259.33279	9.491580114
8227	1270	0.21561	564.30481	121.6697601
8227	8166	0.04686	1989.54590	93.23012087
8233	8179	0.04673	4782.50293	223.4863619
8233	8343	0.08067	4898.14990	395.1337524
8237	8203	0.02850	2398.33740	68.3526159
8237	8287	0.03297	2350.08716	77.48237367
8240	8208	0.11986	264.17770	31.66433912
8240	8326	0.32374	227.05713	73.50747527
8244	8144	0.08017	929.34717	74.50576262
8244	8561	0.17350	928.59613	161.1114286
8247	1338	0.24302	1078.57031	262.1141567
8247	1362	0.25002	387.05112	96.77052102
8247	8079	0.11775	2234.56104	263.1195625
8247	8447	0.13222	2346.40747	310.2419957
8253	1235	0.06412	96.46443	6.185299252
8253	8057	0.12767	33.34756	4.257482985
8253	8315	0.03849	107.93262	4.154326544
8263	1441	0.23348	18.11257	4.228922844
8263	8105	0.11465	1113.04370	127.6104602
8263	8487	0.13281	750.07635	99.61764004
8265	1383	0.24567	95.97095	23.57718329
8265	1407	0.27037	1.17099	0.316600566
8265	8087	0.12204	2119.66748	258.6842193
8265	8470	0.12800	1980.25671	253.4728589

8266	1362	0.24993	241.50844	60.36020441
8266	1383	0.25663	438.36249	112.4969658
8266	8160	0.07653	3280.50488	251.0570385
8266	8356	0.07357	3584.05762	263.6791191
8269	1084	0.11446	142.20956	16.27730624
8269	8213	0.03698	7089.67969	262.1763549
8269	8332	0.04127	6580.61328	271.5819101
8274	1082	0.09353	83.82081	7.839760359
8274	8219	0.03660	281.16223	10.29053762
8274	8331	0.03661	340.41205	12.46248515
8276	1338	0.23535	0.00000	0
8276	8435	0.11136	2374.07861	264.377394
8277	1441	0.27118	6.18314	1.676743905
8277	8098	0.13088	6025.90430	788.6703548
8277	8492	0.12011	4933.79102	592.5976394
8278	8214	0.19011	345.39148	65.66237426
8278	8325	0.11648	272.61105	31.7537351
8279	8183	0.07645	7581.05176	579.5714071
8279	8281	0.06550	1519.92102	99.55482681
8279	8468	0.11517	6500.11084	748.6177654
8280	1140	0.22810	40.65639	9.273722559
8280	8282	0.03536	1491.90491	52.75375762
8280	8287	0.05361	2127.08521	114.0330381
8281	8279	0.06550	883.38782	57.86190221
8281	8283	0.05378	1519.92102	81.74135246
8282	8280	0.03536	2120.92334	74.9958493
8282	8284	0.03794	1491.90491	56.60287229
8283	8281	0.05378	883.38782	47.50859696
8283	8285	0.06620	1519.92102	100.6187715
8284	8282	0.03794	2120.92334	80.46783152
8284	8285	0.06068	1491.90491	90.52878994
8285	1066	0.20488	101.58281	20.81228611
8285	1131	0.10763	517.09692	55.6551415
8285	8283	0.06620	883.38782	58.48027368
8285	8284	0.06068	2120.92334	128.6976283
8287	8237	0.03297	2398.33740	79.07318408
8287	8280	0.05361	1500.15161	80.42312781
8287	8288	0.09403	1896.63220	178.3403258
8287	8631	0.16706	1866.08508	311.7481735
8288	8287	0.09403	1264.17285	118.8701731
8288	8289	0.03539	1896.63220	67.12181356
8289	1051	0.07853	488.69882	38.37751833
8289	8288	0.03539	1264.17285	44.73907716
8289	8290	0.04915	2466.48413	121.227695
8290	1052	0.22277	84.60830	18.84819099
8290	8289	0.04915	1752.87158	86.15363816
8290	8297	0.03724	2513.79199	93.61361371
8292	1035	0.21842	1837.36267	401.3167544
8292	8293	0.05309	3205.42432	170.1759771
8292	8294	0.09584	1748.85632	167.6103897
8293	8292	0.05309	2490.82300	132.2377931
8293	8295	0.01655	3205.42432	53.0497725
8294	1037	0.18844	106.74181	20.11442668
8294	8292	0.09584	2424.00439	232.3165807

8294	8297	0.06205	1823.65588	113.1578474
8295	8293	0.01655	2490.82300	41.22312065
8295	8296	0.05929	3205.42432	190.0496079
8296	1037	0.22619	45.09762	10.20063067
8296	8295	0.05929	2490.82300	147.6808957
8296	8328	0.13509	3234.58862	436.9605767
8297	8290	0.03724	1823.65588	67.91294497
8297	8294	0.06205	2513.79199	155.980793
8307	9627	0.65269	29641.40430	19346.64817
8310	8169	0.09652	37140.72656	3584.822928
8315	8253	0.03849	110.29112	4.245105209
8315	8406	0.08144	107.93262	8.790032573
8319	1794	0.35061	1.59459	0.5590792
8319	7159	0.66755	555.18512	370.6138269
8319	8952	0.32777	1071.38831	351.1689464
8325	8278	0.11648	345.39148	40.23119959
8325	8338	0.07096	272.61105	19.34448011
8326	1118	0.11324	98.80784	11.1889998
8326	1156	0.36750	273.30228	100.4385879
8326	8240	0.32374	264.17770	85.5248886
8326	8367	0.24422	381.03461	93.05627245
8328	1034	0.20271	98.12001	19.88990723
8328	1036	0.09682	1669.05920	161.5983117
8328	8296	0.13509	2535.92065	342.5775206
8328	8340	0.13369	4117.53760	550.4736017
8331	8274	0.03661	364.98306	13.36202983
8331	8430	0.07600	340.41205	25.8713158
8332	8269	0.04127	7231.88916	298.4600656
8332	8422	0.07377	6580.61328	485.4518417
8337	8044	0.19581	1434.21973	280.8345653
8337	8398	0.05134	1672.32935	85.85738883
8338	1115	0.41428	229.46779	95.06391604
8338	8325	0.07096	345.39148	24.50897942
8338	8512	0.35197	517.75165	182.2330483
8338	30069	0.26893	39.54742	10.63548766
8340	1020	0.16313	1353.76086	220.8390091
8340	8138	0.16313	5370.23096	876.0457765
8340	8328	0.13369	3376.76172	451.4392743
8340	8359	0.02067	11169.30273	230.8694874
8343	8233	0.08067	4782.50293	385.8045114
8343	8415	0.05341	4898.14990	261.6101862
8356	8266	0.07357	3468.30176	255.1629605
8356	8455	0.04966	3584.05762	177.9843014
8357	8464	0.15806	5374.13086	849.4351237
8357	8687	0.27378	32257.92578	8831.57492
8359	8340	0.02067	8800.05176	181.8970699
8359	8464	0.04529	11169.30273	505.8577206
8367	7997	0.25872	0.00000	0
8367	8326	0.24422	430.83554	105.2186556
8367	8382	0.01065	790.45050	8.418297825
8367	8610	0.50441	412.70651	208.1732907
8375	3965	0.06031	28581.05664	1723.723526
8382	8367	0.01065	770.10132	8.201579058
8382	8500	0.03858	790.45050	30.49558029

8389	7750	0.87667	36521.67188	32017.45409
8390	1482	0.11226	1.84759	0.207410453
8390	1694	0.25007	290.62247	72.67596107
8390	8529	0.04157	315.20932	13.10325143
8395	8337	0.05177	1434.21973	74.24955542
8398	8576	0.05696	1672.32935	95.25587978
8402	1715	0.34051	371.31094	126.4350882
8402	8185	0.17307	1254.36877	217.093603
8402	9130	0.30115	1424.00952	428.8404669
8406	1234	0.27718	1.55152	0.430050314
8406	8315	0.08144	110.29112	8.982108813
8406	8409	0.03309	0.00000	0
8406	8412	0.03520	0.00000	0
8406	8726	0.11323	107.98515	12.22715853
8409	8406	0.03309	0.00000	0
8412	8406	0.03520	0.00000	0
8415	8343	0.05341	4782.50293	255.4334815
8415	8450	0.00779	4898.14990	38.15658772
8416	1204	0.16520	223.32660	36.89355432
8416	1215	0.25921	56.00335	14.51662835
8416	8058	0.24889	2290.05371	569.9714679
8416	8578	0.04837	2033.67578	98.36889748
8419	1481	0.11604	0.00000	0
8422	1102	0.28880	355.82245	102.7615236
8422	8332	0.07377	7231.88916	533.4964633
8422	8494	0.01341	6224.79102	83.47444758
8423	1104	0.19640	4.65217	0.913686188
8423	1115	0.46221	728.70587	336.8151402
8423	8045	0.25825	1412.81958	364.8606565
8423	8868	0.18391	2390.90698	439.7117027
8424	8425	0.07860	1406.70776	110.5672299
8424	8431	0.08187	1177.18091	96.3758011
8425	8424	0.07860	1177.18091	92.52641953
8425	8426	0.00965	139.85327	1.349584056
8425	8824	0.16061	3129.89819	502.6929483
8426	7863	0.38986	1551.43103	604.8409014
8426	8425	0.00965	1090.91443	10.52732425
8430	1081	0.21912	35.11155	7.693642836
8430	8331	0.07600	364.98306	27.73871256
8430	8662	0.07601	306.44275	23.29271343
8431	1266	0.40021	696.41913	278.7139
8431	8424	0.08187	1406.70776	115.1671643
8431	8446	0.08985	532.08020	47.80740597
8432	8433	0.07378	1266.13452	93.41540489
8432	8435	0.16478	142.73039	23.51911366
8433	1338	0.13678	1192.22339	163.0723153
8433	1339	0.12609	18.51019	2.333949857
8433	8432	0.07378	142.73039	10.53064817
8433	8441	0.03724	91.81983	3.419370469
8434	8439	0.05998	103.78178	6.224831164
8434	8449	0.06137	118.45287	7.269452632
8435	8432	0.16478	1266.13452	208.6336462
8435	8438	0.02218	415.02405	9.205233429
8435	8727	0.10428	3564.48340	371.704329

8436	8441	0.02896	107.40337	3.110401595
8436	8445	0.04689	91.81983	4.305431829
8438	8435	0.02218	2728.83301	60.52551616
8438	8440	0.01965	415.02405	8.155222583
8439	8434	0.05998	118.45287	7.104803143
8439	8443	0.06550	103.78178	6.79770659
8440	8438	0.01965	2728.83301	53.62156865
8440	8442	0.01896	415.02405	7.868855988
8441	8433	0.03724	107.40337	3.999701499
8441	8436	0.02896	91.81983	2.659102277
8442	8227	0.14563	2316.56201	337.3609255
8442	8440	0.01896	2728.83301	51.73867387
8442	8469	0.11728	1370.16687	160.6931705
8443	8439	0.06550	118.45287	7.758662985
8443	8447	0.06274	103.78178	6.511268877
8444	8448	0.06137	118.45287	7.269452632
8444	8457	0.06275	103.78178	6.512306695
8445	8436	0.04689	107.40337	5.036144019
8445	8447	0.12480	91.81983	11.45911478
8446	8431	0.08985	669.57684	60.16147907
8446	8452	0.04251	532.08020	22.6187293
8447	8247	0.13222	2513.73950	332.3666367
8447	8443	0.06274	118.45287	7.431733064
8447	8445	0.12480	107.40337	13.40394058
8447	8773	0.12593	2271.35596	286.031856
8448	8444	0.06137	103.78178	6.369087839
8448	8455	0.06344	118.45287	7.514650073
8449	1362	0.12446	1.04845	0.130490087
8449	1363	0.12618	1.05891	0.133613264
8449	8434	0.06137	103.78178	6.369087839
8449	8457	0.06344	118.45287	7.514650073
8450	8415	0.00779	4782.50293	37.25569782
8450	8618	0.05397	4898.14990	264.3531501
8451	8454	0.06137	1490.34778	91.46264326
8451	8456	0.01449	1523.59070	22.07682924
8452	1267	0.11209	335.59579	37.6169321
8452	8446	0.04251	669.57684	28.46371147
8452	8458	0.04300	773.38708	33.25564444
8453	8455	0.11100	104.19646	11.56580706
8453	8459	0.04345	151.56625	6.585553563
8454	8451	0.06137	1523.59070	93.50276126
8454	8460	0.07171	1490.34778	106.8728393
8455	8356	0.04966	3468.30176	172.2358654
8455	8448	0.06344	103.78178	6.583916123
8455	8453	0.11100	151.56625	16.82385375
8455	8770	0.12289	3536.99365	434.6611496
8456	8451	0.01449	1490.34778	21.59513933
8456	8458	0.05033	1523.59070	76.68231993
8457	8444	0.06275	118.45287	7.432917593
8457	8449	0.06344	103.78178	6.583916123
8458	8140	0.22593	1864.68079	421.2873309
8458	8452	0.04300	875.29974	37.63788882
8458	8456	0.05033	1490.34778	75.00920377
8459	8453	0.04345	104.19646	4.527336187

8459	8462	0.04689	151.56625	7.106941463
8460	1270	0.13288	163.86162	21.77393207
8460	1271	0.14443	72.35233	10.44984702
8460	8454	0.07171	1523.59070	109.2566891
8460	8461	0.08963	1617.58203	144.9838773
8461	8460	0.08963	1370.16687	122.8080566
8461	8469	0.05934	1617.58203	95.98731766
8462	8459	0.04689	104.19646	4.885772009
8462	8467	0.08620	151.56625	13.06501075
8463	8466	0.09033	380.36652	34.35850775
8463	8467	0.07171	313.73859	22.49819429
8464	8359	0.04529	8800.05176	398.5543442
8464	8569	0.06287	13936.23438	876.1710555
8466	8463	0.09033	313.73859	28.34000683
8466	8470	0.05241	380.36652	19.93500931
8467	1383	0.12040	186.24562	22.42397265
8467	1384	0.13373	29.64738	3.964744127
8467	8462	0.08620	104.19646	8.981734852
8467	8463	0.07171	380.36652	27.27608315
8468	8279	0.11517	8243.05859	949.3530578
8468	8669	0.07705	6500.11084	500.8335402
8469	8442	0.11728	1617.58203	189.7100205
8469	8461	0.05934	1370.16687	81.30570207
8470	8265	0.12800	2049.75366	262.3684685
8470	8466	0.05241	313.73859	16.4430395
8470	8471	0.06412	404.79984	25.95576574
8470	8642	0.06196	2361.32129	146.3074671
8471	8470	0.06412	323.23026	20.72552427
8471	8473	0.06137	404.79984	24.84256618
8473	8471	0.06137	323.23026	19.83664106
8473	8480	0.05586	404.79984	22.61211906
8474	8477	0.03034	602.47974	18.27923531
8474	30166	0.09090	918.10822	83.4560372
8477	8474	0.03034	918.10822	27.85540339
8477	8483	0.05379	602.47974	32.40738521
8479	8480	0.03654	323.23026	11.8108337
8479	8481	0.02207	404.79984	8.933932469
8480	8473	0.05586	323.23026	18.05564232
8480	8479	0.03654	404.79984	14.79138615
8481	1407	0.13696	252.34193	34.56075073
8481	1408	0.12655	47.86903	6.057825747
8481	8479	0.02207	323.23026	7.133691838
8481	8485	0.05516	323.99860	17.87176278
8483	1425	0.14966	602.47974	90.16711789
8483	8477	0.05379	918.10822	49.38504115
8483	8488	0.07240	0.00000	0
8485	8481	0.05516	113.67477	6.270300313
8485	8490	0.11171	323.99860	36.19388361
8486	1441	0.13000	0.00106	0.0001378
8486	1480	0.17363	0.00107	0.000185784
8487	8263	0.13281	1122.98499	149.1436365
8487	8495	0.06152	46.76338	2.876883138
8487	8732	0.10003	703.31299	70.35239839
8488	8483	0.07240	0.00000	0

8490	8485	0.11171	113.67477	12.69860856
8490	30164	0.08106	323.99860	26.26332652
8492	8277	0.12011	6023.93652	723.5350154
8492	9043	0.24965	4933.79102	1231.720928
8494	8422	0.01341	6863.14600	92.03478786
8494	8737	0.09948	6224.79102	619.2422107
8495	8487	0.06152	165.14816	10.1599148
8495	8499	0.04345	46.76338	2.031868861
8498	1479	0.16449	46.76338	7.692108376
8498	8499	0.01725	165.14816	2.84880576
8499	8495	0.04345	165.14816	7.175687552
8499	8498	0.01725	46.76338	0.806668305
8500	1118	0.21420	1037.88794	222.3155967
8500	1120	0.12958	188.75334	24.4586578
8500	8382	0.03858	770.10132	29.71050893
8500	8586	0.03076	1804.63965	55.51071563
8512	8338	0.35197	614.40668	216.2527192
8512	8606	0.14841	517.75165	76.83952238
8512	8712	0.08529	0.00000	0
8515	7986	0.31726	2324.04102	737.325254
8515	8519	0.12126	2137.72607	259.2206632
8515	8800	0.12424	2838.23755	352.6226332
8519	1137	0.13107	13.26369	1.738471848
8519	8515	0.12126	2082.42505	252.5148616
8519	8524	0.11650	2129.94800	248.138942
8524	1008	0.22130	1007.87506	223.0427508
8524	8519	0.11650	2075.24927	241.76654
8524	8527	0.13687	2234.93481	305.8955274
8527	1138	0.06771	35.61858	2.411734052
8527	8524	0.13687	2158.99927	295.5022301
8527	8537	0.12040	2235.69409	269.1775684
8529	8390	0.04157	292.47006	12.15798039
8529	8793	0.11600	315.20932	36.56428112
8537	8527	0.12040	2160.22998	260.0916896
8537	8540	0.11381	2050.83862	233.4059433
8537	8693	0.06813	254.98337	17.372017
8539	8540	0.01389	2133.01440	29.62757002
8539	8589	0.09067	2241.47046	203.2341266
8540	1021	0.12991	1060.71362	137.7973064
8540	1023	0.12481	121.98993	15.22556316
8540	8537	0.11381	1969.05750	224.0984341
8540	8539	0.01389	2241.47046	31.13402469
8558	1482	0.06140	0.00000	0
8561	1751	0.25470	99.44754	25.32928844
8561	8244	0.17350	929.34717	161.241734
8561	9108	0.23966	917.03387	219.7763373
8569	8464	0.06287	6192.85205	389.3446084
8569	8663	0.06777	13936.23438	944.4586039
8576	1234	0.22502	284.87216	64.10193344
8576	8577	0.00965	2.29764	0.022172226
8576	8970	0.20191	2097.19336	423.4443113
8577	1215	0.25106	138.16304	34.68721282
8577	8395	0.05720	1434.21973	82.03736856
8577	8576	0.00965	427.23950	4.122861175

8578	8416	0.04837	2093.43408	101.2594064
8578	8966	0.20077	2033.67578	408.3010864
8586	8500	0.03076	1903.17883	58.54178081
8586	8646	0.02796	1804.63965	50.45772461
8589	8539	0.09067	2133.01440	193.4004156
8589	8623	0.01649	2241.47046	36.96184789
8606	8512	0.14841	614.40668	91.18409538
8606	8708	0.31627	517.75165	163.7493143
8610	1120	0.37186	5.54050	2.06029033
8610	8367	0.50441	482.85663	243.5577127
8610	8813	0.54413	416.32162	226.5330831
8618	8450	0.05397	4782.50293	258.1116831
8618	8688	0.03640	4898.14990	178.2926564
8623	1022	0.15570	1045.84192	162.8375869
8623	8589	0.01649	2133.01440	35.17340746
8623	8769	0.07560	1290.18433	97.53793535
8631	8287	0.16706	1919.86121	320.7320137
8631	8805	0.08045	1866.08508	150.1265447
8642	8470	0.06196	2445.75977	151.5392753
8642	8721	0.03460	2361.32129	81.70171663
8645	8426	0.07398	2502.49219	185.1343722
8646	8586	0.02796	1903.17883	53.21288009
8646	8749	0.04250	1804.63965	76.69718513
8662	8430	0.07601	332.41290	25.26670453
8662	8753	0.04067	306.44275	12.46302664
8663	8569	0.06777	6192.85205	419.6895834
8663	8706	0.02212	11046.24902	244.3430283
8663	8836	0.17281	14714.78223	2542.861517
8669	1066	0.18595	368.77734	68.57414637
8669	1067	0.12375	2400.28931	297.0358021
8669	8468	0.07705	8243.05859	635.1276644
8669	8766	0.04324	8708.87207	376.5716283
8687	8717	0.02024	32257.92578	652.9004178
8688	1716	0.25320	249.84099	63.25973867
8688	1717	0.18749	446.24722	83.66689128
8688	1731	0.72697	91.96886	66.85860215
8688	8618	0.03640	4782.50293	174.0831067
8688	8884	0.10787	4867.11865	525.0160888
8693	1138	0.11930	3.77070	0.44984451
8693	8537	0.06813	261.30029	17.80238876
8693	8869	0.08895	258.35516	22.98069148
8706	8663	0.02212	15173.25000	335.63229
8706	8730	0.01350	11046.24902	149.1243618
8708	1118	0.18021	125.96362	22.69990396
8708	8606	0.31627	614.40668	194.3184007
8708	8779	0.13827	391.78799	54.17252538
8712	8512	0.08529	0.00000	0
8717	8687	0.02024	0.00000	0
8717	8847	0.12915	32257.92578	4166.111114
8721	1384	0.26355	50.65026	13.34887602
8721	1408	0.25088	114.81160	28.80393421
8721	8642	0.03460	2445.75977	84.62328804
8721	9032	0.15402	2203.30981	339.3537769
8723	8389	0.24414	31531.70703	7698.150954

8723	8742	0.01761	0.00000	0
8726	1481	0.09303	107.86006	10.03422138
8726	8406	0.11323	110.33197	12.49288896
8726	8961	0.13778	199.17670	27.44256573
8727	1339	0.23243	78.36652	18.21473024
8727	8783	0.02907	3486.11694	101.3414194
8730	8706	0.01350	15173.25000	204.838875
8730	8768	0.02068	11046.24902	228.4364297
8732	1479	0.23492	941.47571	221.1714738
8732	8487	0.10003	957.83679	95.8124141
8732	8786	0.03003	1615.71057	48.51978842
8737	8494	0.09948	6863.14600	682.7457641
8737	8758	0.00950	6224.79102	59.13551469
8739	1271	0.21477	321.94507	69.14414268
8739	8442	0.11091	4382.95605	486.1136555
8742	8723	0.01761	31531.70703	555.2733608
8749	8646	0.04250	1903.17883	80.88510028
8749	8750	0.04827	1323.96082	63.90758878
8749	8751	0.01931	368.56192	7.116930675
8749	8840	0.04697	1082.43506	50.84197477
8750	8749	0.04827	1023.49316	49.40401483
8750	8916	0.14145	1323.96082	187.274258
8751	8749	0.01931	391.78799	7.565426087
8751	8779	0.23344	368.56192	86.0370946
8753	1083	0.09131	50.24594	4.587956781
8753	8662	0.04067	332.41290	13.51923264
8753	8814	0.03197	256.19681	8.190612016
8758	8737	0.00950	6863.14600	65.199887
8758	8788	0.01788	6224.79102	111.2992634
8766	8669	0.04324	10744.91602	464.6101687
8766	8808	0.01900	8708.87207	165.4685693
8768	8389	0.25316	4989.96338	1263.259129
8768	8730	0.02068	15173.25000	313.78281
8768	8812	0.02639	8344.35449	220.207515
8769	8623	0.07560	1530.89978	115.7360234
8769	9098	0.14976	1290.18433	193.2180053
8770	1363	0.25063	30.52527	7.65054842
8770	1384	0.23949	795.76556	190.577894
8770	8455	0.12289	3453.93628	424.4542294
8770	9013	0.12766	4004.28516	511.1870435
8773	1339	0.24310	171.19742	41.6180928
8773	1363	0.24962	57.46797	14.34515467
8773	8447	0.12593	2468.94263	310.9139454
8773	9001	0.12404	2167.63257	268.873144
8774	8778	0.12278	36961.22266	4538.098918
8778	8835	0.13895	36961.22266	5135.761889
8779	8708	0.13827	368.56192	50.96105668
8779	8751	0.23344	391.78799	91.45898839
8783	8991	0.11947	12215.44238	1459.378901
8786	8732	0.03003	1899.31250	57.03635438
8786	9053	0.12447	1615.71057	201.1074946
8788	8758	0.01788	6863.14600	122.7130505
8788	9033	0.11847	6224.79102	737.4509921
8793	8529	0.11600	292.47006	33.92652696

8793	8953	0.10149	315.20932	31.99059389
8800	1009	0.06419	0.97312	0.062464573
8800	8515	0.12424	3207.54150	398.504956
8800	9078	0.12713	2838.30273	360.8334261
8805	1052	0.11862	657.41614	77.98270253
8805	1140	0.03905	125.75470	4.910721035
8805	8631	0.08045	1919.86121	154.4528343
8805	9075	0.12663	2265.36646	286.8633548
8808	8766	0.01900	10744.91602	204.1534044
8808	8867	0.03688	8708.87207	321.1832019
8812	8768	0.02639	17461.32031	460.804243
8812	8853	0.02542	8344.35449	212.1134911
8813	1926	0.69158	543.88043	376.1368278
8813	8610	0.54413	488.39713	265.7515303
8813	9008	0.69247	159.15811	110.2122164
8814	8753	0.03197	280.24313	8.959372866
8814	8926	0.07265	256.19681	18.61269825
8824	1267	0.22279	86.88731	19.35762379
8824	8937	0.08052	3043.01074	245.0232248
8831	8645	0.08855	2502.49219	221.5956834
8835	8863	0.08301	36961.22266	3068.151093
8836	1037	0.17242	390.38663	67.31046274
8836	8663	0.17281	2844.39893	491.5405791
8836	8857	0.02621	663.76740	17.39734355
8836	8870	0.02545	13936.64355	354.6875783
8840	8749	0.04697	1458.21582	68.49239707
8840	8855	0.00951	1082.43506	10.29395742
8841	8774	0.16495	36961.22266	6096.753678
8847	8994	0.19569	32257.92578	6312.553496
8848	8742	0.10886	31531.70703	3432.541627
8853	8812	0.02542	17461.32031	443.8667623
8853	8866	0.01235	8344.35449	103.052778
8855	8840	0.00951	1458.21582	13.86763245
8855	8940	0.13817	1082.43506	149.5600522
8857	8836	0.02621	2704.96655	70.89717328
8857	8870	0.02003	0.00000	0
8857	9083	0.27114	663.76740	179.9738928
8859	8879	0.25613	35169.37109	9007.931017
8862	8848	0.01996	31531.70703	629.3728723
8863	8855	0.17006	1458.21582	247.9841823
8863	8876	0.05342	35503.00391	1896.570469
8865	13438	0.05484	8040.67334	440.950526
8866	1022	0.19753	3344.51953	660.6429428
8866	1038	0.12271	311.90726	38.27413987
8866	8853	0.01235	17461.32031	215.6473058
8866	8939	0.06440	6632.11768	427.1083786
8867	8808	0.03688	10744.91602	396.2725028
8867	8920	0.03688	8708.87207	321.1832019
8868	8423	0.18391	2136.86328	392.9905258
8868	9017	0.07099	2390.90698	169.7304865
8869	1139	0.16263	211.00757	34.31616111
8869	8693	0.08895	265.07098	23.57806367
8869	9080	0.08741	410.96097	35.92209839
8870	8994	0.14421	13936.64355	2009.803366

8871	8859	0.15976	35169.37109	5618.658725
8875	8935	0.35493	191.47839	67.96142496
8875	9191	0.38902	184.61189	71.81771745
8876	8917	0.10711	35503.00391	3802.726749
8878	8841	0.09715	36961.22266	3590.782781
8879	8906	0.09406	35169.37109	3308.031045
8880	8871	0.08152	35169.37109	2867.007131
8884	8688	0.10787	4764.69873	513.968052
8884	9131	0.09189	4867.11865	447.2395327
8890	8880	0.04987	35169.37109	1753.896536
8906	30068	0.43048	35169.37109	15139.71087
8912	8310	0.30572	8070.24268	2467.234592
8912	8739	0.09988	4660.72900	465.5136125
8913	30069	0.04984	0.00000	0
8916	8750	0.14145	1023.49316	144.7731075
8916	8959	0.02852	1323.96082	37.75936259
8917	8940	0.10666	35503.00391	3786.750397
8920	8867	0.03688	10744.91602	396.2725028
8920	9041	0.04135	8708.87207	360.1118601
8926	8814	0.07265	280.24313	20.35966339
8926	9056	0.04137	256.19681	10.59886203
8933	8890	0.11327	33790.69141	3827.471616
8934	9012	0.16075	39.54742	6.357247765
8934	30069	0.19671	5.20452	1.023781129
8935	1119	0.14872	92.69295	13.78529552
8935	8875	0.35493	184.61189	65.52429812
8935	9132	0.09061	276.61624	25.06419751
8937	8967	0.00916	3043.01074	27.87397838
8938	8831	0.07888	2502.49219	197.3965839
8939	8866	0.06440	15401.78125	991.8747125
8939	9107	0.04642	6632.11768	307.8629027
8940	8958	0.01788	36585.44141	654.1476924
8941	1793	0.50684	12.49396	6.332438686
8941	1794	0.35415	6.48458	2.296514007
8941	1795	0.97360	288.40573	280.7918187
8941	8946	0.26879	2275.16895	611.5426621
8941	8952	0.49310	1559.53052	769.0044994
8945	8056	0.49282	886.55005	436.9095956
8945	8946	0.23442	1769.97473	414.9174762
8945	8949	0.24543	2152.76953	528.3542257
8946	8941	0.26879	1769.97473	475.7515077
8946	8945	0.23442	2275.16895	533.3451053
8949	1484	0.26069	0.77400	0.20177406
8949	1694	0.25381	158.12483	40.1336631
8949	8945	0.24543	2110.11108	517.8845624
8949	8951	0.12896	2170.39380	279.8939844
8950	8951	0.01103	1313.08923	14.48337421
8950	8953	0.11171	1508.77991	168.5458037
8951	8949	0.12896	2157.09082	278.1784321
8951	8950	0.01103	1508.77991	16.64184241
8951	9456	0.23644	680.71844	160.949068
8952	8319	0.32777	555.32086	182.0175183
8952	8941	0.49310	2066.30811	1018.896529
8952	10026	0.50453	1349.53125	680.8790016

8953	8793	0.10149	292.47006	29.68278639
8953	8950	0.11171	1313.08923	146.6851979
8953	8954	0.15100	1823.86780	275.4040378
8954	8953	0.15100	1605.43787	242.4211184
8954	8955	0.12056	4516.03809	544.4535521
8954	9195	0.10078	767.32410	77.3309228
8955	1204	0.17182	403.22443	69.28202156
8955	1465	0.26769	984.45367	263.5284029
8955	8954	0.12056	1961.31897	236.456615
8955	8960	0.11870	5781.52783	686.2673534
8956	1215	0.25176	0.99432	0.250330003
8956	1216	0.25139	275.35620	69.22179512
8956	8957	0.12479	2582.64331	322.2880587
8956	8972	0.24554	4773.36816	1172.052818
8957	8956	0.12479	4243.99316	529.6079064
8957	8965	0.12549	2582.64331	324.095909
8958	9000	0.03000	36585.44141	1097.563242
8959	8916	0.02852	1023.49316	29.19002492
8959	9111	0.03690	1323.96082	48.85415426
8960	8955	0.11870	3088.51001	366.6061382
8960	8966	0.10963	5781.52783	633.828896
8961	8726	0.13778	203.74686	28.07224237
8961	8962	0.12578	10151.90332	1276.9064
8961	8964	0.13996	9594.65820	1342.868362
8961	9318	0.16177	871.61169	141.0006231
8962	1272	0.52072	52.73956	27.46254368
8962	8961	0.12578	10401.21875	1308.265294
8962	8963	0.07490	11269.55469	844.0896463
8963	8962	0.07490	10347.73633	775.0454511
8963	8968	0.01242	11269.55469	139.9678692
8964	8961	0.13996	9458.42871	1323.801682
8964	8971	0.10019	9594.65820	961.2888051
8965	8957	0.12549	4243.99316	532.5787016
8965	8966	0.01034	2582.64331	26.70453183
8966	8578	0.20077	2093.43408	420.2987602
8966	8960	0.10963	3088.51001	338.5933524
8966	8965	0.01034	4243.99316	43.88288927
8966	9370	0.19217	1627.75232	312.8051633
8967	8968	0.00827	10336.00098	85.4787281
8967	8974	0.15583	9841.95410	1533.671707
8967	9190	0.09461	2763.74487	261.4779022
8968	8938	0.00916	2502.49219	22.92282846
8968	8963	0.01242	10347.73633	128.5188852
8968	8967	0.00827	9885.54883	81.75348882
8969	1267	0.14009	748.06964	104.7970759
8969	8973	0.05240	10145.03906	531.6000467
8969	8974	0.02000	10013.13965	200.262793
8970	8972	0.00965	3149.59155	30.39355846
8970	8977	0.16479	6180.80713	1018.535207
8970	9102	0.03376	4580.66016	154.643087
8971	1234	0.25908	1546.77661	400.7388841
8971	1237	0.24716	2221.24438	549.002761
8971	8964	0.10019	9458.42871	947.6399725
8971	8977	0.08942	6105.55908	545.9590929

8972	8577	0.20191	1852.66626	374.0718446
8972	8956	0.24554	2856.99902	701.5075394
8972	8970	0.00965	5708.30664	55.08515908
8973	8969	0.05240	10255.68164	537.3977179
8973	8975	0.02483	10145.03906	251.9013199
8974	8967	0.15583	10013.13965	1560.347552
8974	8969	0.02000	9841.95410	196.839082
8975	8973	0.02483	10255.68164	254.6485751
8975	8976	0.02965	10145.03906	300.8004081
8976	8975	0.02965	10255.68164	304.0809606
8976	8978	0.04827	10145.03906	489.7010354
8977	8970	0.16479	6105.55908	1006.135081
8977	8971	0.08942	6180.80713	552.6877736
8978	1291	0.29401	551.44727	162.1310119
8978	8976	0.04827	10255.68164	495.0417528
8978	8982	0.04966	10713.88770	532.0516632
8981	1271	0.11883	60.77415	7.221792245
8981	8984	0.02936	10779.99414	316.500628
8981	8986	0.09063	10970.50098	994.2565038
8982	8978	0.04966	10779.99414	535.334509
8982	8984	0.09447	10713.88770	1012.140971
8984	8981	0.02936	10713.88770	314.5597429
8984	8982	0.09447	10779.99414	1018.386046
8986	8981	0.09063	10730.82422	972.5345991
8986	8988	0.05657	10970.50098	620.6012404
8987	1339	0.12422	790.50537	98.19657706
8987	8993	0.03480	11491.67676	399.9103512
8987	8998	0.02450	12147.83105	297.6218607
8988	8986	0.05657	10730.82422	607.0427261
8988	8990	0.04621	10970.50098	506.9468503
8989	1341	0.14340	281.92880	40.42858992
8989	8993	0.05083	11732.04688	596.3399429
8989	8999	0.03812	11209.74902	427.3156326
8990	1292	0.22090	1037.66418	229.2200174
8990	8988	0.04621	10730.82422	495.8713872
8990	8992	0.06688	10654.29883	712.5595058
8991	8996	0.04137	11295.43164	467.2920069
8991	9006	0.02553	12849.58887	328.0500039
8991	9104	0.02626	13135.31543	344.9333832
8992	8912	0.03976	12730.97168	506.183434
8992	8990	0.06688	11169.38086	747.0081919
8992	9006	0.04207	11977.73730	503.9034082
8993	8987	0.03480	11732.04688	408.2752314
8993	8989	0.05083	11491.67676	584.1219297
8994	9144	0.14843	46194.57031	6856.660071
8995	1363	0.12323	514.84308	63.44411275
8995	1364	0.18879	146.41750	27.64215983
8995	9005	0.06274	8513.07617	534.1103989
8995	9007	0.06344	8373.64160	531.2238231
8996	8991	0.04137	13087.15625	541.4156541
8996	8997	0.01774	11295.43164	200.3809573
8997	1340	0.15659	296.96585	46.50188245
8997	8996	0.01774	13087.15625	232.1661519
8997	8998	0.12018	11773.86426	1414.983007

8998	8987	0.02450	11773.86426	288.4596744
8998	8997	0.12018	12147.83105	1459.926336
8999	8989	0.03812	11376.48438	433.6715846
8999	9002	0.07378	11209.74902	827.0552827
9000	9171	0.26402	36585.44141	9659.288241
9001	8773	0.12404	2475.67798	307.0830966
9001	9002	0.05171	11376.48438	588.2780073
9001	9003	0.06205	8332.28320	517.0181726
9001	9252	0.12262	5128.48730	628.8551127
9002	8999	0.07378	11376.48438	839.3570176
9002	9001	0.05171	11209.74902	579.6561218
9003	9001	0.06205	8513.07617	528.2363763
9003	9009	0.06688	8332.28320	557.2631004
9005	8995	0.06274	8332.28320	522.767448
9005	9009	0.05723	8513.07617	487.2033492
9006	8991	0.02553	11977.73730	305.7916333
9006	8992	0.04207	12849.58887	540.5822038
9007	8995	0.06344	8561.20508	543.1228503
9007	9010	0.06137	8373.64160	513.890385
9008	1121	0.16703	27.64733	4.61793353
9008	8813	0.69247	246.21814	170.4986754
9008	9148	0.30148	158.94810	47.91967319
9009	9003	0.06688	8513.07617	569.3545342
9009	9005	0.05723	8332.28320	476.8565675
9010	9007	0.06137	8561.20508	525.4011558
9010	9011	0.06205	8373.64160	519.5844613
9011	9010	0.06205	8561.20508	531.2227752
9011	9013	0.06412	8373.64160	536.9178994
9012	8934	0.16075	5.20452	0.83662659
9012	9017	0.41023	39.54742	16.22353811
9013	8770	0.12766	3921.32861	500.5968104
9013	9011	0.06412	8561.20508	548.9444697
9013	9016	0.10756	6691.54102	719.7421521
9013	9199	0.08872	1981.65039	175.8120226
9014	9016	0.05240	6441.94092	337.5577042
9014	9019	0.06137	6691.54102	410.6598724
9015	8933	0.10590	33790.69141	3578.43422
9015	9110	0.12628	947.51593	119.6523116
9016	9013	0.10756	6441.94092	692.8951654
9016	9014	0.05240	6691.54102	350.6367494
9017	8868	0.07099	2136.86328	151.6959242
9017	9012	0.41023	5.20452	2.13505024
9017	9018	0.02827	2439.83057	68.97401021
9017	9255	0.12410	3802.06201	471.8358954
9018	9017	0.02827	3476.12061	98.26992964
9018	9020	0.09771	1690.26221	165.1555205
9018	9203	0.10215	2194.41064	224.1590469
9019	9014	0.06137	6441.94092	395.3419143
9019	9023	0.05862	6691.54102	392.2581346
9020	1104	0.29395	320.56955	94.23141922
9020	9018	0.09771	1722.30859	168.2867723
9020	9021	0.12637	1605.52563	202.8902739
9021	9020	0.12637	1634.57581	206.5613451
9021	9024	0.06826	1605.52563	109.5931795

9022	1103	0.29160	3435.03638	1001.656608
9022	9024	0.04263	1634.57581	69.68196678
9022	9028	0.13457	2956.62842	397.8734865
9023	1384	0.13162	463.82266	61.04833851
9023	1385	0.25274	408.69049	103.2924344
9023	9019	0.05862	6441.94092	377.6265767
9023	9025	0.05447	7534.79395	410.4202265
9024	9021	0.06826	1634.57581	111.5761448
9024	9022	0.04263	1605.52563	68.44355761
9025	9023	0.05447	7289.00195	397.0319362
9025	9026	0.05447	7534.79395	410.4202265
9026	9025	0.05447	7289.00195	397.0319362
9026	9031	0.05517	7534.79395	415.6945822
9027	9015	0.01316	34738.20703	457.1548045
9028	9022	0.13457	2892.13354	389.1944105
9028	9029	0.00780	2956.62842	23.06170168
9029	1105	0.08116	749.89728	60.86166324
9029	9028	0.00780	2892.13354	22.55864161
9029	9037	0.14322	3292.65552	471.5741236
9030	1102	0.25808	1103.69031	284.8403952
9030	9037	0.10551	3213.08252	339.0123367
9030	9040	0.04628	3907.98120	180.8613699
9031	9026	0.05517	7289.00195	402.1342376
9031	9032	0.05723	7534.79395	431.2162578
9032	8721	0.15402	2330.17847	358.8940879
9032	9031	0.05723	7289.00195	417.1495816
9032	9034	0.05447	6654.00391	362.443593
9032	9265	0.12724	1775.81653	225.9548953
9033	8788	0.11847	6863.14600	813.0769066
9033	9040	0.19996	3846.97437	769.240995
9033	9064	0.11197	1819.70337	203.7521863
9033	9235	0.10730	10744.20801	1152.853519
9034	9032	0.05447	6622.78418	360.7430543
9034	9035	0.05585	6654.00391	371.6261184
9035	9034	0.05585	6622.78418	369.8824965
9035	9038	0.16411	6654.00391	1091.988582
9036	9027	0.00592	34738.20703	205.6501856
9037	9029	0.14322	3213.08252	460.1776785
9037	9030	0.10551	3292.65552	347.4080839
9038	1408	0.12742	588.97443	75.04712187
9038	1409	0.24996	526.23053	131.5365833
9038	9035	0.16411	6622.78418	1086.865112
9038	9044	0.07241	6630.05127	480.0820125
9039	1509	0.49728	8.02549	3.990915667
9039	1510	0.33956	14.67768	4.983953021
9039	9043	0.50509	2250.77148	1136.842167
9039	9059	0.19931	2519.04712	502.0712815
9040	9030	0.04628	3846.97437	178.0379738
9040	9033	0.19996	3907.98120	781.4399208
9041	8920	0.04135	10744.91602	444.3022774
9041	9062	0.02668	2539.12134	67.74375735
9041	9066	0.05488	4552.19580	249.8245055
9041	9198	0.08887	7543.43408	670.3849867
9042	8862	0.19149	31531.70703	6038.006579

9043	8492	0.24965	6023.93652	1503.875752
9043	9039	0.50509	2498.88599	1262.162325
9043	9055	0.24926	5984.25000	1491.634155
9043	9544	0.25431	2393.46167	608.6812373
9044	9038	0.07241	7090.32910	513.4107301
9044	9046	0.13652	6630.05127	905.1345994
9046	9044	0.13652	7090.32910	967.9717287
9046	30173	0.00688	7068.25146	48.62957004
9046	30186	0.13332	2119.24731	282.5380514
9047	1083	0.14394	184.15991	26.50797745
9047	9056	0.09377	1732.04309	162.4136805
9047	9058	0.09104	2202.82129	200.5448502
9048	9049	0.05309	3254.80884	172.7978013
9048	9053	0.09033	4348.74609	392.8222343
9049	9048	0.05309	4348.74609	230.8749299
9049	9054	0.08894	3254.80884	289.4826982
9050	9052	0.04620	6138.80713	283.6128894
9050	30163	0.13346	6196.37842	826.9686639
9051	9053	0.01862	5979.58252	111.3398265
9051	9057	0.16203	7278.58643	1179.349359
9052	1426	0.27277	45.16562	12.31982617
9052	1479	0.15788	1834.41113	289.6168292
9052	9050	0.04620	6196.37842	286.272683
9052	9054	0.07515	4348.74609	326.8082687
9053	8786	0.12447	1899.31250	236.4074269
9053	9048	0.09033	3254.80884	294.0068825
9053	9051	0.01862	7278.58643	135.5272793
9053	9486	0.23358	3162.68555	738.7400908
9054	9049	0.08894	4348.74609	386.7774772
9054	9052	0.07515	3254.80884	244.5988843
9055	1442	0.24465	9.77946	2.392544889
9055	1480	0.08349	10.45675	0.873034058
9055	9043	0.24926	7276.01416	1813.61929
9055	9057	0.08862	5979.58252	529.9106029
9056	8926	0.04137	280.24313	11.59365829
9056	9047	0.09377	2251.38916	211.1127615
9056	9063	0.10550	1629.64368	171.9274082
9057	9051	0.16203	5979.58252	968.8717557
9057	9055	0.08862	7278.58643	645.0283294
9058	1091	0.06808	884.61505	60.2245926
9058	9047	0.09104	1690.98181	153.946984
9058	9064	0.09173	2130.01758	195.3865126
9059	1511	0.48250	92.33822	44.55319115
9059	9039	0.19931	2272.00903	452.8341198
9059	9067	0.29263	2575.17603	753.5737617
9060	1067	0.22759	302.03961	68.74119484
9060	9061	0.12361	2553.07446	315.585534
9060	9065	0.06414	1687.98218	108.267177
9061	1086	0.09338	477.89172	44.62552881
9061	9060	0.12361	1984.39087	245.2905554
9061	9063	0.13219	2367.61694	312.9752833
9062	9041	0.02668	1790.25854	47.76409785
9062	9065	0.05794	2539.12134	147.1166904
9063	1081	0.27345	602.65253	164.7953343

9063	9056	0.10550	2173.03613	229.2553117
9063	9061	0.13219	1805.81958	238.7112903
9064	1085	0.14413	564.89221	81.41791423
9064	9033	0.11197	2350.83862	263.2234003
9064	9058	0.09173	1603.09814	147.0521924
9065	1069	0.07311	661.53857	48.36508485
9065	9060	0.06414	2038.91919	130.7762768
9065	9062	0.05794	1790.25854	103.7275798
9066	9041	0.05488	2881.12109	158.1159254
9066	9073	0.04551	4552.19580	207.1704309
9067	8085	0.51128	265.58722	135.7894338
9067	9059	0.29263	2304.57764	674.3885548
9067	9076	0.49706	2559.24072	1272.096192
9067	10083	0.49319	330.33875	162.9197681
9069	9036	0.03327	34738.20703	1155.740148
9070	1068	0.05198	128.63261	6.686323068
9070	9071	0.01172	4798.57617	56.23931271
9070	9073	0.07584	2881.12109	218.5042235
9071	1066	0.16857	239.80305	40.42360014
9071	9070	0.01172	3009.75366	35.2743129
9071	9072	0.04619	5098.11865	235.4821004
9072	9071	0.04619	3240.67090	149.6865889
9072	9077	0.04278	5098.11865	218.0975158
9073	9066	0.04551	2881.12109	131.1198208
9073	9070	0.07584	4552.19580	345.2385295
9074	9075	0.04413	5098.11865	224.979976
9074	9077	0.04554	3240.67090	147.5801528
9075	8805	0.12663	2366.66016	299.6901761
9075	9074	0.04413	3240.67090	143.0108068
9075	9090	0.05664	2394.00122	135.5962291
9075	30071	0.07743	4650.18018	360.0634513
9076	1146	0.50319	50.11203	25.21587238
9076	1147	0.50138	0.26028	0.130499186
9076	9067	0.49706	2210.40527	1098.704044
9076	9086	0.50477	2509.39111	1266.665351
9077	9072	0.04278	3240.67090	138.6359011
9077	9074	0.04554	5098.11865	232.1683233
9078	8800	0.12713	3207.61133	407.7836284
9078	9081	0.07867	2125.96387	167.2495777
9078	9088	0.25470	2456.46265	625.661037
9078	9247	0.10329	611.41925	63.15349433
9080	8869	0.08741	420.02682	36.71454434
9080	9084	0.23605	16.16363	3.815424862
9080	9093	0.10759	6500.89795	699.4316104
9080	9266	0.11396	2737.76563	311.9957712
9081	1009	0.12353	0.55481	0.068535679
9081	9078	0.07867	157.98697	12.42883493
9081	9087	0.04615	2126.54199	98.13991284
9083	1052	0.19812	265.00919	52.50362072
9083	8857	0.27114	2704.96655	733.4246304
9083	9089	0.10593	398.75821	42.24045719
9084	1139	0.10763	147.57945	15.8839762
9084	9080	0.23605	1987.44299	469.1359178
9084	9087	0.13901	167.21481	23.24453074

9086	8137	0.49515	715.62781	354.3431101
9086	9076	0.50477	2160.50146	1090.556322
9086	9097	0.49852	2630.86768	1311.540156
9086	30200	0.50707	626.69373	317.7775897
9087	1122	0.10439	0.80784	0.084330418
9087	1137	0.12724	22.12904	2.81569905
9087	9081	0.04615	158.54178	7.316703147
9087	9084	0.13901	2135.02246	296.7894722
9088	1151	0.50136	264.49713	132.6082811
9088	9078	0.25470	2856.59766	727.575424
9088	9097	0.24174	2299.64771	555.9168374
9089	9083	0.10593	2394.00122	253.5965492
9089	9090	0.04785	398.75821	19.08058035
9090	9075	0.05664	398.75821	22.58566501
9090	9089	0.04785	2394.00122	114.5529584
9091	9092	0.02206	7023.03613	154.928177
9092	9094	0.10135	7023.03613	711.7847118
9093	1023	0.12077	403.42661	48.72183169
9093	9080	0.10759	2615.56494	281.4086319
9093	9098	0.14414	6722.99854	969.0530096
9094	9095	0.02207	7023.03613	154.9984074
9095	1038	0.08025	199.60542	16.01833496
9095	9096	0.05999	6823.43066	409.3376053
9096	9095	0.05999	0.00000	0
9096	9099	0.02276	6823.43066	155.3012818
9097	9086	0.49852	2299.64771	1146.420376
9097	9088	0.24174	2630.86768	635.985953
9098	8769	0.14976	1530.89978	229.2675511
9098	9093	0.14414	2825.00830	407.1966964
9098	9107	0.24993	8088.13818	2021.468375
9098	9307	0.12740	362.68338	46.20586261
9099	9096	0.02276	0.00000	0
9099	9107	0.12550	6823.43066	856.3405478
9102	8972	0.03235	2495.01221	80.71364499
9102	9388	0.16565	4580.66016	758.7863555
9104	9316	0.12704	2975.70850	378.0340078
9104	9627	0.28111	10159.60645	2855.966969
9105	1022	0.18628	136.19330	25.37008792
9105	1128	0.13663	1678.16650	229.2878889
9105	9098	0.09009	4192.71729	377.7219007
9107	8939	0.04642	15401.78125	714.9506856
9107	9099	0.12550	0.00000	0
9107	9113	0.06234	4686.93262	292.1833795
9107	9582	0.24977	9939.58398	2482.609891
9108	8561	0.23966	920.07672	220.5055867
9108	9205	0.06627	917.03387	60.77183456
9110	8890	0.14746	1378.67957	203.3000894
9110	9132	0.01342	947.51593	12.71566378
9111	8959	0.03690	1023.49316	37.7668976
9111	9226	0.18927	1323.96082	250.5860644
9113	9105	0.09547	4686.93262	447.4614572
9127	9091	0.07661	7023.03613	538.0347979
9130	8402	0.30115	1402.44653	422.3467725
9130	10806	0.76659	1424.00952	1091.631458

9131	9179	0.02393	4867.11865	116.4701493
9132	8935	0.09061	268.28479	24.30928482
9132	9110	0.01342	1378.67957	18.50187983
9132	9226	0.06866	969.43988	66.56174216
9135	8884	0.09702	4764.69873	462.2710708
9138	6160	1.70585	987.83112	1685.091716
9138	10203	0.50461	986.45667	497.7759002
9144	9230	0.23598	46194.57031	10900.9947
9148	6345	1.55293	3882.61426	6029.428163
9148	9008	0.30148	230.70218	69.55209323
9148	9193	0.03469	2431.20581	84.33852955
9150	8164	0.49871	540.18866	269.3974866
9150	10219	0.50481	539.77118	272.4818894
9171	9703	1.54738	36585.44141	56611.58033
9174	9264	0.18884	87.34833	16.49485864
9174	9274	0.37258	209.71289	78.13482856
9176	9042	0.15502	31531.70703	4888.045224
9176	9127	0.10779	7023.03613	757.0130645
9177	9041	0.06161	11999.41504	739.2839606
9179	9180	0.00896	0.00000	0
9179	9491	0.18248	4867.11865	888.1518113
9180	9135	0.01892	4764.69873	90.14809997
9180	9179	0.00896	0.00000	0
9190	8968	0.09625	1130.22229	108.7838954
9190	9584	0.19584	2763.74487	541.2517953
9191	8875	0.38902	191.47839	74.48892328
9191	9267	0.17269	699.21729	120.7478338
9191	30196	0.53601	581.41821	311.6459747
9192	9197	0.07105	9228.52930	655.6870068
9192	9287	0.11461	3332.50415	381.9383006
9193	9148	0.03469	4007.22778	139.0107317
9193	9278	0.04980	2431.20581	121.0740493
9195	9196	0.00689	0.00000	0
9195	9418	0.11488	767.32410	88.15019261
9196	8954	0.10000	3103.61328	310.361328
9196	9195	0.00689	0.00000	0
9197	1068	0.07791	455.74231	35.50688337
9197	9192	0.07105	3332.50415	236.7744199
9197	9207	0.04435	9257.46191	410.5684357
9198	1069	0.09054	0.00000	0
9198	9219	0.01528	7954.71826	121.548095
9199	9013	0.08872	2335.85669	207.2372055
9199	9245	0.02957	1981.65039	58.59740203
9203	9018	0.10215	3198.65454	326.7425613
9203	9277	0.09834	2194.41064	215.7983423
9205	9108	0.06627	920.07672	60.97348423
9205	10793	0.70824	917.03387	649.4800681
9207	9177	0.04915	3812.06396	187.3629436
9207	9197	0.04435	3469.82275	153.886639
9207	9212	0.01553	5445.39844	84.56703777
9212	9177	0.04231	8187.35107	346.4068238
9212	9207	0.01553	1457.07190	22.62832661
9212	9219	0.00857	5445.39844	46.66706463
9219	9212	0.00857	1457.07190	12.48710618

9219	9295	0.04563	11943.04492	544.9611397
9226	9111	0.18927	1023.49316	193.7165504
9226	9132	0.06866	1392.27209	95.5934017
9226	9274	0.03289	87.34833	2.872886574
9227	9192	0.03144	9228.52930	290.1449612
9230	9236	0.02105	46194.57031	972.395705
9235	9033	0.10730	10790.42090	1157.812163
9235	9282	0.34073	4937.35938	1682.306462
9235	9377	0.07209	10859.99316	782.8969069
9236	9249	0.03309	46194.57031	1528.578332
9243	9176	0.21720	38554.74219	8374.090004
9245	9199	0.02957	2335.85669	69.07128232
9245	9509	0.12947	1981.65039	256.564276
9247	1122	0.08240	0.87580	0.07216592
9247	9078	0.10329	2548.56982	263.2417767
9247	10131	0.40171	611.21368	245.5306474
9249	9227	0.10346	9228.52930	954.7836414
9249	9287	0.19584	36966.03906	7239.42909
9252	1341	0.15944	144.42876	23.02772149
9252	1364	0.27064	483.90356	130.9636595
9252	9001	0.12262	5422.47559	664.9039568
9252	9496	0.12514	4708.34424	589.2021982
9253	9243	0.02330	38554.74219	898.325493
9255	9017	0.12410	2477.38525	307.4435095
9255	9360	0.04919	3802.06201	187.0234303
9256	9253	0.02173	38554.74219	837.7945478
9261	9207	0.03414	2012.75085	68.71531402
9261	9212	0.03238	8187.35107	265.1064276
9264	9174	0.18884	209.71289	39.60218215
9264	9423	0.07836	87.34833	6.844615139
9265	9032	0.12724	1688.11292	214.7954879
9265	9518	0.12175	1775.81653	216.2056625
9266	9080	0.11396	4660.88525	531.1544831
9266	9303	0.08862	180.19160	15.96857959
9266	9347	0.15442	2663.29248	411.2656248
9266	9465	0.09776	144.84895	14.16043335
9267	9191	0.17269	585.51886	101.1132519
9267	9547	0.23959	699.21729	167.5254705
9269	30063	0.58056	36961.22266	21458.20743
9273	8992	0.13900	12374.20117	1720.013963
9274	9174	0.37258	87.34833	32.54424079
9274	9226	0.03289	209.71289	6.897456952
9275	9203	0.09528	3198.65454	304.7678046
9275	9279	0.07309	34766.80859	2541.10604
9276	9269	0.09730	36961.22266	3596.326965
9277	9276	0.01586	36961.22266	586.2049914
9278	9193	0.04980	4007.22778	199.5599434
9278	9426	0.07184	2431.20581	174.6578254
9279	9277	0.07102	34766.80859	2469.138746
9282	9275	0.51021	37965.46484	19370.35982
9283	9282	0.04413	33028.10547	1457.530294
9285	9283	0.28475	33028.10547	9404.753033
9286	9285	0.02000	33028.10547	660.5621094
9287	9292	0.02898	40298.54297	1167.851775

9289	9235	0.32004	7270.43896	2326.831285
9289	9290	0.06619	33028.10547	2186.130301
9290	9286	0.24201	33028.10547	7993.131805
9292	9294	0.02760	40298.54297	1112.239786
9293	9289	0.43988	40298.54297	17726.52308
9294	9292	0.02760	0.00000	0
9294	9293	0.18409	40298.54297	7418.558775
9295	9380	0.04485	11943.04492	535.6455647
9299	9310	0.08486	33337.07422	2828.984118
9299	9422	0.09919	1832.29541	181.7453817
9303	1127	0.06233	110.02181	6.857659417
9303	9266	0.08862	190.51332	16.88329042
9303	9445	0.12640	130.69945	16.52041048
9307	1127	0.13400	145.86507	19.54591938
9307	9098	0.12740	600.82959	76.54568977
9307	9445	0.08314	216.81833	18.02627596
9308	9312	0.03999	33337.07422	1333.149598
9310	9311	0.02275	33337.07422	758.4184385
9311	9308	0.02207	33337.07422	735.749228
9312	9313	0.07240	36361.30859	2632.558742
9313	9319	0.50607	36361.30859	18401.36744
9316	1340	0.03990	1537.02319	61.32722528
9316	9717	0.18284	1814.32190	331.7306162
9318	8961	0.16177	763.09534	123.4459332
9318	9543	0.10994	871.61169	95.8249892
9319	9323	0.05240	36361.30859	1905.33257
9321	9322	0.01931	31293.29883	604.2736004
9322	9326	0.24269	31293.29883	7594.570693
9323	9321	0.28475	31293.29883	8910.766842
9323	9377	0.29686	5068.01025	1504.489523
9324	9312	0.06368	3024.23413	192.5832294
9325	9333	0.42817	39114.18750	16747.52166
9326	9325	0.07860	39114.18750	3074.375138
9328	9324	0.01934	3024.23413	58.48868807
9329	9256	0.25085	38554.74219	9671.457078
9330	9261	0.02638	10200.10254	269.078705
9333	9334	0.18740	31994.88086	5995.840673
9333	9339	0.04167	7119.30762	296.6615485
9334	9329	0.03192	38554.74219	1230.667371
9339	9350	0.03613	7119.30762	257.2205843
9344	9107	0.14407	8484.61133	1222.377954
9347	1010	0.21798	450.67297	98.237694
9347	9266	0.15442	4581.43408	707.4650506
9347	9462	0.14632	2212.61938	323.7504677
9350	9427	0.05360	7119.30762	381.5948884
9360	9255	0.04919	2477.38525	121.8625804
9360	9680	0.14477	3802.06201	550.4245172
9369	8966	0.18906	655.84192	123.9934734
9370	9478	0.05611	1627.75232	91.33318268
9377	9235	0.07209	8573.12695	618.0367218
9377	9326	0.25518	7820.88867	1995.734371
9377	9458	0.04080	7793.13916	317.9600777
9380	9414	0.01689	9461.12598	159.7984178
9380	9424	0.02295	2481.91870	56.96003417

9387	9450	0.04850	4650.18018	225.5337387
9387	30073	0.03407	4889.26904	166.5773962
9388	9102	0.16565	2495.01221	413.2987726
9388	9472	0.04069	4580.66016	186.3870619
9409	9330	0.04830	10200.10254	492.6649527
9409	9414	0.00791	4077.94531	32.2565474
9414	9409	0.00791	3298.26172	26.08925021
9414	9424	0.01812	4077.94531	73.89236902
9414	9440	0.01478	9461.12598	139.835442
9418	1465	0.19228	355.76453	68.40640383
9418	9419	0.00689	105.91201	0.729733749
9418	9688	0.11767	682.68445	80.33147923
9419	9196	0.11488	3103.61328	356.5430936
9419	9418	0.00689	250.87817	1.728550591
9420	1292	0.08083	978.63586	79.10313656
9420	9273	0.06778	2627.37769	178.0836598
9422	9328	0.05723	3024.23413	173.0769193
9422	9620	0.09734	1832.29541	178.3556352
9423	9264	0.07836	209.71289	16.43310206
9423	9475	0.03823	87.34833	3.339326656
9424	9414	0.01812	3298.26172	59.76450237
9424	9440	0.02505	3821.04590	95.7171998
9424	9441	0.08915	6559.86377	584.8118551
9426	9278	0.07184	4007.22778	287.8792437
9426	9476	0.02728	2431.20581	66.3232945
9427	9334	0.12267	6559.86377	804.6984887
9427	9441	0.00645	7119.30762	45.91953415
9440	9479	0.02512	13282.17188	333.6481576
9441	9424	0.08915	7119.30762	634.6862743
9441	9427	0.00645	6559.86377	42.31112132
9445	9303	0.12640	142.71281	18.03889918
9445	9307	0.08314	453.62955	37.71476079
9445	9671	0.14494	347.51779	50.36922848
9450	9387	0.04850	4889.26904	237.1295484
9450	9516	0.06549	4650.18018	304.5403
9451	9409	0.02332	10979.78516	256.0485899
9456	1205	0.15985	53.63583	8.573687426
9456	1484	0.19191	9.56497	1.835613393
9456	8951	0.23644	863.10614	204.0728157
9456	9855	0.18457	665.87799	122.9011006
9458	9377	0.04080	8259.15137	336.9733759
9458	9531	0.03298	7793.13916	257.0177295
9462	1123	0.10697	97.67783	10.44859748
9462	9347	0.14632	4135.61572	605.1232922
9462	9526	0.06338	2119.06128	134.3061039
9465	1024	0.20027	165.57518	33.1597413
9465	9266	0.09776	139.50494	13.63800293
9465	9716	0.10749	158.85751	17.07559375
9472	1216	0.25880	305.62396	79.09548085
9472	1237	0.25587	426.06631	109.0175867
9472	9388	0.04069	2495.01221	101.5220468
9472	9654	0.08266	4301.07031	355.5264718
9475	9423	0.03823	209.71289	8.017323785
9475	9533	0.02997	87.34833	2.61782945

9476	1121	0.32948	387.27194	127.5983588
9476	9426	0.02728	4007.22778	109.3171738
9476	9590	0.10217	1262.51147	128.9907969
9476	9719	0.09959	2718.02734	270.6883428
9478	1216	0.24035	194.24306	46.68631947
9478	9369	0.05671	655.84192	37.19279528
9478	9833	0.16384	1647.26123	269.8872799
9479	9571	0.03139	13282.17188	416.9273753
9486	1426	0.27000	537.21899	145.0491273
9486	1442	0.26740	100.78941	26.95108823
9486	9053	0.23358	3651.35425	852.8833257
9486	9690	0.07792	2959.13452	230.5757618
9489	9419	0.04247	3248.57959	137.9671752
9491	9492	0.00896	0.00000	0
9491	10204	0.30489	4867.11865	1483.935805
9492	9180	0.18248	4764.69873	869.4622243
9492	9491	0.00896	0.00000	0
9495	9496	0.05171	1273.28845	65.84174575
9495	9501	0.05103	1290.54260	65.85638888
9496	9252	0.12514	4989.35645	624.3680662
9496	9495	0.05171	1290.54260	66.73395785
9496	9500	0.06413	4104.92676	263.2489531
9496	9618	0.05412	1150.44397	62.26202766
9500	9496	0.06413	4323.05566	277.2375595
9500	9568	0.07433	4104.92676	305.1192061
9501	9495	0.05103	1273.28845	64.9759096
9501	9548	0.05733	1290.54260	73.98680726
9509	1364	0.24583	9.22525	2.267843208
9509	1385	0.24135	1343.08655	324.1539388
9509	9245	0.12947	2335.85669	302.4233657
9509	9668	0.06867	2122.91968	145.7808944
9516	9450	0.06549	4889.26904	320.1982294
9516	9566	0.06699	4650.18018	311.5155703
9518	1385	0.25787	251.65511	64.89430322
9518	1409	0.24630	1523.32227	375.1942751
9518	9265	0.12175	1688.11292	205.527748
9518	9802	0.12445	2044.38452	254.4236535
9525	1484	0.18496	0.00000	0
9526	9462	0.06338	3996.57275	253.3027809
9526	9614	0.05990	2119.06128	126.9317707
9531	9458	0.03298	8259.15137	272.3868122
9531	9676	0.06035	7793.13916	470.3159483
9533	9475	0.02997	209.71289	6.285095313
9533	9601	0.04562	87.34833	3.984830815
9543	1237	0.25070	465.74020	116.7610681
9543	9318	0.10994	763.09534	83.89470168
9543	10016	0.22368	1381.11780	308.9284295
9544	1442	0.25125	23.32009	5.859172613
9544	1510	0.34852	36.27956	12.64415225
9544	9043	0.25431	2439.95679	620.5054113
9544	10059	0.24091	2381.63452	573.7595722
9547	9267	0.23959	585.51886	140.2844637
9547	9592	0.04199	699.21729	29.36013401
9548	1341	0.12051	333.99216	40.2493952

9548	1343	0.30672	182.05188	55.83895263
9548	9501	0.05733	1273.28845	72.99762684
9548	9591	0.04225	1349.88623	57.03269322
9563	1053	0.15024	635.16418	95.4270664
9563	1054	0.12370	219.60835	27.1655529
9563	9566	0.04827	4889.26904	236.0050166
9563	9579	0.10119	4327.65674	437.9155855
9566	9516	0.06699	4889.26904	327.532133
9566	9563	0.04827	4650.18018	224.4641973
9568	9500	0.07433	4323.05566	321.3327272
9568	9698	0.10613	4104.92676	435.655877
9570	9451	0.04992	10979.78516	548.1108752
9571	9662	0.04582	13282.17188	608.5891155
9579	9563	0.10119	4565.98730	462.0322549
9579	9597	0.03372	4327.65674	145.9285853
9582	9583	0.01105	4805.98340	53.10611657
9582	9803	0.10279	6692.29590	687.9010956
9583	1025	0.12170	745.05511	90.67320689
9583	1039	0.26678	2321.92114	619.4421217
9583	1040	0.20612	577.49750	119.0337847
9583	1128	0.17874	2092.14111	373.949302
9583	9344	0.10806	8484.61133	916.8471003
9583	9582	0.01105	1558.69556	17.22358594
9584	1291	0.26894	647.72711	174.199729
9584	9190	0.19584	1130.22229	221.3427333
9584	9996	0.20772	2665.60449	553.6993647
9590	9476	0.10217	4043.55151	413.1296578
9590	9756	0.21001	1262.51147	265.1400338
9591	9548	0.04225	1435.05432	60.63104502
9591	9645	0.05135	1349.88623	69.31665791
9592	1117	0.40696	404.74377	164.7145246
9592	9547	0.04199	585.51886	24.58593693
9592	9617	0.03050	354.05701	10.79873881
9597	9579	0.03372	4565.98730	153.9650918
9597	9630	0.02217	4327.65674	95.94414993
9601	9533	0.04562	209.71289	9.567102042
9601	10298	0.39798	87.34833	34.76288837
9614	1010	0.14611	198.03741	28.93524598
9614	9526	0.05990	3996.57275	239.3947077
9614	9892	0.13209	2303.44507	304.2620593
9617	9592	0.03050	230.94588	7.04384934
9617	9683	0.03464	354.05701	12.26453483
9618	9496	0.05412	1230.58154	66.59907294
9618	9764	0.05581	1150.44397	64.20627797
9620	9422	0.09734	3024.23413	294.3789502
9620	9680	0.03721	1832.29541	68.17971221
9627	9697	0.01954	39801.01172	777.711769
9628	8310	0.65163	29070.48242	18943.19846
9630	1040	0.19591	258.45511	50.6339406
9630	9597	0.02217	4565.98730	101.2279384
9630	9964	0.16647	4069.20142	677.3999604
9645	9591	0.05135	1435.05432	73.69003933
9645	9729	0.06553	1349.88623	88.45804465
9654	9472	0.08266	2520.60986	208.353611

9654	9743	0.03570	4301.07031	153.5482101
9658	9570	0.04585	10979.78516	503.4231496
9658	9571	0.04736	0.00000	0
9662	9876	0.10337	13282.17188	1372.978107
9663	1116	0.16202	471.44778	76.38396932
9663	1155	0.53066	44.43042	23.57744668
9663	9799	0.63379	875.07025	554.6107737
9663	30196	0.21083	701.98315	147.9991075
9668	9509	0.06867	2477.91968	170.1587444
9668	10036	0.18136	2122.91968	385.0127132
9671	9445	0.14494	596.34241	86.43386891
9671	9748	0.04692	347.51779	16.30553471
9676	1092	0.20882	773.67627	161.5590787
9676	1106	0.23088	902.39850	208.3457657
9676	9531	0.06035	8259.15137	498.4397852
9676	9806	0.06259	6429.69824	402.4348128
9680	9360	0.14477	2477.38525	358.6510626
9680	9620	0.03721	3024.23413	112.531752
9680	9799	0.05702	3423.91162	195.2314406
9683	9617	0.03464	230.94588	7.999965283
9683	9742	0.05400	354.05701	19.11907854
9688	9689	0.00689	383.30420	2.640965938
9688	9899	0.11686	551.80945	64.48445233
9689	1205	0.13372	684.47882	91.52850781
9689	9489	0.07519	3248.57959	244.2606994
9689	9688	0.00689	252.42917	1.739236981
9690	9486	0.07792	3409.04639	265.6328947
9690	9879	0.09936	2959.13452	294.0196059
9697	9725	0.01509	39801.01172	600.5972669
9698	9568	0.10613	4323.05566	458.8058972
9698	9778	0.05774	4104.92676	237.0184711
9700	9590	0.10693	4043.55151	432.376963
9701	9700	0.01172	4043.55151	47.3904237
9702	9701	0.01027	4043.55151	41.52727401
9703	9702	0.08224	4043.55151	332.5416762
9703	9721	0.10368	32541.88867	3373.943017
9707	9420	0.12819	2259.63159	289.6621735
9707	9710	0.03120	1173.15125	36.602319
9707	9732	0.02646	617.85870	16.3485412
9710	9707	0.03120	1175.64185	36.68002572
9710	9717	0.01465	1173.15125	17.18666581
9716	9465	0.10749	150.45479	16.17238538
9716	9893	0.20286	133.00740	26.98188116
9716	10117	0.21691	25.85010	5.607145191
9717	9710	0.01465	1175.64185	17.2231531
9717	9735	0.09830	1341.64172	131.8833811
9717	10190	0.20720	1524.07922	315.7892144
9718	9658	0.02053	10979.78516	225.4149893
9719	9476	0.09959	1520.83923	151.4603789
9719	9904	0.10602	2718.02734	288.1652586
9721	9756	0.25444	32541.88867	8279.958153
9725	9944	0.11346	39801.01172	4515.82279
9726	9069	1.79781	34738.20703	62452.69598
9729	9645	0.06553	1435.05432	94.03910959

9729	9735	0.07164	1349.88623	96.70584952
9732	9707	0.02646	677.23450	17.91962487
9732	9863	0.09060	617.85870	55.97799822
9734	9726	0.06854	34738.20703	2380.95671
9735	1340	0.19909	530.46252	105.6097831
9735	1342	0.22956	152.56787	35.02348024
9735	9717	0.09830	1053.88977	103.5973644
9735	9729	0.07164	1435.05432	102.8072915
9737	9734	0.01315	34738.20703	456.8074224
9739	9737	0.01222	34738.20703	424.5008899
9742	9683	0.05400	230.94588	12.47107752
9742	9842	0.10097	354.05701	35.7491363
9743	9654	0.03570	2520.60986	89.985772
9743	10006	0.13498	4301.07031	580.5584704
9744	9739	0.01664	34738.20703	578.043765
9748	1024	0.16406	93.43424	15.32882141
9748	1025	0.08631	67.90789	5.861129986
9748	9671	0.04692	596.34241	27.98038588
9748	10147	0.18410	198.92870	36.62277367
9756	9818	0.49500	33804.39844	16733.17723
9757	9718	0.01919	10979.78516	210.7020772
9764	9618	0.05581	1230.58154	68.67875575
9764	9864	0.05524	1150.44397	63.5505249
9772	9744	0.25529	32293.86133	8244.299859
9772	9862	0.21216	1254.87891	266.2351095
9778	1364	0.18131	240.84135	43.66694517
9778	1365	0.18200	299.77795	54.5595869
9778	9698	0.05774	4323.05566	249.6132338
9778	9835	0.04208	4605.72705	193.8089943
9782	1109	0.14811	690.84052	102.3203894
9782	1110	0.40623	387.51373	157.4197025
9782	9786	0.12069	1139.29077	137.501003
9782	9796	0.13933	543.21918	75.68672835
9786	9782	0.12069	1144.87854	138.175391
9786	9799	0.07589	1139.29077	86.46077654
9790	9793	0.05171	543.21918	28.0898638
9790	9796	0.11308	557.00983	62.98667158
9793	9790	0.05171	557.00983	28.80297831
9793	9813	0.05563	543.21918	30.21928298
9796	9782	0.13933	557.00983	77.60817961
9796	9790	0.11308	543.21918	61.42722487
9799	9663	0.63379	990.72424	627.9111161
9799	9680	0.05702	3291.17358	187.6627175
9799	9786	0.07589	1144.87854	86.8848324
9799	9949	0.08000	2047.63135	163.810508
9802	9518	0.12445	2069.07373	257.4962257
9802	10047	0.12333	2044.38452	252.1339429
9803	10140	0.14748	6692.29590	986.9797993
9806	9676	0.06259	6852.46826	428.8959884
9806	9982	0.08941	6429.69824	574.8793196
9813	1110	0.26512	1131.49915	299.9830546
9813	9793	0.05563	557.00983	30.98645684
9813	9830	0.05948	1660.68604	98.77760566
9818	9823	0.05323	33804.39844	1799.408129

9823	9890	0.53775	33804.39844	18178.31526
9830	9813	0.05948	1688.50903	100.4325171
9830	9866	0.03763	1660.68604	62.49161569
9832	9772	0.49564	33548.73828	16628.09664
9833	10172	0.13162	1647.26123	216.8125231
9834	1465	0.22203	639.13196	141.9064691
9834	9478	0.16377	679.15057	111.2244888
9835	9778	0.04208	4858.52539	204.4467484
9835	9901	0.05220	4605.72705	240.418952
9842	9742	0.10097	230.94588	23.3186055
9842	9898	0.05733	354.05701	20.29808838
9843	9832	0.05319	33548.73828	1784.457389
9855	9456	0.18457	810.15979	149.5311924
9855	10186	0.12938	665.87799	86.15129435
9862	9744	0.11674	2444.34644	285.3530034
9862	9904	0.07829	1254.87891	98.24446986
9863	1292	0.19195	169.96738	32.62523859
9863	9732	0.09060	677.23450	61.3574457
9863	9907	0.04137	902.56012	37.33891216
9864	9764	0.05524	1230.58154	67.97732427
9864	9971	0.05524	1150.44397	63.5505249
9866	9830	0.03763	1688.50903	63.5385948
9866	9918	0.06075	1660.68604	100.8866769
9876	1087	0.34467	1194.18506	411.5997646
9876	9877	0.01241	957.41614	11.8815343
9876	10097	0.09387	12837.82031	1205.086192
9877	1070	0.19559	408.04373	79.80927315
9877	9757	0.06515	10979.78516	715.3330032
9877	9876	0.01241	563.33942	6.991042202
9879	9690	0.09936	3409.04639	338.7228493
9879	10113	0.09603	2959.13452	284.165688
9890	11067	2.66594	33804.39844	90120.49798
9892	1123	0.21183	149.41655	31.65090779
9892	9614	0.13209	4190.49023	553.5218545
9892	10138	0.09552	2451.12378	234.1313435
9893	1123	0.12994	98.96728	12.85980836
9893	9716	0.20286	132.77261	26.93425166
9893	10082	0.17071	665.18365	113.5535009
9893	10108	0.09530	582.53186	55.51528626
9897	7980	0.98651	2343.98608	2312.365708
9897	9911	0.01010	2326.61987	23.49886069
9898	9842	0.05733	230.94588	13.2401273
9898	10298	0.26771	354.05701	94.78460215
9899	9900	0.00623	0.00000	0
9899	17732	0.08242	551.80945	45.48013487
9900	9689	0.11736	3172.71753	372.3501293
9900	9899	0.00623	0.00000	0
9901	9835	0.05220	4858.52539	253.6150254
9901	9985	0.06130	4605.72705	282.3310682
9903	9843	0.53371	33548.73828	17905.29711
9904	9719	0.10602	1520.83923	161.2393752
9904	9862	0.07829	2444.34644	191.3678828
9904	10073	0.06643	1460.08496	96.99344389
9907	9863	0.04137	525.75159	21.75034328

9907	9999	0.04626	902.56012	41.75243115
9911	9897	0.01010	2343.98608	23.67425941
9911	12229	1.02387	2326.61987	2382.156286
9918	9866	0.06075	1688.50903	102.5769236
9918	9979	0.04146	1660.68604	68.85204322
9928	7951	1.01756	968.97327	985.9884406
9928	13900	2.00474	755.99567	1515.574759
9940	9273	0.31553	9746.82324	3075.415137
9940	9628	0.14702	29070.48242	4273.942325
9944	10210	0.10243	39801.01172	4076.81763
9949	9799	0.08000	2036.13513	162.8908104
9949	10410	0.23537	2047.63135	481.9509908
9957	1992	1.11238	324.30719	360.752832
9957	8003	1.00107	329.20532	329.5575697
9957	12216	1.00275	661.02203	662.8398406
9964	9630	0.16647	4259.02295	708.9995505
9964	10132	0.05699	4069.20142	231.9037889
9971	9864	0.05524	1230.58154	67.97732427
9971	10121	0.05245	1150.44397	60.34078623
9979	9918	0.04146	1688.50903	70.00558438
9979	9994	0.02239	1660.68604	37.18276044
9982	9806	0.08941	6852.46826	612.6791871
9982	10077	0.03577	6429.69824	229.990306
9985	9901	0.06130	4858.52539	297.8276064
9985	10022	0.06005	4605.72705	276.5739094
9987	1992	2.04295	420.02112	858.0821471
9987	8025	1.00051	1414.12915	1414.850356
9987	12116	0.91706	1838.96448	1686.440766
9994	1106	0.17636	90.85715	16.02356697
9994	1107	0.13636	926.47382	126.3339701
9994	9979	0.02239	1688.50903	37.80571718
9994	10020	0.03382	2152.48315	72.79698013
9996	1272	0.16611	2301.05176	382.2277079
9996	9584	0.20772	1064.34216	221.0851535
9996	11027	0.42307	2573.87598	1088.929711
9999	1291	0.37002	933.87299	345.5516838
9999	9907	0.04626	525.75159	24.32126855
9999	10153	0.04756	1428.90405	67.95867662
10002	8043	0.99772	3232.06274	3224.693637
10002	10651	0.26987	3395.95459	916.4662652
10004	10005	0.05929	4010.64648	237.7912298
10004	10006	0.08825	2106.71240	185.9173693
10005	10004	0.05929	2106.71240	124.9069782
10005	10079	0.07841	4010.64648	314.4747905
10006	9743	0.13498	2520.60986	340.2319189
10006	10004	0.08825	4010.64648	353.9395519
10006	10008	0.00829	1499.73096	12.43276966
10007	10008	0.08825	741.33917	65.42318175
10007	10010	0.10136	534.03168	54.12945108
10008	10006	0.00829	1623.20496	13.45636912
10008	10007	0.08825	534.03168	47.12829576
10008	10319	0.12884	1454.64612	187.4166061
10009	1237	0.24661	196.24136	48.39508179
10009	1238	0.25080	28.15958	7.062422664

10009	10010	0.03585	741.33917	26.57700924
10009	10012	0.08688	365.07446	31.71766908
10010	10007	0.10136	741.33917	75.14213827
10010	10009	0.03585	534.03168	19.14503573
10011	10012	0.03861	369.28806	14.258212
10011	10013	0.06550	365.07446	23.91237713
10012	10009	0.08688	369.28806	32.08374665
10012	10011	0.03861	365.07446	14.0955249
10013	10011	0.06550	369.28806	24.18836793
10013	10016	0.07998	365.07446	29.19865531
10016	1272	0.15964	626.74371	100.0533659
10016	9543	0.22368	1228.83545	274.8659135
10016	10013	0.07998	369.28806	29.53565904
10016	10645	0.26551	1522.99377	404.3700759
10019	6323	2.00235	468.02982	937.1595101
10019	10308	0.11700	474.05737	55.46471229
10020	9994	0.03382	2236.69580	75.64505196
10020	10058	0.07050	2152.48315	151.7500621
10022	9985	0.06005	4858.52539	291.7544497
10022	10036	0.06469	4605.72705	297.9444829
10026	8952	0.50453	1340.24133	676.1919582
10026	11695	0.62504	709.16577	443.2569729
10026	29907	0.64764	1426.85168	924.086222
10030	10050	0.49575	1442.06750	714.9049631
10030	29907	0.34936	1466.42236	512.3093157
10034	10036	0.05240	4032.63550	211.3101002
10034	10037	0.04965	4069.53223	202.0522752
10036	9668	0.18136	2477.91968	449.3955132
10036	10022	0.06469	4858.52539	314.2980075
10036	10034	0.05240	4069.53223	213.2434889
10036	10292	0.09989	4648.18750	464.3074494
10037	10034	0.04965	4032.63550	200.2203526
10037	10041	0.04827	4069.53223	196.4363207
10038	1929	0.92575	373.80328	346.0483865
10038	10065	1.04554	94.06623	98.35000611
10038	10073	1.00249	291.34048	292.0659178
10039	10041	0.04964	4032.63550	200.1800262
10039	10042	0.05033	4069.53223	204.8195571
10041	10037	0.04827	4032.63550	194.6553156
10041	10039	0.04964	4069.53223	202.0115799
10042	1385	0.24781	220.31581	54.59646088
10042	1386	0.15570	249.17064	38.79586865
10042	10039	0.05033	4032.63550	202.9625447
10042	10044	0.05034	4076.18750	205.1952788
10043	10045	0.05033	4008.25952	201.7357016
10043	10047	0.05241	4076.18750	213.6329869
10044	10042	0.05034	4008.25952	201.7757842
10044	10046	0.04827	4076.18750	196.7575706
10045	10043	0.05033	4076.18750	205.1545169
10045	10046	0.05033	4008.25952	201.7357016
10046	10044	0.04827	4008.25952	193.478687
10046	10045	0.05033	4076.18750	205.1545169
10047	9802	0.12333	2069.07373	255.1788631
10047	10043	0.05241	4008.25952	210.0728814

10047	10049	0.05102	3473.20581	177.2029604
10047	10354	0.13078	2365.26245	309.3290232
10048	1442	0.24420	0.00000	0
10049	10047	0.05102	3050.51636	155.6373447
10049	10053	0.11790	3473.20581	409.490965
10050	10030	0.49575	1466.42236	726.978885
10050	10081	0.61629	1442.06750	888.7317796
10053	10049	0.11790	3050.51636	359.6558788
10053	10055	0.05171	3473.20581	179.5994724
10054	1409	0.24930	576.64966	143.7587602
10054	1410	0.14455	165.80489	23.96709685
10054	10055	0.05516	3050.51636	168.2664824
10054	10063	0.05658	4333.02002	245.1622727
10055	10053	0.05171	3050.51636	157.742201
10055	10054	0.05516	3473.20581	191.5820325
10058	10020	0.07050	2236.69580	157.6870539
10058	10072	0.04695	2152.48315	101.0590839
10059	9544	0.24091	2421.66211	583.4026189
10059	10630	0.24393	2381.63452	580.9521085
10060	10061	0.02827	4333.02002	122.494476
10060	10062	0.05585	3769.77930	210.5421739
10061	10060	0.02827	3769.77930	106.5716608
10061	30180	0.02388	4333.02002	103.4725181
10062	10060	0.05585	4333.02002	241.9991681
10062	10063	0.05240	3769.77930	197.5364353
10063	10054	0.05658	3769.77930	213.2941128
10063	10062	0.05240	4333.02002	227.050249
10064	30180	0.00370	3301.72900	12.2163973
10064	30181	0.00370	4825.90479	17.85584772
10065	10038	1.04554	90.82278	94.9588494
10065	10254	0.46137	94.06623	43.39933654
10067	10068	0.01931	3628.02393	70.05714209
10067	10075	0.08619	3964.98218	341.7418141
10068	10067	0.01931	3964.98218	76.5638059
10068	30181	0.03354	3628.02393	121.6839226
10070	1444	0.23351	0.00000	0
10071	1426	0.22761	1028.57190	234.1132502
10071	1427	0.17832	92.56386	16.50598752
10071	10075	0.04720	3628.02393	171.2427295
10071	10080	0.05141	3218.69092	165.4729002
10072	10058	0.04695	2236.69580	105.0128678
10072	10077	0.09928	2152.48315	213.6985271
10073	9904	0.06643	1452.36462	96.48058171
10073	10038	1.00249	284.11166	284.819098
10073	12318	1.00388	1177.10449	1181.671655
10074	1443	0.19338	0.00000	0
10075	10067	0.08619	3628.02393	312.6993825
10075	10071	0.04720	3964.98218	187.1471589
10076	10077	0.12342	2304.23975	284.3892699
10076	10078	0.06619	1869.24146	123.7250922
10077	9982	0.03577	6852.46826	245.1127897
10077	10072	0.09928	2236.69580	222.059159
10077	10076	0.12342	1869.24146	230.701781
10077	10361	0.13133	4404.47070	578.439137

10078	1092	0.18132	388.45956	70.43548742
10078	1093	0.24939	848.55670	211.6215554
10078	10076	0.06619	2304.23975	152.5176291
10078	10084	0.05516	1618.22266	89.26116193
10079	1216	0.26844	140.20161	37.63572019
10079	1217	0.21862	652.60260	142.6719804
10079	10005	0.07841	2106.71240	165.1873193
10079	10170	0.09921	3500.10425	347.2453426
10080	10071	0.05141	2570.06519	132.1270514
10080	10115	0.08089	3218.69092	260.3599085
10081	1769	1.74057	563.88647	981.4838731
10081	1779	0.76694	84.67707	64.94223207
10081	10050	0.61629	1466.42236	903.7414362
10081	10130	0.88962	837.02588	744.6349634
10082	9893	0.17071	576.69513	98.44762564
10082	10138	0.09378	665.18365	62.3809227
10083	1147	0.50340	95.78645	48.21889893
10083	1511	0.32449	19.77358	6.416328974
10083	9067	0.49319	355.08099	175.1223935
10083	10927	0.34329	570.94312	195.9990637
10084	10078	0.05516	2094.89258	115.5542747
10084	10085	0.06964	1618.22266	112.693026
10085	10084	0.06964	2094.89258	145.8883193
10085	10086	0.06205	1618.22266	100.4107161
10086	10085	0.06205	2094.89258	129.9880846
10086	10089	0.08412	1145.23718	96.33735158
10086	10233	0.06094	472.98547	28.82373454
10087	10089	0.03932	1628.59546	64.03637349
10087	10090	0.03105	1145.23718	35.55961444
10089	10086	0.08412	1628.59546	136.9974501
10089	10087	0.03932	1145.23718	45.03072592
10090	10087	0.03105	1628.59546	50.56788903
10090	10091	0.03841	1145.23718	43.98856008
10091	1089	0.25076	1191.06946	298.6725778
10091	10090	0.03841	1628.59546	62.55435162
10091	10092	0.08914	2324.65527	207.2197708
10092	1087	0.17475	421.24670	73.61286083
10092	10091	0.08914	2819.66504	251.3449417
10092	10102	0.09378	1912.21826	179.3278284
10095	10099	0.03034	1912.21826	58.01670201
10095	10102	0.06275	2375.07007	149.0356469
10096	10098	0.06619	3389.64722	224.3607495
10096	10104	0.06137	4908.68018	301.2457026
10097	10098	0.01310	5422.64111	71.03659854
10097	10101	0.12204	2292.73071	279.8048558
10097	10255	0.06649	8777.36523	583.6070141
10098	9877	0.09388	10605.41406	995.636272
10098	10096	0.06619	4908.68018	324.9055411
10098	10097	0.01310	1768.60803	23.16876519
10099	10095	0.03034	2375.07007	72.05962592
10099	10101	0.02827	1912.21826	54.05841021
10101	1088	0.25119	25.90932	6.508162091
10101	10097	0.12204	1886.30896	230.2051455
10101	10099	0.02827	2375.07007	67.14323088

10102	10092	0.09378	2375.07007	222.7340712
10102	10095	0.06275	1912.21826	119.9916958
10104	1070	0.17237	163.59804	28.19939415
10104	10096	0.06137	3389.64722	208.0226499
10104	10112	0.05865	5087.90625	298.4057016
10105	1024	0.18297	159.06165	29.1035101
10105	10107	0.02254	865.32916	19.50451927
10105	10147	0.13265	804.02545	106.6539759
10107	10105	0.02254	707.45135	15.94595343
10107	10117	0.08082	865.32916	69.93590271
10108	1011	0.10790	388.86148	41.95815369
10108	9893	0.09530	716.86823	68.31754232
10108	10287	0.09033	199.65205	18.03456968
10110	10111	0.02528	2873.83203	72.65047372
10110	10114	0.08069	4406.99658	355.600554
10111	10110	0.02528	4406.99658	111.4088735
10111	10112	0.03265	2873.83203	93.83061578
10112	1071	0.28804	1151.26880	331.6114652
10112	10104	0.05865	3553.24536	208.3978404
10112	10111	0.03265	4406.99658	143.8884383
10113	9879	0.09603	3409.04639	327.3707248
10113	10116	0.05506	2040.11267	112.3286036
10113	10617	0.22758	3420.42310	778.4198891
10114	10110	0.08069	2873.83203	231.8895065
10114	10118	0.06828	4406.99658	300.9097265
10115	10080	0.08089	2570.06519	207.8925732
10115	10116	0.10854	3275.91626	355.5679509
10115	10406	0.14042	597.93738	83.9623669
10116	1429	0.24759	1003.28040	248.4021942
10116	10113	0.05506	2272.63574	125.1313238
10116	10115	0.10854	3073.41748	333.5887333
10117	9716	0.21691	17.68219	3.835443833
10117	10107	0.08082	707.45135	57.17621811
10117	10191	0.09078	891.17926	80.90125322
10118	10114	0.06828	2873.83203	196.225251
10118	10120	0.07377	4406.99658	325.1041377
10119	10125	0.06207	2777.95703	172.4277929
10119	10132	0.06625	4286.10938	283.9547464
10120	10118	0.07377	2873.83203	212.0025889
10120	10122	0.04896	4406.99658	215.7665526
10121	1343	0.15618	116.90089	18.257581
10121	1365	0.15045	613.92773	92.36542698
10121	9971	0.05245	1230.58154	64.54400177
10121	10194	0.02400	1126.89709	27.04553016
10122	1054	0.14742	294.17825	43.36775762
10122	1055	0.20961	218.69974	45.8416525
10122	10120	0.04896	2873.83203	140.7028162
10122	10125	0.04689	4286.10938	200.9756688
10125	10119	0.06207	4286.10938	266.0388092
10125	10122	0.04689	2777.95703	130.2584051
10127	10129	0.03584	3187.45581	114.2384162
10127	10132	0.11998	2408.62769	288.9871502
10129	1040	0.13741	454.77267	62.49031258
10129	1041	0.11903	265.92682	31.65326938

10129	10127	0.03584	2408.62769	86.32521641
10129	10133	0.07178	3276.77344	235.2067975
10130	10081	0.88962	860.59674	765.6040718
10130	10139	0.52988	1025.48047	543.3815914
10130	12322	0.99270	185.76842	184.4123105
10131	9247	0.40171	2548.37769	1023.708802
10131	10138	0.10208	5364.46582	547.6046709
10131	10657	0.23428	3396.87085	795.8189027
10132	9964	0.05699	4259.02295	242.7217179
10132	10119	0.06625	2777.95703	184.0396532
10132	10127	0.11998	3187.45581	382.4309481
10132	10263	0.05866	5496.70801	322.4368919
10133	10129	0.07178	2489.92847	178.7270656
10133	10140	0.08485	3276.77344	278.0342264
10136	1025	0.16005	393.46924	62.97475186
10136	10141	0.04874	1909.65344	93.07650867
10136	10147	0.07606	2096.58252	159.4660665
10137	17712	0.00942	784.16223	7.386808207
10138	1126	0.18237	187.17050	34.13428409
10138	9892	0.09552	4339.90723	414.5479386
10138	10082	0.09378	576.69513	54.08246929
10138	10131	0.10208	3571.04419	364.5321909
10138	10324	0.09104	377.88449	34.40260397
10139	1769	1.44462	212.73326	307.3187221
10139	1770	0.99833	192.60107	192.2794262
10139	10130	0.52988	1046.36511	554.4479445
10139	10156	0.03763	1142.80884	43.00389665
10140	10133	0.08485	2489.92847	211.2704307
10140	10141	0.00965	2551.01660	24.61731019
10140	10341	0.10284	7093.33740	729.4788182
10141	9583	0.24971	4326.68311	1080.416039
10141	10136	0.04874	2434.64307	118.6645032
10141	10140	0.00965	2165.21289	20.89430439
10147	9748	0.18410	417.26080	76.81771328
10147	10105	0.13265	1018.39063	135.0895171
10147	10136	0.07606	1533.18701	116.614204
10147	10301	0.07543	714.35803	53.8840262
10153	9999	0.04756	1052.44141	50.05411346
10153	10258	0.05133	1428.90405	73.34564489
10156	10139	0.03763	1161.97888	43.72526525
10156	10180	0.43508	1142.80884	497.2132701
10166	10168	0.06550	1609.79749	105.4417356
10166	10172	0.05240	3500.10425	183.4054627
10168	10166	0.06550	3500.10425	229.2568284
10168	10170	0.05723	1609.79749	92.12871035
10170	10079	0.09921	1609.79749	159.708009
10170	10168	0.05723	3500.10425	200.3109662
10172	10166	0.05240	1609.79749	84.35338848
10172	10173	0.00758	4175.63623	31.65132262
10172	10827	0.28221	1286.07458	362.9431072
10173	9834	0.13162	1302.33984	171.4139697
10173	10172	0.00758	1924.14307	14.58500447
10173	10174	0.09170	4034.93335	370.0033882
10174	10173	0.09170	1794.65662	164.5700121

10174	10175	0.05102	4034.93335	205.8622995
10175	1465	0.28641	21.84115	6.255523772
10175	1466	0.24112	363.64838	87.68289739
10175	10174	0.05102	1794.65662	91.56338075
10175	10176	0.06550	3930.92334	257.4754788
10176	10175	0.06550	953.93939	62.48303005
10176	17392	0.08381	3930.92334	329.4506851
10178	17577	0.00762	0.00000	0
10179	10181	0.08067	155.73312	12.56299079
10179	17707	0.00642	3956.87964	25.40316729
10180	10156	0.43508	1161.97888	505.5537711
10180	10203	0.99845	1142.80884	1141.037486
10181	10179	0.08067	8.87675	0.716087423
10181	10182	0.04245	155.73312	6.610870944
10182	1205	0.28443	3.55539	1.011259578
10182	1467	0.22631	3.57687	0.80948145
10182	10181	0.04245	8.87675	0.376818038
10182	10183	0.02103	155.73312	3.275067514
10183	10182	0.02103	8.87675	0.186678053
10183	10184	0.05723	155.73312	8.912606458
10184	10183	0.05723	8.87675	0.508016403
10184	10186	0.09585	155.73312	14.92701955
10186	9855	0.12938	810.15979	104.8184736
10186	10184	0.09585	8.87675	0.850836488
10186	10584	0.19728	668.74048	131.9291219
10187	1484	0.29781	0.00033	9.82773E-05
10187	1485	0.21117	0.00033	6.96861E-05
10190	10596	0.20001	1524.07922	304.8310848
10191	1011	0.10589	432.19226	45.76483841
10191	1129	0.11705	91.76218	10.74076317
10191	10117	0.09078	725.13354	65.82762276
10191	10211	0.03707	495.76358	18.37795591
10192	17628	0.00940	142.23257	1.336986158
10194	10121	0.02400	1203.10986	28.87463664
10194	10285	0.04966	1126.89709	55.96170949
10200	9492	0.30433	4764.69873	1450.040765
10200	10204	0.00967	0.00000	0
10203	9138	0.50461	987.83112	498.4694615
10203	10180	0.99845	1161.97888	1160.177813
10203	10561	0.17553	793.70538	139.3191054
10204	10200	0.00967	0.00000	0
10204	10804	0.25372	4867.11865	1234.885344
10210	10587	0.18123	29067.88867	5267.973464
10210	10591	0.18194	10733.12207	1952.784229
10211	10191	0.03707	349.98218	12.97383941
10211	10287	0.09175	495.76358	45.48630847
10213	9940	0.10411	38817.30469	4041.269591
10218	8177	0.99884	2314.42480	2311.740067
10218	11557	0.49473	2370.99609	1173.002896
10219	9150	0.50481	540.18866	272.6926375
10219	11341	0.43337	539.77118	233.9206363
10233	10086	0.06094	466.29718	28.41615015
10233	10335	0.05785	472.98547	27.36220944
10254	10065	0.46137	90.82278	41.90290601

10254	10434	0.51046	94.06623	48.01704777
10255	10370	0.06202	8777.36523	544.3721916
10258	10153	0.05133	1052.44141	54.02181758
10258	10426	0.08592	1428.90405	122.771436
10263	10132	0.05866	4957.20459	290.7896212
10263	10395	0.06648	5496.70801	365.4211485
10285	10194	0.04966	1203.10986	59.74643565
10285	10411	0.06305	1126.89709	71.05086152
10287	1126	0.15877	209.33937	33.23681177
10287	10108	0.09033	340.08170	30.71957996
10287	10211	0.09175	349.98218	32.11086502
10287	10624	0.16685	12.36454	2.063023499
10290	10141	0.07095	4465.86914	316.8534155
10292	1366	0.12062	142.22363	17.15501425
10292	10036	0.09989	5292.88281	528.7060639
10292	10418	0.06083	4612.74072	280.593018
10298	9601	0.39798	209.71289	83.46153596
10298	9898	0.26771	230.94588	61.82652153
10298	10402	0.06604	441.40536	29.15040997
10301	1026	0.24878	259.20609	64.48529107
10301	10147	0.07543	583.65973	44.02545343
10301	10487	0.11407	455.15192	51.91917951
10308	10019	0.11700	468.02982	54.75948894
10308	10483	0.08678	474.05737	41.13869857
10310	10098	0.09555	8470.41309	809.3479707
10319	10008	0.12884	1370.81262	176.615498
10319	10459	0.06358	1454.64612	92.48640031
10324	10138	0.09104	388.97510	35.4122931
10324	10385	0.02808	377.88449	10.61099648
10325	9707	0.28455	2197.76514	625.3740706
10335	10233	0.05785	466.29718	26.97529186
10335	10458	0.05141	472.98547	24.31618301
10337	1927	0.91304	0.00000	0
10341	10467	0.05091	7093.33740	361.121807
10354	1386	0.25127	358.50903	90.08256397
10354	1410	0.23261	521.72455	121.3583476
10354	10047	0.13078	2744.71313	358.9535831
10354	10436	0.03781	2468.71167	93.34198824
10361	1107	0.25091	296.67389	74.43844574
10361	10077	0.13133	4476.45508	587.8928457
10361	10438	0.03241	4698.98926	152.2942419
10370	10374	0.01380	0.00000	0
10370	10466	0.03856	8777.36523	338.4552033
10374	10310	0.03353	8470.41309	284.0129509
10374	10370	0.01380	0.00000	0
10385	1125	0.10763	208.22313	22.41105548
10385	10324	0.02808	388.97510	10.92242081
10385	10698	0.16897	264.23172	44.64723373
10395	10263	0.06648	4957.20459	329.5549611
10395	10499	0.05339	5496.70801	293.4692407
10402	10298	0.06604	440.65878	29.10110583
10402	10766	0.16973	441.40536	74.91973175
10406	1427	0.17891	167.65710	29.99553176
10406	10115	0.14042	151.81027	21.31719811

10406	10678	0.10855	727.52881	78.97325233
10410	1144	0.32056	1074.87756	344.5627506
10410	9949	0.23537	2036.13513	479.2451255
10410	10494	0.05320	1410.30518	75.02823558
10411	10285	0.06305	1203.10986	75.85607667
10411	10610	0.08649	1126.89709	97.46532931
10418	1386	0.25030	327.34573	81.93463622
10418	10292	0.06083	5265.83984	320.3210375
10418	10527	0.05078	4932.30615	250.4625063
10426	10258	0.08592	1052.44141	90.42576595
10426	10597	0.07543	1428.90405	107.7822325
10434	10254	0.51046	90.82278	46.36139628
10434	10573	0.34430	94.06623	32.38700299
10436	10354	0.03781	2835.63550	107.2153783
10436	10544	0.04967	2468.71167	122.6209086
10438	10361	0.03241	4773.12891	154.697108
10438	10638	0.07880	4698.98926	370.2803537
10458	10335	0.05141	466.29718	23.97233802
10458	10577	0.05422	472.98547	25.64527218
10459	10319	0.06358	1370.81262	87.15626638
10459	10568	0.05283	1454.64612	76.84895452
10466	10696	0.08717	8777.36523	765.1229271
10467	10290	0.08386	4465.86914	374.5077861
10467	10500	0.02299	7093.33740	163.0758268
10468	10374	0.03799	8470.41309	321.7909933
10483	966	0.42094	30.51553	12.8452072
10483	10308	0.08678	468.02982	40.61562778
10483	10653	0.06492	501.32986	32.54633451
10487	10301	0.11407	329.82013	37.62258223
10487	10586	0.07115	455.15192	32.38405911
10494	10410	0.05320	1428.81885	76.01316282
10494	10681	0.06691	1410.30518	94.36351959
10499	1041	0.16399	30.23767	4.958675503
10499	1055	0.11453	465.43994	53.30683633
10499	10395	0.05339	4957.20459	264.6651531
10499	10564	0.02654	5452.81787	144.7177863
10500	1041	0.17091	85.55363	14.6219709
10500	10467	0.02299	4465.86914	102.6703315
10500	10978	0.17142	7180.59766	1230.898051
10526	10528	0.05378	460.43436	24.76215988
10526	10539	0.05229	345.70975	18.07716283
10527	10418	0.05078	5591.93799	283.9586111
10527	10528	0.05516	345.70975	19.06934981
10527	10710	0.06473	4836.98975	313.0983465
10528	10526	0.05378	345.70975	18.59227036
10528	10527	0.05516	460.43436	25.3975593
10531	10173	0.17987	1291.12329	232.2343462
10539	1366	0.10316	56.58494	5.83730241
10539	10526	0.05229	460.43436	24.07611268
10539	10631	0.05904	406.96432	24.02717345
10544	10436	0.04967	2835.63550	140.8460153
10544	10713	0.05657	2468.71167	139.6550192
10561	1771	0.42502	1041.18115	442.5228124
10561	10203	0.17553	814.24982	142.9252709

10561	12417	0.84453	696.44342	588.1673615
10564	10499	0.02654	4917.80420	130.5185235
10564	10795	0.07788	5452.81787	424.6654557
10568	1217	0.22827	5.82073	1.328698037
10568	1238	0.25151	261.53894	65.7796588
10568	10459	0.05283	1370.81262	72.42003071
10568	10738	0.05153	1419.48413	73.14601722
10573	967	0.65203	1.64816	1.074649765
10573	10434	0.34430	90.82278	31.27028315
10573	11446	0.74716	92.41807	69.05108518
10577	10458	0.05422	466.29718	25.2826331
10577	10672	0.02683	472.98547	12.69020016
10581	1467	0.14634	918.82263	134.4605037
10581	10583	0.00678	591.71979	4.011860176
10581	17628	0.19455	3961.50366	770.7105371
10583	1466	0.16441	158.41992	26.04581905
10583	10581	0.00678	495.59656	3.360144677
10583	16734	0.06257	4267.02588	266.9878093
10584	1467	0.18657	54.25883	10.12306991
10584	1485	0.17029	18.95828	3.228405501
10584	10186	0.19728	666.16589	131.4212068
10584	11246	0.23791	612.86041	145.8056201
10586	1026	0.16478	80.30909	13.23333185
10586	1129	0.16480	149.80702	24.6881969
10586	10487	0.07115	329.82013	23.46670225
10586	10601	0.15916	382.53226	60.8838345
10587	10634	0.01235	29067.88867	358.9884251
10589	10213	0.18045	38817.30469	7004.582631
10591	10628	0.01124	10733.12207	120.6402921
10594	10325	0.12324	2197.76514	270.8525759
10594	10600	0.02006	3840.74463	77.04533728
10594	10602	0.03324	2776.42871	92.28849032
10596	10602	0.01936	1530.70630	29.63447397
10596	10603	0.07172	572.98529	41.094505
10596	10864	0.09111	2786.68994	253.8953204
10597	10426	0.07543	1052.44141	79.38565556
10597	10599	0.06855	1068.39001	73.23813519
10597	10855	0.08784	1247.26550	109.5598015
10599	1294	0.11949	3593.08350	429.3375474
10599	10597	0.06855	1200.48804	82.29345514
10599	10600	0.04384	3758.83618	164.7873781
10600	10594	0.02006	3758.83618	75.40225377
10600	10599	0.04384	3840.74463	168.3782446
10601	10586	0.15916	255.22188	40.62111442
10601	10624	0.09469	382.53226	36.2219797
10602	10594	0.03324	1530.70630	50.88067741
10602	10596	0.01936	2776.42871	53.75165983
10603	10596	0.07172	589.87341	42.30572097
10603	10604	0.01786	572.98529	10.23351728
10604	1342	0.16615	184.82118	30.70803906
10604	10603	0.01786	589.87341	10.5351391
10604	10607	0.08488	526.71222	44.70733323
10605	1345	0.14422	51.99666	7.498958305
10605	10610	0.03569	827.93567	29.54902406

10605	10614	0.02775	718.76978	19.9458614
10606	1343	0.17356	373.83313	64.88247804
10606	10611	0.02670	719.13788	19.2009814
10606	10616	0.02502	791.23163	19.79661538
10607	1344	0.16200	233.95654	37.90095948
10607	10604	0.08488	550.30310	46.70972713
10607	10613	0.06137	803.62555	49.3185
10610	10411	0.08649	1203.10986	104.0569718
10610	10605	0.03569	748.48615	26.71347069
10610	10615	0.06068	377.18958	22.88786371
10610	10963	0.12445	1246.80994	155.165497
10611	10606	0.02670	803.62555	21.45680219
10611	10613	0.05447	719.13788	39.17144032
10613	10607	0.06137	719.13788	44.1334917
10613	10611	0.05447	803.62555	43.77348371
10614	10605	0.02775	791.23163	21.95667773
10614	10616	0.06205	718.76978	44.59966485
10615	10610	0.06068	279.78455	16.97732649
10615	10619	0.06206	377.18958	23.40838533
10616	10606	0.02502	718.76978	17.9836199
10616	10614	0.06205	791.23163	49.09592264
10617	1429	0.06150	1382.52014	85.02498861
10617	1443	0.19987	483.73569	96.68425236
10617	10113	0.22758	3637.81177	827.8932026
10617	10729	0.03575	3588.34229	128.2832369
10618	1485	0.20094	0.00000	0
10619	1365	0.23395	49.09997	11.48693798
10619	10615	0.06206	279.78455	17.36342917
10619	10623	0.09515	431.16418	41.02527173
10623	10619	0.09515	328.88452	31.29336208
10623	10627	0.02485	431.16418	10.71442987
10624	10287	0.16685	12.04722	2.010078657
10624	10601	0.09469	255.22188	24.16695982
10624	10697	0.09577	301.60135	28.88436129
10624	11066	0.16634	126.15450	20.98453953
10627	10623	0.02485	328.88452	8.172780322
10627	10631	0.04345	431.16418	18.73408362
10628	11022	0.14555	10733.12207	1562.205917
10629	10589	0.01180	38817.30469	458.0441953
10630	1444	0.14445	346.24860	50.01561027
10630	1451	0.30406	1099.79065	334.402345
10630	10059	0.24393	2421.66211	590.7160385
10630	11406	0.25625	2906.21265	744.7169916
10631	1367	0.10708	82.40441	8.823864223
10631	10539	0.05904	517.01929	30.52481888
10631	10627	0.04345	328.88452	14.29003239
10634	10675	0.01124	29067.88867	326.7230687
10638	1093	0.21216	283.94092	60.24090559
10638	10438	0.07880	4773.12891	376.1225581
10638	10812	0.05961	4957.84912	295.537386
10645	1238	0.24770	1001.03894	247.9573454
10645	10016	0.26551	1375.32178	365.1616858
10645	11265	0.22702	1687.39038	383.0713641
10651	968	0.57687	63.56087	36.66635908

10651	10002	0.26987	3232.06274	872.2367716
10651	11084	0.16629	3332.39380	554.143765
10653	10483	0.06492	495.09958	32.14186473
10653	10800	0.04965	501.32986	24.89102755
10655	10735	0.02511	3306.86084	83.03527569
10656	30149	0.01999	3659.90527	73.16150635
10657	1151	0.33997	464.08337	157.7744233
10657	10131	0.23428	7127.45654	1669.820518
10657	11064	0.15267	3438.12183	524.8980598
10672	1089	0.16755	481.13181	80.61363477
10672	1093	0.17128	8.23944	1.411251283
10672	10577	0.02683	466.29718	12.51075334
10672	10903	0.08606	0.00000	0
10675	10767	0.03318	29067.88867	964.4725461
10678	1429	0.14762	44.56021	6.5779782
10678	10406	0.10855	319.46738	34.6781841
10678	10862	0.07036	2434.07715	171.2616683
10681	10494	0.06691	1428.81885	95.60226925
10681	10836	0.06294	1410.30518	88.76460803
10692	10629	0.01764	38817.30469	684.7372547
10695	1071	0.25010	537.50226	134.4293152
10695	10468	0.08661	8470.41309	733.6224777
10695	10696	0.01311	644.60181	8.450729729
10696	1088	0.12727	374.30081	47.63726409
10696	10695	0.01311	205.69876	2.696710744
10696	11030	0.12795	9156.27930	1171.545936
10697	10624	0.09577	280.07214	26.82250885
10697	10739	0.12559	301.60135	37.87811355
10698	10385	0.16897	280.55786	47.4058616
10698	10739	0.07865	264.23172	20.78182478
10708	1466	0.13393	397.68311	53.26169892
10708	10531	0.06155	1291.12329	79.4686385
10710	10527	0.06473	5381.89648	348.3701592
10710	10803	0.02958	4836.98975	143.0781568
10713	10544	0.05657	2835.63550	160.4119002
10713	11052	0.12941	2468.71167	319.4759772
10729	10617	0.03575	3772.53540	134.8681406
10729	10921	0.06870	3588.34229	246.5191153
10735	10788	0.01563	3306.86084	51.68623493
10736	10656	0.02511	3659.90527	91.90022133
10738	10568	0.05153	1341.05640	69.10463629
10738	10845	0.04295	1419.48413	60.96684338
10739	1012	0.12962	284.87595	36.92562064
10739	1126	0.18292	0.72091	0.131868857
10739	10697	0.12559	280.07214	35.17426006
10739	10698	0.07865	280.55786	22.06587569
10766	10402	0.16973	440.65878	74.79301473
10766	12296	0.69107	441.40536	305.0420021
10767	11273	0.18934	29067.88867	5503.714041
10772	10736	0.01453	3659.90527	53.17842357
10788	10896	0.04632	3306.86084	153.1737941
10793	9205	0.70824	920.07672	651.6351362
10793	11554	0.25110	917.03387	230.2672048
10795	10564	0.07788	4917.80420	382.9985911

10795	10931	0.06109	5452.81787	333.1126437
10799	10200	0.25370	4764.69873	1208.804068
10799	10804	0.01105	0.00000	0
10800	10653	0.04965	495.09958	24.58169415
10800	10961	0.06295	501.32986	31.55871469
10802	10708	0.03073	1688.80640	51.89702067
10803	10710	0.02958	5381.89648	159.1964979
10803	10856	0.02399	4836.98975	116.0393841
10804	10799	0.01105	0.00000	0
10804	11549	0.24536	4867.11865	1194.196232
10806	9130	0.76659	1402.44653	1075.101485
10806	11972	0.48290	1424.00952	687.6541972
10812	1108	0.25166	528.48462	132.9984395
10812	10638	0.05961	5040.05762	300.4378347
10812	10884	0.03037	4705.70557	142.9122782
10827	1217	0.28425	0.00000	0
10827	11272	0.16290	1438.01135	234.2520489
10836	10681	0.06294	1428.81885	89.92985842
10836	10958	0.04921	822.37384	40.46901667
10836	30059	0.23251	1208.31201	280.9446254
10845	10738	0.04295	1341.05640	57.59837238
10845	11289	0.15728	1419.48413	223.256464
10855	1293	0.26099	692.43811	180.7194223
10855	10597	0.08784	738.70483	64.88783227
10855	10916	0.01891	1341.56030	25.36890527
10856	1367	0.23073	197.29866	45.52271982
10856	10803	0.02399	5381.89648	129.1116966
10856	10964	0.03906	5018.31348	196.0153245
10862	10678	0.07036	307.81461	21.65783596
10862	11039	0.06967	2434.07715	169.582155
10864	11022	0.05932	2786.68994	165.3064472
10884	10812	0.03037	4796.82764	145.6796554
10884	11180	0.10842	4705.70557	510.1925979
10896	1428	0.17722	298.92847	52.97610345
10896	10897	0.00965	542.76086	5.237642299
10896	11092	0.08205	2775.04053	227.6920755
10897	1411	0.24348	247.22787	60.19504179
10897	10772	0.04746	3659.90527	173.6991041
10897	10896	0.00965	7.22024	0.069675316
10903	10672	0.08606	0.00000	0
10903	11065	0.06595	0.00000	0
10916	10855	0.01891	866.08099	16.37759152
10916	11369	0.15374	1341.56030	206.2514805
10921	10729	0.06870	3772.53540	259.173182
10921	11151	0.08938	3588.34229	320.7260339
10927	10083	0.34329	280.31519	96.22940158
10927	11448	0.16192	570.94312	92.44710999
10931	10795	0.06109	4917.80420	300.4286586
10931	11466	0.16365	5452.81787	892.3536444
10958	10836	0.04921	893.25360	43.95700966
10958	11254	0.12803	822.37384	105.2885227
10961	10800	0.06295	495.09958	31.16651856
10961	10990	0.13239	1434.74048	189.9452921
10961	11001	0.01351	4432.41406	59.88191395

10963	1367	0.26930	397.37778	107.0138362
10963	10610	0.12445	1340.97815	166.8847308
10963	11071	0.04632	1499.30054	69.44760101
10964	1387	0.13091	3718.01563	486.7254261
10964	10856	0.03906	5579.19531	217.9233688
10964	11208	0.09040	5666.58643	512.2594133
10978	10500	0.17142	4551.42285	780.2049049
10978	11475	0.14748	7180.59766	1058.994543
10990	10961	0.13239	4211.19629	557.5202768
10990	11024	0.07712	1129.86414	87.13512248
10990	11048	0.02565	1136.84851	29.16016428
11001	10961	0.01351	1649.72778	22.28782231
11001	11446	0.13251	4432.41406	587.3391871
11022	11302	0.09542	13519.81152	1290.060415
11024	10990	0.07712	1260.40271	97.202257
11024	11061	0.08927	1129.86414	100.8629718
11027	9996	0.42307	2133.18530	902.4867049
11027	11296	0.09241	2573.87598	237.8518793
11030	11031	0.01310	0.00000	0
11030	11213	0.06705	9156.27930	613.9285271
11031	10695	0.12851	8912.61133	1145.359682
11031	11030	0.01310	0.00000	0
11039	1428	0.09675	273.91946	26.50170776
11039	10862	0.06967	307.81461	21.44544388
11039	11087	0.02181	2535.98608	55.3098564
11048	10990	0.02565	3782.76587	97.02794457
11048	11124	0.02510	1136.84851	28.5348976
11052	1388	0.09982	977.49725	97.5737755
11052	1411	0.26083	1310.04468	341.6989539
11052	10713	0.12941	2835.63550	366.9595901
11052	11357	0.09049	4396.93506	397.8786536
11061	11024	0.08927	1260.40271	112.5161499
11061	11091	0.09333	1129.86414	105.4502202
11064	1124	0.07937	4.51447	0.358313484
11064	10657	0.15267	7253.37695	1107.373059
11064	11480	0.11244	3438.00928	386.5697634
11065	10903	0.06595	0.00000	0
11066	1012	0.21225	0.39511	0.083862098
11066	1130	0.14460	126.55537	18.2999065
11066	10624	0.16634	20.05602	3.336118367
11066	11417	0.09485	0.00000	0
11067	11083	0.02574	33804.39844	870.1252158
11071	10963	0.04632	1590.13147	73.65488969
11071	11183	0.03460	1499.30054	51.87579868
11083	11163	0.06319	33804.39844	2136.099937
11084	10651	0.16629	3183.38770	529.3655406
11084	11328	0.06999	3332.39380	233.2342421
11087	11039	0.02181	399.10904	8.704568162
11087	11376	0.07763	2535.98608	196.8685994
11088	9903	2.67271	33548.73828	89666.04829
11091	11061	0.09333	1260.40271	117.6333849
11091	11169	0.09265	1129.86414	104.6819126
11092	11371	0.07256	2775.04053	201.3569409
11119	10897	0.08376	3100.07373	259.6621756

11124	11048	0.02510	3782.76587	94.94742334
11124	11241	0.04955	1136.84851	56.33084367
11138	11088	0.02510	33548.73828	842.0733308
11151	10921	0.08938	3772.53540	337.1892141
11151	11386	0.06308	3588.34229	226.3526317
11163	11124	0.04807	3782.76587	181.8375554
11163	11241	0.07555	30021.63477	2268.134507
11169	968	0.07016	1481.84558	103.9662859
11169	11091	0.09265	1260.40271	116.7763111
11169	11185	0.04346	521.94263	22.6836267
11180	10884	0.10842	4796.82764	520.0720527
11180	11320	0.03968	4705.70557	186.722397
11183	1345	0.13601	104.97791	14.27804554
11183	1368	0.23739	1094.93665	259.9270113
11183	11071	0.03460	1590.13147	55.01854886
11183	11326	0.04074	3187.69287	129.8666075
11185	11169	0.04346	620.11871	26.95035914
11185	11210	0.04705	521.94263	24.55740074
11188	11138	0.05743	33548.73828	1926.704039
11202	11031	0.06035	8912.61133	537.8760938
11208	10964	0.09040	6138.42139	554.9132937
11208	11336	0.03349	5666.58643	189.7739795
11210	11185	0.04705	620.11871	29.17658531
11210	11253	0.09255	521.94263	48.30579041
11213	11458	0.05364	9156.27930	491.1428217
11220	16137	0.00750	652.25201	4.891890075
11220	16534	0.01409	4072.75269	57.3850854
11235	17039	0.00746	4919.27783	36.69781261
11241	11518	0.34958	31158.48242	10892.38228
11246	10584	0.23791	614.23749	146.1332412
11246	14197	0.11262	612.86041	69.02033937
11248	11272	0.10029	769.75427	77.19865574
11248	11293	0.02432	371.86038	9.043644442
11249	1464	0.24582	27.09886	6.661441765
11249	14197	0.08315	4050.29224	336.7817998
11249	15904	0.02661	3875.01440	103.1141332
11252	11265	0.12164	1011.76727	123.0713707
11253	11210	0.09255	620.11871	57.39198661
11253	11332	0.08824	521.94263	46.05621767
11254	10958	0.12803	893.25360	114.3632584
11254	11322	0.03201	822.37384	26.32418662
11258	17078	0.00769	4537.86670	34.89619492
11260	11261	0.03585	1755.63037	62.93934876
11260	11263	0.04758	1687.43323	80.28807308
11261	11260	0.03585	1687.43323	60.4944813
11261	11265	0.03861	1755.63037	67.78488859
11262	11188	0.08048	28985.98828	2332.792337
11262	11346	0.05729	1118.86804	64.09995001
11263	11260	0.04758	1755.63037	83.532893
11263	11269	0.10253	1687.43323	173.0125291
11264	1238	0.24397	7.82460	1.908967662
11264	1239	0.25189	122.88229	30.95282003
11264	11252	0.11050	1011.76727	111.8002833
11264	11278	0.04969	990.72394	49.22907258

11265	10645	0.22702	1566.93176	355.7248482
11265	11261	0.03861	1687.43323	65.15179701
11265	11290	0.12122	1105.92029	134.0596576
11265	11516	0.05690	898.29694	51.11309589
11266	1202	0.39338	0.02286	0.008992667
11266	1485	0.23268	0.02297	0.00534466
11268	11270	0.05171	914.43372	47.28536766
11268	11289	0.07586	990.72394	75.15631809
11269	1272	0.47330	6.80407	3.220366331
11269	1273	0.11895	106.96408	12.72337732
11269	11263	0.10253	1755.63037	180.0047818
11269	11291	0.18987	1699.27747	322.6418132
11270	11268	0.05171	990.72394	51.23033494
11270	11274	0.04896	914.43372	44.77067493
11272	10802	0.17308	1688.80640	292.2986117
11272	11248	0.10029	370.61942	37.16942163
11272	11276	0.06360	621.72339	39.5416076
11272	11774	0.19019	1574.29626	299.4154057
11273	11377	0.01841	29067.88867	535.1398304
11274	11270	0.04896	990.72394	48.5058441
11274	11278	0.05309	914.43372	48.54728619
11275	10692	0.21703	28240.12891	6128.955177
11276	11272	0.06360	565.70923	35.97910703
11276	11283	0.03724	621.72339	23.15297904
11277	1295	0.09738	474.37637	46.19477091
11277	11285	0.04138	6550.65527	271.0661151
11277	11369	0.04990	6058.62402	302.3253386
11278	11264	0.04969	914.43372	45.43821155
11278	11274	0.05309	990.72394	52.59753397
11281	11282	0.03112	621.72339	19.3480319
11281	11286	0.05792	565.70923	32.7658786
11282	1217	0.25965	729.10223	189.311394
11282	1219	0.24810	44.66399	11.08113592
11282	11281	0.03112	565.70923	17.60487124
11282	11284	0.10748	1015.00024	109.0922258
11283	11276	0.03724	565.70923	21.06701173
11283	11286	0.12549	621.72339	78.02006821
11284	11282	0.10748	1124.57983	120.8698401
11284	11289	0.06895	1015.00024	69.98426655
11285	11304	0.05667	6550.65527	371.2256342
11285	11325	0.00808	0.00000	0
11286	11281	0.05792	621.72339	36.01021875
11286	11283	0.12549	565.70923	70.99085127
11289	10845	0.15728	1341.05640	210.9213506
11289	11268	0.07586	914.43372	69.368942
11289	11284	0.06895	1124.57983	77.53977928
11289	19287	0.24848	1847.57678	459.0858783
11290	11264	0.11009	1105.92029	121.7507647
11291	11269	0.18987	1774.38818	336.9030837
11291	11296	0.01449	1699.27747	24.62253054
11292	11818	0.22511	3677.82324	827.9147896
11292	14197	0.00469	3478.75830	16.31537643
11293	1206	0.23809	1.24097	0.295462547
11293	1466	0.20912	1.23771	0.258829915

11293	17106	0.18972	370.61942	70.31391636
11296	11027	0.09241	2133.18530	197.1276536
11296	11291	0.01449	1774.38818	25.71088473
11296	11594	0.08885	3857.32739	342.7235386
11302	11306	0.06343	20984.56055	1331.050676
11302	11344	0.00893	7332.33203	65.47772503
11303	15728	0.01501	849.99054	12.75835801
11303	15904	0.02861	4077.39111	116.6541597
11304	10594	0.24587	3525.39648	866.7892325
11304	10692	0.22082	10577.17676	2335.652172
11304	11302	0.06826	14797.08008	1010.048686
11306	11307	0.06137	20984.56055	1287.822481
11307	1344	0.08510	2365.47510	201.301931
11307	11317	0.05448	18781.57422	1023.220164
11307	11348	0.00893	2693.62524	24.05407339
11317	11321	0.05309	18781.57422	997.1137753
11318	1345	0.12195	162.17891	19.77771807
11318	11323	0.06049	18619.39453	1126.287175
11318	11353	0.00893	170.62463	1.523677946
11320	11180	0.03968	4796.82764	190.3381208
11320	11397	0.01565	4705.70557	73.64429217
11321	11318	0.07929	18781.57422	1489.19102
11321	11361	0.00948	0.00000	0
11322	11254	0.03201	893.25360	28.59304774
11322	11350	0.07565	822.37384	62.212581
11323	11326	0.06435	18619.39453	1198.158038
11324	11330	0.12156	620.11871	75.38163039
11324	11370	0.04784	521.94263	24.96973542
11325	11277	0.03924	6488.22852	254.5980871
11325	11285	0.00808	0.00000	0
11326	11183	0.04074	2216.73999	90.30998719
11326	11331	0.17306	17272.20508	2989.127811
11326	11366	0.00781	4369.17432	34.12325144
11328	11084	0.06999	3183.38770	222.8053051
11328	11395	0.01234	3332.39380	41.12173949
11329	11303	0.00717	4927.38135	35.32932428
11330	11324	0.12156	521.94263	63.4473461
11330	11332	0.06072	620.11871	37.65360807
11331	11334	0.06684	18479.38086	1235.161817
11331	11365	0.00725	0.00000	0
11332	11253	0.08824	620.11871	54.71927497
11332	11330	0.06072	521.94263	31.69235649
11333	11338	0.00709	3745.82886	26.55792662
11333	11483	0.03394	1162.65747	39.46059453
11334	1368	0.05424	2212.25635	119.9927844
11334	11335	0.07589	17489.26953	1327.260665
11335	11336	0.18340	17468.66211	3203.752631
11335	11383	0.00837	20.60791	0.172488207
11336	11208	0.03349	6138.42139	205.5757324
11336	11337	0.06412	16917.47070	1084.748221
11336	11388	0.00893	6410.55811	57.24628392
11337	11339	0.10101	16917.47070	1708.833715
11338	11329	0.00777	3745.82886	29.10509024
11339	11340	0.02658	16917.47070	449.6663712

11340	11342	0.05792	16917.47070	979.8599029
11341	1733	0.49987	26.56364	13.27836673
11341	10219	0.43337	540.18866	234.1015596
11341	11603	0.07933	547.69336	43.44851425
11342	1387	0.15781	1756.72144	277.2282104
11342	11343	0.06826	18711.34961	1277.236724
11342	11394	0.00903	0.00000	0
11343	11347	0.07735	19665.35547	1521.115246
11343	11398	0.00893	81.69671	0.72955162
11344	11345	0.06826	12839.48730	876.4234031
11344	11605	0.07923	4705.13867	372.7881368
11344	12011	0.32776	11489.80469	3765.898385
11345	11304	0.00893	22348.99805	199.5765526
11345	11325	0.05882	6488.22852	381.6376015
11346	11188	0.05143	4562.75146	234.6623076
11346	11491	0.03225	1118.86804	36.08349429
11347	1388	0.10335	1296.24512	133.9669332
11347	11357	0.10125	18369.11133	1859.872522
11348	1346	0.23253	845.61871	196.6317186
11348	11307	0.00893	506.04648	4.518995066
11348	11349	0.06136	21702.09961	1331.640832
11349	11344	0.06344	21702.09961	1376.781199
11350	11322	0.07565	893.25360	67.57463484
11350	11367	0.09723	822.37384	79.95940846
11351	11348	0.05448	19460.06250	1060.184205
11353	11318	0.00893	0.00000	0
11353	11361	0.07929	19460.06250	1542.988356
11354	11358	0.10894	17558.08984	1912.778307
11355	11360	0.03861	17558.08984	677.9178487
11356	11355	0.00965	17558.08984	169.435567
11357	11052	0.09049	3378.38208	305.7097944
11357	11354	0.05171	17558.08984	907.9288256
11357	11401	0.00725	3914.48535	28.38001879
11358	11356	0.01586	17558.08984	278.4713049
11358	11412	0.00893	0.00000	0
11360	11362	0.03310	17558.08984	581.1727737
11360	11418	0.00949	0.00000	0
11361	11321	0.00948	0.00000	0
11361	11351	0.05310	19460.06250	1033.329319
11362	11363	0.05240	17558.08984	920.0439076
11363	11364	0.06964	17558.08984	1222.745376
11364	1411	0.18120	663.94965	120.3076766
11364	11368	0.04689	17383.23047	815.0996767
11364	11420	0.00893	1884.69177	16.83029751
11365	11331	0.00725	1207.17676	8.75203151
11365	11366	0.17306	17299.59375	2993.867694
11366	11326	0.00781	2051.03101	16.01855219
11366	11582	0.06864	2906.82104	199.5241962
11366	29940	0.06499	19289.43750	1253.620543
11367	11350	0.09723	893.25360	86.85104753
11367	11373	0.03448	822.37384	28.35545
11368	11372	0.07102	17383.23047	1234.557028
11369	10916	0.15374	866.08099	133.1512914
11369	11277	0.05345	6580.05127	351.7037404

11369	11500	0.03842	6579.15820	252.771258
11370	11324	0.04784	620.11871	29.66647909
11370	11395	0.04367	3368.79077	147.1150929
11371	11374	0.08412	16249.82324	1366.935131
11371	11422	0.00893	4458.52295	39.81460994
11372	11119	0.07088	3100.07373	219.733226
11372	11371	0.01034	17933.30469	185.4303705
11373	11367	0.03448	893.25360	30.79938413
11373	11385	0.22408	822.37384	184.2775301
11374	1428	0.12736	516.13916	65.73548342
11374	11376	0.18202	16282.39355	2963.721274
11374	11427	0.00949	526.86963	4.999992789
11375	1143	0.49508	831.72552	411.7706704
11375	11385	0.02573	893.25360	22.98341513
11375	11393	0.07426	1313.92419	97.57201035
11376	11087	0.07763	399.10904	30.98283478
11376	11380	0.03861	15004.56543	579.3262713
11376	11425	0.00893	3794.17212	33.88195703
11377	12011	0.32193	29067.88867	9357.8254
11378	11382	0.06619	15004.56543	993.1521858
11379	11378	0.00689	15004.56543	103.3814558
11380	11379	0.02482	15004.56543	372.413314
11382	1429	0.23371	1689.10376	394.7604397
11382	11384	0.05447	13315.46094	725.2931574
11383	11335	0.00837	0.00000	0
11383	29939	0.07717	18225.92383	1406.494542
11384	11386	0.03448	13315.46094	459.1170932
11385	11373	0.22408	893.25360	200.1602667
11385	11375	0.02573	822.37384	21.1596789
11386	11151	0.06308	3772.53540	237.971533
11386	11390	0.16085	17876.77344	2875.479008
11386	11435	0.00896	2113.59717	18.93783064
11387	11275	0.02011	28240.12891	567.9089924
11388	11336	0.00893	6331.20215	56.5376352
11388	11383	0.18341	18205.31641	3339.037083
11388	11647	0.09431	6068.71387	572.3404051
11389	11388	0.06550	17012.34375	1114.308516
11390	11391	0.09431	17876.77344	1685.958503
11391	1443	0.31293	138.94545	43.48019967
11391	11399	0.11317	18168.64844	2056.145944
11391	11440	0.00949	2.19647	0.0208445
11392	11389	0.12618	17012.34375	2146.617534
11393	11375	0.07426	1407.62109	104.5299421
11393	11403	0.04759	1313.92419	62.5296522
11394	11342	0.00903	1756.72144	15.8631946
11394	11392	0.05654	17012.34375	961.8779156
11395	11328	0.01234	3183.38770	39.28300422
11395	11370	0.04367	620.11871	27.08058407
11395	11512	0.16322	2756.74414	449.9557785
11395	11809	0.19652	3159.12939	620.8321077
11397	11320	0.01565	4796.82764	75.07035257
11397	11402	0.04206	1290.00415	54.25757455
11397	11404	0.10549	1407.62109	148.4899488
11397	11782	0.16880	3645.68188	615.3911013

11398	1389	0.22150	1114.36108	246.8309792
11398	11343	0.00893	1035.70374	9.248834398
11398	11394	0.06964	18769.06641	1307.077785
11399	1444	0.26366	380.11368	100.2207729
11399	11400	0.03303	17788.53516	587.5553163
11400	11405	0.03861	17788.53516	686.8153425
11401	11357	0.00725	2084.91187	15.11561106
11401	11651	0.09322	1471.77051	137.1984469
11401	29938	0.10093	19722.18750	1990.560384
11402	11397	0.04206	1356.78064	57.06619372
11402	11414	0.16006	1290.00415	206.4780642
11403	11393	0.04759	1407.62109	66.98868767
11403	11404	0.02344	1313.92419	30.79838301
11404	11397	0.10549	1313.92419	138.6058628
11404	11403	0.02344	1407.62109	32.99463835
11405	11406	0.06481	17788.53516	1152.874964
11406	10630	0.25625	2549.50366	653.3103129
11406	11437	0.49442	15547.13086	7686.81244
11406	11444	0.00837	3113.67676	26.06147448
11407	11401	0.05172	17863.53906	923.9022402
11409	11410	0.00965	17863.53906	172.3831519
11410	11412	0.01655	17863.53906	295.6415714
11411	11427	0.08912	16872.55664	1503.682248
11412	11358	0.00893	0.00000	0
11412	11407	0.10894	17863.53906	1946.053945
11414	1141	0.08874	161.78162	14.35650096
11414	11402	0.16006	1356.78064	217.1663092
11414	11430	0.18539	1259.47876	233.4947673
11415	11418	0.03378	17863.53906	603.4303494
11417	11066	0.09485	0.00000	0
11418	11360	0.00949	0.00000	0
11418	11409	0.03794	17863.53906	677.7426719
11419	11415	0.05171	17863.53906	923.7236048
11420	1412	0.19115	2952.41455	564.3540412
11420	11364	0.00893	1722.76721	15.38431119
11420	11419	0.06964	17863.53906	1244.01686
11421	11420	0.04896	17605.40430	861.9605945
11422	11423	0.01034	16557.91016	171.2087911
11422	11775	0.16077	4785.91943	769.4322668
11423	11372	0.00893	3650.14966	32.59583646
11423	11421	0.06895	17605.40430	1213.892626
11424	11425	0.03654	14582.67383	532.8509017
11425	11376	0.00893	379.46576	3.388629237
11425	11411	0.09295	16872.55664	1568.30414
11425	11548	0.04242	1549.39258	65.72523324
11427	1430	0.19891	514.11975	102.2635595
11427	11374	0.00949	548.71033	5.207261032
11427	11422	0.08412	16885.30664	1420.391995
11428	11429	0.00689	14582.67383	100.4746227
11429	11424	0.02690	14582.67383	392.273926
11430	11414	0.18539	1330.51245	246.6637031
11430	11449	0.36612	2182.53564	799.0699485
11430	11599	0.06382	888.39215	56.69718701
11431	1431	0.15120	1986.38403	300.3412653

11431	11428	0.06895	14582.67383	1005.475361
11433	11431	0.05033	14404.83887	724.9955403
11435	11386	0.00896	6859.10254	61.45755876
11435	11433	0.03517	14404.83887	506.6181831
11435	11529	0.03294	3329.35596	109.6689853
11436	1451	0.26183	527.84424	138.2054574
11436	11438	0.14456	15524.34766	2244.199698
11436	11468	0.00952	563.52972	5.364802934
11437	11436	0.01103	15547.13086	171.4848534
11438	1511	0.51849	109.46088	56.75437167
11438	11441	0.10642	15414.88672	1640.452245
11439	11442	0.03930	17161.25977	674.437509
11440	1445	0.22655	152.28770	34.50077844
11440	11391	0.00949	292.09247	2.77195754
11440	11435	0.25581	17214.09375	4403.537322
11441	11447	0.12756	15414.88672	1966.32295
11442	29945	0.03612	17161.25977	619.8647029
11443	11202	0.05699	8912.61133	507.9297197
11443	11458	0.01352	3222.21704	43.56437438
11444	11406	0.00837	515.56317	4.315263733
11444	11439	0.06413	17161.25977	1100.551589
11444	11567	0.04526	671.51758	30.39288567
11445	11443	0.06895	3923.74878	270.5424784
11446	10573	0.74716	90.30885	67.47516037
11446	11001	0.13251	1649.72778	218.6054281
11446	11491	0.07363	4123.11914	303.5852623
11446	11636	0.07962	3185.31055	253.614426
11447	11448	0.11790	15414.88672	1817.415144
11448	10927	0.16192	280.31519	45.38863556
11448	11452	0.16341	15271.30371	2495.483739
11448	11478	0.00935	948.34088	8.866987228
11449	1088	0.27517	19.93703	5.486072545
11449	1142	0.24202	1145.72571	277.2885363
11449	11430	0.36612	2218.90454	812.3853302
11449	11458	0.24477	3277.11743	802.1400333
11450	11445	0.18754	3923.74878	735.8598462
11452	11453	0.17927	15271.30371	2737.686616
11453	1148	0.44714	277.87042	124.2469796
11453	11457	0.10894	15177.02734	1653.385358
11453	11485	0.00904	181.92110	1.644566744
11456	1452	0.27932	42.22930	11.79548808
11456	11444	0.33786	14850.79980	5017.49122
11457	11459	0.05089	15177.02734	772.3589213
11458	11449	0.24477	3344.58936	818.6551376
11458	11467	0.01367	3999.58472	54.67432312
11458	11678	0.09276	8311.43945	770.9691234
11459	1147	0.49520	223.11156	110.4848445
11459	11464	0.49657	14953.91602	7425.666078
11461	11450	0.24339	3923.74878	955.0012156
11462	11461	0.01724	3923.74878	67.64542897
11462	11490	0.00894	0.00000	0
11464	11470	0.49988	17239.46875	8617.665639
11464	11497	0.00989	525.33649	5.195577886
11464	30200	0.49202	753.62323	370.7977016

11465	11462	0.14342	3923.74878	562.74405
11466	10931	0.16365	4917.80420	804.7986573
11466	11465	0.07653	3923.74878	300.2844941
11466	11495	0.00841	6203.43555	52.17089298
11467	11443	0.00726	8211.07910	59.61243427
11467	11471	0.06895	4049.02100	279.179998
11468	1453	0.37068	561.88300	208.2787904
11468	11436	0.00952	529.09534	5.036987637
11468	11469	0.01034	14893.02930	153.993923
11469	11456	0.15663	14893.02930	2332.695179
11470	1150	0.51254	88.18467	45.19817076
11470	11480	0.50264	17315.43359	8703.42954
11470	11499	0.00949	87.56641	0.831005231
11471	11477	0.16065	4049.02100	650.4752237
11472	1043	0.13432	76.65285	10.29601081
11472	11501	0.12365	10078.79883	1246.243475
11473	29944	0.10843	14862.12207	1611.499896
11474	11473	0.12893	14862.12207	1916.173398
11475	10978	0.14748	4551.42285	671.2438419
11475	11501	0.00838	5925.73828	49.65768679
11475	29954	0.12540	9489.63672	1190.000445
11476	1111	0.28320	455.38196	128.9641711
11476	1144	0.35928	42.39981	15.23340374
11476	11796	0.23970	840.27222	201.4132511
11476	30059	0.05860	1155.94604	67.73843794
11477	1072	0.14408	245.43591	35.36240591
11477	11479	0.02689	3951.08960	106.2447993
11478	11448	0.00935	514.12982	4.807113817
11478	11474	0.11928	14862.12207	1772.753921
11478	11720	0.11698	923.80121	108.0662655
11479	11489	0.24201	3951.08960	956.2031941
11480	11064	0.11244	7254.34912	815.6790151
11480	11482	0.10227	9944.38477	1017.01223
11480	11502	0.00896	3823.74658	34.26076936
11481	11478	0.16341	14412.88184	2355.209021
11482	1124	0.11521	0.00000	0
11482	11492	0.49760	9945.37598	4948.819088
11483	11329	0.03295	1181.55273	38.93216245
11483	11652	0.07500	1162.65747	87.19931025
11485	11453	0.00904	91.68369	0.828820558
11485	11481	0.17789	14412.88184	2563.907551
11486	11475	0.22684	10048.89063	2279.490351
11487	11485	0.11584	14322.64453	1659.135142
11488	1130	0.15474	53.12756	8.220958634
11488	11486	0.07263	10048.89063	729.8509265
11489	11490	0.01862	3951.08960	73.56928835
11490	11462	0.00894	0.00000	0
11490	11493	0.15100	3951.08960	596.6145296
11491	11346	0.03225	4562.75146	147.1487346
11491	11446	0.07363	1273.53271	93.77021344
11491	11530	0.09140	1232.52124	112.6524413
11492	11488	0.10117	9945.37598	1006.173688
11493	11495	0.06964	3951.08960	275.1538797
11495	11466	0.00841	76.65243	0.644646936

11495	11472	0.13974	10077.87305	1408.28198
11497	11464	0.00989	2989.41089	29.5652737
11497	12976	0.93560	1677.33630	1569.315842
11497	29941	0.49582	14322.64453	7101.453611
11498	11497	0.43470	15540.31152	6755.373418
11499	1152	0.46941	183.17911	85.98610603
11499	11470	0.00949	161.36293	1.531334206
11499	11498	0.06794	15540.31152	1055.808765
11500	11369	0.03842	6625.10596	254.536571
11500	11572	0.02960	6579.15820	194.7430827
11501	11475	0.00838	2737.30884	22.93864808
11501	11510	0.27856	12228.11523	3406.263778
11501	12186	0.42129	2056.21729	866.2637821
11502	11480	0.00896	269.03616	2.410563994
11502	11499	0.50194	15616.44043	7838.516109
11502	12315	0.47364	534.87921	253.340189
11510	1027	0.35701	270.25449	96.48355547
11510	29943	0.47268	12045.75586	5693.78788
11512	11395	0.16322	0.00000	0
11512	11521	0.02600	2756.74414	71.67534764
11516	11265	0.05690	803.79413	45.735886
11516	11591	0.03292	898.29694	29.57193526
11518	11528	0.02387	31158.48242	743.7529754
11521	11527	0.00991	2756.74414	27.31933443
11527	11604	0.16999	2756.74414	468.6189364
11528	11642	0.31209	31158.48242	9724.250778
11529	11435	0.03294	5265.60693	173.4490923
11529	11580	0.02289	3329.35596	76.20895792
11530	11491	0.09140	1826.81787	166.9711533
11530	11570	0.09031	1232.52124	111.3089932
11540	11262	0.34819	30104.85547	10482.20963
11546	1295	0.10118	274.59369	27.78338955
11546	11345	0.05616	15997.73926	898.4330368
11548	11425	0.04242	424.57047	18.01027934
11548	11666	0.05135	1549.39258	79.56130898
11549	1732	0.53684	53.57227	28.75973743
11549	11550	0.00965	48.99211	0.472773862
11549	11731	0.09664	4820.77686	465.8798758
11550	10799	0.24592	4764.69873	1171.734712
11550	11549	0.00965	3.65301	0.035251547
11552	11540	0.02173	30104.85547	654.1785094
11554	10793	0.25110	920.07672	231.0312644
11554	11986	0.25055	917.03387	229.7628361
11557	10218	0.49473	2314.42480	1145.015381
11557	11721	0.08561	2370.99609	202.9809753
11567	11444	0.04526	383.86295	17.37363712
11567	11920	0.19771	671.51758	132.7657407
11570	11530	0.09031	1826.81787	164.9799218
11570	11607	0.09090	1232.52124	112.0361807
11572	11500	0.02960	6625.10596	196.1031364
11572	11624	0.02686	6579.15820	176.7161893
11579	11387	0.06416	28240.12891	1811.886671
11580	11529	0.02289	5265.60693	120.5297426
11580	11684	0.04912	3329.35596	163.5379648

11582	11366	0.06864	2578.52148	176.9897144
11582	11646	0.02902	2906.82104	84.35594658
11587	11604	0.07949	28311.63477	2250.491848
11591	11516	0.03292	803.79413	26.46090276
11591	11708	0.05411	898.29694	48.60684742
11594	11296	0.08885	3491.74731	310.2417485
11594	11691	0.04675	3857.32739	180.3300555
11599	1141	0.19551	0.00000	0
11599	11430	0.06382	923.05695	58.90949455
11599	11679	0.03941	888.39215	35.01153463
11603	11341	0.07933	548.26764	43.49407188
11603	11979	0.22710	547.69336	124.3811621
11604	12341	2.44710	31068.37891	76027.43003
11605	11699	0.04742	4705.13867	223.1176757
11607	11570	0.09090	1826.81787	166.0577444
11607	11632	0.09265	1232.52124	114.1930929
11617	11655	0.27376	27980.24023	7659.870565
11617	11723	0.22429	2210.81494	495.8636829
11624	11572	0.02686	6625.10596	177.9503461
11624	11700	0.03521	6579.15820	231.6521602
11625	11546	0.03662	15566.69141	570.0522394
11626	11617	0.08033	30191.05469	2425.247423
11631	11587	0.27301	28311.63477	7729.359409
11632	11607	0.09265	1826.81787	169.2546757
11632	11713	0.03814	1232.52124	47.00836009
11633	1273	0.23925	0.00000	0
11636	11446	0.07962	3250.10181	258.7731061
11636	11901	0.15227	3185.31055	485.0272374
11637	11631	0.01184	28311.63477	335.2097557
11641	11637	0.01105	28311.63477	312.8435642
11642	11370	0.21799	2846.84839	620.5844805
11642	11641	0.18372	28311.63477	5201.41354
11646	1369	0.24061	1067.49939	256.8510282
11646	11582	0.02902	2578.52148	74.82869335
11646	11743	0.06306	2506.12158	158.0360268
11647	1369	0.25810	210.56062	54.34569602
11647	11388	0.09431	7182.33008	677.3655498
11647	11903	0.15010	6259.87744	939.6076037
11651	11401	0.09322	1500.84497	139.9087681
11651	11730	0.05022	1471.77051	73.91231501
11652	11483	0.07500	1181.55273	88.61645475
11652	11738	0.06289	1162.65747	73.11952829
11655	11670	0.01038	30104.85547	312.4883998
11666	11548	0.05135	424.57047	21.80169363
11666	11751	0.06028	1549.39258	93.39738472
11670	11672	0.01105	30104.85547	332.6586529
11672	11673	0.19965	30104.85547	6010.434395
11673	11552	0.29913	30104.85547	9005.265417
11678	29957	0.05891	8311.43945	489.626898
11679	11599	0.03941	923.05695	36.3776744
11679	11811	0.09109	888.39215	80.92364094
11684	11580	0.04912	5265.60693	258.6466124
11684	11764	0.04968	3329.35596	165.4024041
11691	1273	0.23522	396.00107	93.14737169

11691	11594	0.04675	3491.74731	163.2391867
11691	11749	0.04690	4251.86816	199.4126167
11695	1780	0.67196	89.68992	60.26803864
11695	1795	0.50046	77.59321	38.83229788
11695	10026	0.62504	675.69891	422.3388467
11695	12995	0.84786	677.88586	574.7523053
11697	11625	0.03292	3691.26001	121.5162795
11699	11842	0.09652	4705.13867	454.1399844
11700	1295	0.08690	165.22751	14.35827062
11700	11624	0.03521	6625.10596	233.2699809
11700	11814	0.08481	6783.71436	575.3268149
11708	11591	0.05411	803.79413	43.49330037
11708	11835	0.09315	898.29694	83.67635996
11713	11632	0.03814	1826.81787	69.67483356
11713	11771	0.03857	1232.52124	47.53834423
11720	11478	0.11698	938.83026	109.8243638
11720	12055	0.20586	923.80121	190.1737171
11721	1732	0.48099	21.58512	10.38222687
11721	1733	0.50897	38.96500	19.83201605
11721	11557	0.08561	2314.42480	198.1379071
11721	12083	0.23332	2353.97754	549.2300396
11723	11655	0.10408	2124.61694	221.1301311
11723	11809	0.10914	2210.81494	241.2883426
11730	11651	0.05022	1500.84497	75.37243439
11730	11804	0.04974	1471.77051	73.20586517
11731	11976	0.14767	4820.77686	711.8841189
11738	11652	0.06289	1181.55273	74.30785119
11738	11824	0.05922	1162.65747	68.85257537
11743	11646	0.06306	2916.39331	183.9077621
11743	11866	0.06194	2506.12158	155.2291707
11749	11691	0.04690	3887.74829	182.3353948
11749	11857	0.05997	4251.86816	254.9845336
11750	1072	0.23600	117.60239	27.75416404
11750	11467	0.14190	8260.51563	1172.167168
11750	11812	0.04219	32.76804	1.382483608
11751	11666	0.06028	424.57047	25.59310793
11751	11847	0.05637	1549.39258	87.33925973
11761	1293	0.32724	192.63051	63.03640809
11761	11877	0.06138	212.57707	13.04798056
11764	11684	0.04968	5265.60693	261.5953523
11764	11825	0.04745	3329.35596	157.9779403
11771	969	0.11320	1164.41895	131.8122251
11771	11713	0.03857	1826.81787	70.46036525
11771	11786	0.04472	68.10226	3.045533067
11774	11272	0.19019	1481.97070	281.8560074
11774	11867	0.05354	1574.29626	84.28782176
11775	1430	0.10262	1944.98596	199.5944592
11775	11776	0.00965	1338.00952	12.91179187
11775	11871	0.05527	4752.58252	262.6752359
11776	1412	0.19257	720.96960	138.8371159
11776	11423	0.16082	4697.64258	755.4748797
11776	11775	0.00965	1305.11768	12.59438561
11782	11397	0.16880	3763.72412	635.3166315
11782	11789	0.07594	2335.02466	177.3217727

11782	12118	0.22085	1381.33582	305.0680158
11786	11771	0.04472	668.22021	29.88280779
11786	11792	0.04716	68.10226	3.211702582
11789	11782	0.07594	2317.18018	175.9666629
11789	11793	0.05511	2335.02466	128.683209
11792	11786	0.04716	668.22021	31.5132651
11792	11808	0.09109	68.10226	6.203434863
11793	11789	0.05511	2317.18018	127.6997997
11793	11800	0.05122	2335.02466	119.5999631
11796	11476	0.23970	794.91278	190.5405934
11796	11879	0.05392	840.27222	45.3074781
11800	1094	0.52911	2669.41333	1412.413287
11800	1141	0.10130	18.06023	1.829501299
11800	11793	0.05122	2317.18018	118.6859688
11800	11815	0.05504	1520.30237	83.67744244
11804	1389	0.25175	223.41367	56.24439142
11804	11730	0.04974	1500.84497	74.65202881
11804	11912	0.05246	1685.65552	88.42948858
11808	11792	0.09109	668.22021	60.86817893
11808	11836	0.09073	68.10226	6.17891805
11809	11395	0.19652	3018.19531	593.1357423
11809	11723	0.10914	2124.61694	231.8806928
11809	11939	0.07446	2460.04785	183.1751629
11811	1142	0.30759	471.55286	145.0449442
11811	11679	0.09109	923.05695	84.08125758
11811	11820	0.03580	1498.74817	53.65518449
11811	12097	0.18164	125.69250	22.8307857
11812	1142	0.32649	7.52959	2.458335839
11812	11750	0.04219	8197.35059	345.8462214
11812	11921	0.05204	8265.64551	430.1441923
11812	29957	0.03632	0.00000	0
11814	1297	0.10351	81.92137	8.479681009
11814	11700	0.08481	6790.33398	575.8882248
11814	11959	0.07700	6762.15186	520.6856932
11815	11800	0.05504	1498.74817	82.49109928
11815	11821	0.05523	1520.30237	83.9662999
11818	1464	0.08942	11.04439	0.987589354
11818	11292	0.22511	3478.75830	783.1032809
11818	12195	0.25237	3679.19263	928.517844
11820	11811	0.03580	1520.30237	54.42682485
11820	11821	0.05378	1498.74817	80.60267658
11821	11815	0.05523	1498.74817	82.77586143
11821	11820	0.05378	1520.30237	81.76186146
11824	11738	0.05922	1181.55273	69.97155267
11824	11918	0.04950	1162.65747	57.55154477
11825	1431	0.11709	13.59825	1.592219093
11825	1445	0.16406	430.11365	70.56444542
11825	11764	0.04745	5265.60693	249.8530488
11825	12213	0.25443	3182.76929	809.7919905
11834	11835	0.05792	2905.62256	168.2936587
11834	11844	0.06347	2613.46021	165.8763195
11835	1239	0.26280	724.86951	190.4957072
11835	11708	0.09315	803.79413	74.87342321
11835	11834	0.05792	2613.46021	151.3716154

11835	11944	0.05913	3002.40820	177.5323969
11836	969	0.28980	490.70529	142.206393
11836	11808	0.09073	668.22021	60.62761965
11836	11939	0.31706	555.52637	176.1351909
11841	1273	0.12018	75.56897	9.081878815
11841	1274	0.19902	142.55516	28.37132794
11841	11844	0.12755	2905.62256	370.6121575
11841	11846	0.11929	2585.84229	308.4651268
11842	1346	0.18479	0.00000	0
11842	12032	0.11214	5609.71973	629.0739705
11843	1297	0.08149	35.19237	2.867826231
11843	11697	0.09819	3691.26001	362.4448204
11844	11834	0.06347	2905.62256	184.4198639
11844	11841	0.12755	2613.46021	333.3468498
11846	11841	0.11929	2898.37402	345.7470368
11846	11859	0.08137	2585.84229	210.4099871
11847	11751	0.05637	424.57047	23.93303739
11847	11925	0.04176	1549.39258	64.70263414
11857	11749	0.05997	3887.74829	233.148265
11857	11858	0.01517	2898.37402	43.96833388
11857	11958	0.06613	6652.95557	439.9599518
11858	11857	0.01517	2585.84229	39.22722754
11858	11859	0.01586	2898.37402	45.96821196
11859	11846	0.08137	2898.37402	235.840694
11859	11858	0.01586	2585.84229	41.01145872
11866	1346	0.25029	1016.33478	254.3784321
11866	1370	0.24560	666.93408	163.79901
11866	11743	0.06194	2916.39331	180.6414016
11866	12052	0.12332	1297.83301	160.0487668
11867	1206	0.11382	53.99673	6.145907809
11867	1218	0.17520	221.61635	38.82718452
11867	11774	0.05354	1481.97070	79.34471128
11867	12048	0.12046	1411.40466	170.0178053
11871	11982	0.07925	4752.58252	376.6421647
11872	11776	0.05529	4683.74658	258.9643484
11877	11761	0.06138	192.63051	11.8236607
11877	11954	0.05690	212.57707	12.09563528
11879	11796	0.05392	794.91278	42.8616971
11879	12482	0.55193	840.27222	463.7714464
11901	11636	0.15227	3250.10181	494.8930026
11901	11966	0.04143	3185.31055	131.9674161
11903	1370	0.25668	970.89905	249.2103682
11903	1389	0.24988	2093.23291	523.0570396
11903	11647	0.15010	6876.95361	1032.230737
11903	12069	0.11115	6105.30420	678.6045618
11912	11804	0.05246	1724.25854	90.45460301
11912	11989	0.05637	1685.65552	95.02040166
11918	1206	0.17573	9.08470	1.596454331
11918	1464	0.13123	43.17689	5.666103275
11918	11824	0.04950	1181.55273	58.48686014
11918	11990	0.06429	1195.11572	76.83398964
11920	1446	0.14802	518.35870	76.72745477
11920	1452	0.32840	99.96313	32.82789189
11920	11567	0.19771	383.86295	75.89354384

11920	12182	0.19418	55.85968	10.84683266
11921	11812	0.05204	8118.91650	422.5084147
11921	11974	0.03526	8265.64551	291.4466607
11925	1430	0.17783	80.15448	14.25387118
11925	1431	0.15378	2648.84180	407.338892
11925	11847	0.04176	424.57047	17.73006283
11925	12253	0.21212	1465.13599	310.7846462
11939	11809	0.07446	2232.91602	166.2629268
11939	11836	0.31706	1158.92554	367.4489317
11939	12305	0.22283	2189.46069	487.8775256
11944	11835	0.05913	2642.67017	156.2610872
11944	12009	0.04574	3002.40820	137.3301511
11954	11877	0.05690	192.63051	10.96067602
11954	11957	0.07310	4001.88159	292.5375442
11954	11958	0.11722	4314.02832	505.6903997
11957	1488	0.09970	137.74153	13.73283054
11957	11954	0.07310	4207.44678	307.5643596
11957	11960	0.06274	4143.30615	259.9510279
11958	11857	0.06613	6601.36768	436.5484447
11958	11954	0.11722	4088.51636	479.2558877
11958	12090	0.09982	3558.05762	355.1653116
11959	11814	0.07700	6813.63037	524.6495385
11959	11960	0.06343	4276.61523	271.265704
11959	12024	0.04519	2575.90405	116.405104
11960	11957	0.06274	4341.70947	272.3988521
11960	11959	0.06343	4481.72705	284.2759468
11966	11901	0.04143	3250.10181	134.651718
11966	12018	0.03751	3185.31055	119.4809987
11972	10806	0.48290	1402.44653	677.2414293
11972	12383	0.25477	1424.00952	362.7949054
11974	11921	0.03526	8118.91650	286.2729958
11974	12007	0.03020	8265.64551	249.6224944
11976	11977	0.01034	209.65718	2.167855241
11976	12376	0.24425	4917.87402	1201.190729
11977	1719	0.50615	509.51685	257.8919536
11977	11550	0.24425	4719.35986	1152.703646
11977	11976	0.01034	306.75421	3.171838531
11979	11603	0.22710	548.26764	124.511581
11979	12387	0.25385	547.69336	139.0319594
11982	12044	0.03461	4205.33008	145.5464741
11982	12045	0.03746	547.25226	20.50006966
11986	11554	0.25055	920.07672	230.5252222
11986	12396	0.25613	917.03387	234.8798851
11989	11912	0.05637	1724.25854	97.1964539
11989	12089	0.07031	1685.65552	118.5184396
11990	11918	0.06429	1215.91675	78.17128786
11990	12066	0.05484	1195.11572	65.54014608
12007	11974	0.03020	8118.91650	245.1912783
12007	12180	0.12449	8265.64551	1028.99021
12009	11944	0.04574	2642.67017	120.8757336
12009	12042	0.01339	3002.40820	40.2022458
12011	12067	0.03347	40557.69531	1357.466062
12016	11579	0.25775	28240.12891	7278.893227
12018	11966	0.03751	3250.10181	121.9113189

12018	12087	0.05161	3185.31055	164.3938775
12024	11959	0.04519	2422.27100	109.4624265
12024	12092	0.04854	2575.90405	125.0343826
12028	11843	0.11047	3646.80396	402.8624335
12032	12123	0.06863	5609.71973	384.9950651
12042	12009	0.01339	2642.67017	35.38535358
12042	12126	0.06415	3002.40820	192.604486
12044	12281	0.14124	4205.33008	593.9608205
12045	1414	0.29940	547.25226	163.8473266
12045	11872	0.11387	4683.74658	533.3382231
12048	11867	0.12046	1322.63586	159.3247157
12048	12194	0.11767	1411.40466	166.0799863
12052	11866	0.12332	1735.67444	214.0433719
12052	12232	0.12545	1297.83301	162.8131511
12055	1148	0.50775	2.48869	1.263632348
12055	1453	0.30456	383.65869	116.8470906
12055	11720	0.20586	938.83026	193.2675973
12055	12945	0.60488	691.70422	418.3980486
12064	11625	0.26760	11875.43164	3177.865507
12064	12016	0.03013	28240.12891	850.8750841
12066	11990	0.05484	1215.91675	66.68087457
12066	12132	0.05026	1195.11572	60.06651609
12067	12153	0.06975	40557.69531	2828.899248
12068	12028	0.02615	3646.80396	95.36392355
12069	1390	0.25016	315.23206	78.85845213
12069	11903	0.11115	6681.88281	742.6912743
12069	12250	0.11319	6075.36084	687.6700935
12083	11721	0.23332	2297.78345	536.1188346
12083	12381	0.16917	2353.97754	398.2223804
12087	967	0.61382	118.15328	72.52484633
12087	969	0.40870	187.35597	76.57238494
12087	12018	0.05161	3250.10181	167.7377544
12087	12304	0.12138	3285.94873	398.8484568
12088	12154	0.05054	1629.35913	82.34781043
12088	19287	0.15913	1587.02368	252.5430782
12089	1390	0.24834	150.97212	37.49241628
12089	11989	0.07031	1724.25854	121.2326179
12089	12172	0.05804	1534.68347	89.0730286
12090	11958	0.09982	3280.95776	327.5052036
12090	12142	0.03465	3558.05762	123.2866965
12092	1296	0.06846	47.79062	3.271745845
12092	1489	0.03279	140.70999	4.613880572
12092	12024	0.04854	2422.27100	117.5770343
12092	12134	0.02510	2524.09155	63.35469791
12094	1488	0.09795	112.55441	11.02470446
12094	1489	0.03178	31.26571	0.993624264
12094	11960	0.09428	403.51489	38.04338383
12097	11811	0.18164	130.71713	23.74345949
12097	12390	0.17269	125.69250	21.70583783
12116	9987	0.91706	1834.15027	1682.025847
12116	12298	0.23801	123.34873	29.35823123
12116	12301	0.09527	1945.06177	185.3060348
12118	11782	0.22085	1517.22278	335.078651
12118	12188	0.06093	1381.33582	84.16479151

12123	12226	0.06919	5609.71973	388.1365081
12126	12042	0.06415	2642.67017	169.5272914
12126	12163	0.03180	3002.40820	95.47658076
12132	12066	0.05026	1215.91675	61.11197586
12132	12209	0.06157	1195.11572	73.58327488
12134	12092	0.02510	2355.13989	59.11401124
12134	12227	0.06583	2524.09155	166.1609467
12142	1274	0.28462	760.42804	216.4330287
12142	1488	0.11085	104.68219	11.60402076
12142	12090	0.03465	3280.95776	113.6851864
12142	12225	0.06361	3441.22095	218.8960646
12153	12184	0.02679	40557.69531	1086.540657
12154	12088	0.05054	1587.02368	80.20817679
12154	12204	0.03739	1629.35913	60.92173787
12163	12126	0.03180	2642.67017	84.03691141
12163	12206	0.03180	3002.40820	95.47658076
12172	12089	0.05804	1577.60339	91.56410076
12172	12297	0.05022	1534.68347	77.07180386
12180	1073	0.10664	99.92792	10.65631339
12180	12007	0.12449	8118.91650	1010.723915
12180	12404	0.11942	8189.63770	978.0065341
12182	11920	0.19418	55.50640	10.77823275
12182	12576	0.24929	55.85968	13.92525963
12184	12270	0.02343	40557.69531	950.2668011
12186	11501	0.42129	1017.10339	428.4954872
12186	12413	0.11844	2056.21729	243.5383758
12188	12118	0.06093	1517.22278	92.44438399
12188	12400	0.10730	1381.33582	148.2173335
12191	1206	0.23771	95.78607	22.7693067
12191	1468	0.24210	103.92534	25.16032481
12191	12194	0.11224	2463.00659	276.4478597
12191	12209	0.09307	2567.55591	238.9624285
12192	1207	0.23924	0.00046	0.00011005
12192	1464	0.23950	0.00046	0.00011017
12193	12064	0.10548	40115.56250	4231.389533
12194	12048	0.11767	1322.63586	155.6345616
12194	12191	0.11224	2728.78931	306.2793122
12194	12197	0.18745	3048.15527	571.3767054
12194	12442	0.12605	1129.30579	142.3489948
12195	1202	0.20378	412.46976	84.05308769
12195	11818	0.25237	3480.53833	878.3834583
12195	12408	0.10768	3642.40283	392.2139367
12196	1219	0.23008	220.60872	50.7576543
12196	12199	0.04135	3351.03442	138.5652733
12196	12200	0.02691	3527.09790	94.91420449
12197	1218	0.23496	237.89650	55.89616164
12197	1220	0.25449	322.52469	82.07930836
12197	12194	0.18745	3297.71606	618.1568754
12197	12198	0.02147	3248.68335	69.74923152
12198	12197	0.02147	3527.09790	75.72679191
12198	12205	0.04002	3248.68335	130.0123077
12199	12196	0.04135	3634.57397	150.2896337
12199	12204	0.07931	3351.03442	265.7705399
12200	12196	0.02691	3248.68335	87.42206895

12200	12205	0.03587	3527.09790	126.5170017
12201	1446	0.24462	0.09675	0.023666985
12201	1448	0.24762	0.10040	0.024861048
12202	12203	0.07033	2875.43262	202.2291762
12202	12207	0.07102	2525.87622	179.3877291
12203	12202	0.07033	2525.87622	177.6448746
12203	12204	0.19650	2875.43262	565.0225098
12204	12154	0.03739	1587.02368	59.3388154
12204	12199	0.07931	3634.57397	288.2580616
12204	12203	0.19650	2525.87622	496.3346772
12204	12340	0.06081	2347.54419	142.7541622
12205	12198	0.04002	3527.09790	141.154458
12205	12200	0.03587	3248.68335	116.5302718
12206	1274	0.26619	249.01367	66.28494882
12206	12163	0.03180	2642.67017	84.03691141
12206	12208	0.12135	3115.99390	378.1258598
12206	12335	0.05857	1426.07446	83.52518112
12207	1239	0.23601	360.32993	85.04146678
12207	1454	0.21057	462.41873	97.37151198
12207	12202	0.07102	2875.43262	204.2132247
12207	12208	0.10963	2775.76294	304.3068911
12208	12206	0.12135	2775.76294	336.8388328
12208	12207	0.10963	3115.99390	341.6064113
12209	12132	0.06157	1215.91675	74.8639943
12209	12191	0.09307	2304.07642	214.4403924
12209	12543	0.19790	2462.25586	487.2804347
12211	1013	0.21532	0.60515	0.130300898
12211	1027	0.27299	0.61802	0.16871328
12212	676	0.32037	57.47507	18.41328818
12212	12221	0.16090	124.25729	19.99299796
12212	12243	0.18040	84.64677	15.27027731
12213	11825	0.25443	3751.54761	954.5062584
12213	12219	0.07981	3182.76929	254.016817
12214	12215	0.02708	2872.88159	77.79763346
12214	12217	0.06206	2429.13208	150.7519369
12215	1299	0.11330	846.05249	95.85774712
12215	1488	0.09116	2.93646	0.267687694
12215	12214	0.02708	2429.13208	65.78089673
12215	12225	0.09083	2491.00781	226.2582394
12216	9957	1.00275	653.51251	655.3096694
12216	12224	0.08205	131.26872	10.77059848
12216	12246	0.17722	68.24871	12.09503639
12216	12640	0.24886	707.36981	176.0360509
12217	12094	0.08926	527.68573	47.10122826
12217	12214	0.06206	2872.88159	178.2910315
12217	12227	0.06551	2728.48730	178.743203
12219	1431	0.30947	22.40890	6.934882283
12219	1433	0.31587	307.28012	97.0605715
12219	12213	0.07981	3751.54761	299.4110148
12219	12253	0.10451	3205.93994	335.0527831
12220	12222	0.04068	4039.78418	164.3384204
12220	12226	0.02207	2843.48901	62.75580245
12221	12212	0.16090	131.26872	21.12113705
12221	12224	0.08205	124.25729	10.19531064

12222	12068	0.11225	3646.80396	409.3537445
12222	12220	0.04068	2843.48901	115.6731329
12222	12223	0.12633	4528.56738	572.0939171
12223	1296	0.07562	46.83707	3.541819233
12223	1300	0.11748	1576.05957	185.1554783
12223	12222	0.12633	2876.09717	363.3373555
12223	12227	0.05569	3105.85254	172.964928
12224	12216	0.08205	124.25729	10.19531064
12224	12221	0.08205	131.26872	10.77059848
12225	12142	0.06361	3167.86206	201.5077056
12225	12215	0.09083	2567.29761	233.1876419
12225	12317	0.04390	873.92340	38.36523726
12226	12220	0.02207	4039.78418	89.15803685
12226	12228	0.06205	1923.97632	119.3827307
12226	12355	0.06250	3464.10303	216.5064394
12227	12134	0.06583	2355.13989	155.038859
12227	12217	0.06551	1764.88684	115.6177369
12227	12223	0.05569	2958.37915	164.7521349
12227	12361	0.06307	4612.02246	290.8802566
12228	12226	0.06205	974.65466	60.47732165
12228	12230	0.06205	1923.97632	119.3827307
12229	9911	1.02387	2343.98608	2399.937028
12229	12251	0.99973	100.57129	100.5441358
12229	13948	1.00255	2226.35010	2232.027293
12230	12228	0.06205	974.65466	60.47732165
12230	12240	0.06137	1923.97632	118.0744268
12231	12235	0.06067	700.99066	42.52910334
12231	12239	0.06274	748.86511	46.983797
12232	12052	0.12545	1735.67444	217.7403585
12232	12239	0.07239	700.99066	50.74471388
12232	12241	0.05585	1491.49988	83.3002683
12232	12464	0.12388	1563.00427	193.624969
12233	12234	0.01999	1376.33618	27.51296024
12233	12245	0.03999	1491.49988	59.6450802
12234	12233	0.01999	1491.49988	29.8150826
12234	12238	0.03861	1376.33618	53.14033991
12235	12231	0.06067	748.86511	45.43364622
12235	12237	0.02896	700.99066	20.30068951
12237	12235	0.02896	748.86511	21.68713359
12237	12240	0.03241	700.99066	22.71910729
12238	12234	0.03861	1491.49988	57.58681037
12238	12241	0.06067	1376.33618	83.50231604
12239	12231	0.06274	700.99066	43.98015401
12239	12232	0.07239	748.86511	54.21034531
12240	1346	0.24997	893.10669	223.2498793
12240	1347	0.12623	301.85684	38.10338891
12240	12230	0.06137	974.65466	59.81455648
12240	12237	0.03241	748.86511	24.27071822
12241	12232	0.05585	1376.33618	76.86837565
12241	12238	0.06067	1491.49988	90.48929772
12243	12212	0.18040	78.78219	14.21230708
12243	12262	0.49230	84.64677	41.67160487
12244	12246	0.01241	178.28519	2.212519208
12244	12266	0.31100	68.24871	21.22534881

12245	1284	0.11628	212.38528	24.69616036
12245	1370	0.22825	830.03546	189.4555937
12245	12233	0.03999	1376.33618	55.03968384
12245	12247	0.05585	464.17487	25.92416649
12246	12216	0.17722	178.28519	31.59570137
12246	12244	0.01241	68.24871	0.846966491
12247	12245	0.05585	391.26611	21.85221224
12247	12249	0.04827	464.17487	22.40572097
12248	12249	0.04964	391.26611	19.4224497
12248	12252	0.06205	464.17487	28.80205068
12249	12247	0.04827	391.26611	18.88641513
12249	12248	0.04964	464.17487	23.04164055
12250	12069	0.11319	6659.18848	753.7535441
12250	12252	0.06343	391.26611	24.81800936
12250	12254	0.06343	427.32739	27.10537635
12250	12473	0.12555	5723.12500	718.5383438
12251	2008	0.69597	20.16438	14.03380355
12251	12229	0.99973	121.88475	121.8518411
12251	12268	0.99490	91.93233	91.46347512
12252	12248	0.06205	391.26611	24.27806213
12252	12250	0.06343	464.17487	29.442612
12253	11925	0.21212	1778.56128	377.2684187
12253	12219	0.10451	3780.45947	395.0958192
12253	12509	0.17193	4352.83008	748.3820757
12254	12250	0.06343	424.83322	26.94717114
12254	12256	0.05793	427.32739	24.7550757
12255	2007	0.55748	16.43210	9.160567108
12255	12268	0.59735	131.91925	78.80196399
12255	12278	0.40071	75.50022	30.25369316
12256	1391	0.12572	113.11597	14.22093975
12256	12254	0.05793	424.83322	24.61058843
12256	12257	0.05102	536.44305	27.36932441
12257	12256	0.05102	537.94922	27.4461692
12257	12261	0.04897	536.44305	26.26961616
12258	684	0.19892	203.25851	40.43218281
12258	12265	0.25283	78.78219	19.9185011
12258	12279	0.49599	128.13336	63.55286523
12260	12261	0.00621	537.94922	3.340664656
12260	12263	0.05034	536.44305	27.00454314
12261	12257	0.04897	537.94922	26.3433733
12261	12260	0.00621	536.44305	3.331311341
12262	12243	0.49230	78.78219	38.78447214
12262	12265	0.24614	84.64677	20.83495597
12263	1390	0.11487	26.93699	3.094252041
12263	12260	0.05034	537.94922	27.08036373
12263	12267	0.05171	561.93622	29.05772194
12264	12193	0.01506	40115.56250	604.1403713
12265	12258	0.25283	84.64677	21.40124286
12265	12262	0.24614	78.78219	19.39144825
12266	12244	0.31100	178.28519	55.44669409
12266	12269	0.08329	68.24871	5.684435056
12267	12263	0.05171	563.65985	29.14685084
12267	12280	0.05396	561.93622	30.32207843
12268	12251	0.99490	106.22810	105.6863367

12268	12255	0.59735	91.93233	54.91577733
12268	13433	0.71372	25.69115	18.33628758
12269	681	0.40162	8.99023	3.610656173
12269	12266	0.08329	178.28519	14.84937348
12269	12292	0.42286	68.74383	29.06901595
12270	12554	0.19806	40557.69531	8032.857133
12277	1430	0.28320	15.22404	4.311448128
12277	1432	0.33675	15.85637	5.339632598
12278	2006	1.01472	138.85530	140.89925
12278	12255	0.40071	115.63876	46.33760752
12278	12288	0.49809	179.00552	89.16085946
12278	13034	0.49960	9.89707	4.944576172
12279	12258	0.49599	123.34873	61.17973659
12279	12298	0.78757	128.13336	100.9139903
12280	1392	0.24108	223.17567	53.80319052
12280	12267	0.05396	563.65985	30.41508551
12280	12293	0.05676	338.76059	19.22805109
12281	12645	0.23866	4205.33008	1003.644077
12285	12045	0.14179	4152.39697	588.7683664
12288	12278	0.49809	68.74383	34.24061428
12288	12292	0.49573	179.00552	88.73840643
12292	12269	0.42286	179.00552	75.69427419
12292	12288	0.49573	68.74383	34.07837885
12293	12280	0.05676	343.39099	19.49087259
12293	12297	0.05724	338.76059	19.39065617
12295	1143	0.24500	0.00000	0
12296	1927	1.00548	280.23605	281.7717436
12296	1928	0.30759	89.84278	27.6347407
12296	10766	0.69107	440.65878	304.5260631
12296	13069	0.51232	108.96950	55.82725424
12297	1413	0.29942	791.00537	236.8428279
12297	12172	0.05022	1577.60339	79.22724225
12297	12293	0.05724	343.39099	19.65570027
12297	12394	0.07535	876.61627	66.05303594
12298	12116	0.23801	128.13336	30.49702101
12298	12279	0.78757	123.34873	97.14575929
12301	12116	0.09527	1935.46289	184.3915495
12301	12406	0.08067	1945.06177	156.908133
12302	1148	0.50588	0.68665	0.347362502
12302	1152	0.50557	0.69725	0.352508683
12304	12087	0.12138	3356.59326	407.4232899
12304	14011	1.00369	3285.94873	3298.073881
12305	11939	0.22283	2565.72803	571.7211769
12305	14003	0.99828	2189.46069	2185.694818
12315	1013	0.27879	144.20038	40.20162394
12315	1152	0.51621	11.55847	5.966597799
12315	11502	0.47364	617.75610	292.5939992
12315	13015	0.46693	402.48792	187.9336845
12317	12225	0.04390	676.85425	29.71390158
12317	12351	0.02147	873.92340	18.7631354
12318	1927	1.00968	93.13216	94.03367931
12318	1929	0.94460	3.60256	3.402978176
12318	10073	1.00388	1162.15527	1166.664432
12318	14017	1.00402	1087.62524	1091.997493

12322	1770	0.74731	280.90421	209.9225252
12322	1779	0.79698	29.67789	23.65268477
12322	10130	0.99270	188.45462	187.0789013
12322	13130	0.51039	491.93423	251.0783116
12335	12206	0.05857	1410.62976	82.62058504
12335	12456	0.07029	1426.07446	100.2387738
12340	12204	0.06081	2239.19189	136.1652588
12340	12412	0.04744	2347.54419	111.3674964
12341	12406	0.24703	1648.78101	407.2983729
12341	12457	0.25230	29419.59766	7422.56449
12351	12317	0.02147	676.85425	14.53206075
12351	12422	0.04669	873.92340	40.80348355
12355	12455	0.06137	3464.10303	212.592003
12356	12217	0.06360	1935.03577	123.068275
12361	12227	0.06307	3331.99683	210.1490401
12361	12450	0.05914	4612.02246	272.7550083
12368	11626	2.43899	30191.05469	73635.68048
12374	637	0.13572	26.32639	3.573017651
12374	12376	0.15073	2247.81836	338.8136614
12374	12379	0.22544	2374.71631	535.3560449
12376	12374	0.15073	2373.78540	357.8006733
12376	12377	0.00965	2288.94507	22.08831993
12376	12564	0.14305	3511.10400	502.2634272
12377	11977	0.24426	4809.65430	1174.806159
12377	12376	0.00965	1008.14203	9.72857059
12377	12378	0.49454	1214.75464	600.7447597
12378	611	0.25102	154.78368	38.85379935
12378	1719	0.36326	78.19714	28.40589308
12378	12377	0.49454	1047.10852	517.8370475
12378	12383	0.49522	1195.83447	592.2011462
12379	12374	0.22544	2249.17480	507.0539669
12379	12380	0.15269	2374.71631	362.5954334
12380	629	0.11507	422.57138	48.6252887
12380	1732	0.37671	93.09377	35.0693541
12380	12379	0.15269	2249.17480	343.4265002
12380	12381	0.47300	2414.45752	1142.038407
12381	12083	0.16917	2297.78345	388.7160262
12381	12380	0.47300	2295.65161	1085.843212
12381	12728	0.25736	4658.44531	1198.897485
12383	71	3.00000	1202.34949	3607.04847
12383	11972	0.25477	1402.44653	357.3013024
12383	12378	0.49522	1030.04724	510.0999942
12383	13159	0.50143	1211.39124	607.4279095
12387	11979	0.25385	548.26764	139.1777404
12387	12831	0.31877	547.69336	174.5882124
12388	1142	0.31199	150.52068	46.96094695
12388	12393	0.07537	271.71988	20.47952736
12388	12401	0.03978	130.71713	5.199927431
12390	12097	0.17269	130.71713	22.57354118
12390	12391	0.03395	125.69250	4.267260375
12391	12390	0.03395	130.71713	4.437846564
12391	12410	0.10627	125.69250	13.35734198
12393	12388	0.07537	281.23782	21.19689449
12393	12399	0.06345	271.71988	17.24062639

12394	12297	0.07535	946.42688	71.31326541
12394	12500	0.06920	876.61627	60.66184588
12396	11986	0.25613	920.07672	235.6592503
12396	12682	0.20421	917.03387	187.2674866
12399	12393	0.06345	281.23782	17.84453968
12399	12403	0.08482	271.71988	23.04728022
12400	1094	0.37444	52.20543	19.54780121
12400	1143	0.24893	120.23457	29.92999151
12400	12188	0.10730	1517.22278	162.7980043
12400	13020	0.41313	1506.33655	622.3128189
12401	12388	0.03978	125.69250	5.00004765
12401	12420	0.10621	130.71713	13.88346638
12403	12399	0.08482	281.23782	23.85459189
12403	12404	0.06483	271.71988	17.61559982
12404	12180	0.11942	8045.17676	960.7550087
12404	12403	0.06483	281.23782	18.23264787
12404	12407	0.35301	215.85231	76.19802395
12404	12603	0.14423	8324.09473	1200.584183
12405	1153	0.23268	364.59641	84.83429268
12405	12407	0.13798	238.57991	32.91925598
12405	12409	0.02544	273.74124	6.963977146
12406	12301	0.08067	1935.46289	156.1337913
12406	12483	0.22335	1257.55603	280.8751393
12406	12585	0.13501	1859.41956	251.0402348
12407	12404	0.35301	238.57991	84.22109403
12407	12405	0.13798	215.85231	29.78330173
12408	12195	0.10768	3453.32251	371.8537679
12408	12944	0.38032	3642.40283	1385.278644
12409	12405	0.02544	301.64410	7.673825904
12409	12413	0.51917	273.74124	142.1182396
12410	12391	0.10627	130.71713	13.89130941
12410	12420	0.04647	125.69250	5.840930475
12412	12340	0.04744	2239.19189	106.2272633
12412	12492	0.05896	2347.54419	138.4112054
12413	1027	0.29763	40.16550	11.95445777
12413	12186	0.11844	1017.10339	120.4657255
12413	12409	0.51917	301.64410	156.6045674
12413	12696	0.20374	1955.88892	398.4928086
12417	1762	1.09991	46.52158	51.16955106
12417	10561	0.84453	696.40320	588.1333945
12417	12834	0.30187	649.92188	196.1919179
12420	12401	0.10621	125.69250	13.34980043
12420	12410	0.04647	130.71713	6.074425031
12422	1299	0.10692	322.88641	34.52301496
12422	12351	0.04669	676.85425	31.60232493
12422	12515	0.07308	1224.33679	89.47453261
12429	23629	0.09806	2525.80273	247.6802157
12429	30104	0.01807	2589.59155	46.79391931
12436	1300	0.09926	1014.78583	100.7276415
12436	12222	0.11628	4102.97900	477.0943981
12442	12194	0.12605	1056.75867	133.2044304
12442	12597	0.12167	1129.30579	137.4026355
12450	1300	0.08678	198.91879	17.2621726
12450	1490	0.03183	167.88676	5.343835571

12450	12361	0.05914	3331.99683	197.0542925
12450	12522	0.06027	4754.77393	286.5702248
12452	1299	0.08345	271.77478	22.67960539
12452	1490	0.03162	40.01417	1.265248055
12452	12356	0.05969	1935.03577	115.5022851
12455	1347	0.21718	0.00000	0
12455	12529	0.06139	3464.10303	212.661285
12456	12335	0.07029	1410.62976	99.15316583
12456	12528	0.06136	1426.07446	87.50392887
12457	12483	0.22020	29419.59766	6478.195405
12464	1284	0.25130	2.76558	0.694990254
12464	1347	0.22547	428.46768	96.60660781
12464	12232	0.12388	2068.13501	256.200565
12464	12641	0.12275	1310.48242	160.8617171
12473	1284	0.24262	247.33310	60.00795672
12473	1391	0.12216	289.31583	35.34282179
12473	12250	0.12555	6236.53809	782.9973572
12473	12659	0.12388	5532.49365	685.3653134
12477	12368	0.23838	30191.05469	7196.943617
12481	12477	0.02950	30191.05469	890.6361134
12482	11879	0.55193	794.91278	438.7362107
12482	13058	0.60307	840.27222	506.7429677
12483	12667	0.79010	30677.15430	24238.01961
12488	12481	0.20487	28546.02344	5848.223822
12488	12548	0.14172	1495.66870	211.9661682
12492	12412	0.05896	2239.19189	132.0227538
12492	12553	0.05127	2347.54419	120.3585906
12500	12394	0.06920	946.42688	65.4927401
12500	12537	0.02680	876.61627	23.49331604
12509	12253	0.17193	5240.77490	901.0464286
12509	12738	0.16616	4352.83008	723.2662461
12515	12422	0.07308	999.74066	73.06104743
12515	12516	0.05447	3954.13086	215.3815079
12515	12524	0.05036	3068.54663	154.5320083
12515	12632	0.06416	1047.85132	67.23014069
12516	12515	0.05447	3502.51880	190.782199
12516	12538	0.16165	3954.13086	639.1852535
12520	1299	0.07238	234.85403	16.99873469
12520	1301	0.21225	272.10513	57.75431384
12520	12521	0.06206	3842.82861	238.4859435
12520	12523	0.06343	3558.27661	225.7014854
12521	12452	0.05970	1575.45032	94.0543841
12521	12520	0.06206	4056.70483	251.7591017
12521	12522	0.06274	3951.42383	247.9123311
12522	12450	0.06027	3501.80029	211.0535035
12522	12521	0.06274	3433.79932	215.4365693
12522	12621	0.06192	2417.42432	149.6869139
12523	12520	0.06343	3068.54663	194.6379127
12523	12524	0.01172	3558.27661	41.70300187
12524	12515	0.05036	3558.27661	179.1948101
12524	12523	0.01172	3068.54663	35.9633665
12528	1454	0.23241	1018.22937	236.6466879
12528	12456	0.06136	1410.62976	86.55624207
12528	12541	0.12312	2533.62549	311.9399703

12528	12609	0.05746	2666.87158	153.238441
12529	12633	0.06026	3464.10303	208.7468486
12537	12500	0.02680	946.42688	25.36424038
12537	12661	0.06475	876.61627	56.76090348
12538	12516	0.16165	3502.51880	566.182164
12538	12540	0.03038	3954.13086	120.1264955
12539	629	0.01199	0.00000	0
12540	1274	0.24646	82.18201	20.25457818
12540	1275	0.18512	1206.77515	223.3982158
12540	12538	0.03038	3502.51880	106.4065211
12540	12542	0.06271	2983.54517	187.0981176
12541	12528	0.12312	2983.54517	367.3340813
12541	12542	0.12824	2533.62549	324.9121328
12542	12540	0.06271	2533.62549	158.8836545
12542	12541	0.12824	2983.54517	382.6098326
12543	12209	0.19790	2219.57764	439.254415
12543	12580	0.03999	2462.25586	98.46561184
12548	12481	0.11718	1645.02954	192.7645615
12548	12589	0.04268	1495.66870	63.83514012
12549	629	0.16637	0.35511	0.059079651
12549	637	0.21863	0.35666	0.077976576
12552	12264	0.19753	40115.56250	7924.027061
12553	12492	0.05127	2239.19189	114.8033682
12553	12590	0.03216	2347.54419	75.49702115
12554	12596	0.03408	40557.69531	1382.206256
12564	637	0.15933	7.92933	1.263380149
12564	12377	0.14349	3696.49731	530.410399
12564	12736	0.12360	3518.93994	434.9409766
12576	1448	0.12815	16.42608	2.105002152
12576	12182	0.24929	55.50640	13.83719046
12576	12591	0.12217	39.46303	4.821198375
12580	1207	0.12641	3.32234	0.419976999
12580	1468	0.11784	40.45265	4.766940276
12580	12543	0.03999	2219.57764	88.76090982
12580	12743	0.11268	2479.47974	279.3877771
12585	12406	0.13501	1458.59570	196.9250055
12585	12589	0.06689	1653.76672	110.6204559
12585	13056	0.28626	1501.03259	429.6855892
12589	1993	0.39666	136.34833	54.08392858
12589	12548	0.04268	1645.02954	70.20986077
12589	12585	0.06689	1515.03577	101.3407427
12590	1220	0.24959	1267.06995	316.2479888
12590	1454	0.28880	351.91479	101.6329914
12590	12553	0.03216	2239.19189	72.01241118
12590	12943	0.24427	2557.41577	624.6999501
12591	1512	0.37924	39.46303	14.9659595
12591	12576	0.12217	38.99691	4.764252495
12592	12552	0.03354	40115.56250	1345.475966
12596	12657	0.01275	40557.69531	517.1106152
12597	1220	0.23760	3.29487	0.782861112
12597	1468	0.10846	74.23186	8.051187536
12597	12442	0.12167	1056.75867	128.5758274
12597	12923	0.23782	1202.79517	286.0487473
12603	12404	0.14423	8166.42432	1177.84338

12603	12832	0.16430	8324.09473	1367.648764
12609	12528	0.05746	2252.17725	129.4101048
12609	12655	0.00892	2666.87158	23.78849449
12618	12521	0.06137	2306.95117	141.5775933
12618	12621	0.06344	397.04965	25.1888298
12620	12621	0.03103	1951.83459	60.56542733
12620	12626	0.03172	1607.25781	50.98221773
12621	12522	0.06192	646.82623	40.05148016
12621	12618	0.06344	1349.37134	85.60411781
12621	12620	0.03103	1607.25781	49.87320984
12621	12702	0.06304	1498.64063	94.47430532
12623	12624	0.01435	2224.95020	31.92803537
12623	12626	0.03241	3032.59741	98.28648206
12624	1303	0.12631	866.58521	109.4583779
12624	12623	0.01435	3032.59741	43.51777283
12624	12628	0.07943	2000.30115	158.8839203
12626	1300	0.13330	0.99099	0.132098967
12626	12620	0.03172	1951.83459	61.91219319
12626	12623	0.03241	2224.95020	72.11063598
12626	12697	0.06193	1508.83643	93.44224011
12628	12436	0.12921	3583.50732	463.0249808
12628	12624	0.07943	3453.83228	274.337898
12628	12634	0.03793	3331.75659	126.3735275
12629	1347	0.12438	360.52789	44.84245896
12629	1348	0.14098	1673.38782	235.9142149
12629	12637	0.03852	3192.78687	122.9861502
12629	12641	0.24694	1434.88281	354.3299611
12632	12515	0.06416	785.13776	50.37443868
12632	12695	0.06081	1047.85132	63.71983877
12633	12634	0.02482	3670.67651	91.10619098
12633	12638	0.06275	3197.22314	200.625752
12633	12704	0.06305	3120.74707	196.7631028
12634	12628	0.03793	3670.67651	139.22876
12634	12633	0.02482	3331.75659	82.69419856
12635	12637	0.03310	3197.22314	105.8280859
12635	12638	0.06068	3192.78687	193.7383073
12637	12629	0.03852	3197.22314	123.1570354
12637	12635	0.03310	3192.78687	105.6812454
12638	12633	0.06275	3192.78687	200.3473761
12638	12635	0.06068	3197.22314	194.0075001
12640	12216	0.24886	596.83527	148.5284253
12640	12802	0.13493	707.36981	95.44540846
12641	12464	0.12275	1847.34045	226.7610402
12641	12629	0.24694	1913.70264	472.5697299
12641	12646	0.05934	3743.41235	222.1340888
12641	12746	0.09888	2818.33838	278.677299
12645	12750	0.09805	4205.33008	412.3326143
12646	12641	0.05934	3842.05029	227.9872642
12646	12647	0.05999	3743.41235	224.5673069
12647	12646	0.05999	3842.05029	230.4845969
12647	12649	0.06068	3743.41235	227.1502614
12648	1284	0.13918	201.61426	28.06067271
12648	1371	0.16741	570.56665	95.51856288
12648	12649	0.06274	3842.05029	241.0502352

12648	12650	0.06343	3496.38110	221.7754532
12649	12647	0.06068	3842.05029	233.1356116
12649	12648	0.06274	3743.41235	234.8616908
12650	12648	0.06343	3598.69238	228.2650577
12650	12658	0.06206	3496.38110	216.9854111
12655	12609	0.00892	2252.17725	20.08942107
12655	12715	0.06025	2666.87158	160.6790127
12656	12658	0.06274	3598.69238	225.7819599
12656	12659	0.06274	3496.38110	219.3629502
12657	12853	0.17519	29374.19531	5146.065276
12657	12908	0.21585	11183.49805	2413.958054
12658	12650	0.06206	3598.69238	223.3348491
12658	12656	0.06274	3496.38110	219.3629502
12659	12473	0.12388	6060.99756	750.8363777
12659	12656	0.06274	3598.69238	225.7819599
12659	12678	0.03683	2955.35596	108.84576
12661	1392	0.11859	426.57593	50.58763954
12661	12537	0.06475	946.42688	61.28114048
12661	12691	0.05078	789.65948	40.09890839
12663	12592	0.01738	40115.56250	697.2084763
12667	12858	0.88642	30677.15430	27192.84311
12676	12488	0.79709	30041.69336	23945.93336
12678	12659	0.03683	3586.17163	132.0787011
12678	12768	0.07031	2955.35596	207.7910775
12682	1752	0.99500	30.69657	30.54308715
12682	1762	0.91541	48.77745	44.6513655
12682	12396	0.20421	920.07672	187.888867
12682	13204	0.29368	842.93341	247.5526838
12691	12661	0.05078	873.73981	44.36850755
12691	12766	0.05246	789.65948	41.42553632
12695	12632	0.06081	785.13776	47.74422719
12695	12779	0.06304	1047.85132	66.05654721
12696	1154	0.18035	66.65517	12.02125991
12696	12413	0.20374	768.70764	156.6164946
12696	12732	0.02870	1889.23376	54.22100891
12697	12787	0.06360	1508.83643	95.96199695
12699	12618	0.06360	1354.62952	86.15443747
12702	12621	0.06304	335.78748	21.16804274
12702	12786	0.06249	1498.64063	93.65005297
12704	12783	0.06137	3120.74707	191.5202477
12706	12628	0.06360	4698.11816	298.800315
12715	12655	0.06025	2252.17725	135.6936793
12715	12790	0.05913	2666.87158	157.6921165
12720	12597	0.07729	1127.75659	87.16430684
12728	111	0.12273	1292.11719	158.5815427
12728	12381	0.25736	4483.44531	1153.859485
12728	13189	0.25292	5070.11719	1282.33404
12732	12696	0.02870	703.98206	20.20428512
12732	12761	0.01564	1889.23376	29.54761601
12735	621	0.11635	0.00000	0
12736	611	0.49379	135.61690	66.96626905
12736	12564	0.12360	3704.42676	457.8671475
12736	12895	0.11564	3651.11572	422.2150219
12738	1432	0.11018	222.60095	24.52617267

12738	1433	0.14050	2.61113	0.366863765
12738	12509	0.16616	5240.77490	870.8071574
12738	13035	0.17818	4144.25439	738.4232472
12743	12580	0.11268	2235.95166	251.947033
12743	12935	0.13578	2479.47974	336.6637591
12746	12641	0.09888	3735.37817	369.3541934
12746	12824	0.04999	2818.33838	140.8887356
12750	1432	0.14791	562.13184	83.14492045
12750	12807	0.03852	4287.46582	165.1531834
12751	12285	0.33608	4152.39697	1395.537574
12761	12732	0.01564	703.98206	11.01027942
12761	12990	0.14694	1889.23376	277.6040087
12766	12691	0.05246	873.73981	45.83639043
12766	12806	0.02958	789.65948	23.35812742
12768	12678	0.07031	3586.17163	252.1437273
12768	12848	0.06027	2955.35596	178.1193037
12779	12695	0.06304	785.13776	49.49508439
12779	12823	0.02438	1047.85132	25.54661518
12781	12779	0.06206	0.00000	0
12782	1302	0.03148	380.93259	11.99175793
12782	1491	0.02603	504.13135	13.12253904
12782	12699	0.06249	1354.62952	84.6507987
12783	1348	0.21092	0.00000	0
12783	12869	0.06249	3891.41479	243.1745102
12786	1302	0.03153	442.34875	13.94725609
12786	12702	0.06249	335.78748	20.98335963
12786	12871	0.06252	1393.33643	87.1113936
12787	1303	0.06068	0.00000	0
12787	12796	0.00638	2172.65454	13.86153597
12790	1275	0.31962	206.36615	65.95874886
12790	12715	0.05913	2252.17725	133.1712408
12790	12842	0.04296	3025.89502	129.9924501
12794	1303	0.06690	703.72113	47.0789436
12794	12706	0.06360	4698.11816	298.800315
12796	12874	0.05680	2172.65454	123.4067779
12798	12676	0.52872	30041.69336	15883.64411
12802	676	0.34801	212.79260	74.05395273
12802	681	0.63671	89.25856	56.83181774
12802	12640	0.13493	596.83527	80.53098298
12802	13012	0.12010	1005.24884	120.7303857
12806	12766	0.02958	873.73981	25.84522358
12806	12897	0.07311	789.65948	57.73200458
12807	30127	0.13172	4287.46582	564.7449978
12808	12750	0.04154	305.71619	12.69945053
12808	12751	0.03852	4152.39697	159.9503313
12815	629	0.20138	2.93458	0.59096572
12815	638	0.10465	2.94380	0.30806867
12815	12817	0.02483	0.00000	0
12823	1275	0.23864	19.89908	4.748716451
12823	1301	0.08977	440.69958	39.5616013
12823	12779	0.02438	785.13776	19.14165859
12823	12868	0.03869	1764.44128	68.26623312
12824	1348	0.22522	729.45178	164.2871299
12824	1371	0.25110	267.96606	67.28627767

12824	12746	0.04999	3735.37817	186.7315547
12824	13075	0.13192	2523.79175	332.9386077
12826	1447	0.18421	0.00000	0
12831	116	0.35843	9.39274	3.366639798
12831	1752	1.00065	232.40735	232.5584148
12831	12387	0.31877	548.26764	174.7712756
12831	14120	0.67805	542.77277	368.0270767
12832	12603	0.16430	8166.42432	1341.743516
12832	12994	0.09331	8324.09473	776.7212793
12834	12417	0.30187	648.02527	195.6193883
12834	13197	0.18159	649.92188	118.0193142
12842	12790	0.04296	2458.54346	105.619027
12842	12883	0.02622	3025.89502	79.33896742
12848	1371	0.24822	72.44217	17.98159544
12848	12768	0.06027	3586.17163	216.1385641
12848	13090	0.11441	3022.08154	345.756349
12853	12984	0.06918	29374.19531	2032.106832
12858	12901	0.18598	30677.15430	5705.337157
12859	12663	0.17522	26761.54297	4689.157559
12867	12782	0.06248	1555.88354	97.21160358
12868	12823	0.03869	1016.22321	39.31767599
12868	12972	0.06136	1764.44128	108.2661169
12869	12908	0.03347	3891.41479	130.245653
12871	12786	0.06252	0.00000	0
12871	12980	0.06192	1393.33643	86.27539175
12874	12981	0.06137	2172.65454	133.3358091
12877	12794	0.06249	4693.31787	293.2854337
12883	12842	0.02622	2458.54346	64.46300952
12883	12975	0.05411	3025.89502	163.7311795
12890	12798	0.36467	30041.69336	10955.30432
12893	621	0.12829	0.00000	0
12895	621	0.12676	101.91264	12.91844625
12895	12736	0.11564	3839.63794	444.0157314
12895	13162	0.12407	3632.29248	450.658528
12897	12806	0.07311	873.73981	63.87911751
12897	13032	0.05079	789.65948	40.10680499
12901	12962	0.11255	30677.15430	3452.713716
12906	12867	0.03236	1555.88354	50.34839135
12908	13066	0.06194	15074.91309	933.7401168
12912	12663	0.21455	13354.01758	2865.104472
12912	12877	0.03237	4693.31787	151.9226995
12922	12890	0.17540	27972.31055	4906.34327
12922	12946	0.06215	10.78541	0.670313232
12923	12924	0.00689	3898.59888	26.86134628
12923	12932	0.18687	6341.40869	1185.019042
12923	13124	0.07251	3764.59863	272.9710467
12924	12720	0.16023	1127.75659	180.7004384
12924	12923	0.00689	8072.64307	55.62051075
12924	12930	0.11791	6086.03467	717.6043479
12925	12940	0.61916	0.00000	0
12930	1208	0.12616	869.57483	109.7055606
12930	1468	0.24567	7.87747	1.935258055
12930	12924	0.11791	6535.24707	770.570982
12930	12935	0.13446	6988.63672	939.6920934

12932	1220	0.23745	300.75830	71.41505834
12932	1221	0.11787	226.13408	26.65442401
12932	12923	0.18687	4729.16797	883.7396186
12932	12942	0.18341	6182.68701	1133.966625
12935	12743	0.13578	2235.95166	303.5975164
12935	12930	0.13446	7396.85352	994.5809243
12935	12936	0.02965	8408.66211	249.3168316
12935	13155	0.09511	0.00000	0
12936	12935	0.02965	8573.35059	254.199845
12936	12938	0.08489	8408.66211	713.8113265
12938	1207	0.25047	0.21422	0.053655683
12938	1487	0.26355	113.03448	29.7902372
12938	12936	0.08489	8573.35059	727.7917316
12938	12939	0.01992	8343.04297	166.193416
12939	12938	0.01992	8505.38086	169.4271867
12939	12944	0.12066	8343.04297	1006.671565
12940	1512	0.33627	17.70447	5.953482127
12940	12925	0.61916	0.00000	0
12940	12945	0.25097	17.57775	4.411487918
12942	12932	0.18341	4563.78271	837.0433868
12942	12943	0.08825	6182.68701	545.6221286
12943	12590	0.24427	2431.87793	594.034822
12943	12942	0.08825	4563.78271	402.7538242
12943	12948	0.12412	7913.57910	982.2334379
12943	13100	0.06136	356.52228	21.8762071
12944	12408	0.38032	3453.32251	1313.367617
12944	12939	0.12066	8505.38086	1026.259255
12944	12949	0.33320	11680.85352	3892.060393
12945	1513	0.61643	283.93784	175.0278027
12945	12055	0.60488	696.64978	421.3895189
12945	12940	0.25097	17.70447	4.443290836
12945	12958	0.56030	420.55692	235.6380423
12946	12890	0.12226	2069.38159	253.0025932
12946	13017	0.02411	10.78541	0.260036235
12947	1458	0.12925	495.72861	64.07292284
12947	12948	0.11712	6191.30908	725.1261194
12947	12952	0.05871	8334.78711	489.3353512
12948	12943	0.12412	6191.30908	768.465283
12948	12947	0.11712	7913.57910	926.8383842
12949	1500	0.31433	117.85165	37.04430914
12949	12944	0.33320	11654.11133	3883.149895
12949	12953	0.03292	11563.00195	380.6540242
12952	1454	0.27694	727.00562	201.3369364
12952	12947	0.05871	6218.44385	365.0848384
12952	12954	0.07171	9085.89648	651.5496366
12953	12949	0.03292	11534.03027	379.7002765
12953	12955	0.13376	11563.00195	1546.667141
12954	12952	0.07171	6904.09180	495.092423
12954	12956	0.07587	9085.89648	689.3469659
12955	12953	0.13376	11534.03027	1542.791889
12955	12957	0.10136	10024.09766	1016.042539
12955	13494	0.26276	1613.48230	423.9586091
12956	12954	0.07587	6904.09180	523.8134449
12956	12975	0.08342	9085.89648	757.9454844

12957	12955	0.10136	10094.64648	1023.193367
12957	12959	0.07240	10024.09766	725.7446706
12958	1148	0.51484	28.12120	14.47791861
12958	12945	0.56030	423.25497	237.1497597
12958	12976	0.43475	446.34943	194.0504147
12959	12957	0.07240	10094.64648	730.8524052
12959	12961	0.08619	10024.09766	863.9769773
12961	12959	0.08619	10094.64648	870.0575801
12961	12963	0.03241	10024.09766	324.8810052
12962	13036	0.12777	418.46426	53.4671785
12962	13050	0.08471	30258.68945	2563.213583
12963	12961	0.03241	10094.64648	327.1674924
12963	12966	0.21858	10024.09766	2191.067267
12966	1795	0.99783	195.77324	195.3484121
12966	1796	0.25814	649.16565	167.5756209
12966	12963	0.21858	10094.64648	2206.487828
12966	12970	0.23305	9417.89160	2194.839637
12967	12859	0.06305	26761.54297	1687.315284
12970	12966	0.23305	9493.96387	2212.56828
12970	12971	0.01448	9417.89160	136.3710704
12971	12970	0.01448	9493.96387	137.4725968
12971	12995	0.25034	9417.89160	2357.674983
12972	12868	0.06136	1016.22321	62.35545617
12972	13109	0.05133	1764.44128	90.5687709
12974	12906	0.02957	1555.88354	46.00747628
12975	12883	0.05411	2458.54346	133.0317866
12975	12956	0.08342	6904.09180	575.939338
12975	12989	0.02368	7315.05225	173.2204373
12975	13096	0.04523	1580.83752	71.50128103
12976	11497	0.93560	2923.74390	2735.454793
12976	12958	0.43475	448.17599	194.8445117
12976	13015	1.06738	140.46399	149.9284536
12976	13917	0.50116	3332.45410	1670.092697
12980	12871	0.06192	0.00000	0
12980	13115	0.05134	1393.33643	71.53389232
12981	13121	0.05189	2172.65454	112.7390441
12984	13027	0.01785	29374.19531	524.3293863
12986	12912	0.02902	18047.33594	523.733689
12989	12975	0.02368	4776.74463	113.1133128
12989	12991	0.01931	7315.05225	141.2536589
12990	12761	0.14694	703.98206	103.4431239
12990	12997	0.18004	1433.76294	258.1346797
12990	13496	0.25034	848.22089	212.3436176
12991	13005	0.07277	7315.05225	532.3163522
12994	12832	0.09331	8166.42432	762.0090533
12994	13000	0.29590	988.07678	292.3719192
12994	13497	0.24920	9169.56445	2285.055461
12995	11695	0.84786	644.57220	546.5069855
12995	12971	0.25034	9493.96387	2376.718915
12995	13054	0.72228	8441.49023	6097.119563
12995	13206	0.09199	1162.98682	106.9831576
12996	1276	0.09260	0.00000	0
12996	13005	0.08964	0.00000	0
12996	13105	0.06100	7222.99658	440.6027914

12997	1154	0.18892	30.31877	5.727822028
12997	12990	0.18004	302.14932	54.39896357
12997	13001	0.09230	1450.26636	133.859585
12998	1433	0.18557	149.02463	27.65450059
12998	1435	0.16899	0.28491	0.048146941
12998	13035	0.11627	146.79399	17.06773722
13000	1094	0.43760	919.57629	402.4065845
13000	12994	0.29590	988.89587	292.6142879
13000	13003	0.02609	80.89145	2.110457931
13001	12997	0.09230	318.28629	29.37782457
13001	13011	0.14618	1450.26636	211.9999365
13002	1153	0.19968	1.50482	0.300482458
13002	1879	1.26357	1.48147	1.871941048
13003	13000	0.02609	71.52600	1.86611334
13003	13006	0.17858	80.89145	14.44559514
13004	12967	0.00837	26761.54297	223.9941147
13005	1276	0.12266	92.05579	11.2915632
13005	12996	0.08964	7222.99658	647.4694134
13006	1898	0.50162	138.46489	69.45675812
13006	13003	0.17858	71.52600	12.77311308
13006	13008	0.02758	205.24153	5.660561397
13007	12922	0.11760	27983.09766	3290.812285
13008	13006	0.02758	197.59991	5.449805518
13008	13020	0.47370	205.24153	97.22291276
13011	13001	0.14618	318.28629	46.52708987
13011	13013	0.33808	1450.26636	490.306051
13012	12802	0.12010	891.37262	107.0538517
13012	13117	0.04316	1005.24884	43.38653993
13013	1013	0.47243	38.53946	18.20719709
13013	1877	0.23581	5.46455	1.288595536
13013	13011	0.33808	318.28629	107.6062289
13013	13015	0.22452	1450.41382	325.6469109
13015	12315	0.46693	425.61572	198.7327481
13015	12976	1.06738	1264.80457	1350.027102
13015	13013	0.22452	316.58026	71.07859998
13015	13535	0.25930	265.72906	68.90354526
13016	13017	0.01517	1689.02234	25.6224689
13016	13028	0.12788	3.20730	0.410149524
13017	12946	0.02411	2069.38159	49.89279013
13017	13016	0.01517	3.20730	0.048654741
13017	13019	0.11101	12.78950	1.419762395
13018	13019	0.05654	385.57062	21.80016285
13018	13022	0.18299	12.78950	2.340350605
13019	13017	0.11101	385.57062	42.80219453
13019	13018	0.05654	12.78950	0.72311833
13020	12400	0.41313	1643.36804	678.9246384
13020	13008	0.47370	197.59991	93.60307737
13020	14000	0.52065	1434.31042	746.7737202
13022	677	0.50580	39.24065	19.84792077
13022	13018	0.18299	385.57062	70.55556775
13022	13026	0.14589	45.90844	6.697582312
13023	13004	0.00669	26761.54297	179.0347225
13026	13022	0.14589	42.44795	6.192731426
13026	13037	0.49711	45.90844	22.82154461

13027	13093	0.02343	29374.19531	688.2373961
13028	13016	0.12788	1689.02234	215.9921768
13028	13128	0.11774	3.20730	0.377627502
13030	1152	0.47777	0.09010	0.043047077
13030	1870	0.31251	0.08970	0.028032147
13032	12897	0.05079	873.73981	44.37724495
13032	13041	0.21657	504.78293	109.3208392
13032	13150	0.06083	1144.76636	69.63613768
13034	12278	0.49960	159.41187	79.64217025
13034	13061	0.01574	9.89707	0.155779882
13035	12738	0.17818	4815.14404	857.962365
13035	12998	0.11627	148.74138	17.29416025
13035	13038	0.04000	4056.80981	162.2723924
13035	13281	0.12602	357.61606	45.06677588
13036	13042	0.02794	418.46426	11.69189142
13037	13026	0.49711	42.44795	21.10130042
13037	13045	0.50126	45.90844	23.01206463
13038	13035	0.04000	3234.44312	129.3777248
13038	13040	0.06623	4056.80981	268.6825137
13039	13023	0.00614	26761.54297	164.3158738
13040	13038	0.06623	3234.44312	214.2171678
13040	13043	0.04691	4056.80981	190.3049482
13041	1413	0.27014	385.75006	104.2065212
13041	13032	0.21657	531.80884	115.1738405
13041	13048	0.03258	414.82944	13.51514316
13042	13142	0.19422	418.46426	81.27412858
13043	1434	0.12592	278.95242	35.12568873
13043	13040	0.04691	3234.44312	151.7277268
13043	13046	0.04828	4109.74023	198.4182583
13044	1993	0.19114	29.82377	5.700515398
13044	13045	0.02120	42.44795	0.89989654
13044	13049	0.22839	41.91594	9.573181537
13045	13037	0.50126	42.44795	21.27745942
13045	13044	0.02120	45.90844	0.973258928
13046	13043	0.04828	3285.18359	158.6086637
13046	30127	0.09970	4109.74023	409.7411009
13047	13048	0.06274	580.36127	36.41186608
13047	13051	0.05176	544.20306	28.16795039
13048	1415	0.11731	140.05754	16.43015002
13048	13041	0.03258	447.24698	14.57130661
13048	13047	0.06274	544.20306	34.14329998
13049	13044	0.22839	49.43068	11.28947301
13049	13056	0.24614	41.91594	10.31718947
13050	13068	0.02091	30258.68945	632.7091964
13051	1414	0.38316	247.59320	94.86781051
13051	13047	0.05176	580.36127	30.03949934
13051	13055	0.07171	438.14914	31.41967483
13054	1780	0.76515	116.11982	88.84908027
13054	1782	0.31192	12.33595	3.847829524
13054	12995	0.72228	8450.25586	6103.450803
13054	13064	0.26195	8380.73145	2195.332603
13055	13051	0.07171	478.20856	34.29233584
13055	30126	0.07794	438.14914	34.14934397
13056	12585	0.28626	1238.93982	354.6589129

13056	13049	0.24614	49.43068	12.16686758
13056	15339	1.49181	1542.94861	2301.786166
13058	12482	0.60307	794.91278	479.3880502
13058	13062	0.32206	840.27222	270.6180712
13061	681	1.37130	8.84513	12.12932677
13061	2007	0.35456	169.67261	60.1591206
13061	13034	0.01574	159.41187	2.509142834
13061	13534	0.23661	8.82162	2.087283508
13062	13058	0.32206	794.91278	256.0096099
13062	13101	0.09765	840.27222	82.05258228
13064	13054	0.26195	8388.49316	2197.365783
13064	13091	0.49991	8380.73145	4189.611459
13066	13244	0.08257	15074.91309	1244.735574
13068	13273	0.25286	2632.75781	665.7191398
13068	13296	0.24752	27625.93164	6837.9706
13069	12296	0.51232	104.58733	53.58218091
13069	14012	0.50494	108.96950	55.02305933
13075	12824	0.13192	3693.60791	487.2607555
13075	13250	0.08370	2523.79175	211.2413695
13080	13039	0.01729	26761.54297	462.707078
13090	12848	0.11441	3658.61377	418.5820014
13090	13208	0.05803	3022.08154	175.3713918
13091	13064	0.49991	8388.49316	4193.491616
13091	13098	0.49884	8380.73145	4180.644077
13093	13309	0.11661	29374.19531	3425.324915
13094	13007	0.09517	27983.09766	2663.151404
13096	12975	0.04523	1369.98962	61.96463051
13096	13136	0.02235	1580.83752	35.33171857
13098	1779	0.78499	102.28640	80.29380114
13098	1781	0.24944	125.62328	31.33547096
13098	13091	0.49884	8388.49316	4184.515928
13098	13130	0.99746	8200.77441	8179.944443
13100	12943	0.06136	334.35040	20.51574054
13100	13147	0.02678	356.52228	9.547666658
13101	13062	0.09765	794.91278	77.62323297
13101	14012	0.72070	840.27222	605.584189
13105	12996	0.06100	0.00000	0
13105	13157	0.04251	7222.99658	307.0495846
13109	12972	0.05133	1016.22321	52.16273737
13109	13233	0.06193	1764.44128	109.2718485
13111	12974	0.05132	1555.88354	79.84794327
13115	13237	0.06192	1393.33643	86.27539175
13117	13012	0.04316	891.37262	38.47164228
13117	13178	0.03475	1005.24884	34.93239719
13121	13223	0.05435	2172.65454	118.0837742
13124	30119	0.03059	3764.59863	115.1590721
13128	13028	0.11774	1689.02234	198.8654903
13128	13152	0.03999	3.20730	0.128259927
13130	12322	0.51039	494.46378	252.3693687
13130	13098	0.99746	8207.06934	8186.223384
13130	13185	1.80656	8849.81445	15987.72079
13130	13583	0.23477	1230.52466	288.8902744
13132	12986	0.06362	18047.33594	1148.171513
13136	13096	0.02235	1369.98962	30.61926801

13136	13158	0.01396	1580.83752	22.06849178
13142	676	0.28389	486.97864	138.2483661
13142	13042	0.19422	0.00000	0
13142	13170	0.06858	0.00000	0
13142	13273	0.06730	478.15070	32.17954211
13145	13094	0.05581	27983.09766	1561.73668
13146	21618	0.25447	625.47418	159.1644146
13146	30206	0.25075	322.47028	80.85942271
13147	13100	0.02678	334.35040	8.953903712
13147	13253	0.04772	356.52228	17.0132432
13150	13032	0.06083	1201.82080	73.10675926
13150	13218	0.02866	1144.76636	32.80900388
13152	13128	0.03999	1689.02234	67.54400338
13152	13306	0.09384	3.20730	0.300973032
13155	12935	0.09511	0.00000	0
13155	13320	0.08779	0.00000	0
13157	13105	0.04251	0.00000	0
13157	13200	0.02001	7222.99658	144.5321616
13158	13136	0.01396	1369.98962	19.1250551
13158	13229	0.02904	1580.83752	45.90752158
13159	1718	0.46278	140.82762	65.17220598
13159	12383	0.50143	1064.01270	533.5278882
13159	13160	0.23934	289.05002	69.18123179
13159	13649	0.25198	891.73041	224.6982287
13160	612	0.25340	275.16544	69.7269225
13160	13159	0.23934	291.72321	69.82103308
13160	13161	0.26100	353.90964	92.37041604
13161	611	0.25511	40.41416	10.31005636
13161	13160	0.26100	359.75546	93.89617506
13161	13163	0.12434	354.43497	44.07044417
13162	12895	0.12407	3818.95093	473.8172419
13162	13167	0.08412	423.59106	35.63247997
13162	13168	0.12549	193.90186	24.33274441
13162	13365	0.09573	3271.06348	313.1389069
13163	13161	0.12434	360.88602	44.87256773
13163	13165	0.04965	235.56204	11.69565529
13163	13412	0.12746	118.87292	15.15154238
13164	13165	0.05102	234.51283	11.96484459
13164	13169	0.04828	235.56204	11.37293529
13165	13163	0.04965	234.51283	11.64356201
13165	13164	0.05102	235.56204	12.01837528
13166	1208	0.13125	2980.01807	391.1273717
13166	12924	0.10296	4852.58838	499.6224996
13166	30119	0.00474	924.54651	4.382350457
13167	13162	0.08412	419.45798	35.28480528
13167	13172	0.06482	423.59106	27.45717251
13168	13162	0.12549	194.40521	24.3959098
13168	13171	0.06344	193.90186	12.301134
13169	13164	0.04828	234.51283	11.32227943
13169	13171	0.03103	235.56204	7.309490101
13170	13142	0.06858	0.00000	0
13170	13210	0.07160	0.00000	0
13171	614	0.12856	41.15682	5.291120779
13171	13168	0.06344	194.40521	12.33306652

13171	13169	0.03103	234.51283	7.276933115
13172	621	0.12901	65.74323	8.481534102
13172	622	0.09937	171.36955	17.02899218
13172	13167	0.06482	419.45798	27.18926626
13172	13174	0.05723	318.83566	18.24696482
13174	13172	0.05723	317.52802	18.17212858
13174	13177	0.05171	318.83566	16.48699198
13175	13176	0.06343	318.51505	20.20340962
13175	13179	0.15308	481.32150	73.68069522
13175	13348	0.09056	193.15410	17.4920353
13176	639	0.12506	11.57398	1.447441939
13176	13175	0.06343	319.60214	20.27236374
13176	13177	0.06205	317.52802	19.70261364
13177	13174	0.05171	317.52802	16.41937391
13177	13176	0.06205	318.83566	19.7837527
13178	13117	0.03475	891.37262	30.97519855
13178	13256	0.03699	1005.24884	37.18415459
13179	630	0.19027	97.86102	18.62001628
13179	638	0.09864	246.00423	24.26585725
13179	13175	0.15308	480.86124	73.61023862
13179	13181	0.09170	587.21460	53.84757882
13181	13179	0.09170	592.49188	54.3315054
13181	13184	0.05034	587.21460	29.56038296
13184	13181	0.05034	592.49188	29.82604124
13184	13186	0.18473	587.21460	108.4761531
13185	13130	1.80656	8870.27832	16024.69
13185	13197	0.19239	8849.81445	1702.615802
13186	632	0.13345	105.25775	14.04664674
13186	13184	0.18473	592.49188	109.451025
13186	13189	0.14072	481.95682	67.82096371
13187	116	0.32386	51.77719	16.76856075
13187	13190	0.03724	52.33654	1.94901275
13188	13189	0.09239	4090.84985	377.9536176
13188	13192	0.06759	4272.19189	288.7574498
13189	12728	0.25292	4873.09766	1232.50386
13189	13186	0.14072	488.58655	68.75389932
13189	13188	0.09239	4272.19189	394.7078087
13189	13284	0.05231	744.63214	38.95170724
13190	13187	0.03724	51.77719	1.928182556
13190	13193	0.04552	3543.33374	161.2925518
13190	13373	0.10907	3670.49048	400.3403967
13192	112	0.25698	559.37659	143.7485961
13192	13188	0.06759	4090.84985	276.5005414
13192	13193	0.09929	3722.26758	369.583948
13193	13190	0.04552	3722.26758	169.4376202
13193	13192	0.09929	3543.33374	351.817607
13195	12989	0.12640	4776.74463	603.7805212
13196	13538	0.42014	1470.43323	617.7878173
13196	13980	0.45758	1565.27380	716.2379854
13197	12834	0.18159	648.02527	117.6749088
13197	13185	0.19239	8870.27832	1706.552846
13197	13263	0.92090	8860.24414	8159.398829
13200	1275	0.21835	786.23291	171.6739559
13200	1276	0.09109	277.15161	25.24574015

13200	1277	0.16213	60.95525	9.882674683
13200	13157	0.02001	0.00000	0
13200	13234	0.02638	7594.59619	200.3454475
13204	12682	0.29368	845.46625	248.2965283
13204	13262	0.03241	842.93341	27.31947182
13206	12995	0.09199	1196.98022	110.1102104
13206	13370	0.08534	1162.98682	99.24929522
13208	1393	0.16831	984.85840	165.7615173
13208	13090	0.05803	3658.61377	212.3093571
13208	13318	0.06752	2892.39014	195.2941823
13210	13170	0.07160	0.00000	0
13210	13232	0.07228	0.00000	0
13218	1394	0.14780	141.74312	20.94963314
13218	1415	0.22415	325.24686	72.90408367
13218	13150	0.02866	1201.82080	34.44418413
13218	13276	0.03339	1013.57684	33.84333069
13219	95	6.00000	728.92871	4373.57226
13219	13889	0.38580	718.20477	277.0834003
13221	1308	0.06037	2991.05347	180.569898
13221	13132	0.04057	18047.33594	732.1804191
13223	1307	0.03478	1027.50366	35.73657729
13223	1308	0.06665	544.53406	36.2931951
13223	13352	0.07007	1459.05127	102.2357225
13229	1458	0.28935	4.19016	1.212422796
13229	1469	0.07764	202.17595	15.69694076
13229	13158	0.02904	1369.98962	39.78449856
13229	13298	0.04239	1512.02649	64.09480291
13232	13210	0.07228	0.00000	0
13232	13259	0.07363	965.40692	71.08291152
13232	13288	0.03420	94.81898	3.242809116
13233	1277	0.10756	370.65128	39.86725168
13233	1304	0.06275	878.71295	55.13923761
13233	13109	0.06193	1016.22321	62.9347034
13233	13344	0.06304	2247.60132	141.6887872
13234	13200	0.02638	1047.80518	27.64110065
13234	13287	0.04728	7594.59619	359.0725079
13236	1305	0.02664	0.00000	0
13237	1306	0.03026	347.05972	10.50202713
13237	1307	0.03328	229.02666	7.622007245
13237	13349	0.06304	1455.89258	91.77946824
13239	1304	0.03034	0.00000	0
13240	1305	0.03474	426.92480	14.83136755
13240	1306	0.02906	2.65453	0.077140642
13240	13111	0.06304	1555.88354	98.08289836
13244	13265	0.01379	15074.91309	207.8830515
13250	1285	0.25307	561.25604	142.037066
13250	1349	0.22123	172.14659	38.08399011
13250	13075	0.08370	3693.60791	309.1549821
13250	13367	0.06362	2305.07544	146.6488995
13253	1458	0.23645	41.70469	9.861073951
13253	1460	0.06315	86.98959	5.493392609
13253	13147	0.04772	334.35040	15.95520109
13253	13445	0.11125	360.54749	40.11090826
13256	13178	0.03699	891.37262	32.97187321

13256	13311	0.03755	1005.24884	37.74709394
13258	4574	0.10008	481.63058	48.20158845
13258	29964	0.01175	456.45154	5.363305595
13258	30112	0.01309	0.00000	0
13259	13232	0.07363	94.81898	6.981521497
13259	13277	0.07770	965.40692	75.01211768
13262	13204	0.03241	845.46625	27.40156116
13262	14041	0.42927	842.93341	361.8460249
13263	1762	0.53114	155.33940	82.50696892
13263	13197	0.92090	8878.81152	8176.497529
13263	13477	0.32627	8830.31641	2881.067335
13265	1349	0.21697	154.21494	33.46001553
13265	13356	0.04765	15245.23535	726.4354644
13268	1276	0.05910	38.96279	2.302700889
13268	1469	0.08437	325.37079	27.45153355
13268	13195	0.05823	4776.74463	278.1498398
13273	13142	0.06730	68.51440	4.61101912
13273	13384	0.05998	3110.90869	186.5923032
13274	13221	0.03122	18870.18164	589.1270708
13276	13218	0.03339	1075.69727	35.91753185
13276	13394	0.06196	1013.57684	62.80122101
13277	13259	0.07770	94.81898	7.367434746
13277	13295	0.07150	965.40692	69.02659478
13281	13035	0.12602	1852.81995	233.4923701
13281	13326	0.02859	357.61606	10.22424316
13284	13189	0.05231	735.58405	38.47840166
13284	13387	0.05398	744.63214	40.19524292
13287	13234	0.04728	1047.80518	49.54022891
13287	13297	0.01001	7594.59619	76.02190786
13288	13232	0.03420	965.40692	33.01691666
13288	13340	0.03035	94.81898	2.877756043
13294	13320	0.24576	0.00000	0
13294	30116	0.00427	17.86243	0.076272576
13294	30118	0.03667	4242.94873	155.5889299
13295	13277	0.07150	94.81898	6.77955707
13295	13311	0.05821	965.40692	56.19633681
13296	13307	0.02455	27625.93164	678.2166218
13297	13287	0.01001	1047.80518	10.48852985
13297	13336	0.03090	7594.59619	234.6730223
13297	13338	0.02906	0.00000	0
13298	13229	0.04239	1305.78516	55.35223293
13298	13335	0.02120	1512.02649	32.05496159
13306	13152	0.09384	1689.02234	158.4978564
13306	13361	0.02932	563.75012	16.52915352
13307	13418	0.30466	27625.93164	8416.516333
13309	13328	0.01062	29374.19531	311.9539542
13310	13080	0.12441	26761.54297	3329.403561
13311	13256	0.03755	891.37262	33.47104188
13311	13295	0.05821	94.81898	5.519412826
13311	13321	0.09132	1818.28491	166.045778
13311	13434	0.06558	331.16119	21.71755084
13317	13145	0.19643	27983.09766	5496.719873
13317	13306	0.15421	560.54285	86.4413129
13318	1285	0.24891	342.69977	85.30139975

13318	13208	0.06752	3425.80615	231.3104312
13318	13495	0.08817	2777.25854	244.8708855
13319	13317	0.00725	28543.63867	206.9413804
13320	13155	0.08779	0.00000	0
13320	13294	0.24576	0.00000	0
13321	13311	0.09132	53.86874	4.919293337
13321	13322	0.02690	1818.28491	48.91186408
13322	13321	0.02690	0.00000	0
13322	13372	0.14767	1818.28491	268.5061327
13326	1435	0.07070	118.91852	8.407539364
13326	13281	0.02859	1852.81995	52.97212237
13326	13505	0.08889	327.36853	29.09978863
13327	13268	0.04893	5016.24365	245.4448018
13328	13377	0.01785	29374.19531	524.3293863
13330	13310	0.01060	26761.54297	283.6723555
13331	13319	0.02357	28543.63867	672.7735635
13332	13354	0.01895	498.69693	9.450306824
13332	30116	0.06826	1170.30859	79.88526435
13335	13298	0.02120	1305.78516	27.68264539
13335	13451	0.06192	1512.02649	93.62468026
13336	13297	0.03090	881.44006	27.23649785
13336	13339	0.07791	11041.29980	860.2276674
13336	13396	0.03770	207.80591	7.834282807
13337	13336	0.01310	3311.35938	43.37880788
13338	1276	0.15476	0.60557	0.093718013
13338	13297	0.02906	166.36511	4.834570097
13338	13337	0.02689	3311.35938	89.04245373
13339	1277	0.06304	29.96201	1.88880511
13339	13344	0.10756	11387.13379	1224.80011
13340	13288	0.03035	965.40692	29.30010002
13340	13441	0.05811	94.81898	5.509930928
13341	13345	0.01311	13554.21582	177.6957694
13342	13341	0.04895	13554.21582	663.4788644
13344	13233	0.06304	1802.84949	113.6516318
13344	13342	0.06343	13554.21582	859.7439095
13344	13465	0.06304	1151.30237	72.5781014
13345	13346	0.02805	13554.21582	380.1957538
13346	1305	0.06273	185.56891	11.64073772
13346	13351	0.03403	13891.75977	472.736585
13347	1307	0.05668	1352.00073	76.63140138
13347	13352	0.03067	16123.35449	494.5032822
13348	622	0.21200	73.96986	15.68161032
13348	13175	0.09056	192.52725	17.43526776
13348	13545	0.09585	119.18425	11.42381036
13349	13347	0.03345	15482.79590	517.8995229
13349	13473	0.06304	1962.53882	123.7184472
13350	1306	0.06225	1004.58148	62.53519713
13350	13349	0.03018	15989.44238	482.561371
13351	13240	0.06249	1701.37866	106.3191525
13351	13350	0.02981	15787.38281	470.6218816
13352	13355	0.03310	16136.90918	534.1316939
13352	13466	0.06193	1445.49719	89.51964098
13353	1308	0.06740	751.75836	50.66851346
13353	1309	0.03388	51.17030	1.733649764

13353	13357	0.05931	16669.39844	988.6620215
13354	13332	0.01895	1170.30859	22.17734778
13354	13375	0.02361	498.69693	11.77423452
13355	13353	0.03172	16136.90918	511.8627592
13356	13358	0.03794	4970.62305	188.5854385
13356	13474	0.06250	21103.97656	1318.998535
13357	13274	0.04129	18870.18164	779.1497999
13357	13356	0.07104	10829.36523	769.3181059
13358	13363	0.06344	4970.62305	315.3363263
13360	13364	0.05499	4970.62305	273.3345615
13361	677	0.50284	626.27448	314.9158595
13361	13306	0.02932	1689.02234	49.52213501
13361	13384	0.14833	575.57141	85.37450725
13363	13360	0.05792	4970.62305	287.8984871
13364	1349	0.06489	182.08063	11.81521208
13364	1472	0.05798	115.78820	6.713399836
13364	13366	0.14359	4710.42676	676.3701785
13365	13162	0.09573	3461.35181	331.3552088
13365	13407	0.03007	3271.06348	98.36087884
13366	13369	0.07240	4710.42676	341.0348974
13367	13250	0.06362	3921.00830	249.454548
13367	13416	0.03208	5219.62061	167.4454292
13369	13367	0.00758	4710.42676	35.70503484
13370	13206	0.08534	1196.98022	102.150292
13370	13383	0.01282	1162.98682	14.90949103
13372	13322	0.14767	0.00000	0
13372	13382	0.03940	1818.28491	71.64042545
13373	13190	0.10907	3490.99707	380.7630504
13373	13565	0.11140	3670.49048	408.8926395
13374	1796	0.06803	0.00000	0
13375	13354	0.02361	1170.30859	27.63098581
13375	13398	0.05257	498.69693	26.21649761
13377	13392	0.00948	29374.19531	278.4673715
13378	13321	0.03528	53.86874	1.900489147
13378	13322	0.02131	0.00000	0
13380	13330	0.01729	26761.54297	462.707078
13382	13372	0.03940	0.00000	0
13382	13389	0.02926	1818.28491	53.20301647
13383	13370	0.01282	1196.98022	15.34528642
13383	13579	0.09866	1162.98682	114.7402797
13384	13273	0.05998	68.51440	4.109493712
13384	13361	0.14833	2087.96094	309.7072462
13384	13400	0.06151	2243.98804	138.0277043
13384	13520	0.06669	949.81042	63.34285691
13386	13380	0.00781	26761.54297	209.0076506
13387	13284	0.05398	735.58405	39.70682702
13387	13425	0.02318	744.63214	17.26057301
13389	13403	0.03748	0.00000	0
13389	13431	0.11690	1818.28491	212.557506
13392	13429	0.02455	29374.19531	721.1364949
13394	13276	0.06196	1075.69727	66.65020285
13394	13527	0.06585	1013.57684	66.74403491
13396	1471	0.06577	206.96434	13.61204464
13396	13336	0.03770	1224.59070	46.16706939

13396	13450	0.04588	170.48721	7.821953195
13397	1471	0.05474	29.87048	1.635110075
13397	13338	0.04099	3478.33008	142.57675
13398	1221	0.11331	52.70580	5.972094198
13398	1459	0.13768	292.31213	40.24553406
13398	13375	0.05257	1170.30859	61.52312258
13398	13405	0.05805	639.86505	37.14416615
13400	13384	0.06151	843.97064	51.91263407
13400	13423	0.07160	2243.98804	160.6695437
13403	13382	0.02657	0.00000	0
13405	13398	0.05805	1329.50256	77.17762361
13405	13444	0.14021	639.86505	89.71547866
13407	614	0.18877	544.77405	102.8369974
13407	622	0.16798	100.99656	16.96540215
13407	13365	0.03007	3461.35181	104.0828489
13407	13542	0.06231	3393.39185	211.4422462
13408	1309	0.05609	0.00000	0
13408	13357	0.03175	13030.14941	413.7072438
13412	614	0.18376	0.00000	0
13412	13163	0.12746	126.37318	16.10752552
13412	13485	0.03113	118.87292	3.700514
13416	1472	0.17526	63.84375	11.18925563
13416	13367	0.03208	2125.12671	68.17406486
13416	13488	0.03268	5195.52686	169.7898178
13418	13498	0.20966	27625.93164	5792.052828
13423	13400	0.07160	843.97064	60.42829782
13423	13441	0.06879	2243.98804	154.3639373
13425	632	0.14224	401.65884	57.1319534
13425	13387	0.02318	735.58405	17.05083828
13425	13571	0.06644	851.40393	56.56727711
13429	13460	0.01618	29374.19531	475.2744801
13430	13386	0.02566	26761.54297	686.7011926
13431	13526	0.25113	29390.34766	7380.798008
13433	2007	0.66627	1.79636	1.196860777
13433	2008	1.04936	119.04331	124.9192878
13433	12268	0.71372	0.00000	0
13433	13961	0.28790	93.29304	26.85906622
13434	13311	0.06558	1111.11316	72.86680103
13434	13524	0.03811	331.16119	12.62055295
13436	13331	0.30104	28543.63867	8592.776985
13438	13327	0.09164	5016.24365	459.6885681
13438	13397	0.06885	3504.81812	241.3067276
13438	13452	0.08275	1972.60120	163.2327493
13438	13609	0.09363	1138.01294	106.5521516
13440	1487	0.20342	0.00000	0
13441	678	0.23686	899.22693	212.9908906
13441	13340	0.05811	965.40692	56.09979612
13441	13423	0.06879	843.97064	58.05674033
13441	13489	0.08004	918.83990	73.5439456
13442	13443	0.03297	2010.67944	66.29210114
13442	13445	0.06274	1320.55042	82.85133335
13443	1241	0.14037	1057.28528	148.4111348
13443	1460	0.10922	5.57565	0.608972493
13443	13442	0.03297	1320.55042	43.53854735

13443	13444	0.02564	1329.50256	34.08844564
13444	13405	0.14021	1329.50256	186.4095539
13444	13443	0.02564	639.86505	16.40613988
13445	13253	0.11125	339.13388	37.72864415
13445	13442	0.06274	2010.67944	126.1500281
13445	13446	0.06343	1115.70837	70.76938191
13445	13641	0.09482	0.00000	0
13446	13445	0.06343	1784.42371	113.1859959
13446	13448	0.06068	1115.70837	67.70118389
13447	13448	0.05929	1784.42371	105.7984818
13447	13449	0.06070	1115.70837	67.72349806
13448	13446	0.06068	1784.42371	108.2788307
13448	13447	0.05929	1115.70837	66.15034926
13449	1240	0.12789	115.17758	14.73006071
13449	1458	0.11941	558.86035	66.73351439
13449	13447	0.06070	1784.42371	108.3145192
13449	13453	0.20133	1161.48291	233.8413543
13450	13396	0.04588	1222.97937	56.1102935
13450	13564	0.06245	8199.75000	512.0743875
13451	13335	0.06192	1305.78516	80.85421711
13451	13453	0.07860	2235.37793	175.7007053
13451	13456	0.08069	914.52698	73.79318202
13451	13584	0.06192	2205.69556	136.5766691
13452	1469	0.13984	1.06628	0.149108595
13452	1470	0.12657	171.64117	21.72462289
13452	13438	0.08275	1426.49915	118.0428047
13452	13455	0.04897	1802.03992	88.24589488
13453	13449	0.20133	2235.37793	450.0486386
13453	13451	0.07860	1161.48291	91.29255673
13454	13450	0.02052	9065.23145	186.0185494
13455	13452	0.04897	914.52698	44.78438621
13455	13456	0.04137	1802.03992	74.55039149
13456	13451	0.08069	1802.03992	145.4066011
13456	13455	0.04137	914.52698	37.83398116
13458	1310	0.12608	170.58333	21.50714625
13458	13465	0.06206	11612.03223	720.6427202
13459	13461	0.01448	11558.50879	167.3672073
13460	13747	0.17909	29374.19531	5260.624638
13461	13462	0.01793	11558.50879	207.2440626
13462	13458	0.03103	11558.50879	358.6605278
13463	1311	0.12560	273.40656	34.33986394
13463	13459	0.03073	11558.50879	355.1929751
13464	13351	0.06193	3597.00098	222.7622707
13464	13463	0.03063	11736.58691	359.4916571
13465	13344	0.06304	2873.63232	181.1537815
13465	13454	0.10828	9065.23145	981.5832614
13465	13594	0.06138	2555.18018	156.8369594
13466	13473	0.06412	13361.95117	856.768309
13466	13605	0.06529	1056.31946	68.96709754
13467	1312	0.12603	749.65814	94.47941538
13467	13464	0.03294	14302.36230	471.1198142
13468	1309	0.02924	152.94304	4.47205449
13468	1314	0.12543	806.52136	101.1619742
13468	13469	0.00974	12972.77344	126.3548133

13469	13466	0.06274	12972.77344	813.9118056
13470	13507	0.21412	28753.45313	6156.689384
13471	13430	0.01729	26761.54297	462.707078
13472	13408	0.02964	12877.08984	381.6769429
13472	13468	0.05242	13582.19824	711.9788317
13473	13467	0.02775	14511.19629	402.685697
13473	13601	0.06250	813.29340	50.8308375
13474	13472	0.06905	11615.12891	802.0246512
13474	13602	0.06305	14618.45020	921.6932851
13476	13474	0.03930	5129.60205	201.5933606
13477	13263	0.32627	8848.26758	2886.924263
13477	14041	0.83479	8830.31641	7371.459836
13478	13476	0.06343	5129.60205	325.370658
13479	13480	0.01999	5129.60205	102.540745
13480	13478	0.05793	5129.60205	297.1578468
13482	1298	0.12281	209.79121	25.7644585
13482	1472	0.06628	0.85512	0.056677354
13482	13479	0.02190	5129.60205	112.3382849
13483	13482	0.06706	4786.58838	320.9886168
13485	13412	0.03113	126.37318	3.933997093
13485	13654	0.09348	118.87292	11.11224056
13486	13483	0.08896	4786.58838	425.8149023
13487	13431	0.20370	27572.06250	5616.429131
13488	13416	0.03268	2104.78809	68.78447478
13488	13486	0.07969	4786.58838	381.443228
13488	13491	0.08760	2107.00000	184.5732
13488	13608	0.05858	2406.52563	140.9742714
13489	13441	0.08004	21.72701	1.73902988
13489	13506	0.06587	918.83990	60.52398421
13490	13491	0.03585	2769.78784	99.29689406
13490	13492	0.06343	2107.00000	133.64701
13491	13488	0.08760	2769.78784	242.6334148
13491	13490	0.03585	2107.00000	75.53595
13492	13490	0.06343	2769.78784	175.6876427
13492	13493	0.06336	2107.00000	133.49952
13493	1285	0.08806	62.15960	5.473774376
13493	1372	0.13209	4.32314	0.571043563
13493	13492	0.06336	2769.78784	175.4937575
13493	13495	0.24862	2049.13525	509.4560059
13494	1500	0.18666	61.13332	11.41114551
13494	1796	0.51059	160.23933	81.8165995
13494	12955	0.26276	1513.96228	397.8087287
13494	13621	0.06176	1770.96875	109.37503
13495	13318	0.08817	3316.67603	292.4313256
13495	13493	0.24862	2294.27368	570.4023223
13495	13500	0.12483	1400.89856	174.8741672
13495	13632	0.06696	3139.24316	210.203722
13496	12990	0.25034	794.58276	198.9158481
13496	13499	0.96665	428.11462	413.8369974
13496	13927	0.25168	698.25513	175.7368511
13497	1898	0.56317	345.32813	194.478443
13497	12994	0.24920	9011.07422	2245.559696
13497	13499	0.07724	375.47513	29.00169904
13497	14646	0.74927	9170.31543	6871.042242

13498	13378	0.15372	53.86874	8.280702713
13498	13487	0.22693	27572.06250	6256.928143
13499	13496	0.96665	375.47513	362.9530344
13499	13497	0.07724	428.11462	33.06757325
13500	13495	0.12483	1449.54138	180.9462505
13500	13501	0.05236	1400.89856	73.3510486
13501	1393	0.16501	233.90791	38.59714423
13501	1395	0.15883	183.44193	29.13608174
13501	13500	0.05236	1449.54138	75.89798666
13501	13519	0.07273	1691.17114	122.998877
13504	13510	0.06844	0.00000	0
13504	13530	0.06457	0.00000	0
13505	13326	0.08889	1825.07886	162.2312599
13505	13504	0.06386	0.00000	0
13505	13530	0.00896	333.41330	2.987383168
13506	13489	0.06587	21.72701	1.431158149
13506	13618	0.16466	918.83990	151.2961779
13507	13532	0.21434	27375.48438	5867.661322
13507	13618	0.23984	1377.96960	330.4922289
13508	8865	0.01371	8040.67334	110.2376315
13510	13504	0.06857	0.00000	0
13515	1447	0.33250	0.00045	0.000149625
13515	1449	0.10371	0.00045	4.66695E-05
13518	13505	0.08421	1583.42871	133.3405317
13519	13501	0.07273	1859.39087	135.233498
13519	13523	0.09793	1691.17114	165.6163897
13520	13384	0.06669	819.82294	54.67399187
13520	13635	0.05829	949.81042	55.36444938
13523	1394	0.16249	146.83865	23.85981224
13523	13519	0.09793	1859.39087	182.0901479
13523	13525	0.06620	1544.33252	102.2348128
13524	13434	0.03811	1111.11316	42.34452253
13524	13570	0.02131	331.16119	7.057044959
13525	13523	0.06620	1717.90540	113.7253375
13525	13527	0.08550	1544.33252	132.0404305
13526	13800	0.99033	29390.34766	29106.143
13527	13394	0.06585	1075.69727	70.83466523
13527	13525	0.08550	1717.90540	146.8809117
13527	13528	0.05862	1050.28162	61.56750856
13528	13527	0.05862	1285.97498	75.38385333
13528	13529	0.03793	1050.28162	39.83718185
13529	13528	0.03793	1285.97498	48.77703099
13529	13537	0.11864	1050.28162	124.6054114
13530	1436	0.17867	270.33795	48.30128153
13530	13505	0.00896	247.69493	2.219346573
13530	13536	0.08346	75.66456	6.314964178
13532	13436	0.21315	27375.48438	5835.084496
13533	1434	0.12231	185.92776	22.74082433
13533	13518	0.10905	1583.42871	172.6729008
13533	13559	0.00893	177.05429	1.58109481
13534	13061	0.23661	317.67749	75.16567091
13534	13887	0.22205	8.82162	1.958840721
13535	1870	0.50490	18.99854	9.592362846
13535	1877	0.20370	7.91404	1.612089948

13535	13015	0.25930	279.36401	72.43908779
13535	13926	0.23557	243.90121	57.45580804
13536	13540	0.04158	75.66456	3.146132405
13537	13529	0.11864	1285.97498	152.5680716
13537	13539	0.01913	1050.28162	20.09188739
13538	13196	0.42014	1565.27380	657.6341343
13538	20762	0.08303	1470.43323	122.0900711
13539	1415	0.13494	13.46735	1.817284209
13539	1416	0.12071	544.31262	65.70397636
13539	13537	0.01913	1285.97498	24.60070137
13539	13543	0.05675	955.55627	54.22781832
13540	13559	0.06758	75.66456	5.113410965
13541	13544	0.06206	350.04099	21.72354384
13541	13545	0.06275	349.12503	21.90759563
13542	13407	0.06231	3594.50098	223.9733561
13542	13548	0.06758	371.08484	25.07791349
13542	13653	0.06398	3053.72681	195.3774413
13543	13539	0.05675	1154.06152	65.49299126
13543	13547	0.03999	955.55627	38.21269524
13544	13541	0.06206	349.12503	21.66669936
13544	13546	0.06590	350.04099	23.06770124
13545	630	0.15348	450.14536	69.08830985
13545	13348	0.09585	120.08264	11.50992104
13545	13541	0.06275	350.04099	21.96507212
13545	13666	0.08414	558.90057	47.02589396
13546	622	0.09319	192.12331	17.90397126
13546	623	0.09015	209.96594	18.92842949
13546	13544	0.06590	349.12503	23.00733948
13546	13548	0.12095	365.09491	44.15822936
13547	13543	0.03999	1154.06152	46.15092018
13547	13550	0.03036	955.55627	29.01068836
13548	13542	0.06758	365.09491	24.67311402
13548	13546	0.12095	371.08484	44.8827114
13549	13508	0.00402	8040.67334	32.32350683
13549	13626	0.06404	1.20450	0.07713618
13550	13547	0.03036	1154.06152	35.03730775
13550	13551	0.04897	955.55627	46.79359054
13551	13550	0.04897	1154.06152	56.51439263
13551	13553	0.02138	955.55627	20.42979305
13553	13551	0.02138	1154.06152	24.6738353
13553	13557	0.07520	955.55627	71.8578315
13556	13533	0.11896	1765.10059	209.9763662
13556	13557	0.00898	835.99786	7.507260783
13556	30129	0.23317	7601.85938	1772.525552
13557	13553	0.07520	1154.06152	86.7854263
13557	13556	0.00898	2135.47021	19.17652249
13557	30131	0.13186	7244.01123	955.1953208
13559	13533	0.00893	2.11781	0.018912043
13559	13556	0.11874	250.60104	29.75636749
13564	1471	0.05968	1.55530	0.092820304
13564	13450	0.06245	187.01018	11.67878574
13564	13592	0.02415	8200.11621	198.0328065
13565	13373	0.11140	3490.99707	388.8970736
13565	13651	0.05904	3670.49048	216.7057579

13568	13294	0.13710	3129.30273	429.0274043
13570	13436	0.19812	1168.15625	231.4351163
13570	13524	0.02131	1111.11316	23.67782144
13570	13618	0.02691	164.43942	4.425064792
13571	13425	0.06644	848.02863	56.34302218
13571	13766	0.13745	851.40393	117.0254702
13576	13472	0.05022	14844.15820	745.4736248
13579	1782	0.61896	72.11449	44.63598473
13579	1796	0.50000	60.81253	30.406265
13579	13383	0.09866	1196.98022	118.0940685
13579	13699	0.08142	1197.42383	97.49424824
13581	824	0.46916	699.05731	327.9697276
13581	20762	0.07254	2280.29590	165.4126646
13581	21073	0.36033	2582.39746	930.5152768
13583	1781	1.00766	5.54128	5.583726205
13583	13130	0.23477	1218.88440	286.1574906
13583	14018	0.25446	1236.11194	314.5410443
13584	13451	0.06192	2185.83618	135.3469763
13584	13637	0.02454	2205.69556	54.12776904
13592	13564	0.02415	188.56548	4.553856342
13592	13626	0.02706	8200.11621	221.8951446
13594	13465	0.06138	1730.70898	106.2309172
13594	13648	0.03124	2555.18018	79.82382882
13600	13464	0.06249	1031.22534	64.4412715
13601	13680	0.06249	813.29340	50.82270457
13602	13683	0.06305	3906.17383	246.28426
13602	13752	0.12188	10712.27637	1305.612244
13605	13681	0.06087	1056.31946	64.29816553
13608	13488	0.05858	3439.58765	201.4910445
13608	13690	0.06361	2406.52563	153.0790953
13609	1470	0.11921	0.68506	0.081666003
13609	13438	0.09363	2164.50391	202.6625011
13609	13722	0.10992	1138.70117	125.1660326
13618	682	0.46734	268.01736	125.255233
13618	13506	0.16466	21.72701	3.577569467
13618	13570	0.02691	2112.54785	56.84866264
13618	13644	0.01739	1678.62170	29.19123136
13621	13494	0.06176	1690.94263	104.4326168
13621	13849	0.15729	1770.96875	278.5556747
13626	1278	0.16486	219.65176	36.21178915
13626	1279	0.10711	157.01718	16.81811015
13626	13549	0.06404	7975.71631	510.7648725
13626	13592	0.02706	188.56548	5.102581889
13626	13643	0.01393	0.00000	0
13632	13495	0.06696	3875.15649	259.4804786
13632	13721	0.06361	3139.24316	199.6872574
13635	13520	0.05829	819.82294	47.78747917
13635	13714	0.06109	949.81042	58.02391856
13637	13584	0.02454	2185.83618	53.64041986
13637	13670	0.03793	2205.69556	83.66203259
13641	13445	0.09482	0.00000	0
13641	13684	0.03828	0.00000	0
13643	13626	0.01393	0.00000	0
13644	13618	0.01739	1352.40247	23.51827895

13644	13704	0.04932	1678.62170	82.78962224
13646	1310	0.03291	0.00000	0
13648	13594	0.03124	1730.70898	54.06734854
13648	13676	0.03180	2555.18018	81.25472972
13649	612	0.25374	0.00000	0
13649	13159	0.25198	743.99371	187.471535
13649	14073	0.24808	891.73041	221.2204801
13650	13652	0.07722	54.12341	4.17940972
13650	13653	0.07654	54.38934	4.162960084
13651	112	0.24887	496.41135	123.5418927
13651	13565	0.05904	3490.99707	206.108467
13651	13703	0.04976	4159.45850	206.974655
13652	13650	0.07722	54.38934	4.199944835
13652	13655	0.06343	54.12341	3.433047896
13653	13542	0.06398	3260.82568	208.627627
13653	13650	0.07654	54.12341	4.142605801
13653	13702	0.04269	3084.96265	131.6970555
13654	612	0.37026	80.59264	29.84023089
13654	13485	0.09348	126.37318	11.81336487
13654	13655	0.15652	233.53214	36.55245055
13654	13826	0.12361	51.01388	6.305825707
13655	614	0.12498	72.40255	9.048870699
13655	615	0.12114	146.37735	17.73215218
13655	13652	0.06343	54.38934	3.449915836
13655	13654	0.15652	241.43645	37.78963315
13664	1436	0.24711	0.13632	0.033686035
13664	1449	0.20905	0.13770	0.028786185
13666	623	0.19186	53.70489	10.3038202
13666	13545	0.08414	569.97308	47.95753495
13666	13817	0.09896	505.19571	49.99416746
13667	13848	0.11871	2778.87305	329.8800198
13670	1240	0.27781	418.85199	116.3612713
13670	1470	0.08477	125.99425	10.68053257
13670	13637	0.03793	2185.83618	82.90876631
13670	13743	0.04853	2092.34888	101.5416911
13676	1279	0.12082	518.80084	62.68151749
13676	1310	0.06275	119.36119	7.489914673
13676	13648	0.03180	1730.70898	55.03654556
13676	13773	0.06248	2041.73389	127.5675334
13677	1311	0.03194	127.05505	4.058138297
13677	1312	0.03032	104.42862	3.166275758
13677	13600	0.06248	1031.22534	64.43095924
13680	1312	0.03180	258.65051	8.225086218
13680	1313	0.03125	232.61734	7.269291875
13680	13779	0.06248	1017.88708	63.59758476
13681	1313	0.03204	531.05249	17.01492178
13681	1314	0.06489	342.72656	22.23952648
13681	13783	0.06244	1022.89886	63.86980482
13682	13576	0.07532	5445.54834	410.158701
13683	1298	0.20407	440.31354	89.85478411
13683	13782	0.06139	3465.86035	212.7691669
13684	1241	0.13716	0.00000	0
13684	13641	0.03828	0.00000	0
13684	13749	0.05377	0.00000	0

13690	1298	0.23309	93.47546	21.78819497
13690	1372	0.24939	446.77768	111.4218856
13690	13608	0.06361	3439.58765	218.7921704
13690	13706	0.01174	2269.27417	26.64127876
13699	13579	0.08142	1232.49548	100.349782
13699	13942	0.13270	1197.42383	158.8981422
13700	1314	0.06056	499.28580	30.23674805
13700	13682	0.01033	5445.54834	56.25251435
13702	623	0.18634	118.90124	22.15605706
13702	13653	0.04269	3291.79590	140.526767
13702	13733	0.02407	3137.80640	75.52700005
13703	13651	0.04976	3987.40869	198.4134564
13703	13829	0.09311	4159.45850	387.2871809
13704	13644	0.04932	1352.40247	66.70048982
13704	13740	0.02690	1678.62170	45.15492373
13706	13690	0.01174	3075.36182	36.10474777
13706	13791	0.05077	2269.27417	115.2110496
13714	13635	0.06109	819.82294	50.0829834
13714	13941	0.12498	949.81042	118.7073063
13720	1372	0.09377	0.00000	0
13721	1372	0.24821	246.65714	61.22276872
13721	1395	0.17644	535.60443	94.50204563
13721	13632	0.06361	3875.15649	246.4987043
13721	13911	0.11216	2810.87402	315.2676301
13722	1278	0.08861	88.54878	7.846307396
13722	13609	0.10992	2165.18896	237.9975705
13722	13845	0.12404	1180.45691	146.4238751
13730	1416	0.29360	2.16029	0.634261144
13730	1436	0.21234	2.17829	0.462538099
13733	13702	0.02407	3344.15112	80.49371746
13733	13814	0.05176	3137.80640	162.4128593
13740	13704	0.02690	1352.40247	36.37962644
13740	13931	0.09921	1678.62170	166.5360589
13743	13670	0.04853	2086.56445	101.2609728
13743	13757	0.01339	2092.34888	28.0165515
13747	13794	0.01953	29374.19531	573.6780344
13748	13471	0.17853	26761.54297	4777.738266
13749	13684	0.05377	0.00000	0
13749	13879	0.06805	0.00000	0
13752	13792	0.01116	10712.27637	119.5490043
13757	13743	0.01339	2086.56445	27.93909799
13757	13839	0.04191	2092.34888	87.69034156
13763	632	0.20769	0.00000	0
13766	112	0.20140	285.52356	57.50444498
13766	13571	0.13745	848.02863	116.5615352
13766	13919	0.07781	1105.28711	86.00239003
13773	13676	0.06248	1317.98340	82.34760283
13773	13775	0.06343	161.92076	10.27063381
13773	13842	0.04295	1979.83521	85.03392227
13775	1310	0.06192	79.45199	4.919667221
13775	13773	0.06343	69.90094	4.433816624
13775	13784	0.06047	271.02597	16.38894041
13776	13677	0.06305	838.41681	52.86217987
13776	13779	0.06068	41.39552	2.511880154

13776	13780	0.03519	97.33239	3.425126804
13776	13870	0.06194	220.72734	13.67185144
13777	1313	0.06164	410.83920	25.32412829
13777	13779	0.03103	917.81482	28.47979386
13777	13783	0.03310	450.98984	14.9277637
13778	13700	0.05166	5060.20313	261.4100937
13778	13781	0.06343	701.79218	44.51467798
13778	13782	0.07172	925.33844	66.36527292
13779	13680	0.06248	254.30478	15.88896265
13779	13776	0.06068	425.67706	25.830084
13779	13777	0.03103	567.62714	17.61347015
13779	13840	0.04017	962.43298	38.66093281
13780	1311	0.06282	141.16034	8.867692559
13780	13776	0.03519	267.12103	9.399989046
13780	13784	0.03054	149.01302	4.550857631
13781	1314	0.06218	128.71912	8.003754882
13781	13778	0.06343	995.03302	63.11494446
13781	13783	0.06067	872.08606	52.90946126
13782	13778	0.07172	42.18569	3.025557687
13782	13787	0.10206	325.20743	33.19067031
13782	13830	0.03435	4237.39795	145.5546196
13783	13777	0.03310	850.20026	28.14162861
13783	13781	0.06067	669.40491	40.61279589
13783	13878	0.06248	837.81183	52.34648314
13784	13775	0.06047	149.01302	9.010817319
13784	13780	0.03054	271.02597	8.277133124
13786	1298	0.06600	237.25159	15.65860494
13786	1473	0.05357	152.63657	8.176741055
13786	13787	0.08205	213.59242	17.52525806
13786	13789	0.08205	286.26987	23.48844283
13787	13782	0.10206	213.59242	21.79924239
13787	13786	0.08205	325.20743	26.68326963
13789	13786	0.08205	163.59686	13.42312236
13789	13790	0.08895	286.26987	25.46370494
13790	13789	0.08895	163.59686	14.5519407
13790	13791	0.07999	286.26987	22.8987269
13791	13706	0.05077	3075.36182	156.1361196
13791	13790	0.07999	163.59686	13.08611283
13791	26713	0.05018	2156.98804	108.2376598
13792	13883	0.05670	10712.27637	607.3860702
13794	13883	0.05219	29374.19531	1533.039253
13795	13748	0.01953	26761.54297	522.6529342
13800	13886	0.21605	29390.34766	6349.784612
13814	615	0.19899	539.67566	107.3900596
13814	13733	0.05176	3344.15112	173.093262
13814	13816	0.07378	15.34567	1.132203533
13814	13896	0.03672	2618.81152	96.16275901
13816	13814	0.07378	15.25834	1.125760325
13816	13819	0.13692	15.34567	2.101129136
13817	13666	0.09896	515.89587	51.0530553
13817	13818	0.02689	301.88553	8.117701902
13817	13938	0.05174	816.60614	42.25120168
13818	13817	0.02689	311.41043	8.373826463
13818	13821	0.10136	301.88553	30.59911732

13819	623	0.09725	297.45963	28.92794902
13819	624	0.06243	11.03068	0.688645352
13819	13816	0.13692	15.25834	2.089171913
13819	13821	0.04029	311.41043	12.54672622
13821	13818	0.10136	311.41043	31.56456118
13821	13819	0.04029	301.88553	12.162968
13822	631	0.06510	0.00000	0
13826	615	0.17478	0.00000	0
13826	13654	0.12361	51.10678	6.317309076
13826	14078	0.12454	51.01388	6.353268615
13829	13703	0.09311	3987.40869	371.2676231
13829	13910	0.07475	83.98956	6.27821961
13829	14130	0.14558	4075.46875	593.3067406
13830	1473	0.14649	576.65906	84.4747857
13830	13867	0.02999	4220.64746	126.5772173
13834	13470	1.25294	28753.45313	36026.35156
13839	13757	0.04191	2086.56445	87.4479161
13839	29921	0.01426	2092.34888	29.83689503
13840	13779	0.04017	232.94458	9.357383779
13840	13872	0.02176	962.43298	20.94254164
13842	13773	0.04295	1348.10461	57.901093
13842	13875	0.01897	1979.83521	37.55747393
13845	13722	0.12404	2200.91260	273.0011989
13845	13862	0.01315	1180.45691	15.52300837
13848	14148	0.20134	2778.87305	559.4982999
13849	13621	0.15729	1690.94263	265.9683663
13849	14349	0.28148	1770.96875	498.4922838
13858	77	4.50000	250.65735	1127.958075
13858	13860	0.14410	245.73589	35.41054175
13860	13858	0.14410	250.65735	36.11972414
13860	13863	0.85633	245.73589	210.4310147
13861	132	0.23292	0.00000	0
13861	4441	0.14617	334.37918	48.87620474
13861	4531	0.10808	326.92255	35.3337892
13862	29929	0.00534	3316.69873	17.71117122
13863	13860	0.85633	250.65735	214.6454085
13863	13876	0.49850	245.73589	122.4993412
13865	13870	0.06413	766.34717	49.14584401
13865	13882	0.00488	666.16321	3.250876465
13866	14386	0.01560	1925.32251	30.03503116
13866	20755	0.02016	1876.53479	37.83094137
13867	13873	0.07264	1285.90454	93.40810579
13867	13901	0.06413	465.61267	29.85974053
13867	14025	0.06416	4615.37207	296.122272
13868	13869	0.04624	466.83972	21.58666865
13868	13881	0.08139	507.83719	41.33286889
13869	1278	0.11089	45.09319	5.000383839
13869	1280	0.14229	205.17116	29.19380436
13869	13868	0.04624	507.83719	23.48239167
13869	13890	0.03011	218.74593	6.586439952
13870	13776	0.06194	505.07394	31.28427984
13870	13865	0.06413	666.16321	42.72104666
13870	13888	0.02326	943.70917	21.95067529
13870	14036	0.06807	197.10017	13.41660857

13871	1279	0.10531	279.15985	29.3983238
13871	1281	0.13109	252.76660	33.13517359
13871	13875	0.10756	791.54694	85.13878887
13871	13881	0.10963	466.83972	51.1796385
13872	13840	0.02176	232.94458	5.068874061
13872	13888	0.03682	1085.71045	39.97585877
13872	13892	0.02571	847.56409	21.79087275
13872	14168	0.13110	327.24860	42.90229146
13873	13778	0.06276	5650.11475	354.6012017
13873	13867	0.07264	1379.72998	100.2235857
13873	13880	0.06412	518.75995	33.26288799
13874	1315	0.13993	31.12348	4.355108556
13874	13875	0.06274	696.18958	43.67893425
13874	13882	0.05793	766.34717	44.39449156
13875	13842	0.01897	1348.10461	25.57354445
13875	13871	0.10756	730.58636	78.58186888
13875	13874	0.06274	797.47064	50.03330795
13875	14022	0.06750	1911.81824	129.0477312
13876	13863	0.49850	250.65735	124.952689
13876	13900	0.50056	245.73589	123.0055571
13878	13783	0.06248	11.44226	0.714912405
13878	13880	0.05999	1557.15015	93.4134375
13878	13892	0.03917	533.89569	20.91269418
13878	14023	0.06529	125.36423	8.185030577
13879	13749	0.06805	0.00000	0
13880	1317	0.12640	232.53717	29.39269829
13880	13873	0.06412	1484.65540	95.19610425
13880	13878	0.05999	415.54031	24.9282632
13881	13868	0.08139	466.83972	37.99608481
13881	13871	0.10963	507.83719	55.67419114
13882	13865	0.00488	766.34717	3.73977419
13882	13874	0.05793	666.16321	38.59083476
13883	14001	0.04498	40086.47266	1803.08954
13884	13795	0.05133	26761.54297	1373.670001
13885	13576	0.20096	9398.61035	1888.744736
13886	13939	0.12648	1107.05872	140.0207869
13886	13977	0.09151	28283.28906	2588.203782
13887	13534	0.22205	317.67749	70.54028665
13887	13939	0.01738	8.82162	0.153319756
13888	1316	0.12854	198.59923	25.52794502
13888	13870	0.02326	1019.19653	23.70651129
13888	13872	0.03682	1015.77484	37.40082961
13889	13219	0.38580	728.92871	281.2206963
13889	13998	0.04169	718.20477	29.94195686
13890	13869	0.03011	225.77165	6.797984382
13890	13914	0.05386	218.74593	11.78165579
13891	13905	0.05449	766.51154	41.76721381
13891	13906	0.05588	465.61267	26.018436
13892	1492	0.12765	127.54796	16.28149709
13892	13872	0.02571	486.99872	12.52073709
13892	13878	0.03917	896.49713	35.11579258
13894	13918	0.00837	2445.14917	20.46589855
13894	30132	0.00912	348.31500	3.1766328
13894	30135	0.00761	2840.40283	21.61546554

13896	13814	0.03672	2818.66455	103.5013623
13896	13960	0.02308	2618.81152	60.44216988
13898	2009	2.69177	615.29858	1656.242259
13898	13899	0.58108	153.43854	89.16006682
13898	13916	1.50305	30.60683	46.00359583
13898	14663	0.51612	1467.50964	757.4110754
13899	2010	0.58776	17.02262	10.00521513
13899	13898	0.58108	877.02350	509.6208154
13899	13900	0.41246	171.63150	70.79112849
13900	9928	2.00474	968.97327	1942.539473
13900	13876	0.50056	250.65735	125.4690431
13900	13899	0.41246	894.04608	368.7582462
13900	14792	0.61122	14.72038	8.997390664
13901	13867	0.06413	766.51154	49.15638506
13901	13905	0.06345	465.61267	29.54312391
13902	13912	0.50056	30.60683	15.32055482
13902	13916	0.49511	29.37736	14.54502471
13903	14315	0.25217	1714.06189	432.2349868
13903	30052	0.22597	1712.61328	386.9992229
13905	13891	0.05449	465.61267	25.37123439
13905	13901	0.06345	766.51154	48.63515721
13906	1350	0.15419	8.42921	1.29969989
13906	1473	0.09860	107.40559	10.59019117
13906	13891	0.05588	766.51154	42.83266486
13906	13907	0.11583	543.54272	62.95855326
13907	13906	0.11583	348.31500	40.34532645
13907	29916	0.06724	543.54272	36.54781249
13909	15382	0.01323	1522.20496	20.13877162
13909	20755	0.01914	1923.79102	36.82136012
13910	13829	0.07475	76.63195	5.728238263
13910	13932	0.02311	83.98956	1.940998732
13911	13721	0.11216	3558.99902	399.1773301
13911	13947	0.01283	2810.87402	36.06351368
13912	13902	0.50056	29.37736	14.70513132
13912	13920	0.50333	30.60683	15.40533574
13913	13914	0.04344	225.77165	9.807520476
13913	29920	0.05501	218.74593	12.03321361
13914	13890	0.05386	225.77165	12.16006107
13914	13913	0.04344	218.74593	9.502323199
13916	13898	1.50305	29.37736	44.15564095
13916	13902	0.49511	30.60683	15.1537476
13917	1870	0.62841	15.21595	9.56185514
13917	12976	0.50116	3456.34766	1732.183193
13917	14286	0.22273	3330.74951	741.8578384
13918	13894	0.00837	2933.33618	24.55202383
13918	29915	0.00320	1424.68945	4.55900624
13918	30133	0.02638	1702.90210	44.9225574
13919	641	0.12441	96.10232	11.95608963
13919	13766	0.07781	1100.56213	85.63473934
13919	14094	0.08413	1121.52380	94.35379729
13920	13912	0.50333	29.37736	14.78650661
13920	13921	0.16021	110.37930	17.68386765
13920	14550	0.41080	85.91512	35.2939313
13921	241	0.38681	52.21087	20.19568662

13921	13920	0.16021	109.18925	17.49320974
13921	13922	0.16937	126.46906	21.42006469
13922	13921	0.16937	123.67751	20.94725987
13922	13935	0.31081	52.47866	16.31089231
13922	14479	0.34729	73.99041	25.69612949
13923	13834	0.20107	27736.69141	5577.016542
13926	1871	0.60338	9.96854	6.014817665
13926	13535	0.23557	257.54956	60.67094985
13926	14623	0.48889	234.15749	114.4772553
13927	1878	0.73927	698.25513	516.19907
13927	13496	0.25168	697.25647	175.4855084
13931	13740	0.09921	1352.40247	134.171849
13931	13990	0.02200	1678.62170	36.9296774
13932	117	0.08859	83.98956	7.44063512
13932	13910	0.02311	76.63195	1.770964365
13932	13996	0.05232	0.00000	0
13933	1372	0.12276	4.62368	0.567602957
13933	1373	0.24558	476.53586	117.0276765
13933	13950	0.17585	1231.10010	216.4889526
13933	30133	0.22329	1368.44568	305.5602359
13935	238	0.20655	43.60292	9.006183126
13935	13922	0.31081	89.80051	27.91089651
13935	13948	0.36556	76.36768	27.9169691
13938	624	0.17733	305.25528	54.1309188
13938	631	0.19153	19.67970	3.769252941
13938	13817	0.05174	817.78137	42.31200808
13938	14107	0.08068	972.22876	78.43941636
13939	13887	0.01738	317.67749	5.521234776
13939	13972	0.07658	860.83630	65.92284385
13941	677	0.58014	82.07478	47.61486287
13941	678	0.21864	150.00311	32.79667997
13941	13714	0.12498	819.82294	102.461471
13941	14195	0.12610	1102.20886	138.9885372
13942	13699	0.13270	1232.49548	163.5521502
13942	14396	0.27068	1197.42383	324.1186823
13944	15352	0.02154	2405.13867	51.80668695
13944	20755	0.02365	1957.49951	46.29486341
13945	13980	0.01784	1470.43323	26.23252882
13945	20755	0.01909	1565.27380	29.88107684
13947	13911	0.01283	3558.99902	45.66195743
13947	13950	0.07377	895.56543	66.06586177
13947	13951	0.09171	2604.76367	238.8828762
13947	14026	0.04689	1665.87305	78.11278731
13948	2008	0.99294	8.07946	8.022419012
13948	12229	1.00255	2222.40308	2228.070208
13948	13935	0.36556	113.86170	41.62328305
13948	14313	0.23462	2159.45264	506.6507784
13950	13933	0.17585	895.56543	157.4851809
13950	13947	0.07377	1231.10010	90.81825438
13951	13947	0.09171	2241.89893	205.6045509
13951	13955	0.10823	2604.76367	281.913572
13954	30052	0.22825	1817.24036	414.7851122
13954	30124	0.25928	1810.24927	469.3614307
13955	1396	0.18583	363.44009	67.53807192

13955	13951	0.10823	2241.89893	242.6407212
13955	13958	0.14692	2472.55200	363.2673398
13956	13957	0.05654	1712.97290	96.85148777
13956	13958	0.07446	1493.66772	111.2184984
13957	1397	0.11908	140.39091	16.71774956
13957	13956	0.05654	1493.66772	84.45197289
13957	13965	0.15313	1678.72607	257.0633231
13958	13955	0.14692	2112.87524	310.4236303
13958	13956	0.07446	1712.97290	127.5479621
13958	14265	0.18870	805.07751	151.9181261
13960	624	0.20196	256.96475	51.89660091
13960	13896	0.02308	2818.66455	65.05477781
13960	14099	0.07271	2361.84668	171.7298721
13961	13433	0.28790	117.22138	33.7480353
13961	14170	0.10656	93.29304	9.941306342
13965	1417	0.18583	202.95999	37.71605494
13965	13957	0.15313	1462.63403	223.973149
13965	13975	0.38337	1475.76611	565.7644536
13966	13834	0.15818	1016.76123	160.8312914
13966	14046	0.17448	0.00000	0
13969	1222	0.05867	0.00000	0
13972	13989	0.06005	62.63350	3.761141675
13972	14062	0.30969	860.83630	266.5923937
13974	13975	0.02896	2218.05127	64.23476478
13974	30124	0.15702	2225.85742	349.5041321
13975	13965	0.38337	1264.55981	484.7942944
13975	13974	0.02896	2225.85742	64.46083088
13975	14245	0.15692	5829.56494	914.7753304
13975	30130	0.01202	8741.98926	105.0787109
13977	13994	0.02341	28283.28906	662.1117969
13980	13196	0.45758	1470.43323	672.8408374
13980	13945	0.01784	1565.27380	27.92448459
13987	631	0.18241	0.00000	0
13989	13939	0.03269	62.63350	2.047489115
13990	678	0.28917	482.94125	139.6521213
13990	13931	0.02200	1352.40247	29.75285434
13990	14179	0.10132	1358.48132	137.6413273
13994	14288	1.00492	28283.28906	28422.44284
13996	13932	0.05232	0.00000	0
13996	14049	0.07031	0.00000	0
13998	13889	0.04169	728.92871	30.38903792
13998	14144	0.06977	718.20477	50.1091468
14000	1898	0.50068	20.99200	10.51027456
14000	13020	0.52065	1563.70044	814.1406341
14000	14263	0.16729	1455.54041	243.4973552
14001	14276	0.17854	40086.47266	7157.038829
14003	12305	0.99828	2565.72803	2561.314978
14003	15334	0.97772	2189.46069	2140.679506
14011	12304	1.00369	3356.59326	3368.979089
14011	15922	0.94756	3285.94873	3113.633579
14012	13069	0.50494	104.58733	52.81032641
14012	13101	0.72070	794.91278	572.8936405
14012	15065	1.27147	945.52106	1202.201662
14016	1929	1.16982	90.73163	106.1396754

14016	14017	0.49920	473.68445	236.4632774
14016	15367	1.00304	517.36115	518.9339279
14017	1930	1.49247	137.80377	205.6679926
14017	12318	1.00402	1072.91406	1077.227175
14017	14016	0.49920	496.30194	247.7539284
14017	14030	0.24272	519.51630	126.0969963
14018	13583	0.25446	1224.42578	311.567384
14018	14053	0.01393	1236.11194	17.21903932
14019	1927	0.97642	116.39668	113.6520463
14019	14030	0.77497	524.48126	406.4572421
14019	15065	0.77506	637.28271	493.9323372
14020	1281	0.06304	0.00000	0
14022	13875	0.06750	1320.40808	89.1275454
14022	14167	0.06525	1911.81824	124.7461402
14023	13878	0.06529	78.00314	5.092825011
14023	14171	0.06583	125.36423	8.252727261
14024	13873	0.06556	4778.04492	313.248625
14025	14180	0.07417	4615.37207	342.3221464
14026	13947	0.04689	2441.32837	114.4738873
14026	14050	0.00837	1665.87305	13.94335743
14030	14017	0.24272	524.48126	127.3020914
14030	14019	0.77497	519.51630	402.609547
14036	13870	0.06807	305.77539	20.8141308
14036	14166	0.06304	197.10017	12.42519472
14041	13262	0.42927	845.46625	362.9332971
14041	13477	0.83479	8848.26758	7386.445293
14041	14132	0.20458	8133.56934	1663.965616
14041	14153	0.05401	931.59308	50.31534225
14042	13884	0.06919	26761.54297	1851.631158
14042	13885	0.06952	9398.61035	653.3913915
14046	13966	0.17448	1016.76123	177.4044994
14046	14064	0.04824	0.00000	0
14046	14140	0.04161	0.00000	0
14049	13996	0.07031	0.00000	0
14049	14092	0.04637	0.00000	0
14050	14026	0.00837	2441.32837	20.43391846
14050	14085	0.02066	1665.87305	34.41693721
14053	14018	0.01393	1224.42578	17.05625112
14053	14449	0.25915	1236.11194	320.3384093
14055	1222	0.04936	0.00000	0
14059	612	0.23474	0.00000	0
14062	2007	0.50770	78.77206	39.99257486
14062	13972	0.30969	62.63350	19.39696862
14062	14141	0.12310	1024.08521	126.0648894
14063	14067	0.47646	1945.70813	927.0520956
14063	14071	0.99977	1951.08057	1950.631821
14064	14046	0.04824	698.60876	33.70088658
14064	14140	0.03364	0.00000	0
14064	14229	0.20697	0.00000	0
14066	1718	0.48579	113.41537	55.09605259
14066	1720	0.51580	90.88904	46.88056683
14066	14067	0.02927	1951.08057	57.10812828
14066	14069	0.30789	2080.04565	640.4252552
14067	14063	0.47646	1951.08057	929.6118484

14067	14066	0.02927	1945.70813	56.95087697
14069	14066	0.30789	2088.75464	643.1066661
14069	14073	0.16204	2080.04565	337.0505971
14071	1708	0.58616	223.77069	131.1654277
14071	1709	0.90580	124.85780	113.0961952
14071	14063	0.99977	1945.70813	1945.260617
14071	14088	0.50057	1664.59082	833.2442268
14072	612	0.24642	419.82587	103.4534909
14072	14074	0.11170	1599.64929	178.6808257
14072	14075	0.11101	2188.75464	242.9736526
14072	14481	0.26344	196.85779	51.8602162
14073	13649	0.24808	743.99371	184.5699596
14073	14069	0.16204	2088.75464	338.4618019
14073	14074	0.14135	1738.67725	245.7620293
14074	14072	0.11170	1738.67725	194.2102488
14074	14073	0.14135	1599.64929	226.1104271
14075	613	0.19486	420.96246	82.02874496
14075	14072	0.11101	2041.49561	226.6264277
14075	14077	0.08067	2423.67456	195.5178268
14076	615	0.12896	1049.84509	135.3880228
14076	616	0.12854	915.81934	117.719418
14076	14079	0.02419	2255.79883	54.5677737
14076	14083	0.04063	3959.94116	160.8924093
14077	14075	0.08067	2285.72314	184.3892857
14077	14082	0.09446	2423.67456	228.9402989
14078	13826	0.12454	51.10678	6.364838381
14078	14079	0.15720	2393.38354	376.2398925
14078	14080	0.05171	2285.72314	118.1947436
14078	14215	0.06342	15.27533	0.968761429
14079	14076	0.02419	2393.38354	57.89594783
14079	14078	0.15720	2255.79883	354.6115761
14080	14078	0.05171	2423.67456	125.3282115
14080	14082	0.03723	2285.72314	85.0974725
14081	14087	0.04344	3842.66553	166.9253906
14081	14099	0.07728	3959.94116	306.0242528
14082	14077	0.09446	2285.72314	215.9094078
14082	14080	0.03723	2423.67456	90.23340387
14083	14076	0.04063	3842.66553	156.1275005
14083	14087	0.03241	3959.94116	128.341693
14084	14086	0.07240	5024.37256	363.7645733
14084	14094	0.12480	5059.48828	631.4241373
14085	14050	0.02066	2441.32837	50.43784412
14085	14162	0.03573	1665.87305	59.52164408
14086	112	0.23810	52.09007	12.40264567
14086	14084	0.07240	5059.48828	366.3069515
14086	14092	0.06758	5075.56592	343.0067449
14087	14081	0.04344	3959.94116	172.019844
14087	14083	0.03241	3842.66553	124.5407898
14088	14071	0.50057	1660.18665	831.0396314
14088	14089	0.05930	1664.59082	98.71023563
14089	14088	0.05930	1660.18665	98.44906835
14089	14090	0.04758	1664.59082	79.20123122
14090	14089	0.04758	1660.18665	78.99168081
14090	14217	0.17055	1664.59082	283.8959644

14091	14092	0.13238	5021.18311	664.7042201
14091	14096	0.03587	4972.86475	178.3766586
14092	113	0.12255	770.62775	94.44043076
14092	14049	0.04637	0.00000	0
14092	14086	0.06758	5111.57861	345.4404825
14092	14091	0.13238	4972.86475	658.3078356
14094	13919	0.08413	1117.91846	94.05048004
14094	14084	0.12480	5024.37256	627.0416955
14094	14100	0.12468	5590.43018	697.0148348
14094	14281	0.13229	1672.86230	221.3029537
14096	14091	0.03587	5021.18311	180.1098382
14096	14114	0.05038	4972.86475	250.5329261
14099	13960	0.07271	2557.33228	185.9436301
14099	14081	0.07728	3842.66553	296.9611922
14099	14104	0.07240	4372.13037	316.5422388
14099	14231	0.07789	1374.72852	107.0776044
14100	634	0.12740	12.85581	1.637830194
14100	14094	0.12468	5498.17383	685.5123131
14100	14106	0.12807	5603.01270	717.5778365
14101	14102	0.01724	1664.59082	28.69754574
14101	14138	0.12774	1660.18665	212.0722427
14102	14101	0.01724	1660.18665	28.62161785
14102	14110	0.11446	1664.59082	190.5290653
14103	14104	0.05654	4465.50684	252.4797567
14103	14108	0.02936	4372.13037	128.3657477
14104	14099	0.07240	4465.50684	323.3026952
14104	14103	0.05654	4372.13037	247.2002511
14105	14109	0.06275	4643.85889	291.4021453
14105	14113	0.06068	4676.71338	283.7829679
14105	14275	0.12336	62.48379	7.708000334
14106	14100	0.12807	5511.02930	705.7975225
14106	14117	0.15267	5603.01270	855.4119489
14107	13938	0.08068	971.28577	78.36333592
14107	14109	0.06205	4756.24609	295.1250699
14107	14115	0.12480	5478.54492	683.722406
14108	624	0.08083	137.42087	11.10772892
14108	625	0.13324	320.84451	42.74932251
14108	14103	0.02936	4465.50684	131.1072808
14108	14113	0.03272	4589.67480	150.1741595
14109	626	0.11781	365.80820	43.09586404
14109	14105	0.06275	4731.58350	296.9068646
14109	14107	0.06205	4666.23877	289.5401157
14110	14102	0.11446	1660.18665	190.024964
14110	14123	0.24201	1664.59082	402.8476243
14111	631	0.06644	36.07901	2.397089424
14111	633	0.14422	188.52325	27.18882312
14111	14115	0.06895	5567.60938	383.8866668
14111	14117	0.02276	5511.02930	125.4310269
14113	14105	0.06068	4589.67480	278.5014669
14113	14108	0.03272	4676.71338	153.0220618
14114	14096	0.05038	5021.18311	252.9672051
14114	14118	0.01794	4972.86475	89.21319362
14115	14107	0.12480	5567.60938	694.8376506
14115	14111	0.06895	5478.54492	377.7456722

14117	14106	0.15267	5511.02930	841.3688432
14117	14111	0.02276	5603.01270	127.5245691
14118	117	0.04530	336.57779	15.24697389
14118	14114	0.01794	5021.18311	90.08002499
14118	14130	0.06623	5145.57178	340.791219
14118	14227	0.07182	196.95683	14.14543953
14119	120	0.20101	80.79684	16.24097281
14119	14120	0.14962	9195.25781	1375.794474
14119	14124	0.08343	9098.19238	759.0621903
14120	12831	0.67805	541.72321	367.3154225
14120	14119	0.14962	9079.93750	1358.540249
14120	14125	0.49713	7918.89404	3936.719794
14120	14177	0.03961	973.81738	38.57290642
14121	14122	0.01862	9074.17676	168.9611713
14121	14124	0.02621	9188.32227	240.8259267
14122	14121	0.01862	9188.32227	171.0865607
14122	14128	0.12894	9074.17676	1170.024351
14123	14110	0.24201	1660.18665	401.7817712
14123	14133	0.49713	1664.59082	827.5180343
14124	116	0.58413	35.61344	20.80287871
14124	14119	0.08343	9212.70508	768.6159848
14124	14121	0.02621	9074.17676	237.8341729
14125	14120	0.49713	7890.80371	3922.755248
14125	14127	0.25856	7918.89404	2047.509243
14127	14125	0.25856	7890.80371	2040.246207
14127	14131	0.24477	7918.89404	1938.307694
14128	14122	0.12894	9188.32227	1184.742273
14128	14130	0.02551	9074.17676	231.4822491
14130	118	0.24934	561.85126	140.0919932
14130	13829	0.14558	3910.77661	569.3308589
14130	14118	0.06623	5183.12744	343.2785304
14130	14128	0.02551	9188.32227	234.3941011
14131	1752	0.74334	242.76585	180.4575669
14131	14127	0.24477	7890.80371	1931.432024
14131	14134	0.50333	8159.03711	4106.688149
14131	14147	0.01449	0.00000	0
14132	14041	0.20458	8159.03711	1669.175812
14132	14135	0.04275	8133.56934	347.7100893
14133	14123	0.49713	1660.18665	825.3285893
14133	14144	0.49966	1664.59082	831.7294491
14134	14131	0.50333	8133.56934	4093.869456
14134	14135	0.25373	8159.03711	2070.192486
14135	14132	0.04275	8159.03711	348.7988365
14135	14134	0.25373	8133.56934	2063.730549
14138	14101	0.12774	1664.59082	212.6348313
14138	14176	0.07746	1660.18665	128.5980579
14140	14046	0.04161	318.15244	13.23832303
14140	14064	0.03364	0.00000	0
14140	14424	0.21195	0.00000	0
14141	14062	0.12310	141.40556	17.40702444
14141	14070	0.01576	0.00000	0
14141	14366	0.16319	1024.08521	167.1204654
14144	1703	1.79300	988.79974	1772.917934
14144	13998	0.06977	728.92871	50.8573561

14144	14133	0.49966	1660.18665	829.5288615
14146	29959	0.09910	2799.08936	277.3897556
14146	29962	0.00918	0.00000	0
14147	14131	0.01449	0.00000	0
14148	1222	0.08203	73.15379	6.000805394
14148	14146	0.15765	2776.00293	437.6368619
14148	29965	0.00899	23.67982	0.212881582
14151	1317	0.06475	105.91498	6.857994955
14151	14024	0.05405	4778.04492	258.2533279
14153	14041	0.05401	926.60944	50.04617585
14153	14827	0.51560	931.59308	480.329392
14154	14155	0.04551	3128.44116	142.3753572
14155	29965	0.03177	3128.44116	99.39057565
14162	14085	0.03573	2441.32837	87.22866266
14162	14216	0.02790	1665.87305	46.4778581
14166	1315	0.10475	107.05524	11.21403639
14166	1316	0.02539	0.14928	0.003790219
14166	14036	0.06304	305.77539	19.27608059
14166	14342	0.13222	169.28040	22.38225449
14167	1281	0.10705	0.31564	0.033789262
14167	1315	0.08505	16.36031	1.391444366
14167	14022	0.06525	1320.40808	86.15662722
14167	14311	0.13675	1929.20435	263.8186949
14168	1316	0.03531	92.55988	3.268289363
14168	13872	0.13110	28.26105	3.705023655
14168	14258	0.07197	420.61444	30.27162125
14170	13961	0.10656	117.22138	12.49111025
14170	14244	0.05384	93.29304	5.022897274
14171	1317	0.06114	24.87489	1.520850775
14171	14023	0.06583	78.00314	5.134946706
14171	14257	0.07085	156.56154	11.09238511
14176	14138	0.07746	1664.59082	128.9392049
14176	14199	0.02463	1660.18665	40.89039719
14177	14120	0.03961	885.53772	35.07614909
14177	14409	0.16428	973.81738	159.9787192
14179	13990	0.10132	1417.18445	143.5891285
14179	14355	0.12668	1358.48132	172.0924136
14180	1350	0.22590	569.62335	128.6779148
14180	14316	0.11497	4323.56641	497.0804302
14186	1350	0.20798	331.00403	68.84221816
14186	14357	0.12554	1093.68542	137.3012676
14186	29915	0.12738	2247.33276	286.265247
14195	13941	0.12610	976.85602	123.1815441
14195	14363	0.12554	1102.20886	138.3713003
14197	1467	0.22561	93.93768	21.19327998
14197	11246	0.11262	614.23749	69.17542612
14197	11249	0.08315	3847.87085	319.9504612
14197	11292	0.00469	3677.82324	17.248991
14199	14176	0.02463	1664.59082	40.9988719
14199	14212	0.01787	1660.18665	29.66753544
14211	1245	0.18711	413.08673	77.29265805
14211	1280	0.17103	123.15298	21.06285417
14211	14330	0.10654	3019.74707	321.7238528
14211	29918	0.11586	4219.07568	488.8221083

14212	14199	0.01787	1664.59082	29.74623795
14212	14220	0.01085	1660.18665	18.01302515
14215	14078	0.06342	15.00181	0.95141479
14215	14278	0.06802	15.27533	1.039027947
14216	14162	0.02790	2441.32837	68.11306152
14216	14249	0.03292	1665.87305	54.84054081
14217	14090	0.17055	1660.18665	283.1448332
14217	14221	0.02866	1664.59082	47.7071729
14220	14212	0.01085	1664.59082	18.0608104
14220	14223	0.08917	1660.18665	148.0388436
14221	14217	0.02866	1660.18665	47.58094939
14221	14223	0.01458	1664.59082	24.26973416
14223	14220	0.08917	1664.59082	148.4315634
14223	14221	0.01458	1660.18665	24.20552136
14227	14118	0.07182	192.92914	13.85617083
14227	14279	0.05470	196.95683	10.7735386
14229	2011	0.30549	0.00000	0
14229	14064	0.20697	698.60876	144.5910551
14229	14366	0.30073	0.00000	0
14231	14099	0.07789	1359.56165	105.8962569
14231	14248	0.01446	1374.72852	19.8785744
14238	14343	0.08374	2784.64209	233.1859286
14239	29960	0.03849	3151.52759	121.3022969
14244	14170	0.05384	117.22138	6.311199099
14244	14255	0.01404	93.29304	1.309834282
14245	1417	0.29939	129.86966	38.88167751
14245	13975	0.15692	6766.29443	1061.766922
14245	14324	0.07239	5729.96240	414.7919781
14248	14231	0.01446	1359.56165	19.65926146
14248	14277	0.03290	1374.72852	45.22856831
14249	14216	0.03292	2441.32837	80.36852994
14249	14284	0.03851	1665.87305	64.15277116
14255	14244	0.01404	117.22138	1.645788175
14255	14289	0.17551	93.29304	16.37386145
14257	14171	0.07085	102.87804	7.288909134
14257	14345	0.06026	156.56154	9.4343984
14258	14168	0.07197	120.82093	8.695482332
14258	14347	0.06025	420.61444	25.34202001
14263	14000	0.16729	1584.69238	265.1031883
14263	14299	0.03297	1455.54041	47.98916732
14265	1397	0.16272	34.59988	5.630092474
14265	1398	0.12501	61.87613	7.735135011
14265	13958	0.18870	664.70593	125.430009
14265	14378	0.06306	777.31006	49.01717238
14275	625	0.13399	16.51387	2.212693441
14275	626	0.06894	14.74224	1.016330026
14275	14105	0.12336	61.79781	7.623377842
14275	14387	0.06063	68.32573	4.14258901
14276	14293	0.01730	40086.47266	693.495977
14277	616	0.19287	86.81076	16.74319128
14277	625	0.11741	340.58328	39.9878829
14277	14248	0.03290	1359.56165	44.72957829
14277	14438	0.10899	1217.83191	132.7314999
14278	616	0.18113	9.10016	1.648311981

14278	14215	0.06802	15.00181	1.020423116
14278	14453	0.11173	24.49731	2.737084446
14279	113	0.23412	44.92632	10.51815004
14279	14227	0.05470	192.92914	10.55322396
14279	14388	0.05609	241.83519	13.56453581
14281	113	0.26611	30.11880	8.014913868
14281	634	0.12190	28.93590	3.52728621
14281	14094	0.13229	1726.39771	228.3851531
14281	14478	0.12485	1679.53308	209.689705
14284	14249	0.03851	2441.32837	94.01555553
14284	14359	0.03750	1665.87305	62.47023938
14285	626	0.05657	2.51434	0.142236214
14285	633	0.18814	2.55000	0.479757
14286	1513	1.00532	85.59840	86.05378349
14286	1871	0.55683	14.80038	8.241295595
14286	13917	0.22273	3454.67920	769.4606982
14286	14637	0.27439	3420.11963	938.4466253
14287	14289	0.02424	28166.06836	682.745497
14288	14255	0.06581	117.22138	7.714339018
14288	14287	0.19747	28166.06836	5561.953519
14289	14644	1.46149	28259.36133	41300.77399
14293	14325	0.02120	40086.47266	849.8332204
14299	14263	0.03297	1584.69238	52.24730777
14299	14373	0.02962	1455.54041	43.11310694
14301	14305	0.12550	586.22791	73.57160271
14301	14326	0.01953	676.03564	13.20297605
14302	13923	1.12444	27736.69141	31188.24529
14303	14302	0.19755	27736.69141	5479.383388
14303	14379	0.13861	339.12238	47.00575309
14304	633	0.18893	0.15146	0.028615338
14304	634	0.13047	0.15481	0.020198061
14305	1280	0.14343	102.85697	14.75277521
14305	14301	0.12550	676.03564	84.84247282
14305	14309	0.15577	685.99200	106.8569738
14309	1281	0.12850	143.73161	18.46951189
14309	1282	0.12415	547.94299	68.02712221
14309	14305	0.15577	774.58838	120.657632
14309	14310	0.03797	1055.44495	40.07524475
14310	14309	0.03797	1138.77515	43.23929245
14310	14311	0.05240	1055.44495	55.30531538
14311	14167	0.13675	1336.45349	182.7600148
14311	14310	0.05240	1138.77515	59.67181786
14311	14314	0.12304	154.01985	18.95060234
14311	14522	0.13965	1232.46338	172.113511
14312	14303	0.02429	28075.81445	681.961533
14313	238	0.36024	471.53500	169.8657684
14313	13948	0.23462	2194.15039	514.7915645
14313	14694	0.27872	2636.78467	734.9246232
14314	1315	0.11975	0.23012	0.02755687
14314	1318	0.12993	84.65568	10.9993125
14314	14311	0.12304	157.35869	19.36141322
14314	14323	0.05861	69.59444	4.078930128
14315	1450	0.23102	8.98384	2.075446717
14315	13903	0.25217	1712.61328	431.8696908

14315	14618	0.24798	1726.44324	428.1233947
14316	14319	0.06344	617.53845	39.17663927
14316	14320	0.07043	606.73236	42.73216011
14316	14507	0.12386	4356.24414	539.5643992
14318	14319	0.06067	414.28851	25.1348839
14318	14332	0.06043	617.53845	37.31784853
14319	14316	0.06344	414.28851	26.28246307
14319	14318	0.06067	617.53845	37.46605776
14320	14151	0.13678	4702.41211	643.1959284
14320	14316	0.07043	842.65979	59.34852901
14320	14329	0.06326	604.30597	38.22839566
14323	14314	0.05861	78.48773	4.600165855
14323	14342	0.06148	69.59444	4.278666171
14324	1437	0.20908	38.84798	8.122335658
14324	14245	0.07239	6669.97363	482.8393911
14324	14385	0.01964	5767.77295	113.2790607
14325	14604	0.23112	40086.47266	9264.785561
14326	1493	0.11928	416.11328	49.63399204
14326	14301	0.01953	586.22791	11.44903108
14326	14330	0.11410	518.08496	59.11349394
14327	1437	0.23524	0.10020	0.023571048
14327	1450	0.20266	0.09947	0.02015859
14329	1317	0.13454	1.26218	0.169813697
14329	1319	0.12748	272.38419	34.72353654
14329	14320	0.06326	434.56293	27.49045095
14329	14345	0.06517	333.19049	21.71402423
14330	14211	0.10654	4022.00244	428.50414
14330	14326	0.11410	429.36670	48.99074047
14330	14333	0.15996	744.27185	119.0537251
14330	14434	0.06694	2557.15308	171.1758272
14331	14335	0.07098	760.58911	53.98661503
14331	14339	0.08481	890.27246	75.50400733
14332	14318	0.06043	414.28851	25.03545466
14332	14341	0.03769	617.53845	23.27502418
14333	1245	0.13050	44.12286	5.75803323
14333	1246	0.11830	99.73167	11.79825656
14333	14330	0.15996	750.47314	120.0456835
14333	14334	0.05240	760.58911	39.85486936
14334	14333	0.05240	890.27246	46.6502769
14334	14339	0.12824	760.58911	97.53794747
14335	1242	0.15966	423.57040	67.62725006
14335	1243	0.13106	228.60522	29.96100013
14335	14331	0.07098	890.27246	63.19153921
14335	14338	0.03177	158.87042	5.047313243
14338	14335	0.03177	348.84235	11.08272146
14338	14348	0.01658	158.87042	2.634071564
14339	14331	0.08481	760.58911	64.50556242
14339	14334	0.12824	890.27246	114.1685403
14341	1350	0.10464	386.57248	40.45094431
14341	1351	0.16876	105.76800	17.84940768
14341	14332	0.03769	414.28851	15.61453394
14341	14350	0.06991	578.50378	40.44319926
14342	14166	0.13222	276.02612	36.49617359
14342	14323	0.06148	78.48773	4.82542564

14342	14344	0.02257	293.39783	6.621989023
14342	14529	0.13835	387.21317	53.57094207
14343	14348	0.07739	348.84235	26.99690947
14343	14417	0.04943	2594.67017	128.2545465
14344	1316	0.13394	34.66445	4.642956433
14344	14342	0.02257	302.34000	6.8238138
14344	14347	0.03882	258.73340	10.04403059
14345	14257	0.06026	102.87804	6.19943069
14345	14329	0.06517	336.62540	21.93787732
14345	14346	0.03379	413.98679	13.98861363
14345	14412	0.04296	122.01439	5.241738194
14346	1492	0.13478	75.35038	10.15572422
14346	14345	0.03379	383.82526	12.96945554
14346	14347	0.03033	382.36752	11.59720688
14347	14258	0.06025	120.82093	7.279461033
14347	14344	0.03882	263.71906	10.23757391
14347	14346	0.03033	350.14517	10.61990301
14347	14428	0.06082	365.82227	22.24931046
14348	14338	0.01658	348.84235	5.783806163
14348	14343	0.07739	158.87042	12.2949818
14349	1501	0.54493	37.50241	20.43618828
14349	1797	0.50634	89.36118	45.24713988
14349	13849	0.28148	1690.94263	475.9665315
14349	14648	0.25046	1723.82910	431.7502364
14350	14341	0.06991	503.30417	35.18599452
14350	14357	0.14002	578.50378	81.00209928
14355	14179	0.12668	1417.18445	179.5289261
14355	14942	0.48185	1358.48132	654.584224
14357	1373	0.28700	270.26108	77.56492996
14357	14186	0.12554	1884.31763	236.5572353
14357	14350	0.14002	503.30417	70.47264988
14357	14524	0.12498	1071.83081	133.9574146
14359	1373	0.21451	448.88077	96.28941397
14359	1396	0.14961	121.72872	18.2118338
14359	14284	0.03750	2441.32837	91.54981388
14359	14415	0.04095	1485.17102	60.81775327
14363	14195	0.12554	976.85602	122.6345048
14363	14662	0.24829	1102.20886	273.6674378
14366	14141	0.16319	141.40556	23.07597334
14366	14229	0.30073	269.86691	81.15707584
14366	14374	0.45737	94.05295	43.01699774
14366	14674	0.25068	954.19049	239.196472
14373	14299	0.02962	1584.69238	46.9385883
14373	14408	0.02963	1455.54041	43.12766235
14374	14366	0.45737	396.54422	181.3674299
14374	14376	0.06036	94.05295	5.677036062
14376	14377	0.01931	275.86243	5.326903523
14376	14400	0.01907	94.05295	1.793589757
14377	14374	0.02552	396.54422	10.11980849
14378	14265	0.06306	639.07440	40.30003166
14378	14530	0.12728	777.31006	98.93602444
14379	14376	0.01173	275.86243	3.235866304
14379	14400	0.02320	63.25997	1.467631304
14385	14324	0.01964	6708.40820	131.753137

14385	14549	0.14304	5767.77295	825.0222428
14386	13866	0.01560	1876.53479	29.27394272
14386	21109	0.42279	1925.32251	814.007104
14387	14275	0.06063	67.58971	4.097964117
14387	14464	0.06343	68.32573	4.333901054
14388	14279	0.05609	237.85547	13.34131331
14388	14471	0.06568	241.83519	15.88373528
14396	1784	0.58068	48.71885	28.29006182
14396	1797	0.50080	24.77132	12.40547706
14396	13942	0.27068	1232.49548	333.6118765
14396	14649	0.22549	1186.26257	267.4903469
14400	14376	0.01907	0.00000	0
14400	14377	0.02773	120.68180	3.346506314
14400	14437	0.03646	157.31291	5.735628699
14408	14373	0.02963	1584.69238	46.95443522
14408	14668	0.21795	1455.54041	317.2350324
14409	120	0.15587	7.26588	1.132532716
14409	14177	0.16428	885.53772	145.4761366
14409	15411	0.79751	981.18127	782.5018746
14412	14345	0.04296	101.92734	4.378798526
14412	14426	0.01675	122.01439	2.043741033
14414	14312	0.32370	28075.81445	9088.141137
14415	14359	0.04095	2287.97241	93.69247019
14415	14442	0.02353	1485.17102	34.9460741
14417	14494	0.07036	2594.67017	182.5609932
14418	29958	0.05170	3151.52759	162.9339764
14424	14140	0.21195	318.15244	67.43240966
14424	14527	0.07794	0.00000	0
14426	14412	0.01675	101.92734	1.707282945
14426	14486	0.03626	122.01439	4.424241781
14428	14347	0.06082	38.79205	2.359332481
14428	14514	0.06081	365.82227	22.24565224
14434	14330	0.06694	3464.48926	231.9129111
14434	14521	0.06282	2557.15308	160.6403565
14437	14400	0.03646	120.68180	4.400058428
14437	14485	0.02748	157.31291	4.322958767
14438	14277	0.10899	1200.91565	130.8877967
14438	14459	0.01168	1217.83191	14.22427671
14442	14415	0.02353	2287.97241	53.83599081
14442	14558	0.10968	1485.17102	162.8935575
14449	1783	1.00515	35.25430	35.43585965
14449	14053	0.25915	1224.42578	317.3099409
14449	14747	0.23953	1206.09839	288.8967474
14451	14452	0.05585	43.11913	2.408203411
14451	14458	0.06728	42.12936	2.834463341
14452	14451	0.05585	42.12936	2.352924756
14452	14456	0.03936	43.11913	1.697168957
14453	613	0.19493	53.67114	10.46211532
14453	14278	0.11173	24.10197	2.692913108
14453	14457	0.15652	58.72003	9.190859096
14456	616	0.11557	3.18582	0.368185217
14456	617	0.13331	19.80587	2.64032053
14456	14452	0.03936	42.12936	1.65821161
14456	14457	0.02340	59.45096	1.391152464

14457	14453	0.15652	59.45096	9.305264259
14457	14456	0.02340	58.72003	1.374048702
14458	14451	0.06728	43.11913	2.901055066
14458	14459	0.03326	42.12936	1.401222514
14459	14438	0.01168	1200.91565	14.02669479
14459	14458	0.03326	43.11913	1.434142264
14459	14480	0.01224	1239.61267	15.17285908
14460	625	0.11857	0.00000	0
14464	627	0.13602	68.32573	9.293665795
14464	14387	0.06343	67.58971	4.287215305
14466	626	0.12951	0.00000	0
14468	633	0.10631	0.00000	0
14471	118	0.10031	11.29414	1.132915183
14471	14388	0.06568	237.85547	15.62234727
14471	14547	0.07457	230.54106	17.19144684
14474	634	0.12355	0.00000	0
14476	113	0.13119	0.00000	0
14478	14281	0.12485	1733.60291	216.4403233
14478	14593	0.12007	1679.53308	201.6615369
14479	238	0.28550	301.23529	86.0026753
14479	241	0.24283	502.01721	121.9048391
14479	13922	0.34729	33.87700	11.76514333
14479	14538	0.05966	810.47443	48.35290449
14480	14459	0.01224	1223.68604	14.97791713
14480	14596	0.12230	1239.61267	151.6046295
14481	613	0.21240	6.40821	1.361103804
14481	14072	0.26344	192.89653	50.81666186
14481	14768	0.23890	203.16772	48.53676831
14485	2012	0.76691	94.05295	72.13014788
14485	14437	0.02748	120.68180	3.316335864
14485	14670	0.16264	63.25997	10.28860152
14486	14426	0.03626	101.92734	3.695885348
14486	14512	0.02566	122.01439	3.130889247
14487	14320	0.10266	5108.08252	524.3957515
14494	14543	0.04549	2594.67017	118.031546
14497	14418	0.06868	3151.52759	216.4469149
14507	14545	0.03961	4356.24414	172.5508304
14512	1319	0.06190	122.01439	7.552690741
14512	14486	0.02566	101.92734	2.615455544
14514	14428	0.06081	38.79205	2.358944561
14514	14574	0.07755	365.82227	28.36951704
14515	1319	0.06836	188.87427	12.9114451
14515	14487	0.02708	5108.08252	138.3268746
14521	1246	0.15749	828.50000	130.480465
14521	1493	0.12592	80.72219	10.16453816
14521	14434	0.06282	3464.48926	217.6392153
14521	14633	0.11513	2394.66138	275.6973647
14522	1282	0.10900	253.12422	27.59053998
14522	1318	0.13489	2.02668	0.273378865
14522	14311	0.13965	719.70398	100.5066608
14522	14634	0.11529	1490.46570	171.8357906
14524	14357	0.12498	1791.61523	223.9160714
14524	14570	0.06864	1071.83081	73.5704668
14527	14424	0.07794	318.15244	24.79680117

14527	14555	0.04200	0.00000	0
14529	1318	0.10980	173.19930	19.01728314
14529	14342	0.13835	493.91000	68.3324485
14529	14639	0.10823	214.01387	23.16272115
14530	1398	0.10992	21.27885	2.338971192
14530	1418	0.35978	409.20654	147.224329
14530	14378	0.12728	639.07440	81.34138963
14530	14954	0.35871	388.98068	139.5312597
14538	14479	0.05966	807.18030	48.1563767
14538	14562	0.03190	810.47443	25.85413432
14543	1243	0.13094	17.14320	2.244730608
14543	14544	0.00758	356.10901	2.699306296
14543	14614	0.08534	2698.07642	230.2538417
14544	1223	0.22822	497.46677	113.5318662
14544	14497	0.04498	3151.52759	141.755711
14544	14543	0.00758	412.57156	3.127292425
14545	1351	0.24407	149.47194	36.4816164
14545	14636	0.08974	4206.77197	377.5157166
14547	14471	0.07457	226.71423	16.90608013
14547	14590	0.04899	230.54106	11.29420653
14549	1418	0.31785	353.29486	112.2947713
14549	14385	0.14304	6708.40820	959.5707089
14549	14665	0.09587	5568.10645	533.8143654
14550	244	0.27735	85.91512	23.82855853
14550	13920	0.41080	85.87568	35.27772934
14550	14643	0.08694	0.00000	0
14555	2011	0.25200	17.24457	4.34563164
14555	14527	0.04200	318.15244	13.36240248
14555	14568	0.02024	16.81889	0.340414334
14558	14442	0.10968	2287.97241	250.9448139
14558	14669	0.07981	1485.17102	118.5314991
14562	14538	0.03190	807.18030	25.74905157
14562	14738	0.12014	810.47443	97.37039802
14568	14555	0.02024	335.39700	6.78843528
14568	14677	0.06336	16.81889	1.06564487
14570	14524	0.06864	1791.61523	122.9764694
14570	14627	0.04408	1071.83081	47.2463021
14574	14514	0.07755	38.79205	3.008323478
14574	14661	0.05523	365.82227	20.20436397
14590	114	0.25150	170.75882	42.94584323
14590	118	0.15804	41.90851	6.62322092
14590	14547	0.04899	226.71423	11.10673013
14590	14645	0.04174	132.81190	5.543568706
14593	114	0.25017	209.23352	52.3439497
14593	635	0.27848	37.02803	10.31156579
14593	14478	0.12007	1733.60291	208.1537014
14593	15074	0.36665	1466.71814	537.772206
14596	617	0.18646	119.94893	22.36567749
14596	627	0.24792	60.95163	15.11112811
14596	14480	0.12230	1223.68604	149.6568027
14596	15092	0.37540	1102.59424	413.9138777
14603	14042	0.42189	36160.15234	15255.60667
14604	14619	0.01245	40086.47266	499.0765846
14605	1845	0.70762	28.97189	20.5010888

14605	14622	0.44515	29.21301	13.0041714
14606	1501	0.29538	103.01057	30.42726217
14606	1502	0.39956	368.98834	147.4329811
14606	14610	0.46461	1319.68713	613.1398375
14606	14611	0.11355	947.40143	107.5774324
14607	14611	0.10550	962.76825	101.5720504
14607	14648	0.48192	947.40143	456.5716971
14609	14610	0.04721	1331.08533	62.84053843
14609	14612	0.05516	1343.93665	74.13154561
14610	1236	0.38151	28.07553	10.71109545
14610	14606	0.46461	1306.90125	607.1993898
14610	14609	0.04721	1343.93665	63.44724925
14611	14606	0.11355	962.76825	109.3223348
14611	14607	0.10550	947.40143	99.95085087
14612	14609	0.05516	1331.08533	73.4226668
14612	14615	0.15376	1343.93665	206.6436993
14614	14615	0.00758	3303.53564	25.04080015
14614	14620	0.07999	2840.11621	227.1808956
14614	14822	0.12884	1135.62292	146.313657
14615	14544	0.08534	3220.42993	274.8314902
14615	14612	0.15376	1331.08533	204.6676803
14615	14614	0.00758	1316.85852	9.981787582
14618	14315	0.24798	1721.59705	426.9216365
14618	15267	0.50960	1726.44324	879.7954751
14619	14675	0.01930	40086.47266	773.6689223
14620	1244	0.12098	70.76168	8.560748046
14620	14614	0.07999	3264.34009	261.1145638
14620	14621	0.07324	2875.70654	210.616747
14621	1243	0.12147	92.17406	11.19638307
14621	14620	0.07324	3306.40234	242.1609074
14621	14625	0.16534	2972.64063	491.4964018
14622	1846	0.51130	104.76119	53.56439645
14622	14605	0.44515	28.97189	12.89683683
14622	14637	0.49713	139.80540	69.5014585
14623	1878	0.53080	507.89948	269.593044
14623	13926	0.48889	249.45331	121.9552287
14623	14637	1.13969	282.93002	322.4525145
14625	14621	0.16534	3398.37256	561.8869191
14625	14628	0.09266	3116.85815	288.8080762
14625	14718	0.04072	228.22116	9.293165635
14626	14629	0.12960	4866.48193	630.6960581
14626	14630	0.12151	6076.90918	738.4052345
14627	14570	0.04408	1791.61523	78.97439934
14627	14808	0.11775	1071.83081	126.2080779
14628	1246	0.12684	49.41322	6.267572825
14628	1247	0.13911	192.45331	26.77217995
14628	14625	0.09266	3556.64087	329.558343
14628	14631	0.11420	2890.15161	330.0553139
14629	1282	0.13183	108.75542	14.33722702
14629	1494	0.11318	252.35017	28.56099224
14629	14626	0.12960	6076.90918	787.5674297
14629	14634	0.11862	4868.41309	577.4911607
14630	1283	0.11316	637.44409	72.13317322
14630	1493	0.12841	162.63678	20.88418892

14630	14626	0.12151	4866.48193	591.3262193
14630	14632	0.11984	5284.95605	633.349133
14631	14628	0.11420	3259.99707	372.2916654
14631	14633	0.05309	2890.15161	153.438149
14632	14630	0.11984	4061.86499	486.7739004
14632	14633	0.00965	5284.95605	50.99982588
14633	14521	0.11513	3287.13013	378.4472919
14633	14631	0.05309	3259.99707	173.0732444
14633	14632	0.00965	4061.86499	39.19699715
14633	14796	0.10956	3142.71143	344.3154643
14634	14522	0.11529	970.69037	111.9108928
14634	14629	0.11862	6091.07178	722.5229345
14634	14638	0.14344	5085.42773	729.4537536
14634	14825	0.12865	895.68878	115.2303615
14635	14515	0.12024	4995.48877	600.6575697
14636	14664	0.01245	4206.77197	52.37431103
14637	14286	0.27439	3541.35229	971.7116549
14637	14622	0.49713	132.94647	66.09167863
14637	14623	1.13969	278.16376	317.0204556
14637	15809	1.00119	3567.36621	3571.611376
14638	1318	0.12427	174.94281	21.740143
14638	1320	0.12761	1143.09473	145.8703185
14638	14634	0.14344	6261.47217	898.1455681
14638	14639	0.09859	5155.16309	508.247529
14639	14529	0.10823	311.13867	33.67453825
14639	14638	0.09859	6783.90283	668.82498
14639	14661	0.06417	5091.48877	326.7208344
14640	1450	0.25600	0.00211	0.00054016
14640	1692	0.25649	0.00211	0.000541194
14642	14603	0.02039	36160.15234	737.3055062
14643	14550	0.08694	0.00000	0
14643	14909	0.20931	0.00000	0
14644	14691	0.13851	2311.54541	320.1721547
14644	14715	0.10227	25947.81445	2653.682984
14645	14590	0.04174	133.06544	5.554151466
14645	15185	0.41951	132.81190	55.71592017
14646	13497	0.74927	8969.61719	6720.665072
14646	14658	0.49722	108.39828	53.89779278
14646	30051	0.44944	9223.71973	4145.508595
14648	14349	0.25046	1649.87964	413.2288546
14648	14607	0.48192	962.76825	463.977275
14648	14657	0.49125	884.61420	434.5667258
14648	15570	0.74271	1406.51111	1044.629867
14649	14396	0.22549	1221.99951	275.5486695
14649	14657	0.51884	94.05211	48.79799675
14649	14696	0.66904	1046.83435	700.3740535
14649	15389	0.57649	555.82013	320.4247467
14650	14705	0.09327	2803.98267	261.5274636
14653	1437	0.25343	0.10383	0.026313637
14653	1438	0.24737	0.10355	0.025615164
14654	1871	0.27749	0.03300	0.00915717
14654	1872	0.48639	0.03350	0.016294065
14655	1319	0.12712	50.50003	6.419563814
14655	14660	0.07566	4743.02832	358.8575227

14656	14665	0.00957	3503.82788	33.53163281
14657	1798	0.64051	785.07880	502.8508222
14657	14648	0.49125	892.72388	438.5506061
14657	14649	0.51884	99.53539	51.64294175
14658	1898	0.49582	83.00294	41.15451771
14658	1899	0.50676	87.77921	44.48299246
14658	14646	0.49722	109.37666	54.38426289
14658	14668	0.50346	113.83072	57.30921429
14659	14655	0.03762	4557.96777	171.4707475
14660	14635	0.01060	4995.48877	52.95218096
14660	14664	0.08624	4452.15234	383.9536178
14660	14683	0.11337	6932.28760	785.9134452
14660	14836	0.13111	4910.91064	643.869494
14661	14574	0.05523	38.79205	2.142484922
14661	14639	0.06417	6817.35400	437.4696062
14661	14659	0.08327	4557.96777	379.5419762
14661	14842	0.13344	902.43488	120.4209104
14662	14363	0.24829	976.85602	242.5435812
14662	14913	0.20653	1102.20886	227.6391959
14663	2010	0.58211	16.75394	9.752636013
14663	13898	0.51612	740.09796	381.9793591
14663	15257	0.48328	1450.75562	701.121176
14664	14650	0.03946	2803.98267	110.6451562
14664	14660	0.08624	11921.30566	1028.0934
14664	14811	0.11358	5107.93652	580.1594299
14665	14549	0.09587	6514.87402	624.5809723
14665	14673	0.00957	2366.62866	22.64863628
14665	14898	0.18923	3235.78418	612.3074404
14668	14408	0.21795	1584.69238	345.3837042
14668	14658	0.50346	114.34353	57.56739361
14668	15901	1.00256	1397.16968	1400.746434
14669	14558	0.07981	2287.97241	182.603078
14669	14815	0.10733	1485.17102	159.4034056
14670	14485	0.16264	28.50472	4.636007661
14670	14982	0.24789	63.25997	15.68151396
14673	14719	0.19500	2366.62866	461.4925887
14674	14366	0.25068	38.88652	9.748072834
14674	14773	0.07552	954.19049	72.0604658
14675	14858	0.17114	7290.28418	1247.659235
14675	15042	0.29475	32796.18750	9666.676266
14677	14568	0.06336	335.39700	21.25075392
14677	14993	0.24952	16.81889	4.196649433
14679	14642	0.01346	36160.15234	486.7156505
14683	1321	0.11470	784.05994	89.93167512
14683	14661	0.08429	6435.99316	542.4898635
14688	14414	1.13341	28075.81445	31821.40886
14691	14701	0.03120	2311.54541	72.12021679
14694	14313	0.27872	2665.68530	742.9798068
14694	14729	0.02132	2636.78467	56.21624916
14695	14679	0.01080	36160.15234	390.5296453
14696	1784	0.24332	8.60882	2.094698082
14696	1786	0.88767	118.88956	105.5346957
14696	14649	0.66904	1089.00647	728.5888887
14696	14714	0.29799	1018.87659	303.6150351

14701	14706	0.03834	0.00000	0
14701	14727	0.08169	2311.54541	188.8301445
14702	14656	0.19930	3503.82788	698.3128965
14702	14719	0.00984	0.00000	0
14705	1351	0.14657	214.83949	31.48902405
14705	14723	0.00825	173.39612	1.43051799
14705	14794	0.13167	2697.77856	355.216503
14706	14691	0.01590	0.00000	0
14714	14696	0.29799	1047.06177	312.0139368
14714	14731	0.99145	1018.87659	1010.165195
14715	14736	0.04658	25947.81445	1208.649197
14718	14625	0.04072	214.17026	8.721012987
14718	14781	0.06032	228.22116	13.76630037
14719	14702	0.00984	0.00000	0
14719	14734	0.03945	2366.62866	93.36350064
14723	14664	0.12764	4412.81006	563.2510761
14723	14705	0.00825	55.88223	0.461028398
14727	2008	1.16302	67.33789	78.31531283
14727	14701	0.08169	0.00000	0
14727	14763	0.14707	2487.43628	365.8272537
14729	14694	0.02132	2665.68530	56.8324106
14729	14763	0.03983	2636.78467	105.0231334
14731	1783	0.25726	137.41650	35.35176879
14731	1785	2.12568	816.80536	1736.266818
14731	14714	0.99145	1047.06177	1038.109392
14731	14741	0.70411	550.34064	387.500348
14733	14688	0.10872	28075.81445	3052.402547
14734	14795	0.07689	2366.62866	181.9700777
14736	14777	0.09134	21471.82813	1961.236781
14736	14835	0.24110	4475.98730	1079.160538
14738	14562	0.12014	807.18030	96.97464124
14738	14788	0.04935	810.47443	39.99691312
14741	14731	0.70411	560.08179	394.3591892
14741	14747	0.30340	550.34064	166.9733502
14747	14449	0.23953	1194.72156	286.1716553
14747	14741	0.30340	560.08179	169.9288151
14747	14751	0.73227	127.75938	93.55436119
14747	15057	0.25073	753.59161	188.9480244
14748	14733	0.03829	28075.81445	1075.022935
14751	14747	0.73227	128.97508	94.44458183
14751	14752	0.01310	127.75938	1.673647878
14752	14751	0.01310	128.97508	1.689573548
14752	14753	0.30234	127.75938	38.62677095
14753	1772	0.25484	190.85289	48.63695049
14753	14752	0.30234	128.97508	38.99432569
14753	14772	0.94774	73.04375	69.22648363
14763	14727	0.14707	67.33789	9.903383482
14763	14729	0.03983	2665.68530	106.1742455
14763	14789	0.07570	387.99356	29.37111249
14763	14817	0.03591	2922.59814	104.9504992
14768	1720	0.61617	144.56708	89.07789768
14768	14481	0.23890	199.30473	47.6139
14768	15388	0.49465	98.51939	48.73261626
14772	14753	0.94774	73.32860	69.49644736

14772	14809	1.40606	73.04375	102.7038951
14773	2011	0.27839	619.99341	172.5999654
14773	14674	0.07552	38.88652	2.93670999
14773	14973	0.16899	480.40610	81.18382684
14777	14868	0.17058	21471.82813	3662.664442
14781	1461	0.09974	245.16438	24.45269526
14781	14718	0.06032	214.17026	12.91875008
14781	14782	0.05656	29.98751	1.696093566
14782	1247	0.09670	14.18837	1.372015379
14782	14781	0.05656	22.36357	1.264883519
14782	14866	0.06587	36.96902	2.435149347
14784	1418	0.19734	188.00790	37.10147899
14784	14702	0.11744	3503.82788	411.4895462
14784	14795	0.00825	183.29349	1.512171293
14788	14738	0.04935	807.18030	39.83434781
14788	14852	0.04386	810.47443	35.5474085
14789	14763	0.07570	165.65535	12.54011
14789	14797	0.01892	387.99356	7.340838155
14792	2010	0.42004	0.13339	0.056029136
14792	13900	0.61122	955.03406	583.7359182
14792	15255	0.38609	22.17773	8.562599776
14794	14800	0.00957	2681.86401	25.66543858
14794	30078	0.01358	15.91450	0.21611891
14795	1419	0.18910	5.29652	1.001571932
14795	14784	0.00825	5.31150	0.043819875
14795	14896	0.16723	2544.62573	425.5377608
14796	1247	0.13194	1082.48682	142.823311
14796	1283	0.12572	214.20424	26.92975705
14796	14633	0.10956	3181.93433	348.6127252
14796	14911	0.10687	2367.82520	253.0494791
14797	14789	0.01892	165.65535	3.134199222
14797	14845	0.19084	387.99356	74.04469099
14798	14748	0.09815	28075.81445	2755.641188
14800	14808	0.17060	2681.86401	457.5260001
14805	14723	0.13339	4295.29639	572.9495855
14807	14834	0.11388	3470.64209	395.2367212
14808	14627	0.11775	1791.61523	210.9626933
14808	14807	0.01586	3470.64209	55.04438355
14808	14820	0.00781	1067.77490	8.339321969
14809	14772	1.40606	73.32860	103.1044113
14809	14827	0.59654	73.04375	43.57351863
14811	14664	0.11358	6761.49023	767.9700603
14811	14861	0.04351	5107.93652	222.246318
14815	1399	0.20627	203.39603	41.95449911
14815	14669	0.10733	2287.97241	245.5680788
14815	14981	0.14043	1455.23401	204.358512
14817	14763	0.03591	753.73865	27.06675492
14817	14846	0.02132	2922.59814	62.30979234
14819	1352	0.09574	1481.51025	141.8397913
14819	14805	0.06368	4295.29639	273.5244741
14820	14808	0.00781	2576.33716	20.12119322
14820	14821	0.02965	5745.01709	170.3397567
14820	14904	0.08216	577.45831	47.44397475
14821	14819	0.09101	5745.01709	522.8540054

14822	1244	0.08252	0.74140	0.061180328
14822	14823	0.00827	95.30346	0.788159614
14822	14953	0.12270	1059.61487	130.0147445
14823	1224	0.08214	112.31926	9.225904016
14823	14615	0.12885	1220.90137	157.3131415
14823	14822	0.00827	19.24421	0.159149617
14825	1320	0.15113	100.51656	15.19106771
14825	1494	0.13044	20.32909	2.6517265
14825	14634	0.12865	422.52820	54.35825293
14825	15912	0.10210	1035.69226	105.7441797
14827	14153	0.51560	926.60944	477.7598273
14827	14809	0.59654	73.32860	43.74344304
14827	15418	0.47389	890.68640	422.0873781
14834	14897	0.07161	3470.64209	248.5326801
14835	14846	0.02377	4475.98730	106.3942181
14836	14660	0.13111	4626.50537	606.5811191
14836	14860	0.02714	3508.13135	95.21068484
14836	14862	0.01953	1402.77917	27.39627719
14842	1320	0.15356	303.78778	46.6496515
14842	1321	0.09989	358.67163	35.82770912
14842	14661	0.13344	423.24429	56.47771806
14842	14961	0.10868	1329.86597	144.5298336
14845	247	0.03906	225.67897	8.815020568
14845	14797	0.19084	165.65535	31.61366699
14845	14879	0.18375	304.30719	55.91644616
14846	14817	0.02132	753.73865	16.06970802
14846	14851	0.00830	507.93564	4.215865812
14846	14857	0.01292	7235.77686	93.48623703
14849	14820	0.12590	5021.83936	632.2495754
14851	14920	0.23342	507.93564	118.5623371
14852	14788	0.04386	807.18030	35.40292796
14852	14892	0.04577	810.47443	37.09541466
14857	14846	0.01292	1098.86597	14.19734833
14857	14900	0.04658	7235.77686	337.0424861
14858	14861	0.00843	7290.28418	61.45709564
14858	15042	0.17422	4476.56836	779.9077397
14860	14695	0.14820	6719.55908	995.8386557
14861	1352	0.15541	4513.59229	701.4573778
14861	14811	0.04351	6761.49023	294.1924399
14861	14858	0.00843	4476.56836	37.73747127
14861	14887	0.02755	1509.50232	41.58678892
14862	1321	0.10305	394.74103	40.67806314
14862	14836	0.01953	4626.50537	90.35564988
14862	14860	0.01738	3211.42798	55.81461829
14862	14963	0.09261	1940.49109	179.7088798
14866	14782	0.06587	28.54572	1.880306576
14866	14947	0.08255	36.96902	3.051792601
14868	14876	0.02449	21471.82813	525.8450709
14876	14920	0.22105	21471.82813	4746.347608
14879	14845	0.18375	87.05450	15.99626438
14879	14892	0.08781	304.30719	26.72121435
14883	14798	0.16885	21267.21680	3590.969557
14887	14861	0.02755	598.37909	16.48534393
14887	15175	0.23572	1509.50232	355.8198869

14888	14784	0.16526	3686.52441	609.235024
14888	14896	0.00984	0.00000	0
14890	14883	0.02130	21267.21680	452.9917178
14892	14852	0.04577	807.18030	36.94464233
14892	14879	0.08781	87.05450	7.644255645
14892	14906	0.09110	233.26364	21.2503176
14892	14936	0.03767	641.00763	24.14675742
14896	14888	0.00984	0.00000	0
14896	14969	0.20619	2544.62573	524.6763793
14897	14849	0.06719	5021.83936	337.4173866
14897	14972	0.10653	3470.64209	369.7275018
14898	1419	0.28359	326.42844	92.5718413
14898	14665	0.18923	3045.35229	576.2720138
14898	14965	0.05426	2910.62891	157.9307247
14900	14857	0.04658	1098.86597	51.18517688
14900	14907	0.00729	7235.77686	52.74881331
14902	14798	0.17902	6808.59766	1218.875153
14904	1352	0.21442	315.73312	67.69949559
14904	14820	0.08216	2809.19800	230.8037077
14904	15142	0.17730	1015.47223	180.0432264
14906	14892	0.09110	32.34161	2.946320671
14906	14923	0.08974	233.26364	20.93307905
14907	14900	0.00729	1098.86597	8.010732921
14907	14902	0.01425	6808.59766	97.02251666
14907	14950	0.03534	5217.28613	184.3788918
14909	14643	0.20931	0.00000	0
14909	15049	0.52033	0.00000	0
14911	14796	0.10687	2368.36475	253.1071408
14911	14946	0.03012	2367.82520	71.31889502
14913	679	0.22670	1140.63916	258.5828976
14913	680	0.25868	96.41765	24.9413177
14913	14662	0.20653	976.85602	201.7500738
14913	15327	0.29508	304.94022	89.98176012
14920	14933	0.03445	21979.76367	757.2028584
14923	14906	0.08974	32.34161	2.902336081
14923	14937	0.03784	233.26364	8.826696138
14924	1283	0.11298	112.19666	12.67597865
14924	14925	0.13031	6.40703	0.834900079
14924	14930	0.08067	103.81160	8.374481772
14925	1286	0.19416	6.40703	1.243988945
14925	14924	0.13031	6.31172	0.822480233
14930	14924	0.08067	105.88495	8.541738917
14930	14946	0.04775	103.81160	4.9570039
14933	15009	0.26515	21979.76367	5827.934337
14935	1494	0.11891	0.00000	0
14936	251	0.21937	135.85396	29.80228321
14936	14892	0.03767	621.38275	23.40748819
14936	14994	0.03534	840.18262	29.69205379
14937	251	0.03254	29.86537	0.97181914
14937	14923	0.03784	32.34161	1.223806522
14937	14956	0.09896	247.20146	24.46305648
14939	14890	0.22038	21267.21680	4686.869238
14942	680	0.25473	52.73538	13.43328335
14942	683	0.50817	239.25459	121.582005

14942	14355	0.48185	1417.18445	682.8703272
14942	15294	0.26587	1179.34631	313.5528034
14943	14907	0.26720	341.74707	91.3148171
14943	14939	0.04222	21267.21680	897.9018933
14944	1248	0.15942	253.47020	40.40821928
14944	14946	0.13859	438.46274	60.76655114
14944	14947	0.08343	193.20625	16.11919744
14945	1438	0.22941	0.00267	0.000612525
14945	1692	0.22333	0.00267	0.000596291
14946	14911	0.03012	2368.36475	71.33514627
14946	14930	0.04775	105.88495	5.056006363
14946	14944	0.13859	432.18008	59.89583729
14946	15168	0.16034	2090.09448	335.1257489
14947	14866	0.08255	28.54572	2.356449186
14947	14944	0.08343	205.11768	17.11296804
14947	14948	0.05102	182.00369	9.285828264
14948	14947	0.05102	185.49181	9.463792146
14948	14951	0.22615	45.03641	10.18498412
14948	15082	0.10405	218.75093	22.76103427
14949	14823	0.12216	1146.85962	140.1003712
14949	14953	0.00967	0.00000	0
14950	236	0.25174	645.79669	162.5728587
14950	14907	0.03534	5547.22607	196.0389693
14950	15004	0.13811	2856.84912	394.559432
14950	15096	0.10323	1994.82349	205.9256289
14951	1244	0.12951	4.37630	0.566774613
14951	1462	0.10479	46.49489	4.872199523
14951	14948	0.22615	52.32924	11.83425763
14951	14952	0.04688	84.86102	3.978284618
14952	14951	0.04688	89.68201	4.204292629
14952	14953	0.03172	84.86102	2.691791554
14953	14949	0.00967	84.86102	0.820606063
14953	14952	0.03172	89.68201	2.844713357
14953	15210	0.29248	969.93292	283.6859804
14954	14530	0.35871	259.78796	93.18853913
14954	14888	0.20471	3686.52441	754.668412
14954	14969	0.00988	1827.72839	18.05795649
14956	14937	0.09896	4.93667	0.488532863
14956	15002	0.14268	247.20146	35.27070431
14958	14954	0.01433	4795.63281	68.72141817
14959	14960	0.06274	401.37766	25.18243439
14959	14961	0.08550	966.61566	82.64563893
14960	1320	0.12381	5.31014	0.657448433
14960	1323	0.18742	294.31485	55.16048919
14960	14959	0.06274	966.61566	60.64546651
14960	14962	0.15513	112.22088	17.40882511
14961	14842	0.10868	712.60150	77.44553102
14961	14959	0.08550	401.37766	34.31778993
14961	14964	0.07655	1390.81885	106.467183
14961	15242	0.22745	863.64264	196.4355185
14962	14960	0.15513	655.59784	101.7028929
14962	15205	0.18620	1109.15027	206.5237803
14962	15912	0.02262	538.22418	12.17463095
14963	1322	0.10038	379.57053	38.1012898

14963	14862	0.09261	2910.45166	269.5369282
14963	14964	0.12135	1277.92847	155.0766198
14963	15171	0.15595	301.70474	47.0508542
14964	1321	0.12496	49.92674	6.23884543
14964	1324	0.24038	817.87061	196.5997372
14964	14961	0.07655	573.94788	43.93571021
14964	14963	0.12135	2288.23926	277.6778342
14965	1438	0.21828	111.19185	24.27095702
14965	14898	0.05426	2729.08301	148.0800441
14965	15252	0.23543	2845.98291	670.0297565
14967	14970	0.14550	4574.13672	665.5368928
14967	14992	0.03421	0.00000	0
14968	14967	0.02551	4574.13672	116.6862277
14968	14989	0.00837	0.00000	0
14969	14954	0.00988	589.42737	5.823542416
14969	14978	0.01433	3179.85645	45.56734293
14969	15158	0.14835	2181.85474	323.6781507
14970	1399	0.12189	82.25378	10.02591324
14970	14958	0.07485	4795.63281	358.9531158
14970	14998	0.00893	1.05250	0.009398825
14972	1374	0.13898	521.11444	72.42448487
14972	1375	0.12771	320.87122	40.97846351
14972	14897	0.10653	5021.83936	534.976547
14972	14974	0.02419	2970.59937	71.85879876
14973	14773	0.16899	8.35815	1.412443769
14973	15316	0.25067	480.40610	120.4233971
14974	14972	0.02419	4509.25439	109.0788637
14974	14975	0.04827	2970.59937	143.3908316
14975	14974	0.04827	4509.25439	217.6617094
14975	14977	0.03379	2970.59937	100.3765527
14977	14975	0.03379	4509.25439	152.3677058
14977	14979	0.11722	2970.59937	348.2136582
14978	14998	0.07752	3179.85645	246.502472
14979	14977	0.11722	4509.25439	528.5747996
14979	14981	0.04827	2970.59937	143.3908316
14981	14815	0.14043	2263.60376	317.877876
14981	14968	0.10779	4574.13672	493.046197
14981	14979	0.04827	4509.25439	217.6617094
14981	15143	0.12555	3278.61035	411.6295294
14982	14670	0.24789	28.50472	7.066035041
14982	15319	0.24900	63.25997	15.75173253
14985	14992	0.06054	3225.70239	195.2840227
14989	14968	0.00837	0.00000	0
14989	14981	0.10758	3225.70239	347.0210631
14991	252	0.10886	115.45491	12.5684215
14991	15000	0.00787	94.42946	0.74315985
14991	15021	0.09896	948.14148	93.82808086
14992	14989	0.05654	3225.70239	182.3812131
14993	14677	0.24952	335.39700	83.68825944
14993	15313	0.24447	16.81889	4.111714038
14994	14936	0.03534	757.23676	26.7607471
14994	15084	0.07767	840.18262	65.2569841
14998	1400	0.12277	143.23064	17.58442567
14998	14970	0.00893	222.32603	1.985371448

14998	14985	0.05401	3225.70239	174.2201861
15000	14991	0.00787	1063.59631	8.37050296
15000	15002	0.09804	94.42946	9.257864258
15002	14956	0.14268	4.93667	0.704364076
15002	15000	0.09804	1063.59631	104.2749822
15002	15046	0.04209	89.49279	3.766751531
15004	239	0.14016	208.22227	29.18443336
15004	14950	0.13811	2996.02808	413.7814381
15004	15027	0.11599	2648.62695	307.2142399
15009	15012	0.01960	21979.76367	430.8033679
15012	15081	0.30815	21979.76367	6773.064175
15021	14991	0.09896	94.42946	9.344739362
15021	15030	0.05832	948.14148	55.29561111
15026	14943	0.25730	21608.96289	5559.986152
15027	15004	0.11599	2742.64941	318.1199051
15027	15045	0.09188	1965.28857	180.5707138
15027	15103	0.06269	1224.74976	76.77956245
15028	15026	0.01960	21608.96289	423.5356726
15030	15021	0.05832	94.42946	5.507126107
15030	15055	0.12190	967.37836	117.9234221
15042	15582	0.44995	37272.75781	16770.87738
15045	15027	0.09188	2066.85986	189.9030839
15045	15052	0.03222	1965.28857	63.32159773
15046	251	0.24759	117.23621	29.02651323
15046	15002	0.04209	816.39496	34.36206387
15046	15071	0.01964	304.63092	5.982951269
15049	14909	0.52033	0.00000	0
15052	246	0.09414	788.04327	74.18639344
15052	15045	0.03222	2066.85986	66.59422469
15052	15068	0.05831	1612.73218	94.03841342
15055	15030	0.12190	0.00000	0
15055	15060	0.03299	967.37836	31.9138121
15057	14747	0.25073	750.74030	188.2331154
15057	15224	0.13627	753.59161	102.6919287
15060	15075	0.02454	0.00000	0
15060	15105	0.20185	967.37836	195.265322
15063	14695	0.29822	29440.59375	8779.773868
15063	14862	0.19431	4655.56250	904.6223494
15065	1902	2.81622	208.10841	586.0790664
15065	14012	1.27147	895.77948	1138.956735
15065	14019	0.77506	640.87793	496.7188484
15065	15366	0.23280	1374.44397	319.9705562
15068	15052	0.05831	1749.93591	102.0387629
15068	15084	0.09100	1612.73218	146.7586284
15071	15046	0.01964	799.48975	15.70197869
15071	15157	0.07016	304.63092	21.37290535
15074	115	0.28528	17.67392	5.042015898
15074	636	0.25183	19.76892	4.978407124
15074	14593	0.36665	1523.53101	558.6026448
15074	15404	0.25581	1433.28076	366.6475512
15075	15055	0.03024	0.00000	0
15081	15102	0.09391	21979.76367	2064.119606
15082	1248	0.10162	46.23034	4.697927151
15082	14948	0.10405	214.94623	22.36515523

15082	15111	0.03112	180.88232	5.629057798
15084	14994	0.07767	757.23676	58.81457915
15084	15068	0.09100	1749.93591	159.2441678
15084	15104	0.09120	944.95612	86.17999814
15084	15177	0.07657	690.31317	52.85727943
15092	618	0.25247	144.59830	36.5067328
15092	640	0.25078	43.57357	10.92737988
15092	14596	0.37540	1089.23169	408.8975764
15092	15405	0.24293	922.74579	224.1626348
15095	15105	0.16336	21636.51758	3534.541512
15096	14950	0.10323	2189.65454	226.0380382
15096	15162	0.05105	1994.82349	101.8357392
15101	15028	0.31873	21608.96289	6887.424742
15102	15106	0.05511	21979.76367	1211.304776
15103	15027	0.06269	1217.20105	76.30633382
15103	15169	0.05281	1224.74976	64.67903483
15104	15084	0.09120	1003.54785	91.52356392
15104	15109	0.02767	944.95612	26.14693584
15105	15427	1.42198	22603.89453	32142.28594
15106	15108	0.02075	343.24698	7.122374835
15106	15121	0.02219	21636.51758	480.1143251
15108	15046	0.12547	343.24698	43.06719858
15109	242	0.07305	131.36736	9.596385648
15109	249	0.06944	179.37840	12.4560361
15109	15104	0.02767	1003.54785	27.76816901
15109	15124	0.06287	764.20782	48.04574564
15111	15082	0.03112	179.39291	5.582707359
15111	15140	0.02882	180.88232	5.213028462
15113	15095	0.18116	21636.51758	3919.671525
15114	15126	0.18249	22242.68750	4059.068042
15119	15101	0.08547	21037.51367	1798.076293
15121	15113	0.25737	21636.51758	5568.59053
15124	15109	0.06287	827.02698	51.99518623
15124	15136	0.03580	764.20782	27.35863996
15126	15135	0.25941	21037.51367	5457.341421
15126	15184	0.25620	1205.17432	308.7656608
15128	15114	0.15949	22242.68750	3547.486229
15131	15119	0.05618	21037.51367	1181.887518
15135	15131	0.01951	21037.51367	410.4418917
15136	15124	0.03580	827.02698	29.60756588
15136	15145	0.03502	764.20782	26.76255786
15140	1462	0.10707	213.95615	22.90828498
15140	15111	0.02882	179.39291	5.170103666
15140	15153	0.02080	62.14727	1.292663216
15142	1375	0.29103	29.98270	8.725865181
15142	14904	0.17730	1387.85242	246.0662341
15142	15307	0.12610	985.48956	124.2702335
15143	14981	0.12555	6974.06982	875.5944659
15143	15170	0.02172	3278.61035	71.2114168
15145	15136	0.03502	827.02698	28.96248484
15145	15151	0.03163	760.41321	24.05186983
15145	15216	0.06471	827.72748	53.56224523
15151	15145	0.03163	1096.42542	34.67993603
15151	15156	0.03434	760.41321	26.11258963

15152	1236	0.19591	0.11571	0.022668746
15152	1502	0.36477	0.11415	0.041638496
15153	15140	0.02080	63.27292	1.316076736
15153	15178	0.02873	62.14727	1.785491067
15156	15151	0.03434	1096.42542	37.65124892
15156	15167	0.02933	760.41321	22.30291945
15157	15071	0.07016	799.48975	56.09220086
15157	15101	0.15550	571.45068	88.86058074
15157	15174	0.01347	234.66264	3.160905761
15158	1419	0.33425	676.49316	226.1178387
15158	14969	0.14835	1578.78455	234.212688
15158	15326	0.11755	1762.41394	207.1717586
15162	236	0.28798	73.00486	21.02393958
15162	239	0.12598	8.83362	1.112859448
15162	15096	0.05105	2189.65454	111.7818643
15162	15219	0.05274	2057.37769	108.5060994
15167	250	0.04740	178.01321	8.437826154
15167	15156	0.02933	1096.42542	32.15815757
15167	15172	0.02888	714.56219	20.63655605
15168	1248	0.20968	70.16093	14.7113438
15168	1286	0.24861	293.82544	73.04794264
15168	14946	0.16034	2086.42505	334.5373925
15168	15225	0.05107	2039.65149	104.1650016
15169	239	0.10383	110.15678	11.43757847
15169	15103	0.05281	1217.20105	64.28038745
15169	15288	0.10049	1188.61426	119.443847
15170	1375	0.22352	223.32990	49.91869925
15170	1400	0.23755	346.93710	82.41490811
15170	15143	0.02172	6974.06982	151.4767965
15170	15217	0.04251	2832.66479	120.4165802
15171	1322	0.06979	124.55943	8.69300262
15171	14963	0.15595	290.69254	45.33350161
15171	15368	0.14901	465.34094	69.34045347
15172	15167	0.02888	1055.29004	30.47677636
15172	15176	0.02736	714.56219	19.55042152
15174	15157	0.01347	1300.97217	17.52409513
15174	15199	0.01740	234.66264	4.083129936
15175	1353	0.20935	315.21091	65.98940401
15175	14887	0.23572	598.37909	141.0499191
15175	15299	0.09290	1254.40845	116.534545
15176	15172	0.02736	1055.29004	28.87273549
15176	15179	0.03153	714.56219	22.53014585
15177	246	0.14411	102.31459	14.74455556
15177	249	0.11864	4.92386	0.58416675
15177	15084	0.07657	685.97925	52.52543117
15177	15282	0.08775	789.77441	69.30270448
15178	15153	0.02873	63.27292	1.817830992
15178	15210	0.03755	62.14727	2.333629989
15179	15176	0.03153	1055.29004	33.27329496
15179	15199	0.05201	714.56219	37.1643795
15184	15199	0.02027	1205.17432	24.42888347
15185	115	0.25022	14.88022	3.723328648
15185	119	0.13291	10.00387	1.329614362
15185	14645	0.41951	133.06544	55.82228273

15185	15664	0.42983	115.17385	49.50517595
15199	15174	0.01740	1300.97217	22.63691576
15199	15179	0.05201	1055.29004	54.88563498
15199	15221	0.02413	410.38748	9.902649892
15201	15063	0.11188	34096.15625	3814.677961
15205	1286	0.25220	858.34778	216.4753101
15205	1323	0.15236	191.10489	29.11674104
15205	14962	0.18620	1155.05920	215.072023
15205	29911	0.13800	648.66296	89.51548848
15210	15178	0.03755	63.27292	2.375898146
15210	15214	0.00834	0.00000	0
15210	15247	0.04996	1032.08020	51.56272679
15214	14949	0.29907	1061.99854	317.6119034
15214	15210	0.00834	63.27292	0.527696153
15216	249	0.13312	3.23447	0.430572646
15216	250	0.09706	20.75446	2.014427888
15216	15145	0.06471	554.53442	35.88392232
15216	15280	0.05341	849.76257	45.38581886
15217	15170	0.04251	6821.66748	289.9890846
15217	15311	0.05803	2832.66479	164.3795378
15219	15162	0.05274	2254.12524	118.8825652
15219	15295	0.05386	2057.37769	110.8103624
15221	15199	0.02413	612.25055	14.77360577
15221	15233	0.01012	410.38748	4.153121298
15224	1772	1.00616	81.50761	82.00969688
15224	15057	0.13627	750.74030	102.3033807
15224	15588	0.30281	761.75336	230.6665349
15225	15168	0.05107	2042.98279	104.3351311
15225	15360	0.08925	2039.65149	182.0388955
15233	250	0.14727	0.00000	0
15233	15221	0.01012	612.25055	6.195975566
15233	15272	0.03760	410.38748	15.43056925
15242	1323	0.15988	173.01816	27.66214342
15242	1324	0.07617	442.58939	33.71203384
15242	14961	0.22745	498.01105	113.2726133
15242	15415	0.11788	598.42688	70.54256061
15247	15378	0.08640	1032.08020	89.17172928
15248	15250	0.49918	186.84871	93.27113906
15248	15254	0.99631	187.20625	186.5154589
15249	15214	0.04433	1125.27148	49.88328471
15250	15248	0.49918	187.20625	93.44961588
15250	15255	0.49918	186.84871	93.27113906
15251	2010	0.40800	351.42328	143.3806982
15251	15255	0.43825	1.24567	0.545914878
15251	15257	0.55942	384.98431	215.3679227
15252	14965	0.23543	2666.69067	627.8189844
15252	15261	0.13525	150.21001	20.31590385
15252	15332	0.02289	2978.87305	68.18640411
15254	76	4.50000	187.20625	842.428125
15254	15248	0.99631	186.84871	186.1592383
15255	14792	0.38609	955.16742	368.7805892
15255	15250	0.49918	187.20625	93.44961588
15255	15251	0.43825	38.37923	16.81969755
15255	15764	0.48013	14.33372	6.882048984

15257	14663	0.48328	723.39606	349.6028479
15257	15251	0.55942	352.66898	197.2900808
15257	15615	0.29420	1835.73999	540.0747051
15261	15252	0.13525	154.62807	20.91344647
15261	15264	0.09726	150.21001	14.60942557
15262	1692	0.23951	0.00356	0.000852656
15262	1693	0.25864	0.00356	0.000920758
15264	1419	0.20544	113.66574	23.35148963
15264	1420	0.24972	8.39899	2.097395783
15264	15261	0.09726	154.62807	15.03912609
15264	15266	0.06065	44.93219	2.725137324
15265	15266	0.10963	47.16377	5.170564105
15265	15326	0.14425	44.93219	6.481468408
15266	15264	0.06065	47.16377	2.860482651
15266	15265	0.10963	44.93219	4.92591599
15267	1845	0.46828	105.32861	49.32328149
15267	14618	0.50960	1721.59705	877.3258567
15267	15549	0.23689	1693.63501	401.2051975
15269	1438	0.24607	0.06254	0.015389218
15269	1439	0.24242	0.06203	0.015037313
15271	2016	0.57352	47.30776	27.13194652
15271	15277	0.26062	48.03662	12.5193039
15272	15233	0.03760	612.25055	23.02062068
15272	15273	0.06481	12.56549	0.814369407
15272	15274	0.12549	45.95370	5.766729813
15272	15348	0.03536	381.19809	13.47916446
15273	15272	0.06481	12.45576	0.807257806
15273	15275	0.03103	12.56549	0.389907155
15274	15272	0.12549	46.64715	5.853750854
15274	15277	0.13100	45.95370	6.0199347
15275	15273	0.03103	12.45576	0.386502233
15275	15276	0.03034	12.56549	0.381236967
15276	250	0.05603	4.31431	0.241730789
15276	253	0.34742	2.13118	0.740414556
15276	15275	0.03034	12.45576	0.377907758
15276	15278	0.05860	10.41184	0.610133824
15277	245	0.25396	1.38947	0.352869801
15277	15271	0.26062	47.30776	12.32934841
15277	15274	0.13100	46.64715	6.11077665
15278	15276	0.05860	10.35855	0.60701103
15278	15279	0.03516	10.41184	0.366080294
15279	15278	0.03516	10.35855	0.364206618
15279	15280	0.03034	10.41184	0.315895226
15280	15216	0.05341	577.09460	30.82262259
15280	15279	0.03034	10.35855	0.314278407
15280	15281	0.03792	342.73264	12.99642171
15280	15374	0.06621	627.18573	41.52596718
15281	15280	0.03792	329.46741	12.49340419
15281	15283	0.03241	342.73264	11.10796486
15282	15177	0.08775	783.42261	68.74533403
15282	15286	0.07585	373.77267	28.35065702
15282	15287	0.04000	21.02843	0.8411372
15282	15448	0.12573	1185.47913	149.050291
15283	15281	0.03241	329.46741	10.67803876

15283	15284	0.08343	342.73264	28.59418416
15284	243	0.32895	4.69780	1.54534131
15284	249	0.07945	49.04054	3.896270903
15284	15283	0.08343	329.46741	27.48746602
15284	15285	0.01517	383.17331	5.812739113
15285	15284	0.01517	373.77267	5.670131404
15285	15286	0.00621	383.17331	2.379506255
15286	15282	0.07585	383.17331	29.06369556
15286	15285	0.00621	373.77267	2.321128281
15287	15282	0.04000	28.74750	1.1499
15287	15293	0.06137	21.02843	1.290514749
15288	15169	0.10049	1229.55420	123.5579016
15288	15289	0.14203	28.74750	4.083007425
15288	15290	0.07170	247.91809	17.77572705
15288	15353	0.03366	990.23480	33.33130337
15289	248	0.32388	0.00000	0
15289	15288	0.14203	21.02843	2.986667913
15289	15293	0.04068	28.74750	1.1694483
15290	15288	0.07170	273.97583	19.64406701
15290	15291	0.02978	247.91809	7.38300072
15291	239	0.09629	44.24383	4.260238391
15291	240	0.17343	309.20120	53.62476412
15291	15290	0.02978	273.97583	8.159000217
15291	15292	0.05848	458.17609	26.79413774
15292	15291	0.05848	501.95593	29.35438279
15292	15295	0.05171	458.17609	23.69228561
15293	15287	0.06137	28.74750	1.764234075
15293	15289	0.04068	21.02843	0.855436532
15294	14942	0.26587	1192.51868	317.0549415
15294	15327	0.49643	76.00768	37.73249258
15294	15873	0.50109	1218.83240	610.7447273
15295	15219	0.05386	2254.12524	121.4071854
15295	15292	0.05171	501.95593	25.95614114
15295	15296	0.12066	77.30687	9.327846934
15295	15408	0.08303	2024.30347	168.0779171
15296	15295	0.12066	270.88266	32.68470176
15296	15297	0.04826	77.30687	3.730829546
15297	15296	0.04826	270.88266	13.07279717
15297	15300	0.05033	77.30687	3.890854767
15298	15301	0.06205	316.74042	19.65374306
15298	15305	0.06551	466.45993	30.55779001
15299	15175	0.09290	363.28015	33.74872594
15299	15303	0.09997	254.48895	25.44126033
15299	15499	0.18440	999.91949	184.385154
15300	15297	0.05033	270.88266	13.63352428
15300	15310	0.27110	77.30687	20.95789246
15301	15298	0.06205	466.45993	28.94383866
15301	15302	0.01793	316.74042	5.679155731
15302	15301	0.01793	466.45993	8.363626545
15302	15307	0.07999	316.74042	25.3360662
15303	15299	0.09997	0.00000	0
15303	15304	0.05930	254.48895	15.09119474
15304	15303	0.05930	0.00000	0
15304	15309	0.05379	254.48895	13.68896062

15305	15298	0.06551	316.74042	20.74966491
15305	15306	0.02275	466.45993	10.61196341
15306	1375	0.13720	74.14152	10.17221654
15306	1376	0.22476	294.17935	66.11975071
15306	15305	0.02275	316.74042	7.205844555
15306	15312	0.04209	690.96289	29.08262804
15307	15142	0.12610	1387.85242	175.0081902
15307	15302	0.07999	466.45993	37.3121298
15307	15317	0.15513	526.91046	81.73961966
15307	15541	0.22265	1043.13342	232.253656
15308	1353	0.12672	122.97316	15.58315884
15308	1354	0.25478	416.66669	106.1583393
15308	15309	0.00827	0.00000	0
15308	15317	0.06344	974.22729	61.80497928
15309	15304	0.05379	0.00000	0
15309	15308	0.00827	254.48895	2.104623617
15310	236	0.34444	18.70539	6.442884532
15310	237	0.49637	5.81109	2.884450743
15310	15300	0.27110	270.88266	73.43628913
15310	15330	0.50524	91.76881	46.36527356
15311	15217	0.05803	6821.66748	395.8613639
15311	15315	0.04965	521.67511	25.90116921
15311	15323	0.10001	860.28369	86.03697184
15311	15487	0.16629	1966.37610	326.9886817
15312	15306	0.04209	521.67511	21.95730538
15312	15320	0.05105	690.96289	35.27365553
15313	2013	1.74274	404.15359	704.3346274
15313	14993	0.24447	335.39700	81.99450459
15313	15314	0.35295	79.77335	28.15600388
15314	2011	0.55218	0.00000	0
15314	15313	0.35295	387.33472	136.7097894
15314	15316	0.14623	79.77335	11.66525697
15315	15311	0.04965	690.96289	34.30630749
15315	15325	0.07379	521.67511	38.49440637
15316	14973	0.25067	8.35815	2.095137461
15316	15314	0.14623	387.33472	56.63995611
15316	15319	0.49987	245.83165	122.8838669
15317	15307	0.15513	974.22729	151.1318795
15317	15308	0.06344	526.91046	33.42719958
15319	14982	0.24900	28.50472	7.09767528
15319	15316	0.49987	81.34505	40.66195014
15319	15329	0.69794	245.83165	171.5757418
15320	15312	0.05105	521.67511	26.63151437
15320	15325	0.04759	690.96289	32.88292394
15323	15311	0.10001	1158.89746	115.901335
15323	15331	0.11584	860.28369	99.65526265
15324	15331	0.05861	578.39063	33.89947482
15324	15333	0.06276	604.17450	37.91799162
15325	15315	0.07379	690.96289	50.98615165
15325	15320	0.04759	521.67511	24.82651848
15326	15158	0.11755	1171.83813	137.7495722
15326	15265	0.14425	47.16377	6.803373823
15326	15335	0.01500	578.39063	8.67585945
15326	15501	0.18341	1312.64490	240.7522011

15327	14913	0.29508	317.74051	93.75886969
15327	15294	0.49643	77.20637	38.32755826
15327	15336	0.49780	258.00461	128.4346949
15328	1846	0.52302	0.41491	0.217006228
15328	1872	0.53123	0.41363	0.219732665
15329	2012	0.34603	59.63039	20.63390385
15329	2014	0.52721	52.45736	27.65604477
15329	15319	0.69794	46.58981	32.51689199
15329	15330	0.30043	289.96683	87.11473474
15330	15310	0.50524	289.96683	146.5028412
15330	15329	0.30043	91.76881	27.57010359
15331	1400	0.13192	143.06265	18.87282479
15331	1401	0.25212	1006.59534	253.7828171
15331	15323	0.11584	1158.89746	134.2466818
15331	15324	0.05861	604.17450	35.41066745
15332	15252	0.02289	2795.16260	63.98127191
15332	15464	0.14120	2978.87305	420.6168747
15333	15324	0.06276	578.39063	36.29979594
15333	15335	0.09243	604.17450	55.84384904
15334	1969	1.13464	1376.49463	1561.825867
15334	14003	0.97772	2565.72803	2508.563609
15334	15354	0.02564	1722.06018	44.15362302
15335	15326	0.01500	604.17450	9.0626175
15335	15333	0.09243	578.39063	53.46064593
15336	15327	0.49780	272.00360	135.4033921
15336	15340	0.99698	258.00461	257.2254361
15338	15339	0.49917	564.79449	281.9284656
15338	15340	0.49642	578.83624	287.3458863
15339	13056	1.49181	1288.37048	1922.003966
15339	15338	0.49917	578.83624	288.9376859
15339	16220	0.99211	1463.69104	1452.142518
15340	1994	1.07842	337.26218	363.7102802
15340	15336	0.99698	272.00360	271.1821491
15340	15338	0.49642	564.79449	280.3752807
15342	1969	0.89619	96.55581	86.53235136
15342	16227	0.99249	100.30191	99.54864266
15348	15272	0.03536	582.47742	20.59640157
15348	15373	0.03198	381.19809	12.19071492
15352	13944	0.02154	1957.49951	42.16453945
15352	20406	0.48650	2405.13867	1170.099963
15353	15288	0.03366	1012.83618	34.09206582
15353	15397	0.04731	990.23480	46.84800839
15354	15334	0.02564	2084.91138	53.45712778
15354	15916	0.49885	1722.06018	859.0497208
15360	15225	0.08925	2042.98279	182.336214
15360	15391	0.03774	2039.65149	76.97644723
15364	15128	0.96316	22242.68750	21423.26689
15366	15065	0.23280	1327.02661	308.9317948
15366	15913	0.48320	1374.44397	664.1313263
15367	14016	1.00304	498.41925	499.9344445
15367	15918	0.48419	517.36115	250.5010952
15368	1324	0.13867	4.39278	0.609146803
15368	15171	0.14901	415.25195	61.87669307
15368	15422	0.04938	460.94815	22.76161965

15373	15348	0.03198	582.47742	18.62762789
15373	15445	0.05892	381.19809	22.46019146
15374	15280	0.06621	367.72968	24.34738211
15374	15440	0.05835	627.18573	36.59628735
15378	1249	0.19256	14.46950	2.78624692
15378	15567	0.17586	1017.61072	178.9570212
15382	13909	0.01323	1923.79102	25.45175519
15382	20756	0.22568	1522.20496	343.5312154
15388	14768	0.49465	97.06621	48.01380078
15388	15425	0.25902	98.51939	25.5184924
15389	14649	0.57649	543.90167	313.5538737
15389	15463	0.07039	555.82013	39.12417895
15391	1249	0.18174	106.94766	19.43666773
15391	15360	0.03774	2042.98279	77.10217049
15391	15433	0.04104	1992.35803	81.76637355
15397	15353	0.04731	1012.83618	47.91727968
15397	15438	0.04165	990.23480	41.24327942
15399	618	0.23734	27.61842	6.554955803
15399	15405	0.24917	273.71176	68.20075924
15399	15425	0.26128	276.37790	72.21201771
15401	628	0.41028	25.89420	10.62387238
15401	640	0.24930	33.49506	8.350318458
15401	15403	0.25382	663.60364	168.4358759
15401	15405	0.24882	643.15613	160.0301083
15402	636	0.25214	3.54532	0.893916985
15402	1734	0.50458	103.24744	52.09659328
15402	15403	0.24245	673.09717	163.1924089
15402	15404	0.25537	684.55212	174.8140749
15403	15401	0.25382	673.09717	170.8455237
15403	15402	0.24245	663.60364	160.8907025
15404	15074	0.25581	1490.25244	381.2214767
15404	15402	0.25537	693.97626	177.2207175
15404	15661	0.25881	946.61047	244.9922557
15405	15092	0.24293	913.27240	221.8612641
15405	15399	0.24917	279.11081	69.54604053
15405	15401	0.24882	633.98724	157.7487051
15405	15662	0.25982	1104.70679	287.0249182
15408	15295	0.08303	2071.25513	171.9763134
15408	15451	0.04488	2024.30347	90.85073973
15411	121	0.14781	17.68946	2.614679083
15411	1753	0.77686	283.83493	220.5000037
15411	14409	0.79751	892.80359	712.0197911
15411	15944	0.48711	685.76599	334.0434714
15415	15242	0.11788	338.85638	39.94439007
15415	15476	0.07921	598.42688	47.40139316
15418	1753	1.22837	335.06082	411.5786595
15418	14827	0.47389	885.98755	419.8606401
15418	15434	0.02171	742.97729	16.13003697
15422	15368	0.04938	410.87491	20.28900306
15422	15644	0.22948	460.94815	105.7783815
15425	15388	0.25902	97.06621	25.14208971
15425	15399	0.26128	271.43082	70.91944465
15425	15654	0.22810	319.68640	72.92046784
15427	15497	0.35773	22603.89453	8086.09119

15433	1496	0.29669	0.08190	0.024298911
15433	15391	0.04104	1994.47681	81.85332828
15433	15482	0.04905	1992.27612	97.72114369
15434	15418	0.02171	742.46222	16.1188548
15434	15726	0.30961	742.97729	230.0331988
15438	15397	0.04165	1012.83618	42.1846269
15438	15488	0.04951	990.23480	49.02652495
15440	15374	0.05835	367.72968	21.45702683
15440	15500	0.06229	627.18573	39.06739912
15445	15373	0.05892	582.47742	34.31956959
15445	15503	0.06285	381.19809	23.95829996
15448	15282	0.12573	1162.00757	146.0992118
15448	15581	0.12408	1185.47913	147.0942505
15451	15408	0.04488	2071.25513	92.95793023
15451	15542	0.09706	2024.30347	196.4788948
15454	15364	0.46106	22242.68750	10255.2135
15460	1496	0.20763	2.33079	0.483941928
15460	15557	0.08632	648.13910	55.94736711
15460	29911	0.07594	699.26379	53.10209221
15463	1798	0.46159	271.91705	125.5141911
15463	15389	0.07039	543.90167	38.28523855
15463	15566	0.09242	523.60071	48.39117762
15464	15332	0.14120	2795.16260	394.6769591
15464	15560	0.08651	2978.87305	257.7023076
15476	15415	0.07921	338.85638	26.84081386
15476	15511	0.04189	598.42688	25.068102
15482	15433	0.04905	1994.41101	97.82586004
15482	15551	0.06304	1992.27612	125.5930866
15487	15311	0.16629	5487.47754	912.5126401
15487	15597	0.09570	1966.37610	188.1821928
15488	15438	0.04951	1012.83618	50.14551927
15488	15590	0.08307	990.23480	82.25880484
15497	15512	0.14808	3214.30029	475.9735869
15497	15547	0.13508	19389.59570	2619.146587
15499	15299	0.18440	363.28015	66.98885966
15499	15589	0.06799	999.91949	67.98452613
15500	15440	0.06229	367.72968	22.90588177
15500	15577	0.06061	627.18573	38.0137271
15501	1420	0.32167	625.90393	201.3345172
15501	15326	0.18341	698.51685	128.1149755
15501	15847	0.31295	686.74103	214.9156053
15503	15445	0.06285	582.47742	36.60870585
15503	15558	0.04744	381.19809	18.08403739
15510	15454	0.35474	22242.68750	7890.370964
15511	1324	0.21005	651.74738	136.8995372
15511	1326	0.16276	119.71949	19.48554419
15511	15476	0.04189	338.85638	14.19469376
15511	15595	0.09077	1150.87585	104.4650009
15512	15521	0.03310	3214.30029	106.3933396
15521	15524	0.01708	0.00000	0
15521	15630	0.47624	3214.30029	1530.77837
15524	15512	0.03176	0.00000	0
15541	15307	0.22265	1147.89893	255.5796968
15541	15608	0.05412	1043.13342	56.45438069

15542	15451	0.09706	2071.25513	201.0360229
15542	15587	0.02581	2024.30347	52.24727256
15547	15657	0.23752	19389.59570	4605.416771
15549	1693	0.25371	43.36083	11.00107618
15549	15267	0.23689	1688.44238	399.9751154
15549	15782	0.26986	1650.27417	445.3429875
15551	15482	0.06304	1994.41101	125.7276701
15551	15552	0.04551	39.32908	1.789866431
15551	15557	0.50264	10.76768	5.412266675
15551	15692	0.14950	2034.33374	304.1328941
15552	15551	0.04551	39.95620	1.818406662
15552	15553	0.05102	39.32908	2.006569662
15553	15552	0.05102	39.95620	2.038565324
15553	15554	0.05240	39.32908	2.060843792
15554	15553	0.05240	39.95620	2.09370488
15554	15555	0.05378	39.32908	2.115117922
15555	1249	0.17414	0.54628	0.095129199
15555	1495	0.14722	0.52681	0.077556968
15555	15554	0.05378	39.95620	2.148844436
15555	15556	0.05378	50.72229	2.727844756
15556	15555	0.05378	39.98431	2.150356192
15556	15559	0.05793	50.72229	2.93834226
15557	15460	0.08632	698.72382	60.31384014
15557	15551	0.50264	5.68586	2.85794067
15557	15629	0.07204	644.17584	46.40642751
15558	245	0.24785	357.95465	88.71906
15558	253	0.16279	169.93655	27.66397097
15558	15503	0.04744	582.47742	27.6327288
15558	15573	0.01149	125.87373	1.446289158
15559	15556	0.05793	39.98431	2.316291078
15559	15567	0.04500	50.72229	2.28250305
15560	1420	0.19125	482.65704	92.3081589
15560	1439	0.22604	73.59286	16.63493007
15560	15464	0.08651	2795.16260	241.8095165
15560	15633	0.08432	2750.94629	231.9597912
15564	1502	0.36141	1.01033	0.365143365
15564	1503	0.26337	1.01443	0.267170429
15565	15510	0.13109	22242.68750	2915.793904
15566	15463	0.09242	513.21698	47.43151329
15566	15584	0.01003	523.60071	5.251715121
15567	15559	0.04500	39.98431	1.79929395
15567	15575	0.00957	50.31731	0.481536657
15567	15637	0.08759	978.42511	85.70025538
15568	15570	0.50470	0.00000	0
15570	1798	0.55131	259.12961	142.8607453
15570	14648	0.74271	1339.81885	995.0968581
15570	15568	0.50470	0.00000	0
15570	16016	0.49601	1666.09082	826.3977076
15573	15558	0.01149	132.93936	1.527473246
15573	15627	0.05948	125.87373	7.48696946
15575	15249	0.26349	1125.27148	296.4977823
15575	15567	0.00957	0.39371	0.003767805
15577	243	0.14780	201.07164	29.71838839
15577	253	0.16275	457.39224	74.44058706

15577	15500	0.06061	367.72968	22.2880959
15577	15602	0.03087	0.00000	0
15580	15201	0.32068	34096.15625	10933.95539
15581	243	0.14945	771.63696	115.3211437
15581	248	0.14367	838.66968	120.4916729
15581	15448	0.12408	1162.00757	144.1818993
15581	15852	0.25073	326.14856	81.77522845
15582	15665	0.10201	11004.80566	1122.600225
15582	15738	0.19411	26267.95117	5098.872002
15584	15566	0.01003	513.21698	5.147566309
15584	15596	0.01226	523.60071	6.419344705
15587	240	0.15806	49.60784	7.84101519
15587	15542	0.02581	2071.25513	53.45909491
15587	15868	0.24910	2077.47217	517.4983175
15588	15224	0.30281	759.50909	229.9869475
15588	15939	0.30774	761.75336	234.421979
15589	1354	0.19235	939.80255	180.7710205
15589	15499	0.06799	363.28015	24.6994174
15589	15605	0.02750	1007.59540	27.7088735
15590	240	0.13563	40.59803	5.506310809
15590	248	0.14863	1029.66785	153.0395325
15590	15488	0.08307	1012.83618	84.13630147
15595	15511	0.09077	874.91180	79.41574409
15595	15644	0.08459	1150.87585	97.35258815
15596	15584	0.01226	513.21698	6.292040175
15596	15866	0.23807	523.60071	124.653621
15597	1376	0.29314	109.35739	32.0570253
15597	1401	0.23064	682.16174	157.3337837
15597	15487	0.09570	5487.47754	525.1516006
15597	15647	0.07172	2360.83447	169.3190482
15601	1325	0.08038	0.01033	0.000830325
15601	1497	0.07558	0.01065	0.000804927
15602	15577	0.03087	0.00000	0
15605	15685	0.09424	1007.59540	94.9557905
15608	1354	0.28391	16.84561	4.782637135
15608	1376	0.22410	786.90533	176.3454845
15608	15541	0.05412	1147.89893	62.12429009
15608	15740	0.16799	674.99512	113.3924302
15615	15257	0.29420	1076.06506	316.5783407
15615	15620	0.00954	1835.73999	17.5129595
15620	15615	0.00954	1076.06506	10.26566067
15620	15630	0.01347	1835.73999	24.72741767
15623	15560	0.06317	2577.21729	162.8028162
15627	15573	0.05948	132.93936	7.907233133
15627	15835	0.19191	125.87373	24.15642752
15629	1287	0.27682	78.31370	21.67879843
15629	1497	0.06546	82.61040	5.407676784
15629	15557	0.07204	689.67871	49.68445427
15629	15846	0.19253	563.57874	108.5058148
15630	15521	0.47624	0.00000	0
15630	15620	0.01347	1076.06506	14.49459636
15630	15708	0.50704	156.93640	79.57303226
15630	15719	0.11173	4305.77441	481.0841748
15633	15776	0.16077	2750.94629	442.269635

15637	15639	0.00829	0.00000	0
15637	15689	0.04809	978.42511	47.05246354
15639	15575	0.08465	1075.34790	91.02819974
15639	15637	0.00829	0.00000	0
15644	15422	0.22948	410.87491	94.28757435
15644	15595	0.08459	874.91180	74.00878916
15644	15684	0.04322	1611.82397	69.66303198
15647	15597	0.07172	6259.82031	448.9543126
15647	15863	0.16351	2360.83447	386.0200442
15654	15425	0.22810	313.28613	71.46056625
15654	15704	0.05389	319.68640	17.2279001
15657	15766	0.59505	19389.59570	11537.77892
15661	15404	0.25881	1013.00629	262.1761579
15661	15959	0.24490	946.61047	231.8249041
15662	15405	0.25982	1091.46362	283.5840777
15662	15682	0.02392	1104.70679	26.42458642
15664	15185	0.42983	115.43752	49.61850922
15664	15964	0.24104	115.17385	27.7615048
15665	15685	0.04032	1890.24402	76.21463889
15665	15713	0.05279	9114.56152	481.1577026
15666	15565	0.23328	22242.68750	5188.77414
15682	619	0.28815	238.68001	68.77564488
15682	15662	0.02392	1091.46362	26.10780979
15682	15927	0.18082	943.12775	170.5363598
15684	1326	0.12191	495.07895	60.35507479
15684	15644	0.04322	1285.78674	55.5717029
15684	15722	0.05631	1595.81238	89.86019512
15685	15605	0.09424	0.00000	0
15685	15697	0.01150	2897.83960	33.3251554
15686	1463	0.03975	38.75920	1.5406782
15686	15639	0.04693	1075.34790	50.46607695
15686	15689	0.00760	22.40091	0.170246916
15689	1495	0.16915	82.35508	13.93036178
15689	15686	0.00760	94.48126	0.718057576
15689	15744	0.07315	904.49921	66.16411721
15692	1287	0.23734	120.70689	28.64857327
15692	1495	0.17956	175.69304	31.54744226
15692	15551	0.14950	2040.92334	305.1180393
15692	15797	0.10712	1807.82690	193.6544175
15697	15685	0.01150	0.00000	0
15697	15713	0.03840	987.25989	37.91077978
15697	15821	0.10937	1910.57959	208.9600898
15704	1721	0.75757	294.90723	223.4128702
15704	15654	0.05389	313.28613	16.88298955
15704	15934	0.16037	28.82401	4.622506484
15708	15630	0.50704	0.00000	0
15708	15730	0.20716	156.93640	32.51094462
15713	15815	0.08921	10101.82129	901.1834773
15719	15630	0.11173	488.73544	54.60641071
15719	15752	0.03610	4305.77441	155.4384562
15722	15684	0.05631	1472.57129	82.92048934
15722	15813	0.06551	1595.81238	104.541669
15725	15666	0.32762	18311.16016	5999.102292
15726	15434	0.30961	742.46222	229.8737279

15726	15973	0.16873	742.97729	125.3625581
15728	11220	0.01051	4725.00488	49.65980129
15730	15708	0.20716	0.00000	0
15730	15794	0.29639	156.93640	46.5143796
15738	16044	0.32691	26267.95117	8587.255917
15739	15580	0.19794	34096.15625	6748.993168
15740	15608	0.16799	784.42877	131.7761891
15740	15841	0.04910	674.99512	33.14226039
15741	15686	0.07312	1004.05664	73.41662152
15744	15795	0.03849	904.49921	34.81417459
15752	15666	0.33430	3931.52637	1314.309265
15752	15719	0.03610	488.73544	17.64334938
15752	15994	0.21279	2998.12329	637.9706549
15764	15255	0.48013	984.81451	472.8389907
15764	15794	0.02040	14.33372	0.292407888
15766	15906	0.61242	19389.59570	11874.5762
15774	1693	0.23706	89.53857	21.2260134
15774	1701	0.24831	111.90692	27.78760731
15774	15779	0.12489	1836.53430	229.3647687
15774	15781	0.29979	2181.40527	653.9634859
15775	15725	0.27578	18311.16016	5049.851749
15775	15752	0.27305	226.85136	61.94176385
15776	15778	0.03172	1808.52930	57.3665494
15776	15805	0.00949	3261.29614	30.94970037
15777	15623	0.18199	2577.21729	469.0277746
15777	15776	0.00758	2318.87915	17.57710396
15778	15786	0.17943	1808.52930	324.5044123
15779	15774	0.12489	2076.98218	259.3943045
15779	15782	0.07930	1836.53430	145.63717
15780	1845	0.51178	11.25942	5.762345968
15780	1847	1.53526	106.24079	163.1072353
15780	15784	0.47983	5559.02686	2667.387858
15780	15787	0.14622	5559.09424	812.8507598
15781	15774	0.29979	1939.66638	581.4925841
15781	15783	0.21316	2181.40527	464.9883474
15782	15549	0.26986	1650.52283	445.4100909
15782	15779	0.07930	2076.98218	164.7046869
15782	15784	0.04209	3389.49292	142.663757
15783	1439	0.24654	11.69572	2.883462809
15783	1440	0.25536	120.42434	30.75155946
15783	15781	0.21316	1939.66638	413.4592856
15783	15786	0.02416	2050.31519	49.53561499
15784	15780	0.47983	5444.71143	2612.535885
15784	15782	0.04209	3630.18970	152.7946845
15784	16013	0.25392	1962.56165	498.3336542
15785	15788	0.07585	5545.32080	420.6125827
15786	15783	0.02416	1808.52930	43.69406789
15786	15804	0.17873	2050.31519	366.4528339
15787	15780	0.14622	5673.52783	829.5832393
15787	15792	0.25442	5559.09424	1414.344757
15788	15790	0.01725	5545.32080	95.6567838
15789	15791	0.02690	5545.32080	149.1691295
15790	15789	0.03999	5545.32080	221.7573788
15791	15808	0.07798	6000.49805	467.9188379

15792	15787	0.25442	5673.52783	1443.458951
15792	15802	0.53504	5559.09424	2974.337782
15793	1250	0.25726	450.20703	115.8202605
15793	1495	0.10988	468.23108	51.44923107
15793	15798	0.08362	882.33466	73.78082427
15793	15799	0.02947	1004.05664	29.58954918
15794	15730	0.29639	0.00000	0
15794	15764	0.02040	984.81451	20.090216
15794	15908	0.16672	171.27011	28.55415274
15795	15796	0.00689	1004.05664	6.91795025
15795	15799	0.13515	904.49921	122.2430682
15796	15741	0.03904	1004.05664	39.19837123
15796	15795	0.00689	0.00000	0
15797	15692	0.10712	1789.92676	191.7369545
15797	15785	0.01071	5545.32080	59.39038577
15797	15798	0.10204	1012.03467	103.2680177
15797	15900	0.02231	6687.73926	149.2034629
15798	15793	0.08362	1012.03467	84.62633911
15798	15797	0.10204	882.33466	90.03342871
15799	15793	0.02947	904.49921	26.65559172
15799	15795	0.13515	1004.05664	135.6982549
15801	1873	0.85587	5.09306	4.358997262
15801	1878	0.92581	5.00394	4.632697691
15802	1846	0.48821	221.77075	108.2706979
15802	1848	0.99166	232.78433	230.8429087
15802	15792	0.53504	5673.52783	3035.56433
15802	15809	0.54262	5342.54443	2898.971459
15804	15805	0.03241	2050.31519	66.45071531
15805	15806	0.00758	2011.58911	15.24784545
15805	15925	0.05582	3300.02222	184.2072403
15806	15777	0.00949	2618.42017	24.84880741
15806	15845	0.23310	2830.63062	659.8199975
15807	1287	0.18430	338.95377	62.46917981
15807	15826	0.12208	6231.50391	760.7419973
15807	15836	0.00669	1.68786	0.011291783
15808	15807	0.00758	6000.49805	45.48377522
15809	14637	1.00119	3676.97363	3681.349229
15809	15802	0.54262	5462.69189	2964.165873
15809	15812	0.50167	1449.73889	727.2905089
15809	16554	1.00883	2717.02100	2741.012295
15810	15797	0.01087	5891.77832	64.04363034
15811	15813	0.05585	7499.06934	418.8230226
15811	15858	0.00725	70.77937	0.513150433
15812	1872	0.50628	78.35545	39.66979723
15812	15809	0.50167	1417.48267	711.1085311
15812	15827	0.54014	1410.90710	762.087361
15813	15722	0.06551	1472.57129	96.46814521
15813	15818	0.02000	6211.16016	124.2232032
15813	15856	0.00673	4640.09277	31.22782434
15814	1420	0.26265	178.04514	46.76355602
15814	15777	0.25675	2277.67627	584.7933823
15814	15867	0.00837	417.35135	3.4932308
15815	15821	0.04206	6231.23779	262.0858614
15815	15854	0.00614	10081.74316	61.901903

15816	15815	0.01586	6211.16016	98.50900014
15817	15816	0.01724	6211.16016	107.0804012
15818	15817	0.00689	6211.16016	42.7948935
15819	1326	0.13327	61.07470	8.139425269
15819	15811	0.05087	7569.84863	385.0781998
15820	15810	0.07587	5891.77832	447.0092211
15821	15697	0.10937	0.00000	0
15821	15831	0.23995	6191.85449	1485.735485
15821	15862	0.00725	1967.68811	14.2657388
15822	15819	0.02016	7353.48682	148.2462943
15823	15824	0.03999	5891.77832	235.612215
15824	15820	0.01725	5891.77832	101.633176
15826	15832	0.04282	6231.50391	266.8329974
15827	15812	0.54014	1378.17236	744.4060185
15827	15843	0.38612	1410.90710	544.7794495
15828	1288	0.25746	477.69080	122.9862734
15828	15791	0.02984	455.17740	13.58249362
15828	15823	0.05380	5891.77832	316.9776736
15831	1354	0.25363	702.39056	178.1473177
15831	15833	0.06206	5030.96533	312.2217084
15831	15879	0.00837	1611.41907	13.48757762
15832	15846	0.08346	6231.50391	520.0813163
15833	15840	0.05586	5030.96533	281.0297233
15833	15882	0.00903	0.00000	0
15835	15627	0.19191	132.93936	25.51239258
15835	15852	0.49849	125.87373	62.74679567
15836	15807	0.00669	364.90088	2.441186887
15836	15837	0.00758	6369.46924	48.28057684
15837	15828	0.05107	6369.46924	325.2887941
15838	15822	0.18762	7353.48682	1379.661197
15838	15884	0.00838	64.68746	0.542080915
15840	15842	0.04896	5030.96533	246.3160626
15840	15885	0.00837	0.00000	0
15841	15740	0.04910	784.42877	38.51545261
15841	15853	0.20272	4024.27319	815.8006611
15841	15888	0.00837	1173.53601	9.822496404
15842	15841	0.05309	5030.96533	267.0939494
15843	15827	0.38612	1378.17236	532.1399116
15843	15860	0.61502	1410.90710	867.7360846
15844	15838	0.05168	6269.46240	324.0058168
15845	15867	0.02384	2830.63062	67.48223398
15846	15629	0.19253	486.87213	93.73749119
15846	15844	0.08756	6269.46240	548.9541277
15846	15887	0.00781	366.29581	2.860770276
15847	15501	0.31295	79.96424	25.02480891
15847	15814	0.24482	2697.52563	660.4082247
15847	15891	0.00837	23.64863	0.197939033
15848	15847	0.00896	2034.43323	18.22852174
15849	1401	0.24040	185.41942	44.57482857
15849	15848	0.22960	2034.43323	467.1058696
15850	15849	0.02344	1827.05090	42.8260731
15850	15894	0.02676	110.64416	2.960837722
15851	15850	0.03654	1937.69507	70.80337786
15852	15581	0.25073	342.51425	85.8785979

15852	15835	0.49849	132.93936	66.26894157
15852	15868	0.49849	398.91214	198.8537127
15853	29935	0.03572	4024.27319	143.7470383
15854	15855	0.01586	11202.92285	177.6783564
15854	16044	0.26767	3990.16626	1068.047803
15855	15861	0.02036	11202.92285	228.0915092
15856	15813	0.00673	3228.94189	21.73077892
15856	15858	0.05516	7723.05615	426.0037772
15856	15921	0.04045	8621.50293	348.7397935
15857	1377	0.24566	431.89505	106.099338
15857	15895	0.03763	2632.78052	99.07153097
15858	15811	0.00725	0.00000	0
15858	29936	0.04903	7793.83594	382.1317761
15859	15851	0.11376	1937.69507	220.4321912
15860	15843	0.61502	1378.17236	847.6035648
15860	15870	0.59433	1410.90710	838.5444167
15861	15856	0.02448	11202.92285	274.2475514
15862	15821	0.00725	17.72523	0.128507918
15862	15854	0.04209	5111.34570	215.1365405
15862	15997	0.17508	1967.68811	344.5028343
15863	15647	0.16351	6259.82031	1023.543219
15863	15859	0.07448	1937.69507	144.3195288
15863	15898	0.00781	2751.17969	21.48671338
15866	15596	0.23807	513.21698	122.1815664
15866	16034	0.25032	523.60071	131.0677297
15867	1421	0.26476	247.82664	65.61458121
15867	15814	0.00837	2.99003	0.025026551
15867	15891	0.24481	3240.06665	793.2007166
15868	237	0.49345	88.11057	43.47816077
15868	15587	0.24910	2120.86279	528.306921
15868	15852	0.49849	422.34348	210.5340013
15868	16025	0.24458	2418.63062	591.548677
15869	15880	0.12139	7791.38867	945.7966707
15870	15860	0.59433	1378.17236	819.0891787
15870	15874	0.20892	1410.90710	294.7667113
15873	1994	1.65569	150.02353	248.3924584
15873	15294	0.50109	1230.80603	616.7445936
15873	16712	1.49879	1068.80884	1601.920001
15874	15870	0.20892	1378.17236	287.9277695
15874	15875	0.21925	1410.90710	309.3413817
15875	15874	0.21925	1378.17236	302.1642899
15875	15890	0.49155	873.02148	429.1337085
15875	16556	0.75886	8621.75684	6542.706396
15875	30051	0.55293	8741.55469	4833.467835
15878	29937	0.04683	7297.93066	341.7620928
15879	1355	0.24285	2042.90173	496.1186851
15879	15831	0.00837	990.84229	8.293349967
15879	15862	0.23997	3930.53345	943.210112
15880	15884	0.06675	7791.38867	520.0751937
15882	15833	0.00903	0.00000	0
15882	15879	0.06071	2832.02295	171.9321133
15883	15885	0.04964	2832.02295	140.5816192
15884	15838	0.00838	1148.71179	9.6262048
15884	15886	0.05047	7259.18311	366.3709716

15884	15978	0.13331	577.65063	77.00660549
15885	15840	0.00837	0.00000	0
15885	15882	0.05723	2832.02295	162.0766734
15886	15887	0.08825	7259.18311	640.6229095
15887	15846	0.00781	327.54803	2.558150114
15887	15878	0.08346	7297.93066	609.0852929
15888	15841	0.00837	276.27747	2.312442424
15888	15883	0.05240	2832.02295	148.3980026
15888	16037	0.24862	840.28979	208.9128476
15890	1899	0.50536	139.01596	70.25310555
15890	1900	0.74310	16.85512	12.52503967
15890	15875	0.49155	882.19733	433.6440976
15890	15901	0.50860	766.98022	390.0861399
15891	15847	0.00837	79.96424	0.669300689
15891	15893	0.00896	3183.75098	28.52640878
15892	15849	0.02832	185.41942	5.251077974
15892	15894	0.02482	2998.33154	74.41858882
15893	15892	0.20477	3183.75098	651.9366882
15894	1402	0.24721	153.15062	37.86036477
15894	15896	0.05999	3106.33252	186.3488879
15895	15888	0.20410	2632.78052	537.3505041
15896	15897	0.11376	3106.33252	353.3763875
15897	15898	0.07446	3106.33252	231.2975194
15898	15857	0.25958	2300.06641	597.0512387
15898	15863	0.00781	4563.58740	35.64161759
15898	16017	0.23157	1885.97937	436.7362427
15899	1879	0.74539	1.37261	1.023129768
15899	1880	0.74156	1.39707	1.036011229
15900	15797	0.02231	6453.08105	143.9682382
15900	15960	0.07643	6687.73926	511.1439116
15901	14668	1.00256	1526.83435	1530.743046
15901	15890	0.50860	757.46680	385.2476145
15901	15903	0.50127	1476.65454	740.2026213
15901	16418	0.73356	635.38861	466.0956688
15903	15901	0.50127	1491.97034	747.8799723
15903	15905	0.50126	1476.65454	740.1878547
15904	11249	0.02661	4077.39111	108.4993774
15904	15728	0.02855	3875.01440	110.6316611
15905	15903	0.50126	1491.97034	747.8650526
15905	15909	0.50543	1476.65454	746.3455042
15906	15794	0.12860	984.81451	126.647146
15906	15908	0.27722	18404.78125	5102.173458
15908	16059	1.56362	18576.05078	29045.88452
15909	15905	0.50543	1491.97034	754.0865689
15909	15910	0.49920	1476.65454	737.1459464
15910	1902	1.06539	1881.14429	2004.152315
15910	15909	0.49920	1491.97034	744.7915937
15910	15914	0.49715	215.24106	107.007093
15910	16732	1.49993	597.80060	896.659054
15912	14825	0.10210	538.22418	54.95268878
15912	14962	0.02262	1035.69226	23.42735892
15913	15366	0.48320	1327.02661	641.219258
15913	15919	1.00179	194.70425	195.0527706
15913	15928	0.01622	1328.75854	21.55246352

15914	15910	0.49715	194.70425	96.79721789
15914	15919	0.50401	215.24106	108.4836467
15915	15775	0.61394	18538.01172	11381.22692
15916	15354	0.49885	2084.91138	1040.058042
15916	16247	0.50110	1722.06018	862.9243562
15918	1930	0.68572	35.50694	24.3478189
15918	15367	0.48419	498.41925	241.3296167
15918	16272	0.52052	560.17596	291.5827907
15919	15913	1.00179	215.24106	215.6263415
15919	15914	0.50401	194.70425	98.13288904
15920	15915	0.27728	18538.01172	5140.21989
15921	15856	0.04045	3730.48535	150.8981324
15921	15954	0.04422	8621.50293	381.2428596
15922	1968	1.45993	942.86121	1376.511366
15922	14011	0.94756	3356.59326	3180.573509
15922	16575	1.55523	2821.28052	4387.740103
15925	15986	0.10092	3300.02222	333.0382424
15926	15806	0.05582	3437.46143	191.879097
15927	628	0.23377	2.09269	0.489208141
15927	15682	0.18082	934.65814	169.0048849
15927	16081	0.28878	944.20270	272.6668557
15928	1930	0.82456	206.16583	169.9960968
15928	15913	0.01622	1260.80444	20.45024802
15928	16643	1.23374	1122.59277	1384.987604
15934	619	0.26638	28.82401	7.678139784
15934	15704	0.16037	28.26449	4.532776261
15939	15588	0.30774	759.50909	233.7313274
15939	16597	1.01242	761.75336	771.2143367
15941	16014	0.17186	0.00000	0
15944	15411	0.48711	598.73309	291.6488755
15944	15963	0.01503	685.76599	10.30706283
15945	15739	0.13881	8269.43652	1147.880483
15954	15921	0.04422	3730.48535	164.9620622
15954	15945	0.02445	8269.43652	202.1877229
15954	15975	0.04646	1849.36462	85.92148025
15959	15661	0.24490	1013.00629	248.0852404
15959	16061	0.21483	946.61047	203.3603273
15960	15900	0.07643	6453.08105	493.2089847
15960	16022	0.15733	6687.73926	1052.182018
15963	15944	0.01503	598.73309	8.998958343
15963	16312	0.50186	685.76599	344.1585197
15964	15664	0.24104	115.43752	27.82505982
15964	16053	0.20027	115.17385	23.06586694
15969	1763	0.83454	0.00000	0
15971	15954	0.04178	3439.26587	143.692528
15973	15726	0.16873	742.46222	125.2756504
15973	15977	0.02672	742.97729	19.85235319
15975	15954	0.04646	1788.51807	83.09454953
15975	16019	0.12856	1849.36462	237.7543155
15977	15973	0.02672	742.46222	19.83859052
15977	16050	0.15144	742.97729	112.5164808
15978	15988	0.03284	0.00000	0
15978	15990	0.03053	577.65063	17.63567373
15986	15926	0.10078	3437.46143	346.4273629

15986	16000	0.03795	3300.02222	125.2358432
15988	15884	0.16018	1129.46924	180.9183829
15990	16035	0.11764	577.65063	67.95482011
15994	15752	0.21279	2885.75977	614.0608215
15994	16001	0.03024	2998.12329	90.66324829
15997	15862	0.17508	1198.53760	209.839963
15997	16024	0.07141	1967.68811	140.5126079
16000	15986	0.03795	3437.46143	130.4516613
16000	16036	0.06921	3300.02222	228.3945378
16001	2017	0.51006	238.27673	121.5354289
16001	15994	0.03024	2885.75977	87.26537544
16001	16194	0.30047	2820.87231	847.587503
16011	1440	0.24701	1.44214	0.356223001
16011	1701	0.30655	1.41116	0.432591098
16012	15920	1.13792	18538.01172	21094.7743
16013	1701	0.24219	46.25162	11.20167985
16013	15784	0.25392	2088.94263	530.4243126
16013	16155	0.24496	1943.97705	476.1966182
16014	2017	0.50551	39.51043	19.97291747
16014	15941	0.17186	0.00000	0
16014	16188	0.25661	40.04562	10.27610655
16016	1503	0.80378	136.77023	109.9331755
16016	15570	0.49601	1598.94849	793.0944405
16016	16199	0.25785	1666.64783	429.745143
16017	15898	0.23157	2892.12085	669.7284252
16017	16045	0.02662	1885.97937	50.20477083
16019	15975	0.12856	1788.51807	229.9318831
16019	16064	0.06323	1849.36462	116.9353249
16022	1250	0.21300	3045.79053	648.7533829
16022	1288	0.13100	176.22400	23.085344
16022	15960	0.15733	6453.08105	1015.263242
16022	16175	0.24487	3583.33057	877.4501567
16024	1355	0.23743	438.27313	104.0591893
16024	15997	0.07141	1198.53760	85.58757002
16024	16179	0.24548	1566.64929	384.5810677
16025	2015	0.50402	36.17410	18.23246988
16025	15868	0.24458	2486.27832	608.0939515
16025	16189	0.25024	2398.62061	600.2308214
16028	15988	0.11827	1129.46924	133.582327
16034	15866	0.25032	513.21698	128.4684744
16034	16219	0.25534	523.60071	133.6962053
16035	16071	0.08609	577.65063	49.72994274
16036	1421	0.22713	157.78860	35.83852472
16036	1440	0.20442	722.83942	147.7628342
16036	16000	0.06921	3437.46143	237.9067056
16036	16180	0.23972	2743.84595	657.7547511
16037	1355	0.24170	29.01785	7.013614345
16037	1377	0.24970	784.23444	195.8233397
16037	15888	0.24862	142.27383	35.37211961
16037	16218	0.25082	85.33917	21.40477062
16042	1402	0.23836	0.42035	0.100194626
16042	1421	0.28013	0.42191	0.118189648
16044	16342	0.35437	30258.11719	10722.56899
16045	1377	0.25035	159.93642	40.04008275

16045	1402	0.24694	22.35394	5.520081944
16045	16017	0.02662	2892.12085	76.98825703
16045	16100	0.10004	2050.87524	205.169559
16047	15739	0.32567	25826.72070	8410.98813
16047	15971	0.17660	3439.26587	607.3743526
16050	15977	0.15144	742.46222	112.4384786
16050	16269	0.27226	742.97729	202.282997
16053	1735	0.22537	29.80849	6.717939391
16053	15964	0.20027	115.43752	23.11867213
16053	16309	0.30007	85.36536	25.61558358
16059	16132	0.32936	18576.05078	6118.208085
16061	1735	0.26566	39.51018	10.49627442
16061	15959	0.21483	1013.00629	217.6241413
16061	16306	0.28847	913.81226	263.6074226
16064	16019	0.06323	1788.51807	113.0879976
16064	16067	0.00831	1849.36462	15.36821999
16067	1328	0.21215	1309.27393	277.7624642
16067	16064	0.00831	1788.51807	14.86258516
16067	16094	0.05031	540.09076	27.17196614
16068	16012	0.42654	18538.01172	7907.203519
16070	1289	0.13342	18.40140	2.455114788
16070	16028	0.08670	1129.46924	97.92498311
16070	16071	0.00792	29.20819	0.231328865
16071	1455	0.05338	113.93522	6.081862044
16071	16070	0.00792	102.44786	0.811387051
16071	16151	0.15865	502.55515	79.73037455
16081	620	0.24859	105.82296	26.30652963
16081	15927	0.28878	935.68817	270.2080297
16081	16300	0.25148	902.54437	226.9718582
16094	16067	0.05031	532.62390	26.79630841
16094	16335	0.24827	540.09076	134.088333
16100	16045	0.10004	2617.52637	261.8573381
16100	16215	0.13728	2050.87524	281.5441529
16132	75	35.00000	18576.05078	650161.7773
16137	11235	0.00664	652.25201	4.330953346
16138	16068	0.32450	18538.01172	6015.584803
16151	16152	0.00733	0.00000	0
16151	29934	0.11433	502.55515	57.4571303
16152	16070	0.16605	496.88565	82.50786218
16152	16151	0.00733	0.00000	0
16155	16013	0.24496	2070.24976	507.1283812
16155	16415	0.25912	1943.97705	503.7233332
16159	2018	0.17856	839.21991	149.8511071
16159	16164	0.43650	421.50165	183.9854702
16159	16174	0.31055	1258.05933	390.6903249
16163	1700	0.25790	0.00000	0
16163	1701	0.25930	0.00000	0
16164	74	35.00000	421.50165	14752.55775
16164	16159	0.43650	411.16544	179.4737146
16166	16167	0.02476	2953.19458	73.1210978
16166	16175	0.15309	2757.66675	422.1712028
16167	1250	0.24750	373.66910	92.48310225
16167	1251	0.25059	503.42377	126.1529625
16167	16166	0.02476	2757.66675	68.27982873

16167	16169	0.06220	2595.01538	161.4099566
16169	16167	0.06220	2409.02466	149.8413339
16169	16171	0.08973	2495.35864	223.9085308
16169	16297	0.10737	99.65665	10.70013451
16171	1498	0.10683	10.06630	1.075382829
16171	16169	0.08973	2312.27539	207.4804707
16171	16173	0.05231	2505.26392	131.0503557
16173	16171	0.05231	2322.34155	121.4816865
16173	16176	0.09653	2505.26392	241.8331262
16174	16159	0.31055	1252.52454	388.9714959
16174	16188	0.99802	841.63806	839.9716166
16174	16547	0.50212	416.42123	209.093428
16175	16022	0.24487	3249.35156	795.6687165
16175	16166	0.15309	2953.19458	452.1045583
16175	16186	0.18522	780.69556	144.6004316
16175	16402	0.24487	985.50354	241.3202518
16176	1236	1.16321	4.86156	5.655015208
16176	16173	0.09653	2322.34155	224.1756298
16176	16183	0.63639	2502.98486	1592.874535
16178	1440	0.25246	0.00000	0
16178	1478	0.24706	0.00000	0
16179	16024	0.24548	1224.81897	300.6685608
16179	16203	0.22964	1203.36011	276.3396157
16179	16354	0.14454	398.86389	57.65178666
16180	16036	0.23972	2898.14941	694.7443766
16180	16421	0.25175	2743.84595	690.7632179
16181	16182	0.23505	4.92817	1.158366359
16181	16185	0.99354	10.11327	10.04793828
16182	2016	0.51352	11.81633	6.067921782
16182	16181	0.23505	10.11327	2.377124114
16182	16184	0.26344	9.32719	2.457154934
16183	16176	0.63639	2320.76929	1476.914368
16183	16195	0.61019	2502.98486	1527.296332
16184	16182	0.26344	14.40127	3.793870569
16184	16187	0.51021	9.32719	4.75882561
16185	16181	0.99354	4.92817	4.896334022
16185	16194	1.00043	10.11327	10.11761871
16186	16175	0.18522	773.79120	143.3216061
16186	16200	0.07211	780.69556	56.29595683
16187	16184	0.51021	14.40127	7.347671967
16187	16191	0.49851	9.32719	4.649697487
16188	16014	0.25661	39.51043	10.13877144
16188	16174	0.99802	860.65692	858.9528193
16188	16193	0.30613	750.44006	229.7322156
16188	16549	0.49754	88.79192	44.17753188
16189	16025	0.25024	2466.34668	617.1785932
16189	16191	0.49924	14.40127	7.189690035
16189	16551	0.50044	2406.67236	1204.395116
16190	2017	0.36595	0.00000	0
16190	16193	0.15317	769.41510	117.8513109
16190	16194	0.54182	750.44006	406.6034333
16191	16187	0.49851	14.40127	7.179177108
16191	16189	0.49924	9.32719	4.656506336
16193	16188	0.30613	769.41510	235.5410446

16193	16190	0.15317	750.44006	114.944904
16194	16001	0.30047	2705.87891	813.0354361
16194	16185	1.00043	4.92817	4.930289113
16194	16190	0.54182	769.41510	416.8844895
16194	16550	0.49688	2056.95654	1022.060566
16195	16183	0.61019	2320.76929	1416.110213
16195	16199	0.26752	2502.98486	669.5985097
16199	16016	0.25785	1600.28210	412.6327395
16199	16195	0.26752	2320.76929	620.8522005
16199	16219	0.99289	327.52054	325.191869
16199	16545	0.49179	3362.98315	1653.881483
16200	16186	0.07211	773.79120	55.79808343
16200	16238	0.08557	780.69556	66.80411907
16202	1421	0.23485	0.03852	0.009046422
16202	1477	0.24718	0.03896	0.009630133
16203	1355	0.25437	185.41069	47.16291722
16203	1356	0.23658	845.22729	199.9638723
16203	16179	0.22964	1015.30133	233.1537974
16203	16205	0.02705	962.86993	26.04563161
16205	16203	0.02705	801.37378	21.67716075
16205	16216	0.13039	962.86993	125.5486102
16206	1402	0.24842	0.55962	0.1390208
16206	1403	0.23199	0.55923	0.129735768
16206	16211	0.12135	0.00000	0
16208	16209	0.04206	871.72131	36.6645983
16208	16210	0.07033	976.28284	68.66197214
16209	16208	0.04206	976.28284	41.06245625
16209	16218	0.12343	871.72131	107.5965613
16210	1377	0.25104	32.83511	8.242926014
16210	1378	0.22755	625.93890	142.4323967
16210	16208	0.07033	871.72131	61.30815973
16210	16214	0.10825	339.92331	36.79669831
16211	16206	0.12135	0.00000	0
16211	16212	0.03447	0.00000	0
16212	16211	0.03447	0.00000	0
16212	16215	0.09653	0.00000	0
16214	16210	0.10825	256.05823	27.7183034
16214	16215	0.15100	339.92331	51.32841981
16215	16100	0.13728	2617.52637	359.3340201
16215	16212	0.09653	0.00000	0
16215	16214	0.15100	256.05823	38.66479273
16215	16358	0.21208	2058.40405	436.5463309
16216	16205	0.13039	801.37378	104.4911272
16216	16218	0.09653	962.86993	92.94583434
16218	16037	0.25082	142.27383	35.68512204
16218	16209	0.12343	976.28284	120.5025909
16218	16216	0.09653	801.37378	77.35661098
16218	16336	0.10788	0.00000	0
16219	1786	0.83930	172.05666	144.4071547
16219	16034	0.25534	513.21698	131.0448237
16219	16199	0.99289	309.32126	307.1219858
16219	16568	0.50231	525.72791	264.0783865
16220	1994	1.40813	191.20262	269.2381453
16220	15339	0.99211	1223.15479	1213.504099

16220	16717	0.99884	1656.50037	1654.57883
16227	15342	0.99249	96.55581	95.83067587
16227	16725	0.99753	100.30191	100.0541643
16237	16276	0.06013	4072.75269	244.8946192
16238	1289	0.31249	52.73810	16.48012887
16238	1457	0.25183	379.12500	95.47504875
16238	16200	0.08557	773.79120	66.21331298
16238	29932	0.12211	961.61267	117.4225231
16247	15916	0.50110	2084.91138	1044.749093
16247	16573	0.49606	1722.06018	854.2451729
16266	16237	0.06369	4072.75269	259.3936188
16269	16050	0.27226	742.46222	202.142764
16269	16325	0.05289	742.97729	39.29606887
16272	15918	0.52052	533.92621	277.9192708
16272	16752	0.99577	560.17596	557.8064157
16276	10581	0.05872	4072.75269	239.152038
16297	1498	0.08204	99.65665	8.175831566
16297	16169	0.10737	96.74935	10.38797771
16297	16398	0.14815	0.00000	0
16300	1722	0.82479	110.63007	91.24657544
16300	16081	0.25148	893.33624	224.6561976
16300	16302	0.22639	147.10532	33.30317339
16300	16662	0.75334	875.89288	659.8451422
16302	628	0.59606	4.02149	2.397049329
16302	1736	0.91044	32.18699	29.30432318
16302	16300	0.22639	148.48500	33.61551915
16302	16304	0.27487	183.05180	50.31544827
16304	16302	0.27487	184.54288	50.72530143
16304	16310	0.25537	183.05180	46.74593817
16306	1738	0.42855	49.14378	21.06056692
16306	16061	0.28847	980.50146	282.8452562
16306	16307	0.27735	1010.28119	280.201488
16306	16308	0.02139	196.34518	4.1998234
16307	1735	0.30151	12.38683	3.734753113
16307	1738	0.41745	36.95316	15.42609664
16307	16306	0.27735	1077.82886	298.9358343
16307	16309	0.21151	1058.67444	223.9202308
16308	16306	0.02139	195.04700	4.17205533
16308	16310	0.23764	196.34518	46.65946858
16309	16053	0.30007	86.17616	25.85888033
16309	16307	0.21151	1126.19568	238.2016483
16309	16312	0.50595	1124.23779	568.8081099
16310	1734	0.50389	22.97208	11.57540139
16310	16304	0.25537	184.54288	47.12671527
16310	16308	0.23764	195.04700	46.35096908
16312	15963	0.50186	598.73309	300.4801885
16312	16309	0.50595	1192.56982	603.3807004
16312	16313	0.49406	1765.38074	872.2040084
16313	1753	1.08392	28.94003	31.36867732
16313	1754	1.38763	154.43185	214.294268
16313	16312	0.49406	1746.67981	862.9646269
16313	16316	0.07491	1607.36646	120.4078215
16316	16313	0.07491	1588.52051	118.9960714
16316	16320	0.42750	1607.36646	687.1491617

16320	16316	0.42750	1588.52051	679.092518
16320	16322	0.49781	1607.36646	800.1630975
16322	16320	0.49781	1588.52051	790.7813951
16322	16325	0.49577	1607.36646	796.8840699
16325	1763	0.81376	587.58887	478.1563189
16325	16269	0.05289	742.46222	39.26882682
16325	16322	0.49577	1588.52051	787.5408132
16325	16344	0.02172	2062.89697	44.80612219
16335	16094	0.24827	532.62390	132.2345357
16335	16406	0.12721	540.09076	68.70494558
16336	16218	0.10788	0.00000	0
16336	16419	0.13456	0.00000	0
16341	16347	0.01613	665.79352	10.73924948
16341	29934	0.07096	663.01117	47.04727262
16342	16431	0.14294	30258.11719	4325.095271
16344	16325	0.02172	2045.10938	44.41977573
16344	16663	0.72995	2062.89697	1505.811643
16347	16341	0.01613	663.01117	10.69437017
16347	16376	0.10340	665.79352	68.84304997
16354	16179	0.14454	245.09229	35.4256396
16354	16408	0.10488	398.86389	41.83284478
16358	1378	0.24669	539.82373	133.169116
16358	1403	0.23915	427.73059	102.2917706
16358	16215	0.21208	2541.19019	538.9356155
16358	16446	0.09226	1435.86194	132.4726226
16376	16347	0.10340	663.01117	68.55535498
16376	16391	0.09435	665.79352	62.81761861
16391	1328	0.28801	104.15367	29.9972985
16391	1456	0.14782	842.79010	124.5812326
16391	16376	0.09435	663.01117	62.55510389
16391	16394	0.02024	1057.54187	21.40464745
16394	16391	0.02024	1043.13635	21.11307972
16394	16396	0.05371	1057.54187	56.80057384
16396	16394	0.05371	1043.13635	56.02685336
16396	16410	0.09857	1057.54187	104.2419021
16398	16297	0.14815	0.00000	0
16402	16175	0.24487	853.95667	209.1083698
16402	16477	0.13109	985.50354	129.1896591
16405	1403	0.23952	0.05512	0.013202342
16405	1477	0.24906	0.05595	0.013934907
16406	16335	0.12721	532.62390	67.75508632
16406	16413	0.08419	1043.13635	87.82164931
16406	16426	0.01174	524.91803	6.162537672
16408	1356	0.24122	184.11980	44.41337816
16408	16354	0.10488	245.09229	25.70527938
16408	16580	0.30296	583.97614	176.9214114
16410	16396	0.09857	1043.13635	102.82195
16410	16413	0.04896	1057.54187	51.77724996
16413	16406	0.08419	1057.54187	89.03445004
16413	16410	0.04896	1043.13635	51.0719557
16415	1700	0.25518	2.29009	0.584385166
16415	16155	0.25912	2070.24976	536.4431178
16415	16537	0.24013	1941.68701	466.2573017
16416	1478	0.22861	0.00000	0

16416	1700	0.29985	0.00000	0
16418	1900	0.49524	84.00055	41.60043238
16418	15901	0.73356	740.22412	542.9988055
16418	16566	0.26342	579.37427	152.6187702
16419	1356	0.26755	7.64889	2.04646052
16419	1378	0.22812	7.83266	1.786786399
16419	16336	0.13456	0.00000	0
16419	16471	0.11775	0.00000	0
16421	1477	0.26105	10.32631	2.695683226
16421	1478	0.21198	1.98846	0.421513751
16421	16180	0.25175	2898.14941	729.609114
16421	16480	0.13420	2731.54956	366.573951
16426	16406	0.01174	503.04562	5.905755579
16426	16463	0.09987	524.91803	52.42356366
16431	16581	0.27996	30258.11719	8471.062489
16446	16358	0.09226	1941.39648	179.1132392
16446	16564	0.19866	1435.86194	285.248333
16463	16426	0.09987	503.04562	50.23916607
16463	16583	0.19360	524.91803	101.6241306
16467	16047	0.59081	29265.98633	17290.63738
16471	16419	0.11775	0.00000	0
16477	1251	0.21271	88.19798	18.76059233
16477	1457	0.27404	23.50059	6.440101684
16477	16402	0.13109	853.95667	111.9451799
16477	16527	0.12064	1008.81549	121.7035007
16480	16421	0.13420	2888.64917	387.6567186
16480	16535	0.10381	2731.54956	283.5621598
16527	16477	0.12064	964.51569	116.3591728
16527	16587	0.07306	1008.81549	73.7040597
16533	1478	0.24690	0.27717	0.068433273
16533	16535	0.20805	2294.60132	477.3918046
16533	16540	0.22950	2447.59985	561.7241656
16534	16266	0.04200	4072.75269	171.055613
16535	16480	0.10381	2888.64917	299.8706703
16535	16533	0.20805	2447.28223	509.157068
16535	16541	0.25564	536.13654	137.0579451
16535	16630	0.20987	4188.01758	878.9392495
16536	16538	0.12480	2067.95972	258.0813731
16536	16540	0.12373	1941.68701	240.2449337
16537	16415	0.24013	2067.95850	496.5788746
16537	16538	0.31095	1941.68701	603.7675758
16538	1700	0.24717	0.00119	0.000294132
16538	16536	0.12480	1941.68701	242.3225388
16538	16537	0.31095	2067.95850	643.0316956
16539	1504	0.26414	674.67889	178.209682
16539	16545	0.86736	657.66937	570.4361048
16540	1847	0.78653	381.17969	299.8092616
16540	16533	0.22950	2294.87842	526.6745974
16540	16536	0.12373	2067.95972	255.8686562
16541	1477	0.24261	13.43401	3.259225166
16541	16535	0.25564	769.72589	196.7727265
16541	16548	0.24988	547.27637	136.7534193
16545	1799	0.55535	19.64316	10.90882891
16545	16199	0.49179	3132.60083	1540.581762

16545	16539	0.86736	674.67889	585.189482
16545	16829	1.00483	2879.89746	2893.807365
16547	16174	0.50212	391.86758	196.7645493
16547	16640	0.24826	416.42123	103.3807346
16548	1833	0.50603	0.47448	0.240101114
16548	16541	0.24988	778.67841	194.5761611
16548	16555	0.23923	547.71741	131.030436
16549	16188	0.49754	88.30051	43.93303575
16549	16695	0.50090	88.79192	44.47587273
16550	16194	0.49688	1955.75317	971.7746351
16550	16697	0.50081	2056.95654	1030.144405
16551	16189	0.50044	2479.47241	1240.827173
16551	16698	0.49820	2406.67236	1199.00417
16554	15809	1.00883	2979.03174	3005.33659
16554	16702	0.49924	2717.02100	1356.445564
16555	1403	0.26543	141.37889	37.52619877
16555	16548	0.23923	779.12170	186.3892843
16555	16564	0.24706	506.52069	125.1410017
16556	1880	0.50975	222.36610	113.3511195
16556	1900	0.49959	261.14093	130.4633972
16556	15875	0.75886	8374.51758	6355.086411
16556	16715	0.73965	8414.22852	6223.584125
16560	1848	0.49116	3.28577	1.613838793
16560	1873	1.15325	3.27673	3.778888873
16563	1508	0.51352	0.00000	0
16564	16446	0.19866	1941.39648	385.6778247
16564	16555	0.24706	744.80664	184.0119285
16564	16694	0.48733	1594.76721	777.1779044
16566	16418	0.26342	683.77063	180.1188594
16566	16723	0.50519	579.37427	292.6940875
16567	1378	0.27886	0.00000	0
16568	16219	0.50231	515.24249	258.8114552
16568	16642	0.24533	525.72791	128.9768282
16573	16247	0.49606	2084.91138	1034.241139
16573	16737	0.50334	1722.06018	866.781771
16575	15922	1.55523	2953.39771	4593.212721
16575	16740	0.50044	2821.28052	1411.881623
16580	16408	0.30296	429.21207	130.0340887
16580	29910	0.33933	583.97614	198.1606236
16581	16673	0.33889	30258.11719	10254.17333
16583	16463	0.19360	503.04562	97.38963203
16583	16646	0.25511	524.91803	133.9118386
16584	16467	0.18650	29265.98633	5458.106451
16587	1290	0.57017	0.00000	0
16587	16527	0.07306	964.51569	70.46751631
16587	16654	0.30110	1008.81549	303.754344
16596	1356	0.33419	0.00000	0
16597	15939	1.01242	759.50909	768.9421929
16597	16648	0.23847	761.75336	181.6553238
16606	16609	0.06738	0.00000	0
16609	16606	0.06738	0.00000	0
16624	16584	0.08871	29265.98633	2596.185647
16630	16535	0.20987	4264.20850	894.9294379
16630	16692	0.29904	4188.01758	1252.384777

16640	16547	0.24826	391.86758	97.28504541
16640	16691	0.25162	416.42123	104.7799099
16642	16568	0.24533	515.24249	126.4044401
16642	16720	0.25534	525.72791	134.2393645
16643	15928	1.23374	1057.09106	1304.175524
16643	16750	0.26509	1122.59277	297.5881174
16645	1290	0.60019	132.61302	79.59300847
16645	16646	0.07229	134.87642	9.750216402
16646	16583	0.25511	503.04562	128.3319681
16646	16645	0.07229	132.61302	9.586595216
16646	16676	0.11001	659.79443	72.58398524
16648	1773	0.98662	247.39070	244.0806124
16648	1785	1.15694	75.31678	87.13699545
16648	16597	0.23847	759.50909	181.1201327
16648	16756	0.25184	803.77002	202.4214418
16654	16587	0.30110	958.53784	288.6157436
16654	16733	0.21731	1008.81549	219.2256941
16655	16690	0.06013	4267.02588	256.5762662
16662	16300	0.75334	865.13031	651.7372677
16662	16709	0.15938	875.89288	139.5998072
16663	1764	0.99764	130.85480	130.5459827
16663	16344	0.72995	2045.10938	1492.827592
16663	16768	0.26982	2060.46899	555.9557429
16673	16770	0.26374	30258.11719	7980.275828
16675	16624	0.26418	29265.98633	7731.488269
16676	16646	0.11001	635.65863	69.92880589
16676	16706	0.09071	659.79443	59.84995275
16690	16731	0.03130	4267.02588	133.55791
16691	16640	0.25162	391.86758	98.60172048
16691	16819	0.49987	416.42123	208.1564802
16692	1833	0.49100	87.03314	42.73327174
16692	16630	0.29904	4264.20850	1275.16891
16692	16826	0.50270	4175.19482	2098.870436
16694	1508	0.50998	186.28639	95.00233317
16694	1833	0.50401	94.41158	47.58438044
16694	16564	0.48733	2338.58765	1139.663919
16694	16851	0.51322	1316.30200	675.5525124
16695	16549	0.50090	88.30051	44.22972546
16695	16823	0.49866	88.79192	44.27697883
16696	1290	0.41425	57.46973	23.80683565
16696	1507	0.39910	58.57505	23.37730246
16696	16706	0.62494	33.99377	21.24406662
16696	16733	0.68163	184.75790	125.9365274
16697	16550	0.50081	1955.75317	979.4607451
16697	16820	0.49746	2056.95654	1023.2536
16698	2013	2.66431	115.98818	309.0284679
16698	16551	0.49820	2479.47241	1235.273155
16698	17071	1.00256	2443.04932	2449.303526
16702	16554	0.49924	2979.03174	1487.251806
16702	16713	0.99769	967.76019	965.524664
16702	16830	0.49814	2732.13452	1360.98549
16703	1873	0.71920	489.32968	351.9259059
16703	1874	0.88643	51.69270	45.82196006
16703	16708	0.14860	939.66882	139.6347867

16703	16713	0.35403	991.52191	351.0285018
16705	16707	0.24890	958.85272	238.658442
16705	16710	0.50194	939.66882	471.6573675
16706	16676	0.09071	635.65863	57.66059433
16706	16696	0.62494	91.37762	57.10552984
16706	16782	0.25440	679.62866	172.8975311
16707	16705	0.24890	939.66882	233.8835693
16707	16708	0.24959	958.85272	239.3200504
16708	16703	0.14860	958.85272	142.4855142
16708	16707	0.24959	939.66882	234.5319408
16709	1710	2.77630	155.36380	431.3365179
16709	1722	0.86582	8.57689	7.4260429
16709	1736	0.27133	32.76580	8.890344514
16709	16662	0.15938	865.13031	137.8844688
16709	16763	0.08987	724.12701	65.07729439
16710	16705	0.50194	958.85272	481.2865343
16710	16715	0.50265	939.66882	472.3245324
16711	1994	1.14653	73.44173	84.2031467
16711	16712	0.99628	208.51489	207.7392146
16711	16719	1.49482	129.82826	194.0698796
16712	2013	2.36361	196.76033	465.0646836
16712	15873	1.49879	1084.65039	1625.663158
16712	16711	0.99628	203.26999	202.5138256
16712	17413	1.52401	1225.57263	1867.784944
16713	16702	0.99769	991.52191	989.2314944
16713	16703	0.35403	967.76019	342.6161401
16714	1508	0.46979	381.90826	179.4166815
16714	16802	0.40477	302.51840	122.4503728
16714	29910	0.11873	429.21207	50.96034907
16715	16556	0.73965	8188.30811	6056.482094
16715	16710	0.50265	958.85272	481.9673197
16715	16718	0.50088	816.92566	409.1817246
16715	17038	0.97688	8304.92188	8112.912086
16717	16220	0.99884	1414.35730	1412.716646
16717	16719	0.49711	131.61035	65.42482109
16717	16725	0.99284	1786.32849	1773.538378
16718	1900	0.74852	0.00000	0
16718	16715	0.50088	722.09607	361.6834795
16718	16721	0.26448	816.92566	216.0604986
16719	16711	1.49482	131.61035	196.7337834
16719	16717	0.49711	129.82826	64.53892633
16720	16642	0.25534	515.24249	131.5620174
16720	16724	0.25443	49.06168	12.48276324
16720	16786	0.24758	476.66620	118.0130178
16721	16718	0.26448	722.09607	190.9799686
16721	16723	0.23375	816.92566	190.956373
16722	1880	0.75965	0.74129	0.563120949
16722	1881	0.95164	0.74490	0.708876636
16723	1901	0.70224	127.86053	89.78877859
16723	16566	0.50519	683.77063	345.4340846
16723	16721	0.23375	722.09607	168.7899564
16723	16730	1.00324	1072.31787	1075.79218
16724	16720	0.25443	48.07209	12.23098186
16724	16787	0.25460	49.06168	12.49110373

16725	16227	0.99753	96.55581	96.31731715
16725	16717	0.99284	1545.96765	1534.898522
16725	16727	0.87625	276.25330	242.0669541
16725	16975	0.75565	1843.63916	1393.145931
16727	1969	2.10667	7.47316	15.74348198
16727	1971	2.39026	7.55987	18.07005487
16727	16725	0.87625	285.08261	249.803637
16727	16728	0.12141	276.25330	33.53991315
16728	16727	0.12141	285.08261	34.61187968
16728	16737	1.01704	276.25330	280.9606562
16730	16723	1.00324	1081.07056	1084.573229
16730	16732	0.99975	1072.31787	1072.049791
16731	16803	0.01474	4267.02588	62.89596147
16732	15910	1.49993	599.77771	899.6245806
16732	16730	0.99975	1081.07056	1080.800292
16732	16735	0.99975	955.28149	955.0426696
16732	16809	0.43494	834.91071	363.1360642
16733	1505	0.18368	151.50844	27.82907026
16733	16654	0.21731	958.53784	208.299858
16733	16696	0.68163	131.97443	89.95773072
16733	16801	0.42082	931.42822	391.9636235
16734	16655	0.05472	4267.02588	233.4916562
16735	1931	1.74652	591.55096	1033.155583
16735	16732	0.99975	894.24359	894.0200291
16735	16750	1.00908	692.13074	698.4152871
16737	16573	0.50334	2084.91138	1049.419294
16737	16728	1.01704	285.08261	289.9404177
16737	16739	0.50024	467.56271	233.8935701
16737	17125	0.99889	1490.66370	1489.009063
16739	1970	1.24426	0.00000	0
16739	16737	0.50024	457.09088	228.6551418
16739	16740	0.49259	467.56271	230.3167153
16740	16575	0.50044	2953.39771	1477.99835
16740	16739	0.49259	457.09088	225.1583966
16740	16742	0.72739	839.08435	610.3415653
16740	17127	0.99697	2756.53833	2748.186019
16742	16740	0.72739	515.18036	374.7370421
16742	16744	0.27234	839.08435	228.5162319
16744	16742	0.27234	515.18036	140.3042192
16744	16745	0.47206	839.08435	396.0981583
16745	1628	0.93584	151.05186	141.3603727
16745	1968	2.06981	216.24394	447.5838695
16745	16744	0.47206	515.18036	243.1960407
16745	16746	0.52491	979.06757	513.9223582
16746	16745	0.52491	648.78918	340.5559285
16746	16747	0.46815	1097.98218	514.0203576
16746	16875	0.49579	1273.30432	631.2915488
16747	16746	0.46815	1134.55212	531.140575
16747	16748	0.03172	1097.98218	34.82799475
16748	1626	0.91490	122.85011	112.3955656
16748	16747	0.03172	1134.55212	35.98799325
16748	16749	0.04284	1233.24890	52.83238288
16749	16748	0.04284	1257.40222	53.8671111
16749	16752	0.95482	1233.24890	1177.530715

16750	16643	0.26509	1057.09106	280.2242691
16750	16735	1.00908	835.68054	843.2685193
16750	16751	0.50815	1022.66461	519.6670216
16750	16877	0.49774	837.59058	416.9023353
16751	1930	1.55029	91.40512	141.7044435
16751	1932	2.41723	297.43704	718.9737362
16751	16750	0.50815	1019.09808	517.8546894
16751	16755	0.49229	759.15979	373.726773
16752	16272	0.99577	533.92621	531.6677021
16752	16749	0.95482	1257.40222	1200.592788
16752	16754	0.12411	761.25629	94.47951815
16754	16752	0.12411	759.15979	94.21932154
16754	16755	0.37783	761.25629	287.6254641
16755	16751	0.49229	761.25629	374.758859
16755	16754	0.37783	759.15979	286.8333435
16756	16648	0.25184	799.38934	201.3182114
16756	16891	0.50425	803.77002	405.3010326
16763	16709	0.08987	713.06958	64.08356315
16763	16790	0.24873	724.12701	180.1121112
16768	16663	0.26982	2041.83899	550.9289963
16768	16780	0.12472	2060.46899	256.9816924
16769	16675	0.24748	29265.98633	7242.746297
16770	16773	0.09173	25383.22852	2328.403552
16770	16802	0.27248	4874.88721	1328.309267
16772	471	0.24749	39.93871	9.884431338
16772	474	0.15769	0.09990	0.015753231
16772	16861	0.31707	39.23034	12.4387639
16773	16853	0.27359	25383.22852	6944.597491
16774	16769	0.09400	29265.98633	2751.002715
16780	16768	0.12472	2041.83899	254.6581588
16780	16788	0.05514	2060.46899	113.6142601
16782	16706	0.25440	712.87671	181.355835
16782	16804	0.17302	679.62866	117.5893508
16786	478	0.27030	6.02170	1.62766551
16786	486	0.13086	57.26058	7.493119499
16786	16720	0.24758	467.17044	115.6620575
16786	16799	0.12818	439.10599	56.2846058
16787	474	0.12594	71.77039	9.038762917
16787	486	0.12154	6.92621	0.841811563
16787	16724	0.25460	48.07209	12.23915411
16787	16858	0.24670	29.21167	7.206518989
16788	1765	0.27654	118.29534	32.71339332
16788	16780	0.05514	2041.83899	112.5870019
16788	16792	0.04955	1942.17371	96.23470733
16790	1723	0.26394	40.55098	10.70302566
16790	1739	0.36525	41.22036	15.05573649
16790	16763	0.24873	713.06958	177.3617966
16790	16943	0.37777	651.48328	246.1108387
16792	16788	0.04955	1926.96790	95.48125945
16792	16800	0.04121	1942.17371	80.03697859
16799	16786	0.12818	431.06351	55.25372071
16799	16849	0.12153	439.10599	53.36455096
16800	16792	0.04121	1926.96790	79.41034716
16800	16897	0.18654	1942.17371	362.2930839

16801	16733	0.42082	827.61841	348.2783793
16801	16933	0.28111	931.42822	261.8337869
16802	16714	0.40477	207.06079	83.81199597
16802	16853	0.15406	834.96143	128.6341579
16802	16857	0.11962	4935.13965	590.3414049
16803	11235	0.01383	4267.02588	59.01296792
16804	16782	0.17302	712.87671	123.3419284
16804	16806	0.01558	0.00000	0
16804	16807	0.01964	679.62866	13.34790688
16806	16774	0.19700	5438.47314	1071.379209
16807	16804	0.01964	712.87671	14.00089858
16807	16806	0.02005	5438.47314	109.0413865
16807	16846	0.05914	679.62866	40.19323895
16809	16732	0.43494	906.67841	394.3507076
16809	17414	1.06389	834.91071	888.2531553
16810	16811	0.44128	880.57904	388.5819188
16810	16812	0.30098	885.85931	266.6259351
16811	394	0.50084	359.42538	180.0146073
16811	16810	0.44128	885.85931	390.9119963
16811	16815	0.56267	683.05426	384.3341405
16812	388	0.41338	17.70028	7.316941746
16812	1847	0.62520	198.82123	124.303033
16812	16810	0.30098	880.57904	265.0366795
16812	16826	0.68711	973.21307	668.7044325
16815	16811	0.56267	685.04150	385.4523008
16815	16817	0.33302	683.05426	227.4707297
16817	1848	1.02251	85.79807	87.72938456
16817	1849	0.52131	145.01418	75.59734218
16817	16815	0.33302	685.04150	228.1325203
16817	16830	0.67364	611.49768	411.9292972
16819	16691	0.49987	391.86758	195.8828472
16819	17046	0.49987	416.42123	208.1564802
16820	16697	0.49746	1955.75317	972.9089719
16820	17055	0.50026	2056.95654	1029.013079
16823	16695	0.49866	88.30051	44.03193232
16823	17051	0.49810	88.79192	44.22725535
16826	16692	0.50270	4252.34033	2137.651484
16826	16812	0.68711	945.55786	649.7022612
16826	16833	0.26107	1630.13025	425.5781044
16826	16951	0.24453	4922.75244	1203.760654
16829	1506	0.70620	204.52420	144.43499
16829	16545	1.00483	2666.54028	2679.41967
16829	16834	0.29720	3505.01904	1041.691659
16829	16979	0.28074	582.95276	163.6581578
16830	1874	1.10721	122.41643	135.5406955
16830	16702	0.49814	2970.38354	1479.666857
16830	16817	0.67364	615.23242	414.4451674
16830	16954	0.25129	2281.47021	573.3106491
16833	382	0.24432	197.68379	48.29810357
16833	16826	0.26107	1403.94946	366.5290855
16833	16838	0.26157	1823.95996	477.0932067
16834	482	0.26206	173.83678	45.55566657
16834	1799	0.50958	9.18455	4.680262989
16834	16829	0.29720	3284.30566	976.0956422

16834	16840	0.12963	3446.61719	446.7849863
16838	16833	0.26157	1601.63318	418.9391909
16838	16839	0.08857	1823.95996	161.5481337
16839	379	0.29113	144.08647	41.94789401
16839	1833	0.51256	50.49912	25.88382895
16839	16838	0.08857	1601.63318	141.8566508
16839	16845	0.23206	1754.26563	407.0948821
16840	16834	0.12963	3245.72705	420.7435975
16840	16841	0.06550	3446.61719	225.7534259
16841	16840	0.06550	3245.72705	212.5951218
16841	16842	0.05999	3446.61719	206.7625652
16842	16841	0.05999	3245.72705	194.7111657
16842	16843	0.12480	3330.99072	415.7076419
16842	16922	0.13857	115.95546	16.06794809
16843	16842	0.12480	3139.81885	391.8493925
16843	16844	0.09211	3330.99072	306.8175552
16844	478	0.25369	52.19976	13.24255711
16844	479	0.13158	351.13217	46.20197093
16844	16843	0.09211	3139.81885	289.2087143
16844	16849	0.22161	3128.64941	693.3399958
16845	16839	0.23206	1512.37573	350.9619119
16845	16847	0.06206	1754.26563	108.869725
16846	1507	0.61922	399.89691	247.6241646
16846	16807	0.05914	6151.34961	363.7908159
16846	16857	0.08088	1572.29944	127.1675787
16846	16871	0.03414	2287.73047	78.10311825
16847	16845	0.06206	1512.37573	93.8580378
16847	16851	0.09998	1754.26563	175.3914777
16849	16799	0.12153	431.06351	52.38714837
16849	16844	0.22161	2946.05396	652.8750181
16849	16854	0.13594	2605.37061	354.1740807
16849	16921	0.13381	1704.41357	228.0675798
16850	1661	0.31256	443.74777	138.697803
16850	16851	0.22416	3301.66626	740.1015088
16850	16855	0.27709	3565.53394	987.9737994
16851	16694	0.51322	2033.27844	1043.519161
16851	16847	0.09998	1512.37573	151.2073255
16851	16850	0.22416	3368.24780	755.0264268
16851	16874	0.03407	2706.87305	92.22316481
16852	16774	0.27142	23827.51367	6467.26376
16853	16992	0.31610	26218.19141	8287.570305
16854	476	0.25729	55.00464	14.15214383
16854	486	0.24950	0.38278	0.09550361
16854	16849	0.13594	2575.79224	350.1531971
16854	16858	0.11233	2659.58936	298.7516728
16855	1508	0.49030	250.44083	122.7911389
16855	16850	0.27709	3493.63062	968.0501085
16855	16856	0.10674	3629.53589	387.4166609
16856	396	0.37909	33.39586	12.66003657
16856	16855	0.10674	3545.12549	378.4066948
16856	16857	0.32902	3596.13989	1183.201947
16857	16802	0.11962	799.75623	95.66684023
16857	16846	0.08088	6305.39893	509.9806655
16857	16856	0.32902	3503.38159	1152.682611

16857	16983	0.27777	216.77109	60.21250567
16858	16787	0.24670	29.39874	7.252669158
16858	16854	0.11233	2630.42407	295.4755358
16858	16859	0.12679	2328.92944	295.2849637
16858	16941	0.20242	420.91101	85.20080664
16859	474	0.21505	15.03389	3.233038045
16859	475	0.22050	0.88283	0.194664015
16859	16858	0.12679	2312.40088	293.1893076
16859	16860	0.07679	2343.00244	179.9191574
16860	16859	0.07679	2326.57642	178.6578033
16860	16861	0.05143	2343.00244	120.5006155
16861	16772	0.31707	39.83750	12.63127613
16861	16860	0.05143	2326.57642	119.6558253
16861	16863	0.06541	2324.78711	152.0643249
16861	16908	0.08782	482.72412	42.39283222
16863	16861	0.06541	2329.30322	152.3597236
16863	16864	0.06965	2324.78711	161.9214222
16864	16863	0.06965	2329.30322	162.2359693
16864	16866	0.11001	2324.78711	255.74983
16866	472	0.25017	22.38155	5.599192364
16866	16864	0.11001	2329.30322	256.2466472
16866	16868	0.23894	2347.39087	560.8855745
16868	16866	0.23894	2351.68481	561.9115685
16868	16879	0.49859	2347.39087	1170.385614
16871	16846	0.03414	3012.87549	102.8595692
16871	16888	0.02514	2287.73047	57.51354402
16874	16851	0.03407	3248.54150	110.6778089
16874	16904	0.06082	2706.87305	164.6320189
16875	16746	0.49579	906.45599	449.4118153
16875	17024	0.39345	1273.30432	500.9815847
16877	16750	0.49774	919.20526	457.5252261
16877	17415	0.98094	837.59058	821.6261035
16879	16868	0.49859	2351.68481	1172.526529
16879	16881	0.43729	2347.39087	1026.490554
16881	1785	0.88961	753.73547	670.5306115
16881	1787	0.99293	575.36450	571.296673
16881	16879	0.43729	2351.68481	1028.368251
16881	16884	0.06058	1309.97913	79.3585357
16884	16881	0.06058	1304.56494	79.03054407
16884	16890	0.99498	1309.97913	1303.403035
16886	16871	0.02743	903.20044	24.77478807
16886	16888	0.01925	0.00000	0
16888	16871	0.02514	2109.67505	53.03723076
16888	16960	0.19038	2287.73047	435.5381269
16890	16884	0.99498	1304.56494	1298.016024
16890	16891	0.00689	1309.97913	9.025756206
16891	16756	0.50425	799.38934	403.0920747
16891	16890	0.00689	1304.56494	8.988452437
16891	16894	0.49511	664.65100	329.0753566
16894	16891	0.49511	654.85608	324.2257938
16894	16898	0.50136	664.65100	333.2294254
16897	16800	0.18654	1926.96790	359.4565921
16897	16916	0.04067	1942.17371	78.98820479
16898	16894	0.50136	654.85608	328.3186443

16898	16899	0.24755	664.65100	164.5343551
16899	16898	0.24755	654.85608	162.1096226
16899	16901	0.72880	664.65100	484.3976488
16901	16899	0.72880	654.85608	477.2591111
16901	16906	1.01701	664.65100	675.9567135
16903	1773	0.99280	1.65608	1.644156224
16903	1775	1.23362	1.67202	2.062637312
16904	16874	0.06082	3248.54150	197.576294
16904	16929	0.05859	2706.87305	158.595692
16906	16901	1.01701	654.85608	665.9951819
16906	16909	0.57924	664.65100	384.9924452
16908	16861	0.08782	462.38870	40.60697563
16908	16926	0.03236	482.72412	15.62095252
16909	16906	0.57924	654.85608	379.3188358
16909	16910	0.06343	664.65100	42.15881293
16910	16909	0.06343	654.85608	41.53752115
16910	16912	0.03172	664.65100	21.08272972
16911	1764	0.51592	2.72030	1.403457176
16911	1774	1.75406	2.72433	4.77863828
16912	16910	0.03172	654.85608	20.77203486
16912	16913	0.10757	664.65100	71.49650807
16913	1765	0.31953	183.97400	58.78521222
16913	1766	0.25243	87.01550	21.96532267
16913	16912	0.10757	654.85608	70.44286853
16913	16914	0.07104	523.80359	37.21100703
16914	16913	0.07104	518.40857	36.82774481
16914	16915	0.02620	523.80359	13.72365406
16915	16914	0.02620	518.40857	13.58230453
16915	16916	0.09862	523.80359	51.65751005
16916	1754	1.43305	169.50027	242.9023619
16916	16897	0.04067	1926.96790	78.36978449
16916	16915	0.09862	518.40857	51.12545317
16916	16938	0.06403	1687.09021	108.0243861
16921	479	0.22175	0.00000	0
16921	16849	0.13381	1543.35400	206.5161987
16921	16969	0.12269	1704.41357	209.1145009
16922	479	0.21783	0.00000	0
16922	16842	0.13857	106.23730	14.72130266
16922	16961	0.11737	115.95546	13.60969234
16926	16908	0.03236	462.38870	14.96289833
16926	16977	0.12605	482.72412	60.84737533
16929	16904	0.05859	3248.54150	190.3320465
16929	16946	0.05916	2706.87305	160.1386096
16933	16801	0.28111	827.61841	232.6518112
16933	16940	0.04146	931.42822	38.617014
16938	16916	0.06403	1667.04382	106.7408158
16938	17004	0.18457	1687.09021	311.3862401
16940	1506	0.81404	579.51215	471.7460706
16940	16933	0.04146	827.61841	34.31305928
16940	16957	0.03512	1191.79834	41.8559577
16941	16858	0.20242	408.46136	82.68074849
16941	16953	0.03402	420.91101	14.31939256
16943	16790	0.37777	640.76721	242.0626289
16943	17190	0.42897	651.48328	279.4667826

16946	16929	0.05916	3248.54150	192.1837151
16946	16982	0.06138	2706.87305	166.1478678
16951	382	0.25578	128.87274	32.96306944
16951	388	0.56836	96.68699	54.95301764
16951	16826	0.24453	5198.42383	1271.170579
16951	17040	0.24607	4830.36572	1188.608093
16953	16941	0.03402	408.46136	13.89585547
16953	16973	0.02460	420.91101	10.35441085
16954	16830	0.25129	2528.97949	635.507256
16954	17006	0.12512	2281.47021	285.4575527
16957	16940	0.03512	1090.73682	38.30667712
16957	16958	0.72950	2915.80884	2127.082549
16957	17025	0.21537	3407.59546	733.8938342
16958	16957	0.72950	3078.48315	2245.753458
16958	16959	0.11791	2915.80884	343.8030203
16959	1507	0.36544	53.88879	19.69311942
16959	1660	0.59458	235.13219	139.8048975
16959	16958	0.11791	3078.48315	362.9839482
16959	16960	0.67451	3068.52026	2069.747601
16960	16888	0.19038	2109.67505	401.639936
16960	16959	0.67451	3230.34253	2178.89834
16960	17135	0.31134	990.07184	308.2489667
16961	482	0.27770	63.20735	17.5526811
16961	16922	0.11737	106.23730	12.4690719
16961	16968	0.12486	293.97263	36.70542258
16961	17016	0.13536	250.27538	33.87727544
16963	16964	0.06206	420.86307	26.11876212
16963	16965	0.03103	313.94943	9.741850813
16964	16963	0.06206	313.94943	19.48370163
16964	16967	0.05102	420.86307	21.47243383
16965	16963	0.03103	420.86307	13.05938106
16965	16969	0.03172	313.94943	9.95847592
16966	479	0.12659	115.68188	14.64416919
16966	480	0.13232	254.18251	33.63342972
16966	16967	0.05102	313.94943	16.01769992
16966	16968	0.08688	388.73621	33.77340192
16967	16964	0.05102	313.94943	16.01769992
16967	16966	0.05102	420.86307	21.47243383
16968	16961	0.12486	388.73621	48.53760318
16968	16966	0.08688	293.97263	25.54034209
16969	476	0.12630	326.24643	41.20492411
16969	16921	0.12269	1543.35400	189.3541023
16969	16965	0.03172	420.86307	13.34977658
16969	16993	0.06321	1456.06909	92.03812718
16973	475	0.10780	394.32214	42.50792669
16973	16953	0.02460	408.46136	10.04814946
16973	16986	0.05207	250.74823	13.05646034
16975	16725	0.75565	1590.70288	1202.014631
16975	17109	0.25486	1843.63916	469.8698763
16977	472	0.24373	134.66809	32.82265358
16977	475	0.12415	82.31857	10.21985047
16977	16926	0.12605	462.38870	58.28409564
16977	16998	0.06244	377.18378	23.55135522
16979	482	0.28259	195.65892	55.2912542

16979	16829	0.28074	592.57367	166.3591321
16979	17095	0.24652	793.18878	195.536898
16982	16946	0.06138	3248.54150	199.3954773
16982	17000	0.05751	2706.87305	155.6722691
16983	396	0.25795	193.96228	50.03257013
16983	16857	0.27777	721.72852	200.474531
16983	17163	0.31498	71.37617	22.48206603
16986	16973	0.05207	246.71213	12.84630061
16986	16996	0.02955	250.74823	7.409610197
16991	16852	0.31555	23827.51367	7518.771939
16991	16886	0.26569	903.20044	239.9713249
16992	17200	0.34760	26218.19141	9113.443334
16993	16969	0.06321	1406.06030	88.87707156
16993	17008	0.06246	1456.06909	90.94607536
16996	16986	0.02955	246.71213	7.290343442
16996	17015	0.06188	250.74823	15.51630047
16998	16977	0.06244	357.14697	22.30025681
16998	17020	0.06355	377.18378	23.97002922
17000	379	0.27328	366.20810	100.0773496
17000	1661	0.26856	111.13467	29.84632698
17000	16982	0.05751	3248.54150	186.8236217
17000	17072	0.15848	2554.92627	404.9047153
17004	1766	0.20870	9.09268	1.897642316
17004	16938	0.18457	1667.04382	307.6862779
17004	17187	0.26758	1696.18848	453.8661135
17006	16954	0.12512	2528.97949	316.4259138
17006	17027	0.07876	2281.47021	179.6885937
17008	480	0.21919	33.08743	7.252433782
17008	16993	0.06246	1406.06030	87.82252634
17008	17012	0.10759	122.99339	13.23285883
17008	17036	0.08084	1546.53198	125.0216453
17012	17008	0.10759	122.16976	13.14424448
17012	17013	0.03449	122.99339	4.242042021
17013	476	0.12573	21.48899	2.701810713
17013	485	0.06967	70.38867	4.903978639
17013	17012	0.03449	122.16976	4.213635022
17013	17014	0.01103	201.09370	2.218063511
17014	17013	0.01103	199.44315	2.199857945
17014	17015	0.08837	201.09370	17.77065027
17015	16996	0.06188	246.71213	15.2665466
17015	17014	0.08837	199.44315	17.62479117
17015	17017	0.08550	25.61085	2.189727675
17015	17030	0.06523	100.30360	6.542803828
17016	480	0.21865	0.00000	0
17016	16961	0.13536	144.88376	19.61146575
17016	17104	0.12895	250.27538	32.27301025
17017	17015	0.08550	25.78038	2.20422249
17017	17018	0.04927	25.61085	1.26184658
17018	475	0.16072	2.37547	0.381785538
17018	484	0.06170	2.31372	0.142756524
17018	17017	0.04927	25.78038	1.270199323
17018	17019	0.03787	25.61085	0.96988289
17019	17018	0.03787	25.78038	0.976302991
17019	17020	0.08769	25.61085	2.245815437

17020	16998	0.06355	357.14697	22.69668994
17020	17019	0.08769	25.78038	2.260681522
17020	17033	0.06411	391.01630	25.06805499
17024	1626	0.42227	130.51393	55.11211722
17024	1628	0.52239	188.65756	98.55282277
17024	16875	0.39345	906.45599	356.6451093
17024	17429	0.60259	1181.42761	711.9164635
17025	16957	0.21537	3143.85986	677.093098
17025	17034	0.02448	3407.59546	83.41793686
17026	1849	0.26118	0.00000	0
17027	17006	0.07876	2528.97949	199.1824246
17027	17382	0.54059	2281.47021	1233.339981
17030	484	0.12898	47.22366	6.090907667
17030	485	0.11559	14.96285	1.729555832
17030	17015	0.06523	94.44741	6.160804554
17030	17092	0.06189	68.44209	4.23588095
17033	484	0.13099	37.52969	4.916014093
17033	17020	0.06411	371.14902	23.79436367
17033	17108	0.06245	359.72055	22.46454835
17034	17025	0.02448	3143.85986	76.96168937
17034	17061	0.16208	3332.86279	540.190401
17034	17069	0.10259	197.83159	20.29554282
17036	485	0.12541	391.28214	49.07069318
17036	17008	0.08084	1497.81104	121.0830445
17036	17052	0.02176	1756.75012	38.22688261
17038	1881	0.50288	110.02687	55.33031239
17038	1901	0.89310	59.78249	53.39174182
17038	16715	0.97688	8193.01465	8003.592151
17038	17199	0.17976	8320.02734	1495.608115
17039	11258	0.00746	4537.86670	33.85248558
17039	17151	0.03335	381.41116	12.72006219
17040	16951	0.24607	5109.63379	1257.327587
17040	17054	0.00726	4830.36572	35.06845513
17041	1506	0.54159	9.04554	4.898974009
17041	1811	0.68107	144.65215	98.5182398
17041	17042	0.10757	3222.76147	346.6724513
17041	17045	0.18619	3085.46729	574.4831547
17042	17041	0.10757	2976.66528	320.1998842
17042	17062	0.15863	3222.76147	511.226652
17043	17047	0.50332	161.82619	81.45035795
17043	17086	0.02416	162.34259	3.922196974
17044	17049	0.04827	340.10690	16.41696006
17044	17050	0.04896	341.56097	16.72282509
17045	17041	0.18619	3332.86279	620.5457229
17045	17059	0.10622	3085.46729	327.7383355
17046	16819	0.49987	391.86758	195.8828472
17046	17047	0.49642	162.34259	80.59010853
17046	17053	0.50745	103.43933	52.49028801
17046	17362	0.49145	471.83441	231.8830208
17047	17043	0.50332	162.34259	81.7102724
17047	17046	0.49642	161.82619	80.33375724
17048	403	0.13063	340.10690	44.42816435
17048	17049	0.02551	341.56097	8.713220345
17049	17044	0.04827	341.56097	16.48714802

17049	17048	0.02551	340.10690	8.676127019
17050	17044	0.04896	340.10690	16.65163382
17050	17054	0.12755	341.56097	43.56610172
17051	16823	0.49810	88.30051	43.98248403
17051	17053	0.49366	106.43064	52.54054974
17051	17055	1.00042	173.06528	173.1379674
17051	17384	0.50259	18.62707	9.361779111
17052	17036	0.02176	1702.93250	37.0558112
17052	17089	0.02676	1756.75012	47.01063321
17053	17046	0.50745	106.43064	54.00822827
17053	17051	0.49366	103.43933	51.06385965
17054	17040	0.00726	5109.63379	37.09594132
17054	17050	0.12755	340.10690	43.3806351
17054	17118	0.03404	4693.11523	159.7536424
17055	16820	0.50026	1955.75317	978.3850808
17055	17051	1.00042	176.25388	176.3279066
17055	17057	1.00249	7.97053	7.99037662
17055	17397	0.50530	2022.68018	1022.060295
17056	2019	1.03497	1148.43652	1188.597345
17056	17058	0.47160	8.35205	3.93882678
17056	17063	0.49918	1174.29175	586.1829558
17057	17055	1.00249	8.35205	8.372846605
17057	17058	0.52262	7.97053	4.165558389
17058	17056	0.47160	7.97053	3.758901948
17058	17057	0.52262	8.35205	4.364948371
17059	17045	0.10622	3332.86279	354.0166856
17059	17061	0.01656	3085.46729	51.09533832
17061	17034	0.16208	3085.46729	500.0925384
17061	17059	0.01656	3332.86279	55.1922078
17062	17042	0.15863	2976.66528	472.1884134
17062	17065	0.05383	3222.76147	173.4812499
17063	17056	0.49918	1156.78857	577.4457184
17063	17064	0.49918	1174.29175	586.1829558
17064	17063	0.49918	1156.78857	577.4457184
17064	17066	0.49987	1174.29175	586.9932171
17065	17062	0.05383	2976.66528	160.233892
17065	17095	0.61066	3222.76147	1968.011519
17066	17064	0.49987	1156.78857	578.2439025
17066	17071	0.50057	1174.29175	587.8152213
17069	17034	0.10259	181.49155	18.61921811
17069	17322	0.41926	197.83159	82.94287242
17071	16698	1.00256	2512.91235	2519.345406
17071	17066	0.50057	1156.78857	579.0536545
17071	17361	0.48473	1301.47314	630.8630752
17072	17000	0.15848	3099.50659	491.2098044
17072	17145	0.08091	2554.92627	206.7190845
17078	11333	0.00769	4908.48633	37.74625988
17086	72	4.50000	162.34259	730.541655
17086	17043	0.02416	161.82619	3.90972075
17087	485	0.05760	0.00000	0
17087	17088	0.03309	633.02838	20.94690909
17087	17090	0.11032	640.17548	70.62415895
17088	17087	0.03309	640.17548	21.18340663
17088	17092	0.08690	633.02838	55.01016622

17089	17052	0.02676	1702.93250	45.5704737
17089	17090	0.00965	633.02838	6.108723867
17089	17114	0.00669	2396.92578	16.03543347
17090	17087	0.11032	633.02838	69.83569088
17090	17089	0.00965	640.17548	6.177693382
17092	477	0.25528	66.54574	16.98779651
17092	17030	0.06189	64.55487	3.995300904
17092	17088	0.08690	640.17548	55.63124921
17092	17099	0.06208	639.14246	39.67796392
17095	16979	0.24652	788.23260	194.3151006
17095	17065	0.61066	2976.66528	1817.73042
17095	17098	0.28680	2434.52905	698.2229315
17098	482	0.26332	2.06966	0.544982871
17098	17095	0.28680	2183.47656	626.2210774
17098	17107	0.16553	2436.53564	403.3197445
17099	17092	0.06208	646.25635	40.11959421
17099	17101	0.02345	639.14246	14.98789069
17101	17099	0.02345	646.25635	15.15471141
17101	17102	0.03172	639.14246	20.27359883
17102	484	0.06602	148.01227	9.771770065
17102	17101	0.03172	646.25635	20.49925142
17102	17105	0.05585	491.13022	27.42962279
17103	17104	0.09308	1908.76868	177.6681887
17103	17113	0.06280	2267.82788	142.4195909
17104	483	0.24023	159.61652	38.3446766
17104	17016	0.12895	144.88376	18.68276085
17104	17103	0.09308	2267.82788	211.0894191
17104	17107	0.10894	2185.54614	238.0933965
17105	17102	0.05585	498.49432	27.84090777
17105	17108	0.08687	491.13022	42.66448221
17106	17078	0.03329	370.61942	12.33792049
17107	17098	0.16553	2185.54614	361.7734526
17107	17104	0.10894	2436.53564	265.4361926
17108	6090	0.22532	0.00000	0
17108	17033	0.06245	340.16782	21.24348036
17108	17105	0.08687	498.49432	43.30420158
17108	17133	0.03457	776.58496	26.84654207
17109	16975	0.25486	1590.70288	405.406536
17109	17381	0.46600	1843.63916	859.1358486
17110	17111	0.06137	1507.06055	92.48830595
17110	17112	0.02346	1862.35840	43.69092806
17111	17110	0.06137	1862.35840	114.292935
17111	17116	0.10895	1507.06055	164.1942469
17112	17110	0.02346	1507.06055	35.3556405
17112	17115	0.02069	1862.35840	38.5321953
17113	17103	0.06280	1908.76868	119.8706731
17113	17116	0.05033	2267.82788	114.1397772
17114	17089	0.00669	2335.96094	15.62757869
17114	17115	0.01862	1507.06055	28.06146744
17114	17128	0.01171	1548.16968	18.12906695
17115	17112	0.02069	1507.06055	31.18108278
17115	17114	0.01862	838.94452	15.62114696
17115	17128	0.02170	1023.41388	22.2080812
17116	480	0.13115	547.34601	71.78442921

17116	17111	0.10895	1862.35840	202.9039477
17116	17113	0.05033	1908.76868	96.06832766
17118	17054	0.03404	4970.92969	169.2104466
17118	17139	0.04968	4693.11523	233.1539646
17125	16737	0.99889	1872.81616	1870.737334
17125	17244	0.23179	1490.66370	345.520939
17126	6090	0.26633	0.00000	0
17127	16740	0.99697	3202.08789	3192.385564
17127	29906	0.23291	2756.53833	642.0253424
17128	17114	0.01171	2155.32080	25.23880657
17128	17172	0.08476	2571.58350	217.9674175
17133	17108	0.03457	764.39636	26.42518217
17133	17156	0.03010	776.58496	23.3752073
17135	16960	0.31134	973.83887	303.1949938
17135	17242	0.20068	990.07184	198.6876169
17139	17118	0.04968	4970.92969	246.955787
17139	17184	0.05916	4693.11523	277.644697
17145	398	0.20743	666.24561	138.1993269
17145	17072	0.08091	3099.50659	250.7810782
17145	17205	0.11273	2157.76343	243.2446715
17151	17246	0.18940	381.41116	72.2392737
17156	17133	0.03010	764.39636	23.00833044
17156	17171	0.03290	776.58496	25.54964518
17163	16983	0.31498	582.53448	183.4867105
17163	17273	0.25307	71.37617	18.06316734
17171	17156	0.03290	764.39636	25.14864024
17171	17191	0.02621	776.58496	20.3542918
17172	17128	0.08476	2155.32080	182.684991
17172	17248	0.15356	2571.58350	394.8923623
17184	402	0.17736	151.93636	26.94743281
17184	17139	0.05916	4970.92969	294.0802005
17184	17185	0.08274	207.20047	17.14376689
17184	17219	0.09434	4405.11523	415.5785708
17185	17184	0.08274	198.88036	16.45536099
17185	17186	0.03034	207.20047	6.28646226
17186	17185	0.03034	198.88036	6.034030122
17186	17188	0.16135	207.20047	33.43179583
17187	17004	0.26758	1676.13647	448.5005966
17187	17300	0.23498	1696.18848	398.570369
17188	17186	0.16135	198.88036	32.08934609
17188	17207	0.05358	207.20047	11.10180118
17190	16943	0.42897	640.76721	274.8699101
17190	17277	0.19863	651.48328	129.4041239
17191	17171	0.02621	764.39636	20.0348286
17191	17247	0.12658	776.58496	98.30012424
17199	17038	0.17976	8204.33984	1474.81213
17199	17575	0.77609	8320.02734	6457.090018
17200	17270	0.15455	21247.95313	3283.871156
17200	17299	0.20829	4970.23828	1035.250931
17201	16991	0.34983	24730.71289	8651.54529
17205	17145	0.11273	2719.23730	306.5396208
17205	17214	0.00893	2157.76343	19.26882743
17207	17188	0.05358	198.88036	10.65600969
17207	17230	0.05304	207.20047	10.98991293

17214	17205	0.00893	2719.23730	24.28278909
17214	17234	0.04745	2157.76343	102.3858748
17219	17184	0.09434	4695.04980	442.9309981
17219	17221	0.24839	260.42764	64.6876215
17219	17261	0.06921	4149.08057	287.1578662
17221	17219	0.24839	253.71475	63.02020675
17221	17262	0.06698	260.42764	17.44344333
17225	17227	0.12825	67.27341	8.627814833
17225	17294	0.12070	66.58286	8.036551202
17227	17225	0.12825	66.58286	8.539251795
17227	17228	0.04068	67.27341	2.736682319
17228	17227	0.04068	66.58286	2.708590745
17228	17229	0.06551	67.27341	4.407081089
17229	380	0.11829	4.41539	0.522296483
17229	399	0.13082	467.58151	61.16901314
17229	17228	0.06551	66.58286	4.361843159
17229	17231	0.07447	386.53009	28.7848958
17230	17207	0.05304	198.88036	10.54861429
17230	17263	0.05358	207.20047	11.10180118
17231	17229	0.07447	395.76349	29.4725071
17231	17232	0.02689	386.53009	10.39379412
17232	17231	0.02689	395.76349	10.64208025
17232	17233	0.06964	386.53009	26.91795547
17233	17232	0.06964	395.76349	27.56096944
17233	17234	0.05033	386.53009	19.45405943
17234	17214	0.04745	2719.23730	129.0278099
17234	17233	0.05033	395.76349	19.91877645
17234	17237	0.08900	0.00000	0
17234	17289	0.11273	1841.84460	207.6311418
17237	17234	0.08900	0.00000	0
17237	17238	0.05378	0.00000	0
17238	17237	0.05378	0.00000	0
17238	17239	0.05102	0.00000	0
17239	397	0.11832	1.57258	0.186067666
17239	398	0.18488	1.60941	0.297547721
17239	17238	0.05102	0.00000	0
17242	17135	0.20068	973.83887	195.4299844
17242	30023	0.09584	990.07184	94.88848515
17244	1970	0.47216	192.92850	91.09312056
17244	17125	0.23179	1872.81616	434.1000577
17244	17412	0.26043	1535.73792	399.9522265
17245	376	0.05663	304.98932	17.27154519
17245	17401	0.17582	309.77780	54.4651328
17246	11248	0.02433	770.99524	18.75831419
17247	473	0.22648	552.42120	125.1123534
17247	477	0.24762	58.15466	14.40025691
17247	17191	0.12658	764.39636	96.75729125
17247	17416	0.25252	180.16159	45.49440471
17248	477	0.25242	257.29309	64.94592178
17248	481	0.21830	27.88318	6.086898194
17248	17172	0.15356	2155.32080	330.971062
17248	17418	0.25489	2368.98389	603.8303037
17261	383	0.14916	263.62775	39.32271519
17261	17219	0.06921	4445.72852	307.6888709

17261	17274	0.03516	3897.16235	137.0242282
17262	404	0.12481	358.57559	44.75381939
17262	17221	0.06698	253.71475	16.99381396
17262	17295	0.06586	96.55733	6.359265754
17263	383	0.12460	386.26648	48.12880341
17263	400	0.11427	215.41702	24.61570288
17263	17230	0.05358	198.88036	10.65600969
17263	17282	0.05302	95.61635	5.069578877
17270	17316	0.07868	21247.95313	1671.788952
17271	17201	0.15512	24730.71289	3836.228183
17273	395	0.12997	741.49017	96.37147739
17273	17163	0.25307	582.53448	147.4220009
17273	29983	0.03260	271.40494	8.847801044
17274	389	0.12984	531.27356	68.98055903
17274	17261	0.03516	3922.35278	137.9099237
17274	17340	0.11051	3365.88892	371.9643845
17277	17190	0.19863	640.76721	127.2755909
17277	17451	0.24816	651.48328	161.6720908
17282	17263	0.05302	377.97696	20.04033842
17282	17303	0.03069	95.61635	2.934465782
17289	380	0.22824	554.72821	126.6111667
17289	397	0.21096	359.34604	75.8076406
17289	17234	0.11273	2412.55200	271.966987
17289	17318	0.04578	1324.68469	60.64406511
17294	380	0.22803	262.42734	59.84130634
17294	17225	0.12070	67.27341	8.119900587
17294	17333	0.05961	276.48331	16.48117011
17295	389	0.12129	2.66776	0.32357261
17295	17262	0.06586	98.14793	6.46402267
17295	17357	0.13867	93.88956	13.01966529
17299	17319	0.05822	1523.45667	88.69564733
17299	29985	0.03159	4970.23828	157.0098273
17300	17187	0.23498	1676.13647	393.8585477
17300	17466	0.25335	1696.18848	429.7293514
17301	17302	0.02276	1891.09875	43.04140755
17301	17323	0.03515	31.22678	1.097621317
17301	30023	0.03342	973.83887	32.54569504
17302	17301	0.02276	299.25705	6.811090458
17302	26342	0.01396	3795.29907	52.98237502
17302	30014	0.15863	1891.09875	299.9849947
17303	17282	0.03069	377.97696	11.6001129
17303	17328	0.03628	95.61635	3.468961178
17308	17271	0.07135	4201.10840	299.7490843
17311	17271	0.07254	20529.60547	1489.217581
17316	17332	0.01451	21247.95313	308.3077999
17318	17289	0.04578	1857.04163	85.01536582
17318	17390	0.08762	1324.68469	116.0688725
17319	17336	0.01730	1523.45667	26.35580039
17320	17308	0.01004	4201.10840	42.17912834
17321	17311	0.01227	20529.60547	251.8982591
17322	1660	0.79132	44.42765	35.156488
17322	1812	0.37828	43.02570	16.2757618
17322	17069	0.41926	181.49155	76.09214725
17322	17625	0.59628	143.64059	85.65001101

17323	17301	0.03515	1606.83545	56.48026607
17323	17338	0.01853	3826.52588	70.90552456
17328	17303	0.03628	377.97696	13.71300411
17328	17369	0.06642	95.61635	6.350837967
17332	17388	0.07256	21247.95313	1541.751479
17333	17294	0.05961	329.70074	19.65346111
17333	17379	0.06585	276.48331	18.20642596
17336	17388	0.06820	1523.45667	103.8997449
17338	17323	0.01853	1606.83545	29.77466089
17338	17341	0.04685	4201.10840	196.8219285
17338	17620	0.58826	962.48083	566.1889731
17340	17274	0.11051	3398.41797	375.5591699
17340	17360	0.03796	3365.88892	127.7691434
17341	17320	0.06661	4201.10840	279.8358305
17341	17338	0.04685	1549.13025	72.57675221
17346	17347	0.25198	1240.89905	312.6817426
17346	17348	0.42735	1276.29419	545.4243221
17347	388	0.63274	11.04740	6.990131876
17347	393	0.28413	53.05627	15.074878
17347	17346	0.25198	1276.29419	321.60061
17347	17351	0.24239	1262.31799	305.9732576
17348	394	0.50112	205.02832	102.7437917
17348	1851	0.98088	157.46516	154.4544261
17348	17346	0.42735	1240.89905	530.298209
17348	17358	0.37803	1135.27490	429.1679704
17349	17350	0.04137	1262.31799	52.22209525
17349	17351	0.04346	1298.03845	56.41275104
17350	17349	0.04137	1298.03845	53.69985068
17350	17354	0.06689	1262.31799	84.43645035
17351	17347	0.24239	1298.03845	314.6315399
17351	17349	0.04346	1262.31799	54.86033985
17352	17354	0.03103	1328.35730	41.21892702
17352	17355	0.05033	1288.30396	64.84033831
17353	30011	0.00465	470.47470	2.187707355
17354	391	0.17443	78.89302	13.76130948
17354	405	0.05273	174.42052	9.19719402
17354	17350	0.06689	1298.03845	86.82579192
17354	17352	0.03103	1288.30396	39.97607188
17355	17352	0.05033	1328.35730	66.85622291
17355	17356	0.04137	1288.30396	53.29713483
17356	17355	0.04137	1328.35730	54.9541415
17356	17357	0.04068	1288.30396	52.40820509
17357	17295	0.13867	95.41392	13.23104829
17357	17356	0.04068	1328.35730	54.03757496
17357	17359	0.08360	1318.36377	110.2152112
17358	17348	0.37803	1096.35547	414.4552583
17358	17363	0.19652	1135.27490	223.1042233
17359	389	0.13950	276.00366	38.50251057
17359	390	0.08415	10.99855	0.925527983
17359	17357	0.08360	1359.94141	113.6911019
17359	17360	0.10464	1402.14429	146.7203785
17360	17340	0.03796	3398.41797	129.0039461
17360	17359	0.10464	1443.08154	151.0040523
17360	17364	0.07446	2260.01733	168.2808904

17360	17432	0.06083	3724.45581	226.5586469
17361	17071	0.48473	1353.83301	656.2434749
17361	17589	0.49987	1301.47314	650.5673785
17362	17046	0.49145	444.80585	218.599835
17362	17602	0.50829	471.83441	239.8287123
17363	17358	0.19652	1096.35547	215.455777
17363	17366	0.09515	1135.27490	108.0214067
17364	17360	0.07446	2267.27881	168.8215802
17364	17365	0.05102	2260.01733	115.3060842
17365	383	0.18843	140.14427	26.4073848
17365	385	0.28101	776.10272	218.0926253
17365	17364	0.05102	2267.27881	115.6765649
17365	17368	0.08344	2908.00708	242.6441108
17366	17363	0.09515	1096.35547	104.318223
17366	17370	0.37980	1135.27490	431.177407
17368	17365	0.08344	2903.41162	242.2606656
17368	17369	0.06481	2908.00708	188.4679389
17369	17328	0.06642	377.97696	25.10522968
17369	17368	0.06481	2903.41162	188.1701071
17369	17371	0.06758	3051.66455	206.2314903
17369	17435	0.06809	311.93158	21.23942128
17370	1849	0.50344	47.71333	24.02079886
17370	1852	0.96631	138.75105	134.0765271
17370	17366	0.37980	1096.35547	416.3958075
17370	17382	0.52898	1098.84595	581.2675306
17371	17369	0.06758	3334.85938	225.3697969
17371	17372	0.03241	3051.66455	98.90444807
17372	400	0.18568	701.94147	130.3364921
17372	407	0.10138	344.50143	34.92555497
17372	17371	0.03241	3334.85938	108.0827925
17372	17377	0.03310	3544.99219	117.3392415
17375	17377	0.06688	3823.44214	255.7118103
17375	17378	0.03999	3859.56201	154.3438848
17375	17437	0.06920	330.69385	22.88401442
17377	17372	0.03310	3823.44214	126.5559348
17377	17375	0.06688	3544.99219	237.0890777
17378	17375	0.03999	4145.73145	165.7878007
17378	17379	0.02827	3859.56201	109.109818
17379	384	0.22079	280.56815	61.94664184
17379	17333	0.06585	329.70074	21.71079373
17379	17378	0.02827	4145.73145	117.1998281
17379	17383	0.13516	3259.56152	440.562335
17381	17109	0.46600	1590.70288	741.2675421
17381	17601	0.50018	1843.63916	922.151435
17382	17027	0.54059	2528.97949	1367.141022
17382	17370	0.52898	1061.32581	561.420127
17382	17396	0.71365	2382.94189	1700.58648
17382	17876	1.94343	764.98511	1486.695012
17383	17379	0.13516	3590.81543	485.3346135
17383	17385	0.02827	3259.56152	92.14780417
17384	17051	0.50259	17.93837	9.015645378
17384	17611	0.50202	18.62707	9.351161681
17385	17383	0.02827	3590.81543	101.5123522
17385	17386	0.15375	3520.78076	541.3200419

17385	17487	0.18694	457.12857	85.45561488
17386	408	0.18395	179.74191	33.06352434
17386	17385	0.15375	3861.46997	593.7010079
17386	17390	0.14204	3713.74854	527.5008426
17388	17455	0.10656	22771.41016	2426.521467
17389	17321	0.07978	20529.60547	1637.851924
17390	17318	0.08762	1857.04163	162.7139876
17390	17386	0.14204	4041.21191	574.0137397
17390	17391	0.03587	3551.96216	127.4088827
17390	17510	0.24330	1098.54504	267.2760082
17391	17390	0.03587	4354.48877	156.1955122
17391	17394	0.07724	3551.96216	274.3535572
17392	10176	0.08381	953.93939	79.94966028
17392	17577	0.01906	4312.95557	82.20493316
17394	17391	0.07724	4354.48877	336.3407126
17394	17395	0.08067	3551.96216	286.5367874
17395	378	0.24574	76.55443	18.81248563
17395	17394	0.08067	4354.48877	351.2766091
17395	17398	0.09791	3475.40771	340.2771689
17396	1874	0.73748	66.59573	49.11301896
17396	17382	0.71365	2537.72388	1811.046647
17396	17439	0.31527	2380.76782	750.5846706
17397	17055	0.50530	1924.28394	972.3406749
17397	17612	0.49912	2022.68018	1009.560131
17398	17395	0.09791	4248.67188	415.9874638
17398	17400	0.08274	3475.40771	287.5552339
17400	17398	0.08274	4248.67188	351.5351114
17400	17401	0.03241	4036.62134	130.8268976
17400	17514	0.24886	728.99280	181.4171482
17401	17245	0.17582	304.98932	53.62322224
17401	17400	0.03241	4797.83350	155.4977837
17401	17402	0.06274	4130.09424	259.1221126
17402	17401	0.06274	4886.51807	306.5801437
17402	17403	0.11675	4130.09424	482.1885025
17403	17402	0.11675	4886.51807	570.5009847
17403	17404	0.06528	4130.09424	269.612552
17404	17403	0.06528	4886.51807	318.9918996
17404	17405	0.07130	4130.09424	294.4757193
17405	377	0.19468	185.32193	36.07847333
17405	395	0.19967	162.00372	32.34728277
17405	17404	0.07130	4886.51807	348.4087384
17405	30012	0.15047	4076.59888	613.4058335
17407	17353	0.10723	0.00000	0
17412	17244	0.26043	1913.48938	498.3300392
17412	17641	0.50642	1535.73792	777.7283974
17413	16712	1.52401	1246.96875	1900.392845
17413	17839	1.50328	1225.57263	1842.378823
17414	16809	1.06389	906.67841	964.6060936
17414	17615	0.47352	834.91071	395.3469194
17415	16877	0.98094	919.20526	901.6852077
17415	17653	0.52011	837.59058	435.6392366
17416	1800	0.54895	180.16159	98.89970483
17416	17247	0.25252	179.25604	45.26573522
17418	17248	0.25489	1954.40845	498.1591698

17418	17521	0.23695	2368.98389	561.3307327
17429	17024	0.60259	762.97620	459.7618284
17429	17501	0.17571	1181.42761	207.5886454
17432	17360	0.06083	3790.66064	230.5858867
17432	17447	0.04770	3724.45581	177.6565421
17435	17369	0.06809	306.50165	20.86969735
17435	17443	0.03400	311.93158	10.60567372
17437	17375	0.06920	322.97421	22.34981533
17437	17445	0.03246	330.69385	10.73432237
17439	17396	0.31527	2527.78247	796.9339793
17439	17457	0.05783	2380.76782	137.679803
17443	407	0.11142	70.75269	7.88326472
17443	17435	0.03400	306.50165	10.4210561
17443	17464	0.03076	383.87677	11.80804945
17445	407	0.08838	3.67531	0.324823898
17445	17437	0.03246	322.97421	10.48374286
17445	17465	0.03175	334.52838	10.62127607
17447	390	0.08035	136.04150	10.93093453
17447	17432	0.04770	3790.66064	180.8145125
17447	17477	0.06337	3654.16138	231.5642067
17451	1741	0.55114	125.04976	68.91992473
17451	17277	0.24816	640.76721	159.0127908
17451	17541	0.24928	555.86554	138.5661618
17454	17341	0.15666	1549.13025	242.686745
17454	17389	0.10600	20529.60547	2176.13818
17455	17916	1.92235	22771.41016	43774.62032
17457	17439	0.05783	2527.78247	146.1816602
17457	17472	0.07631	2380.76782	181.6763923
17464	17443	0.03076	377.25433	11.60434319
17464	17488	0.06195	383.87677	23.7811659
17465	17445	0.03175	326.64954	10.3711229
17465	17490	0.06083	334.52838	20.34936136
17466	17300	0.25335	1676.13647	424.6491747
17466	17496	0.07725	1696.18848	131.0305601
17472	17457	0.07631	2527.78247	192.8950803
17472	17492	0.09739	2380.76782	231.862978
17477	391	0.27506	320.56165	88.17368745
17477	17447	0.06337	3720.41113	235.7624533
17477	17506	0.06530	3416.69189	223.1099804
17487	384	0.11645	361.58337	42.10638344
17487	408	0.11673	98.49897	11.49778477
17487	17385	0.18694	447.69327	83.69177989
17488	17464	0.06195	377.25433	23.37090574
17488	17511	0.06027	383.87677	23.13625293
17490	401	0.20518	334.52838	68.63853301
17490	17465	0.06083	326.64954	19.87009152
17492	17472	0.09739	2527.78247	246.1807348
17492	17497	0.04467	2380.76782	106.3488985
17496	17466	0.07725	1676.13647	129.4815423
17496	17684	0.42221	1696.18848	716.1477381
17497	17492	0.04467	2527.78247	112.9160429
17497	17563	0.33887	2380.76782	806.7707912
17501	17429	0.17571	762.97620	134.0625481
17501	17529	0.06939	1181.42761	81.97926186

17506	17477	0.06530	3490.20020	227.9100731
17506	17519	0.03684	3416.69189	125.8709292
17510	17390	0.24330	1155.83899	281.2156263
17510	17548	0.12919	1098.54504	141.9210337
17511	17488	0.06027	377.25433	22.73711847
17511	17522	0.02844	383.87677	10.91745534
17514	378	0.19600	226.16451	44.32824396
17514	17400	0.24886	741.04449	184.4163318
17514	17515	0.04275	507.48169	21.69484225
17515	17514	0.04275	551.61407	23.58150149
17515	17524	0.04062	507.48169	20.61390625
17519	385	0.13339	689.85114	92.01924356
17519	17506	0.03684	3490.20020	128.5789754
17519	17539	0.08483	3298.67334	279.8264594
17521	1801	0.48994	18.20521	8.919460587
17521	17418	0.23695	1954.40845	463.0970822
17521	17632	0.25562	2362.16260	603.8160038
17522	385	0.14151	22.49074	3.182664617
17522	401	0.14415	206.04446	29.70130891
17522	17511	0.02844	377.25433	10.72911315
17522	17546	0.08322	309.12277	25.72519692
17524	406	0.09046	324.49802	29.35409089
17524	17515	0.04062	551.61407	22.40656352
17524	17618	0.22122	274.08084	60.63216342
17529	1627	0.12022	962.81702	115.7498621
17529	17501	0.06939	762.97620	52.94291852
17529	17544	0.06547	683.67676	44.76031748
17539	17519	0.08483	3385.93701	287.2290366
17539	17564	0.07703	3298.67334	254.0968074
17541	17451	0.24928	545.01642	135.8616932
17541	17591	0.14077	555.86554	78.24919207
17544	17529	0.06547	287.67801	18.83427931
17544	17559	0.06101	683.67676	41.71111913
17546	17522	0.08322	306.90445	25.54058833
17546	17560	0.05692	309.12277	17.59526807
17548	378	0.21902	45.00650	9.85732363
17548	381	0.15866	1220.78442	193.6896561
17548	17510	0.12919	1155.83899	149.3228391
17548	17600	0.12304	545.82971	67.15888752
17559	17544	0.06101	287.67801	17.55123539
17559	17649	0.12758	683.67676	87.22348104
17560	17546	0.05692	306.90445	17.46900129
17560	17573	0.02066	309.12277	6.386476428
17563	17497	0.33887	2527.78247	856.5896456
17563	17566	0.03424	478.84286	16.39557953
17563	17569	0.14561	2192.54297	319.2561819
17564	17539	0.07703	3385.93701	260.8187279
17564	17578	0.04105	3298.67334	135.4105406
17566	1875	1.37521	478.84286	658.5094895
17566	17563	0.03424	481.53705	16.48782859
17567	1881	1.07511	52.31767	56.24725019
17567	17569	0.34611	2336.86304	808.8116668
17567	17575	0.99790	2140.22534	2135.730867
17569	17563	0.14561	2336.86304	340.2706273

17569	17567	0.34611	2192.54297	758.8610473
17573	17560	0.02066	306.90445	6.340645937
17573	17616	0.06977	309.12277	21.56749566
17575	17199	0.77609	8204.33984	6367.306106
17575	17567	0.99790	2286.35205	2281.550711
17575	17579	0.02421	10150.41895	245.7416428
17577	10192	0.00565	142.23257	0.803614021
17577	10583	0.19429	4170.72314	810.3297989
17578	392	0.23049	46.06159	10.61673588
17578	17564	0.04105	3385.93701	138.9927143
17578	17588	0.02258	3272.33301	73.88927937
17579	1903	1.72689	268.20392	463.1586674
17579	17575	0.02421	10180.85840	246.4785819
17579	17693	0.22166	10020.25488	2221.089697
17584	2019	2.06909	0.00000	0
17584	17589	0.02382	0.00000	0
17588	17578	0.02258	3360.11914	75.87149018
17588	17659	0.08539	3272.33301	279.4245157
17589	17361	0.49987	1353.83301	676.7405067
17589	17584	0.02382	0.00000	0
17589	17805	1.00312	1301.47314	1305.533736
17591	17541	0.14077	545.01642	76.72196144
17591	17613	0.01446	555.86554	8.037815708
17600	17548	0.12304	601.88989	74.05653207
17600	17618	0.43939	213.98770	94.0240555
17600	17780	0.75732	712.05621	539.254409
17601	17381	0.50018	1590.70288	795.6377665
17601	17723	0.50408	1843.63916	929.3416278
17602	17362	0.50829	444.80585	226.0903655
17602	17729	0.50606	471.83441	238.7765215
17605	17607	0.02207	649.24506	14.32883847
17605	17626	0.35537	1064.48779	378.2870259
17607	1802	1.59691	431.90067	689.7064989
17607	17605	0.02207	1064.48779	23.49324553
17607	17609	0.01656	530.14978	8.779280357
17609	17607	0.01656	935.41632	15.49049426
17609	17630	0.56878	530.14978	301.5385919
17611	17384	0.50202	17.93837	9.005420507
17611	17728	0.50034	18.62707	9.319868204
17612	2019	1.89912	192.18134	364.9754264
17612	17397	0.49912	1924.28394	960.4486001
17612	17722	0.49688	1830.49878	909.5382338
17613	17591	0.01446	545.01642	7.880937433
17613	17663	0.08351	555.86554	46.42033125
17615	17414	0.47352	906.67841	429.3303607
17615	17701	0.24934	920.41925	229.4973358
17616	17573	0.06977	306.90445	21.41272348
17616	17662	0.08224	309.12277	25.4222566
17618	1662	0.74794	106.12281	79.37349451
17618	17524	0.22122	317.51395	70.24043602
17618	17600	0.43939	168.68779	74.11972805
17619	17622	0.44247	1186.66577	525.0640033
17619	17625	0.50402	719.08948	362.4354797
17619	17705	0.25213	65.40373	16.49024244

17620	17338	0.58826	1394.76843	820.4864766
17620	17623	0.39714	962.48083	382.2396368
17622	1660	0.67962	60.73767	41.27853529
17622	1826	0.88089	208.91933	184.0349486
17622	17619	0.44247	755.90894	334.4670287
17622	17623	0.13257	1394.76843	184.9044508
17623	17620	0.39714	1394.76843	553.9183343
17623	17622	0.13257	962.48083	127.5960836
17624	1812	0.44969	14.25871	6.4119993
17624	1814	1.04947	220.22734	231.1219865
17624	17625	0.34093	1228.68408	418.8952634
17624	17627	0.03076	672.53723	20.68724519
17625	17322	0.59628	127.43671	75.98796144
17625	17619	0.50402	1149.91052	579.5779003
17625	17624	0.34093	814.06683	277.5398044
17626	1811	0.55452	16.47931	9.138106981
17626	1813	0.39336	79.20556	31.15629908
17626	17605	0.35537	649.24506	230.722217
17626	17637	0.16033	1087.57361	174.3706769
17627	17624	0.03076	1087.57361	33.45376424
17627	17638	0.37796	672.53723	254.1921715
17628	10179	0.00882	4103.73633	36.19495443
17630	1801	0.23872	29.49262	7.040478246
17630	17609	0.56878	935.41632	532.0460945
17630	17633	0.25305	500.65717	126.6912969
17631	17632	0.04206	500.65717	21.05764057
17631	17633	0.25098	906.06854	227.4050822
17632	17521	0.25562	1947.90076	497.9223923
17632	17631	0.04206	906.06854	38.10924279
17632	17741	0.58751	2638.82715	1550.337339
17633	17630	0.25305	906.06854	229.280644
17633	17631	0.25098	500.65717	125.6549365
17637	17626	0.16033	672.53723	107.8278941
17637	17638	0.14151	1087.57361	153.9025416
17638	17627	0.37796	1087.57361	411.0593216
17638	17637	0.14151	672.53723	95.17074342
17641	17412	0.50642	1913.48938	969.0292918
17641	17710	0.33912	1535.73792	520.7994434
17643	17846	1.00312	2747.65991	2756.232609
17643	29906	0.76297	3188.02783	2432.369593
17649	17559	0.12758	287.67801	36.70196052
17649	17845	0.99831	683.67676	682.5213463
17653	17415	0.52011	919.20526	478.0878478
17653	17657	0.00783	837.59058	6.558334241
17657	17653	0.00783	919.20526	7.197377186
17657	17757	0.49943	837.59058	418.3178634
17659	17588	0.08539	3360.11914	286.9205734
17659	17660	0.12758	198.05916	25.26838763
17659	17687	0.08651	3318.73560	287.1038168
17660	386	0.04529	200.22600	9.06823554
17660	17659	0.12758	193.39920	24.67386994
17660	17661	0.03395	246.28374	8.361332973
17661	17660	0.03395	247.17357	8.391542702
17661	17662	0.09594	246.28374	23.62846202

17662	17616	0.08224	306.90445	25.23982197
17662	17661	0.09594	247.17357	23.71383231
17662	17689	0.08316	61.94921	5.151696304
17663	17613	0.08351	545.01642	45.51432123
17663	17666	0.00621	555.86554	3.451925003
17666	17663	0.00621	545.01642	3.384551968
17666	17673	0.01022	555.86554	5.680945819
17669	17670	0.07791	545.01642	42.46222928
17669	17680	0.03389	555.86554	18.83828315
17670	17669	0.07791	555.86554	43.30748422
17670	17671	0.02827	545.01642	15.40761419
17671	17670	0.02827	555.86554	15.71431882
17671	17672	0.17032	545.01642	92.82719665
17672	17671	0.17032	555.86554	94.67501877
17672	17675	0.25100	545.01642	136.7991214
17673	17666	0.01022	545.01642	5.570067812
17673	17678	0.02145	555.86554	11.92331583
17674	17675	0.01379	555.86554	7.665385797
17674	17676	0.04413	545.01642	24.05157461
17675	17672	0.25100	555.86554	139.5222505
17675	17674	0.01379	545.01642	7.515776432
17676	17674	0.04413	555.86554	24.53034628
17676	17678	0.03242	545.01642	17.66943234
17678	17673	0.02145	545.01642	11.69060221
17678	17676	0.03242	555.86554	18.02116081
17680	17669	0.03389	545.01642	18.47060647
17680	17685	0.04149	555.86554	23.06286125
17684	17496	0.42221	1676.13647	707.681579
17684	17761	0.43602	1696.18848	739.572101
17685	17680	0.04149	545.01642	22.61273127
17685	17686	0.01602	555.86554	8.904965951
17686	17685	0.01602	545.01642	8.731163048
17686	17697	0.10565	555.86554	58.7271943
17687	17659	0.08651	3411.18188	295.1013444
17687	17688	0.13056	86.02028	11.23080776
17687	17695	0.03963	3349.33594	132.7341833
17688	386	0.03980	41.45871	1.650056658
17688	17687	0.13056	83.99201	10.96599683
17688	17689	0.12539	44.80941	5.61865192
17689	387	0.14093	106.75862	15.04549232
17689	17662	0.08316	60.62072	5.041219075
17689	17688	0.12539	43.27391	5.426115575
17693	17579	0.22166	10120.01465	2243.202447
17693	17773	0.49113	10020.25488	4921.247779
17695	17687	0.03963	3443.81055	136.4782121
17695	17715	0.23218	3349.33594	777.6488185
17697	17686	0.10565	545.01642	57.58098477
17697	17708	0.51969	555.86554	288.8777625
17701	17615	0.24934	906.67841	226.0711947
17701	17724	0.24599	973.64020	239.5057528
17705	17619	0.25213	65.33946	16.47403805
17705	17912	1.24728	65.40373	81.57676435
17707	10137	0.00642	784.16223	5.034321517
17707	17816	0.01092	3172.71753	34.64607543

17708	1724	0.62660	164.82397	103.2786996
17708	17697	0.51969	545.01642	283.2395833
17708	17943	1.68691	460.20251	776.3202161
17710	1971	1.04443	240.13303	250.8021405
17710	17641	0.33912	1913.48938	648.9025185
17710	17841	0.66055	1584.97095	1046.952561
17712	10178	0.00921	0.00000	0
17712	17392	0.02046	1335.97168	27.33398057
17714	18176	0.00629	2490.25781	15.66372162
17714	19763	0.11729	844.45813	99.04649407
17715	17695	0.23218	3443.81055	799.5839335
17715	17782	0.35955	3349.33594	1204.253737
17722	17612	0.49688	1742.84241	865.9835367
17722	17819	0.50532	1830.49878	924.9876435
17723	1971	0.94806	67.39693	63.89633346
17723	17601	0.50408	1590.70288	801.8415078
17723	17731	0.50332	232.84967	117.1978959
17723	17820	0.50464	1636.33301	825.7590902
17724	17701	0.24599	887.74536	218.3764811
17724	17906	1.00517	973.64020	978.6739198
17728	17611	0.50034	17.93837	8.975284046
17728	17822	0.50314	18.62707	9.372024
17729	17602	0.50606	444.80585	225.0984485
17729	17813	0.49988	471.83441	235.8605849
17731	17723	0.50332	235.20503	118.3833957
17731	17735	0.49799	232.84967	115.9568072
17732	17712	0.01312	551.80945	7.239739984
17735	17731	0.49799	235.20503	117.1297529
17735	17827	0.50083	232.84967	116.6181002
17741	1800	0.45994	70.06641	32.22634462
17741	17632	0.58751	2629.97656	1545.137529
17741	17742	0.15860	808.86694	128.2862967
17741	17788	0.44544	2377.13501	1058.871019
17742	17741	0.15860	797.78430	126.52859
17742	17744	0.49029	808.86694	396.579372
17743	1787	1.08095	188.00342	203.2222968
17743	1788	1.45785	43.74175	63.76891024
17743	17744	0.99914	805.27460	804.5820638
17743	17747	0.99986	706.98401	706.8850322
17744	1800	0.70516	7.49030	5.281859948
17744	17742	0.49029	797.78430	391.1456644
17744	17743	0.99914	816.25891	815.5569273
17747	17743	0.99986	708.22083	708.1216791
17747	17748	0.50194	706.98401	354.863554
17748	1775	0.90519	150.66882	136.3839092
17748	17747	0.50194	708.22083	355.4843634
17748	17754	0.49436	617.20441	305.1211721
17749	17750	0.12343	500.00900	61.71611087
17749	17753	0.49987	502.91150	251.3903715
17750	1774	0.50977	389.57935	198.5958652
17750	17749	0.12343	502.91150	62.07436645
17750	17751	0.89295	616.93390	550.891126
17751	17750	0.89295	617.20441	551.1326779
17751	17752	0.22962	616.93390	141.6603621

17752	17751	0.22962	617.20441	141.7224766
17752	17754	0.25442	616.93390	156.9603228
17753	6048	0.23878	502.91150	120.085208
17753	17749	0.49987	500.00900	249.9394988
17754	17748	0.49436	616.93390	304.9874428
17754	17752	0.25442	617.20441	157.029146
17757	17657	0.49943	919.20526	459.078683
17757	17934	0.99102	1080.50647	1070.803522
17760	9900	0.04841	3172.71753	153.5912556
17761	1742	2.18581	338.52426	739.9497128
17761	17684	0.43602	1676.13647	730.8290236
17761	17765	0.05255	1773.84827	93.21572659
17762	6048	0.23880	401.91647	95.97765304
17762	17765	0.47532	404.76044	192.3907323
17765	17761	0.05255	1755.93970	92.27463124
17765	17762	0.47532	401.91647	191.0389365
17765	17769	0.01171	1426.41272	16.70329295
17769	17765	0.01171	1405.66016	16.46028047
17769	17856	0.49166	1426.41272	701.3100779
17773	17693	0.49113	10120.01465	4970.242795
17773	17863	0.59404	10020.25488	5952.432209
17780	1662	0.50598	20.45522	10.34993222
17780	1663	0.48599	100.42458	48.80534163
17780	17600	0.75732	813.41632	616.0164475
17780	17902	0.75165	631.78241	474.8792485
17782	1663	0.50819	87.05661	44.24129864
17782	1664	0.46712	51.39632	24.008249
17782	17715	0.35955	3443.81055	1238.222083
17782	17792	0.15622	3331.41724	520.4340012
17788	17741	0.44544	2378.93799	1059.674138
17788	17942	0.81458	2377.13501	1936.366636
17792	17782	0.15622	3424.55737	534.9843523
17792	17862	0.23531	3331.41724	783.9157907
17795	17797	0.29444	482.40015	142.0379002
17795	17799	0.20616	476.66846	98.26996971
17796	2013	3.26295	24.14763	78.79250931
17796	2020	1.01183	361.14838	365.4207653
17796	17798	0.31948	476.66846	152.2860396
17796	17800	0.18109	145.26488	26.30601712
17797	17795	0.29444	476.66846	140.3502614
17797	17798	0.50055	482.40015	241.4653951
17798	17796	0.31948	482.40015	154.1171999
17798	17797	0.50055	476.66846	238.5963977
17799	17795	0.20616	482.40015	99.45161492
17799	17839	0.99412	476.66846	473.8656495
17800	17796	0.18109	137.73036	24.94159089
17800	17801	0.49987	145.26488	72.61355557
17801	17800	0.49987	137.73036	68.84727505
17801	17803	0.49711	145.26488	72.2126245
17802	17803	0.50883	137.73036	70.08133908
17802	17804	0.49918	145.26488	72.5133228
17803	17801	0.49711	137.73036	68.46713926
17803	17802	0.50883	145.26488	73.91512889
17804	17802	0.49918	137.73036	68.7522411

17804	17805	0.49712	145.26488	72.21407715
17805	17589	1.00312	1353.83301	1358.056969
17805	17804	0.49712	137.73036	68.46851656
17805	17806	0.50195	773.41888	388.2176068
17805	17892	0.49875	1945.63013	970.3830273
17806	17805	0.50195	782.36310	392.707158
17806	17807	0.24753	773.41888	191.4443754
17807	17806	0.24753	782.36310	193.6583381
17807	17808	0.25097	773.41888	194.1049363
17808	17807	0.25097	782.36310	196.3496672
17808	17809	0.48884	773.41888	378.0780853
17809	17808	0.48884	782.36310	382.4503778
17809	17810	0.24821	773.41888	191.9703002
17810	17809	0.24821	782.36310	194.1903451
17810	17811	0.25097	773.41888	194.1049363
17811	2019	0.97554	1036.38501	1011.035033
17811	17810	0.25097	782.36310	196.3496672
17811	17815	0.99630	269.95688	268.9580395
17813	17729	0.49988	444.80585	222.3495483
17813	17814	0.50125	81.91117	41.05797396
17813	17818	0.50264	123.85204	62.25298939
17813	17905	0.50268	511.88672	257.3152164
17814	17813	0.50125	82.80376	41.5053847
17814	17822	0.49711	81.91117	40.71886172
17815	17811	0.99630	266.05838	265.073964
17815	17819	1.00253	269.95688	270.6398709
17816	17760	0.03431	3172.71753	108.8559385
17817	17818	0.00827	123.78171	1.023674742
17817	17824	0.18823	123.85204	23.31266949
17818	17813	0.50264	123.78171	62.21763871
17818	17817	0.00827	123.85204	1.024256371
17819	17722	0.50532	1742.84241	880.6931266
17819	17815	1.00253	266.05838	266.7315077
17819	17821	0.49849	82.65234	41.20136497
17819	17904	0.49968	2044.41541	1021.553492
17820	17723	0.50464	1381.28918	697.0537718
17820	17900	0.49736	1636.33301	813.8465859
17821	17819	0.49849	81.76618	40.75962307
17821	17822	0.50056	82.65234	41.37245531
17822	17728	0.50314	17.93837	9.025511482
17822	17814	0.49711	82.80376	41.16257713
17822	17821	0.50056	81.76618	40.92887906
17822	17907	0.50092	18.47564	9.254817589
17823	70	4.50000	123.85204	557.33418
17823	17824	0.30268	123.78171	37.46624798
17824	17817	0.18823	123.78171	23.29943127
17824	17823	0.30268	123.85204	37.48753547
17825	17454	1.40169	22078.73633	30947.54393
17827	1995	1.52969	181.18248	277.1530278
17827	17735	0.50083	235.20503	117.7977352
17827	17911	0.49803	51.66719	25.73181064
17832	17941	0.00656	1301.87195	8.540279992
17832	19757	0.10445	1302.03296	135.9973427
17833	1814	0.51333	1.84733	0.948289909

17833	1826	0.50960	1.80482	0.919736272
17839	17413	1.50328	1246.96875	1874.543183
17839	17799	0.99412	482.40015	479.5636371
17839	17864	0.24158	1060.70325	256.2446911
17841	17710	0.66055	1960.91968	1295.285495
17841	17925	0.49998	1584.97095	792.4537756
17845	17649	0.99831	287.67801	287.1918342
17845	17931	0.51001	683.67676	348.6819844
17846	17643	1.00312	3188.02783	3197.974477
17846	17972	0.70556	2747.65991	1938.638926
17856	1767	0.72517	96.89468	70.2651151
17856	17769	0.49166	1405.66016	691.1068743
17856	17945	0.50003	1397.42029	698.7520676
17862	1850	0.29356	76.01691	22.3155241
17862	17792	0.23531	3424.55737	805.8325947
17862	17887	0.27154	3255.40039	883.9714219
17863	1875	1.63424	227.10843	371.1496806
17863	17773	0.59404	10120.01465	6011.693503
17863	17875	0.16641	10248.37109	1705.431433
17864	1995	1.56827	395.05994	619.5606521
17864	17839	0.24158	1087.83105	262.7982251
17864	17926	0.26064	917.89301	239.2396341
17871	17832	0.00648	1302.03296	8.437173581
17871	17941	0.00492	1005.28827	4.946018288
17875	17863	0.16641	10347.12305	1721.864747
17875	17999	0.49572	10248.37109	5080.322517
17876	1855	0.56602	20.01036	11.32626397
17876	1875	1.34493	2.06590	2.778490887
17876	17382	1.94343	820.19244	1593.986594
17876	18000	0.49761	747.07855	371.7537573
17877	1671	0.48146	64.54859	31.07756414
17877	1851	0.98529	37.54138	36.9891463
17877	17878	0.52747	89.52387	47.22115571
17877	17879	0.21540	188.20390	40.53912006
17878	1852	1.10089	29.77934	32.78377761
17878	1855	0.70148	60.39791	42.36792591
17878	17877	0.52747	88.88319	46.88321623
17879	17877	0.21540	189.05331	40.72208297
17879	17880	0.31854	188.20390	59.95047031
17880	17879	0.31854	189.05331	60.22104137
17880	17881	0.21220	188.20390	39.93686758
17881	1854	0.12426	39.94284	4.963297298
17881	17880	0.21220	189.05331	40.11711238
17881	17882	0.22562	226.75281	51.15996899
17882	17881	0.22562	228.23531	51.49445064
17882	17884	0.22386	226.75281	50.76088405
17884	1850	0.30154	139.71503	42.12967015
17884	1853	0.14127	92.28321	13.03684908
17884	17882	0.22386	228.23531	51.0927565
17884	17885	0.05607	452.85855	25.3917789
17885	17884	0.05607	454.31174	25.47325926
17885	17886	0.07791	452.85855	35.28220963
17886	17885	0.07791	454.31174	35.39542766
17886	17887	0.14549	452.85855	65.88639044

17887	17862	0.27154	3354.84668	910.9750675
17887	17886	0.14549	454.31174	66.09781505
17887	17889	0.50397	2874.72632	1448.775823
17887	17939	0.13888	5781.66943	802.9582504
17889	1663	0.67007	15.50635	10.39033994
17889	1665	0.24476	119.68208	29.2933859
17889	17887	0.50397	2916.06567	1469.609616
17889	17902	0.49075	2954.58374	1449.96197
17892	2020	2.71900	205.71407	559.3365563
17892	17805	0.49875	1981.51111	988.2786661
17892	18024	0.50212	1739.91614	873.6466922
17900	17820	0.49736	1381.28918	686.9979866
17900	18037	0.50352	1636.33301	823.9263972
17902	17780	0.75165	734.40839	552.0180663
17902	17889	0.49075	2996.03052	1470.301978
17902	17914	0.51459	4184.31592	2153.207129
17902	17973	0.24403	1966.98877	480.0042695
17904	17819	0.49968	1953.74658	976.2480911
17904	18031	0.49969	2044.41541	1021.573936
17905	17813	0.50268	484.03589	243.3151612
17905	18038	0.50155	511.88672	256.7367844
17906	17724	1.00517	887.74536	892.3350035
17906	18214	1.00126	973.64020	974.8669867
17907	17822	0.50092	17.79338	8.91305991
17907	18036	0.49921	18.47564	9.223224244
17911	17827	0.49803	51.67795	25.73716944
17911	18039	0.49801	51.66719	25.73077729
17912	17705	1.24728	65.33946	81.49660167
17912	17974	0.24934	65.40373	16.30776604
17914	1662	0.76618	8.01557	6.141369423
17914	1834	0.57896	148.45016	85.94670463
17914	17902	0.51459	4361.74121	2244.508409
17914	17915	0.39508	4337.32373	1713.589859
17915	17914	0.39508	4517.54102	1784.790106
17915	17916	0.09171	4337.32373	397.7759593
17916	17915	0.09171	4517.54102	414.3036869
17916	17917	0.00967	4195.67480	40.57217532
17916	17976	0.24606	18537.48242	4561.332924
17917	17825	0.52177	22078.73633	11520.02225
17917	17916	0.00967	141.96475	1.372799133
17925	17841	0.49998	1960.91968	980.4206216
17925	18054	0.49494	1584.97095	784.465522
17926	17864	0.26064	939.44232	244.8562463
17926	18052	0.49100	917.89301	450.6854679
17931	17845	0.51001	287.67801	146.7186619
17931	17966	0.16724	683.67676	114.3381013
17934	17757	0.99102	919.20526	910.9507968
17934	17937	0.00951	1080.50647	10.27561653
17937	17934	0.00951	919.20526	8.741642023
17937	18262	0.99213	1080.50647	1072.002884
17939	1853	0.25551	0.00000	0
17939	17887	0.13888	5841.22949	811.2299516
17939	17965	0.11006	5781.66943	636.3305375
17941	18062	0.00843	2307.16016	19.44936015

17942	1788	0.97918	323.77582	317.0348074
17942	17788	0.81458	2378.93799	1937.835308
17942	17982	0.21841	1694.81567	370.1646905
17942	18245	0.93195	605.31586	564.1241157
17943	17708	1.68691	449.57385	758.3906233
17943	17970	0.12679	460.20251	58.34907624
17945	17856	0.50003	1375.64197	687.8622543
17945	18083	0.50243	1397.42029	702.1058763
17954	1671	0.61835	9.00308	5.567054518
17954	17955	0.04563	8.97074	0.409334866
17955	17954	0.04563	9.00308	0.41081054
17955	17956	0.21936	8.97074	1.967821526
17956	314	0.39279	195.30919	76.71549674
17956	1854	0.13123	15.62623	2.050630163
17956	17955	0.21936	9.00308	1.974915629
17956	17962	0.21778	216.19437	47.0828099
17958	17964	0.07378	228.84918	16.8844925
17958	17965	0.11516	228.46024	26.30948124
17960	17961	0.02965	208.01903	6.16776424
17960	17962	0.19029	207.76971	39.53649812
17961	17960	0.02965	207.76971	6.160371902
17961	17963	0.07653	208.01903	15.91969637
17962	17956	0.21778	216.24713	47.09429997
17962	17960	0.19029	208.01903	39.58394122
17962	18002	0.24416	16.24216	3.965685786
17963	17961	0.07653	207.76971	15.90061591
17963	17964	0.01793	208.01903	3.729781208
17964	304	0.40978	0.90237	0.369773179
17964	1853	0.12805	33.45824	4.284327632
17964	17958	0.07378	228.46024	16.85579651
17964	17963	0.01793	207.76971	3.7253109
17965	1665	0.50629	46.19276	23.38693246
17965	17939	0.11006	5841.22949	642.8857177
17965	17958	0.11516	228.84918	26.35427157
17965	17997	0.20431	5671.02295	1158.646699
17966	17931	0.16724	287.67801	48.11127039
17966	17985	0.08868	683.67676	60.62845508
17970	1704	4.47126	8.67593	38.79233877
17970	1711	2.21049	27.41789	60.60697167
17970	17943	0.12679	449.57385	57.00146844
17970	17993	0.17970	449.76764	80.82324491
17972	1973	0.70688	151.46410	107.066943
17972	17846	0.70556	3188.02783	2249.344916
17972	18056	0.28916	2642.62500	764.141445
17973	1665	0.48889	2.62049	1.281131356
17973	1834	0.60264	16.35588	9.856707523
17973	17902	0.24403	1933.63599	471.8651906
17973	18032	0.25653	1953.27502	501.0736409
17974	17912	0.24934	65.33946	16.29174096
17974	18112	0.53914	65.40373	35.26176699
17975	17917	0.24493	18025.02539	4414.869469
17976	18841	1.75147	18537.48242	32467.84433
17982	17942	0.21841	1819.04907	397.2985074
17982	18055	0.28158	1694.81567	477.2261964

17985	1629	0.54104	57.74982	31.24496261
17985	1972	0.46551	42.33855	19.70901841
17985	17966	0.08868	287.67801	25.51128593
17985	18060	0.24316	646.68799	157.2486516
17993	17970	0.17970	439.04922	78.89714483
17993	18090	0.40939	449.76764	184.1303741
17997	17965	0.20431	5730.98730	1170.898015
17997	18007	0.04521	5671.02295	256.3869476
17999	1904	0.49934	76.66578	38.28229059
17999	17875	0.49572	10347.12305	5129.275838
17999	18152	0.50834	10244.62695	5207.753664
18000	17876	0.49761	802.16083	399.1632506
18000	18150	0.50149	747.07855	374.652422
18002	17962	0.24416	16.54425	4.03944408
18002	18006	0.12838	16.24216	2.085168501
18006	18002	0.12838	16.54425	2.123950815
18006	18074	0.14248	16.24216	2.314182957
18007	17997	0.04521	5730.98730	259.0979358
18007	18059	0.09153	5671.02295	519.0687306
18024	17892	0.50212	1770.25977	888.8828357
18024	18509	0.99865	1739.91614	1737.567253
18031	17904	0.49969	1953.74658	976.2676286
18031	18204	0.49239	2044.41541	1006.649704
18032	17973	0.25653	1919.87231	492.5048437
18032	18100	0.24155	1953.27502	471.8135811
18036	17907	0.49921	17.79338	8.88263323
18036	18207	0.49584	18.47564	9.160961338
18037	1975	1.01340	30.71726	31.12887128
18037	17900	0.50352	1381.28918	695.5067279
18037	18536	1.00707	1605.61572	1616.967423
18038	17905	0.50155	484.03589	242.7682006
18038	18216	0.50155	511.88672	256.7367844
18039	17911	0.49801	51.67795	25.73613588
18039	18217	0.50084	51.66719	25.87699544
18052	17926	0.49100	939.44232	461.2661791
18052	18240	0.50670	917.89301	465.0963882
18054	17925	0.49494	1960.91968	970.5375864
18054	18184	0.44893	1584.97095	711.5410086
18055	17982	0.28158	1819.04907	512.2078371
18055	18110	0.29981	1694.81567	508.122686
18056	17972	0.28916	3074.98608	889.1629749
18056	18246	0.50297	2642.62500	1329.161096
18059	18007	0.09153	5730.98730	524.5572676
18059	18085	0.10010	5671.02295	567.6693973
18060	17985	0.24316	189.77972	46.14683672
18060	18538	0.96973	646.68799	627.1127445
18062	18070	0.00467	916.29950	4.279118665
18062	30214	0.00618	1390.86072	8.59551925
18070	18175	0.00924	1418.02576	13.10255802
18074	304	0.18856	84.92841	16.01410099
18074	314	0.33727	102.59879	34.6034939
18074	18006	0.14248	16.54425	2.35722474
18074	18115	0.20932	196.12029	41.0518991
18083	17945	0.50243	1375.64197	691.163795

18083	18101	0.12218	1397.42029	170.736811
18085	291	0.24261	2088.98389	506.8083816
18085	304	0.18716	358.43054	67.08385987
18085	18059	0.10010	5730.98730	573.6718287
18085	18094	0.06567	4852.27539	318.6489249
18090	17993	0.40939	439.04922	179.7423602
18090	18092	0.04830	64.52459	3.116537697
18090	18123	0.23473	414.27139	97.24192337
18092	1712	1.50321	64.52459	96.99400893
18092	18090	0.04830	63.70615	3.077007045
18094	18085	0.06567	4899.67383	321.7615804
18094	18109	0.07319	4852.27539	355.1380358
18100	1666	0.24387	77.24397	18.83748696
18100	1834	0.52154	46.65323	24.33152557
18100	18032	0.24155	1919.87231	463.7451565
18100	18209	0.25905	1922.32642	497.9786591
18101	18083	0.12218	1375.64197	168.0759359
18101	18114	0.05290	1397.42029	73.92353334
18109	18094	0.07319	4899.67383	358.6071276
18109	18137	0.14068	4852.27539	682.6181019
18110	18055	0.29981	1819.04907	545.3691017
18110	18248	0.28728	1694.81567	486.8866457
18112	17974	0.53914	65.33946	35.22711646
18112	18116	0.02374	65.40373	1.55268455
18114	18101	0.05290	1375.64197	72.77146021
18114	18136	0.12717	1397.42029	177.7099383
18115	18074	0.20932	193.45340	40.49366569
18115	18138	0.12504	196.12029	24.52288106
18116	1737	0.51622	65.40373	33.7627135
18116	18112	0.02374	65.33946	1.55115878
18123	18090	0.23473	404.37140	94.91809872
18123	18257	0.32547	414.27139	134.8329093
18136	18114	0.12717	1375.64197	174.9403893
18136	18174	0.04707	1397.42029	65.77657305
18137	18109	0.14068	4899.67383	689.2861144
18137	18170	0.03014	4852.27539	146.2475803
18138	18115	0.12504	193.45340	24.18941314
18138	18147	0.01116	196.12029	2.188702436
18141	18143	0.24890	495.83905	123.4143395
18141	18145	0.46200	447.32666	206.6649169
18143	18141	0.24890	447.32666	111.3396057
18143	18146	0.75291	495.83905	373.3221791
18145	18141	0.46200	495.83905	229.0776411
18145	18149	0.24480	447.32666	109.5055664
18146	1875	1.18521	158.59988	187.9741638
18146	18143	0.75291	447.32666	336.7967156
18146	18148	0.24547	657.08472	161.2945862
18147	18138	0.01116	193.45340	2.158939944
18147	18171	0.01820	196.12029	3.569389278
18148	18146	0.24547	605.92651	148.7367804
18148	18150	0.75221	657.08472	494.2656972
18149	18145	0.24480	495.83905	121.3813994
18149	18152	0.25726	447.32666	115.0792566
18150	18000	0.50149	802.16083	402.2756346

18150	18148	0.75221	605.92651	455.7839801
18150	18448	0.50096	440.62628	220.7361412
18150	30201	0.51911	1283.35718	666.2035457
18152	17999	0.50834	10343.52637	5258.028195
18152	18149	0.25726	495.83905	127.559554
18152	18178	0.99657	500.66101	498.9437427
18152	18457	0.50367	9955.74805	5014.41162
18154	1671	0.57987	44.07160	25.55579869
18154	18155	0.20629	1347.89233	278.0567088
18154	18156	0.29151	1334.02502	388.8816336
18155	18154	0.20629	1364.55981	281.4950432
18155	30201	0.48545	1347.89233	654.3343316
18156	18154	0.29151	1317.27234	383.9980598
18156	18159	0.12481	1334.02502	166.4996627
18157	1904	0.49308	0.26144	0.128910835
18157	1905	0.51060	0.26336	0.134471616
18158	1670	0.24709	2.83150	0.699635335
18158	18161	0.15961	1331.19348	212.4717913
18158	18164	0.07896	1317.27234	104.011824
18159	18156	0.12481	1317.27234	164.4087608
18159	18164	0.11449	1334.02502	152.7325245
18160	314	0.35843	160.96533	57.69480323
18160	315	0.22077	158.76242	35.04997946
18160	18163	0.20277	898.77631	182.2448724
18160	18167	0.03099	653.00562	20.23664416
18161	18158	0.15961	1314.46411	209.8016166
18161	18162	0.02276	1331.19348	30.2979636
18162	18161	0.02276	1314.46411	29.91720314
18162	18163	0.07791	892.89954	69.56580316
18162	18234	0.07537	496.18170	37.39721473
18163	18160	0.20277	892.89954	181.0532397
18163	18162	0.07791	898.77631	70.02366231
18164	18158	0.07896	1334.02502	105.3346156
18164	18159	0.11449	1317.27234	150.8145102
18165	18169	0.02620	1669.07397	43.72973801
18165	18170	0.12755	1636.98730	208.7977301
18166	18167	0.06619	657.92230	43.54787704
18166	18168	0.12480	653.00562	81.49510138
18167	18160	0.03099	657.92230	20.38901208
18167	18166	0.06619	653.00562	43.22244199
18168	18166	0.12480	657.92230	82.10870304
18168	18171	0.13238	1266.51941	167.6618395
18168	18188	0.03238	716.89465	23.21304877
18169	304	0.34296	10.44812	3.583287235
18169	305	0.20397	39.01847	7.958597326
18169	18165	0.02620	1636.98730	42.88906726
18169	18172	0.11308	1713.51782	193.7645951
18170	18137	0.03014	4899.67383	147.6761692
18170	18165	0.12755	1669.07397	212.8903849
18170	18173	0.14159	893.14520	126.4604289
18170	18307	0.19648	3708.69702	728.6847905
18171	306	0.16812	681.34418	114.5475835
18171	18147	0.01820	193.45340	3.52085188
18171	18168	0.13238	1292.00769	171.035978

18171	18172	0.09928	1694.48132	168.2281054
18172	18169	0.11308	1680.53186	190.0345427
18172	18171	0.09928	1726.42163	171.3991394
18172	18229	0.06309	29.22610	1.843874649
18173	294	0.17805	412.59464	73.46247565
18173	18170	0.14159	917.96045	129.9740201
18173	18177	0.03799	1036.81128	39.38846053
18174	18136	0.04707	1375.64197	64.75146753
18174	18239	0.08663	1397.42029	121.0585197
18175	17714	0.00641	844.45813	5.412976613
18175	18176	0.00421	573.56757	2.41471947
18176	18495	0.01078	3063.82544	33.02803824
18177	18173	0.03799	1068.96167	40.60985384
18177	18179	0.06972	1036.81128	72.28648244
18178	18152	0.99657	540.19958	538.3466954
18178	18190	1.00783	500.66101	504.5811857
18179	291	0.32805	280.21667	91.92507859
18179	18177	0.06972	1068.96167	74.52800763
18179	18180	0.05656	1479.77039	83.69581326
18179	18271	0.09712	556.67914	54.06467808
18180	18179	0.05656	1519.96167	85.96903206
18180	18181	0.10905	1479.77039	161.368961
18181	18180	0.10905	1519.96167	165.7518201
18181	18185	0.08503	1479.77039	125.8248763
18184	696	0.53237	204.68530	108.9683132
18184	1975	1.05693	211.84010	223.9001569
18184	18054	0.44893	1960.91968	880.3156719
18184	18433	0.41944	1478.64136	620.201332
18185	18181	0.08503	1519.96167	129.2423408
18185	18201	0.25430	1479.77039	376.3056102
18188	18168	0.03238	696.32312	22.54694263
18188	18230	0.03352	716.89465	24.03030867
18190	1906	0.45519	137.28867	62.4924297
18190	18178	1.00783	540.19958	544.4293427
18190	18203	0.50070	429.25677	214.9288647
18201	292	0.12988	125.22610	16.26436587
18201	1666	0.25236	37.11361	9.36599062
18201	18185	0.25430	1519.96167	386.5262527
18201	18209	0.24268	1464.53955	355.414458
18203	18190	0.50070	470.05969	235.3588868
18203	18214	0.49792	429.25677	213.7355309
18204	18031	0.49239	1953.74658	962.0052785
18204	18519	0.50193	2044.41541	1026.153427
18207	18036	0.49584	17.79338	8.822669539
18207	18520	0.50034	18.47564	9.244101718
18209	18100	0.25905	1891.07727	489.8835668
18209	18201	0.24268	1505.06067	365.2481234
18209	18300	0.12277	926.19745	113.7092609
18214	17906	1.00126	887.74536	888.8639192
18214	18203	0.49792	470.05969	234.0521208
18214	18224	0.24691	308.94144	76.28073095
18214	18531	0.50147	938.84052	470.8003556
18216	18038	0.50155	484.03589	242.7682006
18216	18530	0.49931	511.88672	255.5901582

18217	18039	0.50084	51.67795	25.88238448
18217	18535	0.50420	51.66719	26.0505972
18224	18214	0.24691	308.36209	76.13768364
18224	18231	0.25311	308.94144	78.19616788
18229	18172	0.06309	28.18044	1.77790396
18229	18280	0.07312	29.22610	2.137012432
18230	18188	0.03352	696.32312	23.34075098
18230	18250	0.02344	716.89465	16.8040106
18231	18224	0.25311	308.36209	78.0495286
18231	18233	0.24895	308.94144	76.91097149
18233	18231	0.24895	308.36209	76.76674231
18233	18238	0.24831	308.94144	76.71324897
18234	18162	0.07537	473.57559	35.69339222
18234	18327	0.17305	496.18170	85.86424319
18238	1933	0.51344	45.12939	23.171234
18238	18233	0.24831	308.36209	76.56939057
18238	18260	0.69731	343.92743	239.8240362
18239	18174	0.08663	1375.64197	119.1718639
18239	18242	0.07307	1397.42029	102.1095006
18240	2020	2.38306	668.53510	1593.159255
18240	18052	0.50670	939.44232	476.0154235
18240	18556	0.49381	1608.22913	794.1596267
18242	18239	0.07307	1375.64197	100.5181587
18242	18252	0.25241	1397.42029	352.7228554
18245	17942	0.93195	481.30643	448.5535274
18245	18823	0.96929	605.31586	586.7266099
18246	696	0.47104	1073.14429	505.4938864
18246	18056	0.50297	3074.98608	1546.625749
18246	18569	0.49852	3005.29126	1498.197799
18248	18110	0.28728	1819.04907	522.5764168
18248	18600	0.58920	1694.81567	998.5853928
18250	18230	0.02344	696.32312	16.32181393
18250	18277	0.03740	716.89465	26.81185991
18252	18242	0.25241	1375.64197	347.2257896
18252	18255	0.23169	1397.42029	323.768307
18255	18252	0.23169	1375.64197	318.722488
18255	18261	0.13289	1397.42029	185.7031823
18257	18123	0.32547	404.37140	131.6107596
18257	18282	0.10949	414.27139	45.35857449
18260	18238	0.69731	353.49149	246.4931509
18260	18262	0.30409	343.92743	104.5848922
18261	18255	0.13289	1375.64197	182.8090614
18261	18281	0.06418	1397.42029	89.68643421
18262	17937	0.99213	919.20526	911.9711146
18262	18260	0.30409	353.49149	107.4932272
18262	18597	0.49271	1315.08667	647.9563532
18271	18179	0.09712	541.56024	52.59633051
18271	18356	0.18479	556.67914	102.8687383
18277	18250	0.03740	696.32312	26.04248469
18277	18283	0.01675	716.89465	12.00798539
18280	18229	0.07312	28.18044	2.060553773
18280	18312	0.07034	29.22610	2.055763874
18281	18261	0.06418	1375.64197	88.28870163
18281	18552	0.50216	1397.42029	701.7285728

18282	18257	0.10949	404.37140	44.27462459
18282	18326	0.23859	414.27139	98.84101094
18283	18277	0.01675	696.32312	11.66341226
18283	18305	0.04579	716.89465	32.82660602
18300	292	0.24312	17.50807	4.256561978
18300	18209	0.12277	935.46936	114.8475733
18300	18351	0.11348	944.06390	107.1323714
18305	306	0.11582	193.05434	22.35955366
18305	315	0.21332	696.47211	148.5714305
18305	18283	0.04579	696.32312	31.88463566
18305	18335	0.06084	252.50528	15.36242124
18307	294	0.14191	162.05806	22.99765929
18307	305	0.15128	264.88577	40.07191929
18307	18170	0.19648	3763.36694	739.4263364
18307	18324	0.03291	3712.65308	122.1834129
18312	305	0.11702	3.93042	0.459937748
18312	306	0.12509	128.99765	16.13631604
18312	18280	0.07034	28.18044	1.98221215
18312	18397	0.14233	142.17525	20.23580333
18324	18307	0.03291	3775.98730	124.267742
18324	18355	0.06643	3712.65308	246.6315441
18326	18282	0.23859	404.37140	96.47897233
18326	18627	0.90619	414.27139	375.4085909
18327	315	0.29145	0.47934	0.139703643
18327	1670	0.18824	21.40299	4.028898838
18327	18234	0.17305	473.57559	81.95225585
18327	18380	0.08097	492.02020	39.83887559
18335	18305	0.06084	251.56012	15.3049177
18335	18364	0.06030	252.50528	15.22606838
18351	18300	0.11348	952.97742	108.1438776
18351	18413	0.11032	944.06390	104.1491294
18355	18324	0.06643	3775.98730	250.8388363
18355	18368	0.01953	3712.65308	72.50811465
18356	18271	0.18479	541.56024	100.0749167
18356	18401	0.05581	556.67914	31.0682628
18364	18335	0.06030	251.56012	15.16907524
18364	18396	0.03965	252.50528	10.01183435
18368	18355	0.01953	3775.98730	73.74503197
18368	18399	0.03519	3712.65308	130.6482619
18380	18327	0.08097	469.59235	38.02289258
18380	18473	0.17084	492.02020	84.05673097
18391	306	0.18197	68.40331	12.44735032
18391	18392	0.05973	115.25725	6.884315543
18391	18393	0.05081	105.95775	5.383713278
18391	18421	0.07146	82.55621	5.899466767
18392	326	0.07430	81.65052	6.066633636
18392	18391	0.05973	112.58442	6.724667407
18392	18396	0.07404	33.60674	2.48824303
18393	325	0.07127	10.52841	0.750359781
18393	18391	0.05081	108.58456	5.517181494
18393	18397	0.04986	95.42934	4.758106892
18395	305	0.14633	49.79213	7.286082383
18395	324	0.07579	20.60759	1.561849246
18395	18397	0.10135	215.97726	21.8892953

18395	18398	0.09860	145.30054	14.32663324
18396	18364	0.03965	251.56012	9.974358758
18396	18392	0.07404	33.33904	2.468422522
18396	18419	0.05080	219.16623	11.13364448
18397	18312	0.14233	153.23698	21.81021936
18397	18393	0.04986	98.14563	4.893541112
18397	18395	0.10135	212.89915	21.57732885
18397	18422	0.07033	205.69608	14.46660531
18398	18395	0.09860	149.15627	14.70680822
18398	18399	0.06619	145.30054	9.617442743
18399	18368	0.03519	3775.98730	132.8769931
18399	18398	0.06619	149.15627	9.872653511
18399	18400	0.11514	240.52002	27.6934751
18399	18404	0.02401	3642.00415	87.44451964
18400	294	0.16717	6.58100	1.10014577
18400	319	0.10616	246.73125	26.1929895
18400	18399	0.11514	238.55412	27.46712138
18400	18401	0.13927	312.84329	43.569685
18401	293	0.16514	562.22913	92.84651853
18401	18356	0.05581	541.56024	30.22447699
18401	18400	0.13927	315.25333	43.90533127
18401	18428	0.07088	0.00000	0
18404	18399	0.02401	3711.15991	89.10494944
18404	18426	0.04746	3642.00415	172.849517
18413	295	0.25596	93.42268	23.91246917
18413	18351	0.11032	952.97742	105.132469
18413	18527	0.15422	850.64124	131.185892
18419	18396	0.05080	217.95338	11.0720317
18419	18420	0.01786	219.16623	3.914308868
18420	326	0.07027	17.13338	1.203962613
18420	18419	0.01786	217.95338	3.892647367
18420	18464	0.07870	202.03285	15.8999853
18421	325	0.05126	13.85966	0.710446172
18421	326	0.06310	0.07691	0.004853021
18421	18391	0.07146	72.32230	5.168151558
18421	18452	0.07312	96.12872	7.028932006
18422	324	0.12791	0.27795	0.035552585
18422	325	0.05010	48.18721	2.414179221
18422	18397	0.07033	216.39601	15.21913138
18422	18442	0.03461	157.79555	5.461303986
18426	324	0.13686	182.07544	24.91884472
18426	18404	0.04746	3711.15991	176.1316493
18426	18463	0.07423	3462.93774	257.0538684
18428	18401	0.07088	0.00000	0
18433	18184	0.41944	1858.95764	779.7211925
18433	18586	0.13999	1478.64136	206.995004
18442	18422	0.03461	169.87173	5.879260575
18442	18456	0.03963	157.79555	6.253437647
18448	1856	0.52509	32.53123	17.08182356
18448	18150	0.50096	462.17374	231.5305568
18448	18750	0.49763	408.09506	203.0803447
18450	18451	0.04257	581.25708	24.7441139
18450	18464	0.03271	563.75250	18.44034428
18451	308	0.11636	32.76776	3.812856554

18451	326	0.07031	42.75769	3.006293184
18451	18450	0.04257	563.75250	23.99894393
18451	18452	0.06017	566.98181	34.11529551
18452	18421	0.07312	86.10487	6.295988094
18452	18451	0.06017	551.07971	33.15846615
18452	18453	0.05411	321.81833	17.41358984
18452	18492	0.03315	333.47958	11.05484808
18453	325	0.07351	11.11739	0.817239339
18453	18452	0.05411	324.51794	17.55966573
18453	18454	0.02381	332.66498	7.920753174
18454	18453	0.02381	335.63531	7.991476731
18454	18456	0.02138	332.66498	7.112377272
18456	307	0.06519	26.98628	1.759235593
18456	18442	0.03963	169.87173	6.73201666
18456	18454	0.02138	335.63531	7.175882928
18456	18458	0.10135	365.21518	37.01455849
18457	1905	0.50052	45.86892	22.95831184
18457	18152	0.50367	10063.62207	5068.744528
18457	18732	0.45791	9910.63867	4538.180553
18458	324	0.07898	96.80303	7.645503309
18458	18456	0.10135	380.74780	38.58878953
18458	18459	0.05585	249.32973	13.92506542
18458	18485	0.02517	436.32654	10.98233901
18459	18458	0.05585	251.40765	14.04111725
18459	18462	0.04138	249.32973	10.31726423
18462	327	0.03185	16.08119	0.512185902
18462	18459	0.04138	251.40765	10.40324856
18462	18463	0.06826	265.40619	18.11662653
18463	319	0.13761	122.06492	16.79735364
18463	18426	0.07423	3534.82544	262.3900924
18463	18462	0.06826	267.48886	18.25878958
18463	18511	0.04772	3314.38232	158.1623243
18464	18420	0.07870	201.00438	15.81904471
18464	18450	0.03271	581.25708	19.01291909
18464	18476	0.05501	518.66156	28.53157242
18464	18573	0.08875	271.50595	24.09615306
18465	18466	0.03026	379.36566	11.47960487
18465	18467	0.05585	358.22552	20.00689529
18466	315	0.28297	317.41122	89.81785292
18466	316	0.12905	177.90498	22.95863767
18466	18465	0.03026	358.22552	10.83990424
18466	18468	0.02631	533.57581	14.03837956
18467	18465	0.05585	379.36566	21.18757211
18467	18471	0.05654	358.22552	20.2540709
18468	18466	0.02631	518.66156	13.64598564
18468	18469	0.05654	533.57581	30.1683763
18469	18468	0.05654	518.66156	29.3251246
18469	18472	0.03103	533.57581	16.55685738
18470	18471	0.05309	379.36566	20.14052289
18470	18473	0.05723	358.22552	20.50124651
18471	18467	0.05654	379.36566	21.44933442
18471	18470	0.05309	358.22552	19.01819286
18472	18469	0.03103	518.66156	16.09406821
18472	18475	0.02625	533.57581	14.00636501

18473	18380	0.17084	469.59235	80.22515707
18473	18470	0.05723	379.36566	21.71109672
18473	18618	0.12283	379.16217	46.57248934
18475	18472	0.02625	518.66156	13.61486595
18475	18476	0.05447	533.57581	29.06387437
18476	18464	0.05501	533.57581	29.35200531
18476	18475	0.05447	518.66156	28.25149517
18485	18458	0.02517	450.78702	11.34630929
18485	18507	0.02021	436.32654	8.818159373
18488	18489	0.05103	253.39603	12.93079941
18488	18532	0.09458	259.13754	24.50922853
18489	320	0.04005	8.06784	0.323116992
18489	18488	0.05103	259.13754	13.22378867
18489	18490	0.06688	254.07884	16.99279282
18490	18489	0.06688	260.03442	17.39110201
18490	18497	0.16910	528.89410	89.43599231
18490	18566	0.05968	273.27429	16.30900963
18492	18452	0.03315	304.85403	10.10591109
18492	18592	0.07246	333.47958	24.16393037
18495	18526	0.00436	1197.54993	5.221317695
18495	30213	0.00709	1866.27551	13.23189337
18497	18490	0.16910	532.68408	90.07687793
18497	18502	0.09112	528.89410	48.19283039
18500	18501	0.50193	347.95004	174.6465636
18500	18503	0.50193	355.06473	178.2176399
18501	18500	0.50193	355.06473	178.2176399
18501	18506	0.50060	347.95004	174.18379
18502	18497	0.09112	532.68408	48.53817337
18502	18513	0.10272	528.89410	54.32800195
18503	2020	1.01016	169.88625	171.6122943
18503	18500	0.50193	347.95004	174.6465636
18503	18505	1.49408	513.58032	767.3300845
18504	18505	0.00758	517.83630	3.925199154
18504	18509	0.99698	513.58032	512.0293074
18505	18503	1.49408	517.83630	773.6888591
18505	18504	0.00758	513.58032	3.892938826
18506	18501	0.50060	355.06473	177.7454038
18506	18554	0.92670	347.95004	322.4453021
18507	307	0.09403	154.71538	14.54788718
18507	327	0.07281	7.91357	0.576187032
18507	18485	0.02021	450.78702	9.110405674
18507	18585	0.05541	359.67050	19.92934241
18509	18024	0.99865	1770.25977	1767.869919
18509	18504	0.99698	517.83630	516.2724344
18509	18512	1.00042	600.02026	600.2722685
18509	19018	0.99471	1391.20007	1383.840622
18511	18463	0.04772	3388.47485	161.6980198
18511	18525	0.03168	3314.38232	104.9996319
18512	18509	1.00042	603.86224	604.1158621
18512	18515	0.97629	600.02026	585.7937796
18513	295	0.15280	40.05970	6.12112216
18513	296	0.24918	112.77123	28.10033509
18513	18502	0.10272	532.68408	54.7173087
18513	18527	0.27004	640.09241	172.8505544

18514	2022	1.05973	677.52728	717.9959844
18514	18515	0.16374	603.86224	98.87640318
18514	18516	0.83531	264.10315	220.6080022
18515	18512	0.97629	603.86224	589.5446663
18515	18514	0.16374	600.02026	98.24731737
18516	18514	0.83531	265.30652	221.6131892
18516	18517	0.49989	264.10315	132.0225237
18517	18516	0.49989	265.30652	132.6240763
18517	18519	0.50125	264.10315	132.3817039
18519	18204	0.50193	1953.74658	980.6440209
18519	18517	0.50125	265.30652	132.9848932
18519	18520	1.00043	444.70416	444.8953828
18519	19033	1.00275	1508.98853	1513.138248
18520	18207	0.50034	17.79338	8.902739749
18520	18519	1.00043	438.39941	438.5879217
18520	18524	0.49781	463.17981	230.5755412
18524	18520	0.49781	456.19278	227.0973278
18524	18529	0.25167	463.17981	116.5684628
18525	327	0.04099	4.41016	0.180772458
18525	18511	0.03168	3388.47485	107.3468832
18525	18548	0.04377	2145.40112	93.90420702
18525	18607	0.04943	1173.33057	57.99773008
18526	17871	0.00989	2307.32129	22.81940756
18527	18413	0.15422	862.16980	132.9638266
18527	18513	0.27004	622.94098	168.2189822
18527	18682	0.24072	272.55225	65.60877762
18528	18529	0.03861	456.19278	17.61360324
18528	18530	0.21099	463.17981	97.72630811
18529	18524	0.25167	456.19278	114.8100369
18529	18528	0.03861	463.17981	17.88337246
18530	18216	0.49931	484.03589	241.6839602
18530	18528	0.21099	456.19278	96.25211465
18530	18533	0.49506	642.67084	318.1606261
18530	18822	0.49877	957.33026	477.4876138
18531	1906	0.95187	78.60252	74.81938071
18531	1933	0.91401	128.24918	117.221033
18531	18214	0.50147	894.32794	448.4786321
18531	18824	0.49979	889.66095	444.6436462
18532	297	0.07450	0.04107	0.003059715
18532	18488	0.09458	253.39603	23.96619652
18532	18568	0.05889	259.09647	15.25819112
18533	18530	0.49506	640.93958	317.3035485
18533	18540	0.49299	642.67084	316.8302974
18535	18217	0.50420	51.67795	26.05602239
18535	18536	1.00179	443.68430	444.4784949
18535	18541	0.51435	1186.40320	610.2264859
18535	19050	1.01118	664.02045	671.4441986
18536	18037	1.00707	1350.60474	1360.153516
18536	18535	1.00179	458.52164	459.3423937
18536	18539	0.49918	521.58221	260.3634076
18536	19049	1.00877	1568.56287	1582.319166
18538	18060	0.96973	189.77972	184.0350879
18538	18595	0.04691	646.68799	30.33613361
18538	18598	0.02966	0.00000	0

18539	18536	0.49918	540.58521	269.8493251
18539	18543	0.50538	521.58221	263.5972173
18540	68	4.50000	642.67084	2892.01878
18540	18533	0.49299	640.93958	315.9768035
18541	18535	0.51435	1084.69592	557.9133465
18541	18545	0.49160	1186.40320	583.2358131
18543	1975	0.93795	34.59988	32.45295745
18543	1978	1.06203	53.77934	57.11527246
18543	18539	0.50538	540.58521	273.2009534
18543	18565	0.71185	513.01929	365.1927816
18545	18541	0.49160	1084.69592	533.2365143
18545	18546	0.19719	1186.40320	233.946847
18546	1995	1.53554	590.05499	906.0530393
18546	18545	0.19719	1084.69592	213.8911885
18546	18551	0.80463	596.34821	479.8396602
18548	328	0.04049	161.93549	6.55676799
18548	18525	0.04377	2179.47192	95.39548594
18548	18585	0.04445	2086.40894	92.74087738
18551	18546	0.80463	491.09979	395.153624
18551	18556	1.00459	596.34821	599.0854483
18552	18281	0.50216	1375.64197	690.7923717
18552	18677	0.22344	1397.42029	312.2395896
18554	18506	0.92670	355.06473	329.0384853
18554	18556	0.06898	1270.70923	87.65352269
18554	18658	0.14874	1335.48181	198.6395644
18556	18240	0.49381	1607.97742	794.0353298
18556	18551	1.00459	491.09979	493.353938
18556	18554	0.06898	1376.20935	94.93092096
18565	697	0.38041	87.77236	33.38948347
18565	18543	0.71185	532.24493	378.8785534
18565	18570	0.17576	563.23834	98.99477064
18566	18490	0.05968	275.43988	16.43825204
18566	18614	0.02699	273.27429	7.375673087
18568	18532	0.05889	253.35396	14.9200147
18568	18624	0.12458	259.09647	32.27823823
18569	18246	0.49852	3449.92700	1719.857608
18569	18571	0.08205	948.23340	77.80255047
18569	18572	0.12479	477.13202	59.54130478
18569	18739	0.38494	2804.05371	1079.392435
18570	18565	0.17576	583.12262	102.4896317
18570	18586	0.08621	563.23834	48.55677729
18571	18569	0.08205	1059.50793	86.93262566
18571	18576	0.25028	948.23340	237.3238554
18572	18569	0.12479	445.86667	55.63970175
18572	18575	0.12617	477.13202	60.19974696
18573	18464	0.08875	273.06775	24.23476281
18573	18617	0.03469	271.50595	9.418541406
18575	18572	0.12617	445.86667	56.25499775
18575	18577	0.06068	477.13202	28.95237097
18576	18571	0.25028	1059.50793	265.1736447
18576	18583	0.17827	948.23340	169.0415682
18577	18575	0.06068	445.86667	27.05518954
18577	18582	0.17719	477.13202	84.54302262
18578	1629	1.15582	134.20924	155.1217238

18578	18591	0.35349	1734.70935	613.2024081
18578	18595	0.41528	1039.61621	431.7318197
18579	18580	0.09101	788.99969	71.80686179
18579	18584	0.12686	810.80560	102.8587984
18580	18579	0.09101	810.80560	73.79141766
18580	18581	0.03103	788.99969	24.48266038
18581	18580	0.03103	810.80560	25.15929777
18581	18582	0.01517	788.99969	11.9691253
18582	696	0.50847	376.31653	191.345666
18582	1976	0.38334	120.79198	46.30439761
18582	18577	0.17719	445.86667	79.00311526
18582	18581	0.01517	810.80560	12.29992095
18583	1973	1.25231	370.87744	464.4535269
18583	1974	0.89995	47.14674	42.42970866
18583	18576	0.17827	1059.50793	188.8784787
18583	18589	0.48708	908.28729	442.4085732
18584	18579	0.12686	788.99969	100.0925007
18584	18588	0.13308	810.80560	107.9020092
18585	18507	0.05541	377.69983	20.92834758
18585	18548	0.04445	2117.16113	94.10781223
18585	18619	0.09331	1632.30530	152.3104075
18585	18622	0.04449	784.36963	34.89660484
18586	18433	0.13999	1858.95764	260.23548
18586	18570	0.08621	583.12262	50.27100107
18586	18587	0.02344	788.99969	18.49415273
18586	18628	0.05711	1658.96875	94.74370531
18587	18586	0.02344	810.80560	19.00528326
18587	18588	0.09860	788.99969	77.79536943
18588	18584	0.13308	788.99969	105.0000787
18588	18587	0.09860	810.80560	79.94543216
18589	18583	0.48708	1016.49530	495.1145307
18589	18591	0.19167	1346.05566	257.9984884
18589	18874	0.50315	1138.70874	572.9413025
18591	1630	0.43180	496.81519	214.524799
18591	18578	0.35349	1118.62451	395.422578
18591	18589	0.19167	1953.41724	374.4114824
18592	307	0.09161	32.73434	2.998792887
18592	308	0.09119	181.07381	16.51212073
18592	18492	0.07246	304.85403	22.08972301
18592	18638	0.07608	541.62494	41.20682544
18593	1972	1.11896	86.17637	96.42791098
18593	18599	0.45703	1197.42969	547.2612912
18593	18610	0.51307	1007.41736	516.8756249
18595	18578	0.41528	1654.33801	687.0134888
18595	18598	0.03240	1039.61621	33.6835652
18596	18597	0.02413	458.32651	11.05941869
18596	18613	0.97646	1328.29309	1297.025071
18596	18616	0.03602	551.84155	19.87733263
18597	1933	1.08252	29.52369	31.9599849
18597	18262	0.49271	1163.34949	573.1939272
18597	18596	0.02413	1328.29309	32.05171226
18597	18616	0.02349	847.65564	19.91143098
18598	18538	0.02966	0.00000	0
18598	18595	0.03240	1007.64996	32.6478587

18598	18599	0.03034	1039.61621	31.54195581
18599	18538	0.04415	189.77972	8.378774638
18599	18593	0.45703	1039.61621	475.1357965
18599	18598	0.03034	1007.64996	30.57209979
18600	18248	0.58920	1819.04907	1071.783712
18600	18690	0.26149	1694.81567	443.1773495
18607	18525	0.04943	1213.41296	59.97900261
18607	18624	0.03829	1173.33057	44.92682753
18610	18593	0.51307	1224.85754	628.437658
18610	18612	0.50953	1007.41736	513.3093674
18612	1932	2.69803	288.55661	778.5343905
18612	1936	0.97256	334.85776	325.6692631
18612	18610	0.50953	1224.85754	624.1016624
18612	18613	0.49229	1010.16803	497.2956195
18613	18596	0.97646	1010.16803	986.3886746
18613	18612	0.49229	1328.29309	653.9054053
18614	297	0.18405	163.18109	30.03347961
18614	18566	0.02699	275.43988	7.434122361
18614	18629	0.03832	110.09320	4.218771424
18616	18597	0.02349	1559.95813	36.64341647
18616	18858	0.46922	1399.49719	656.6720715
18617	308	0.08627	37.19729	3.209010208
18617	316	0.24308	1.19234	0.289834007
18617	18573	0.03469	273.06775	9.472720248
18617	18641	0.04849	307.75821	14.9231956
18618	316	0.26073	0.00000	0
18618	18473	0.12283	377.87445	46.41431869
18618	18666	0.12676	379.16217	48.06259667
18619	307	0.07608	0.66714	0.050756011
18619	329	0.04258	60.24931	2.56541562
18619	18585	0.09331	1655.94373	154.5161094
18619	18638	0.09161	1620.56897	148.4603233
18622	18585	0.04449	809.51270	36.01522002
18622	18640	0.04062	784.36963	31.86109437
18624	18568	0.12458	253.35396	31.56283634
18624	18607	0.03829	1213.41296	46.46158224
18624	18634	0.04639	738.56836	34.26218622
18624	18650	0.07432	1190.52075	88.47950214
18627	18326	0.90619	404.37140	366.437319
18627	18683	0.27152	414.27139	112.4829678
18628	18586	0.05711	2037.36340	116.3538238
18628	18648	0.05487	1658.96875	91.02761531
18629	18614	0.03832	114.63747	4.39290785
18629	18645	0.04633	110.09320	5.100617956
18634	298	0.07386	446.06238	32.94616739
18634	328	0.04614	48.42260	2.234218764
18634	18624	0.04639	724.41724	33.60571576
18634	18640	0.04372	462.38776	20.21559287
18638	18592	0.07608	517.34198	39.35937784
18638	18619	0.09161	1642.63318	150.4816256
18638	18647	0.08978	1577.53308	141.6309199
18638	18651	0.04610	441.03928	20.33191081
18639	297	0.09142	0.00000	0
18640	18622	0.04062	809.51270	32.88240587

18640	18634	0.04372	447.31372	19.55655584
18640	18652	0.09120	246.96577	22.52327822
18640	18663	0.07635	486.97427	37.18048551
18641	18617	0.04849	309.04962	14.98581607
18641	18668	0.08262	307.75821	25.42698331
18642	18643	0.02995	295.94281	8.86348716
18642	18646	0.02813	403.14017	11.34033298
18643	18642	0.02995	403.14017	12.07404809
18643	18644	0.04828	295.94281	14.28811887
18644	18643	0.04828	403.14017	19.46360741
18644	18645	0.04766	295.94281	14.10463432
18645	18629	0.04633	114.63747	5.311153985
18645	18644	0.04766	403.14017	19.2136605
18645	18675	0.07819	368.24307	28.79292564
18646	297	0.07502	118.21947	8.868824639
18646	299	0.09159	5.66754	0.519089989
18646	18642	0.02813	295.94281	8.324871245
18646	18662	0.09416	456.29660	42.96488786
18647	308	0.09670	0.30703	0.029689801
18647	330	0.05312	25.43383	1.35104505
18647	18638	0.08978	1601.30286	143.7649708
18647	18668	0.13623	1572.22559	214.1842921
18648	18628	0.05487	2037.36340	111.7901298
18648	18656	0.00672	1658.96875	11.14827
18650	297	0.18113	126.67944	22.94544697
18650	298	0.04706	251.75496	11.84758842
18650	18624	0.07432	1239.01172	92.08335103
18650	18673	0.07302	1330.94934	97.18592081
18651	18638	0.04610	415.05075	19.13383958
18651	18665	0.04097	441.03928	18.0693793
18652	309	0.07693	86.60429	6.66246803
18652	329	0.04305	22.74981	0.979379321
18652	18640	0.09120	251.64278	22.94982154
18652	18665	0.08931	325.92624	29.10847249
18656	18648	0.00672	2037.36340	13.69108205
18656	18672	0.05823	1658.96875	96.60175031
18658	18554	0.14874	1237.09644	184.0057245
18658	18807	0.31935	1335.48181	426.486116
18662	18646	0.09416	350.78439	33.02985816
18662	18673	0.08459	456.29660	38.59812939
18663	298	0.04397	225.44563	9.912844351
18663	309	0.08994	439.80685	39.55622809
18663	18640	0.07635	492.36627	37.59216471
18663	18686	0.07454	696.62964	51.92677337
18665	18651	0.04097	415.05075	17.00462923
18665	18652	0.08931	327.44720	29.24430943
18665	18678	0.09395	83.81198	7.874135521
18665	18688	0.07632	415.16443	31.6853493
18666	1669	0.20493	39.71149	8.138075646
18666	18618	0.12676	377.87445	47.89936528
18666	18667	0.26915	1763.87488	474.746924
18666	18670	0.01286	1701.49377	21.88120988
18667	316	0.12301	106.41245	13.08979547
18667	333	0.12803	124.53699	15.94447083

18667	18666	0.26915	1734.68018	466.8891704
18667	18668	0.23624	1831.05347	432.5680718
18668	18641	0.08262	309.04962	25.5336796
18668	18647	0.13623	1595.60425	217.369167
18668	18667	0.23624	1804.46545	426.2869179
18668	18687	0.05639	408.35239	23.02699127
18670	18666	0.01286	1730.04407	22.24836674
18670	18765	0.23669	1701.49377	402.7265604
18672	18656	0.05823	2037.36340	118.6356708
18672	18693	0.06663	1658.96875	110.5370878
18673	18650	0.07302	1366.00769	99.74588152
18673	18662	0.08459	350.78439	29.67285155
18673	18679	0.04793	356.15112	17.07032318
18673	18694	0.07994	1121.82275	89.67851064
18675	296	0.31328	587.13367	183.9372361
18675	299	0.14304	31.31792	4.479715277
18675	18645	0.07819	479.98468	37.53000213
18675	18706	0.08535	325.24899	27.7600013
18677	18552	0.22344	1375.64197	307.3734418
18677	18701	0.07695	1397.42029	107.5314913
18678	18665	0.09395	85.79733	8.060659154
18678	18680	0.04211	83.81198	3.529322478
18679	298	0.07768	9.33479	0.725126487
18679	300	0.07585	89.57240	6.79406654
18679	18673	0.04793	269.14258	12.90000386
18679	18686	0.04384	275.48364	12.07720278
18680	310	0.08276	68.46267	5.665970569
18680	330	0.04276	10.52641	0.450109292
18680	18678	0.04211	85.79733	3.612925566
18680	18689	0.04747	47.63820	2.261385354
18682	296	0.31051	2.65837	0.825450469
18682	1835	0.34461	44.88218	15.46684805
18682	18527	0.24072	266.92938	64.25524035
18682	18819	0.25818	258.93433	66.85166532
18683	18627	0.27152	404.37140	109.7949225
18683	18733	0.16484	414.27139	68.28849593
18686	18663	0.07454	688.81390	51.34418811
18686	18679	0.04384	185.69017	8.140657053
18686	18695	0.09268	543.64801	50.38529757
18686	18709	0.07743	473.41382	36.65643208
18687	18668	0.05639	406.43448	22.91884033
18687	18700	0.03965	408.35239	16.19117226
18688	309	0.09205	4.38186	0.403350213
18688	310	0.15195	95.37385	14.49205651
18688	18665	0.07632	388.71155	29.6664655
18688	18711	0.07557	502.90527	38.00455125
18689	18680	0.04747	50.59606	2.401794968
18689	18700	0.08607	47.63820	4.100219874
18690	18600	0.26149	1819.04907	475.6631413
18690	18850	0.25986	1391.03247	361.4736977
18690	18852	0.30499	772.02484	235.459856
18693	18672	0.06663	2037.36340	135.7495233
18693	18736	0.12933	1658.96875	214.5544284
18694	299	0.15299	261.86447	40.06264527

18694	300	0.05301	144.23663	7.645983756
18694	18673	0.07994	1138.37744	91.00189255
18694	18713	0.07399	1003.53711	74.25171077
18695	309	0.07398	144.07742	10.65884753
18695	311	0.07608	90.39697	6.877401478
18695	18686	0.09268	446.90305	41.41897467
18695	18711	0.08977	601.40302	53.98794911
18700	18687	0.03965	406.43448	16.11512713
18700	18689	0.08607	50.59606	4.354802884
18700	18725	0.08373	416.75006	34.89448252
18701	18677	0.07695	1375.64197	105.8556496
18701	18720	0.07017	1397.42029	98.05698175
18702	299	0.06790	276.35446	18.76446783
18702	301	0.08718	2.13187	0.185856427
18702	18703	0.02402	590.86127	14.19248771
18702	18708	0.05804	332.54642	19.30099422
18703	18702	0.02402	509.51892	12.23864446
18703	18704	0.04691	590.86127	27.71730218
18704	18703	0.04691	509.51892	23.90153254
18704	18706	0.04967	590.86127	29.34807928
18706	18675	0.08535	412.31122	35.19076263
18706	18704	0.04967	509.51892	25.30780476
18706	18714	0.05415	262.17032	14.19652283
18708	18702	0.05804	418.64697	24.29827014
18708	18713	0.08741	332.54642	29.06788257
18709	300	0.03902	101.10458	3.945100712
18709	311	0.09139	16.49799	1.507751306
18709	18686	0.07743	472.54959	36.58951475
18709	18728	0.07426	424.04016	31.48922228
18711	18688	0.07557	479.49475	36.23541826
18711	18695	0.08977	499.25784	44.8183763
18711	18718	0.09075	793.00012	71.96476089
18711	18729	0.07381	406.70114	30.01861114
18713	18694	0.07399	1019.54370	75.43603836
18713	18708	0.08741	418.64697	36.59393165
18713	18724	0.05264	436.88910	22.99784222
18713	18741	0.07562	1258.83557	95.1931458
18714	301	0.11139	7.86451	0.876027769
18714	18706	0.05415	267.89026	14.50625758
18714	18798	0.11111	254.30582	28.25591966
18718	331	0.05409	396.69861	21.45742781
18718	18711	0.09075	693.43616	62.92933152
18718	18730	0.09161	831.21838	76.14791579
18720	18701	0.07017	1375.64197	96.52879703
18720	18882	0.17597	1397.42029	245.9040484
18724	300	0.07508	0.00000	0
18724	18713	0.05264	524.88361	27.62987323
18724	18728	0.03874	436.88910	16.92508373
18725	310	0.15083	28.42554	4.287424198
18725	333	0.25964	81.69260	21.21066666
18725	18700	0.08373	417.79001	34.98155754
18725	18771	0.06866	528.84052	36.3101901
18728	321	0.04961	41.15356	2.041628112
18728	18709	0.07426	421.26614	31.28322356

18728	18724	0.03874	524.88361	20.33399105
18728	18734	0.03762	481.30228	18.10659177
18729	311	0.08800	104.60960	9.2056448
18729	331	0.08031	337.43805	27.0996498
18729	18711	0.07381	380.70941	28.10016155
18729	18780	0.06166	642.33099	39.60612884
18730	310	0.07681	3.35780	0.257912618
18730	18718	0.09161	733.14856	67.16373958
18730	18752	0.08819	830.81708	73.26975829
18732	18457	0.45791	10018.14648	4587.409455
18732	18759	0.03749	9910.63867	371.5498437
18733	18683	0.16484	404.37140	66.65658158
18733	18744	0.02529	414.27139	10.47692345
18734	18728	0.03762	565.66449	21.28029811
18734	18748	0.05279	190.81082	10.07290319
18734	18785	0.04521	290.49146	13.13311891
18736	697	0.28992	110.05315	31.90660925
18736	1976	0.52583	58.18360	30.59468239
18736	18693	0.12933	2037.36340	263.4922085
18736	18853	0.11981	1820.30273	218.0904701
18739	1976	0.48170	100.78384	48.54757573
18739	18569	0.38494	3168.68018	1219.751748
18739	18861	0.11663	2903.32788	338.6151306
18741	301	0.12000	71.90079	8.6280948
18741	321	0.07536	28.73802	2.165697187
18741	18713	0.07562	1272.94824	96.26034591
18741	18791	0.03766	1238.03723	46.62448208
18742	18745	0.25097	8141.52393	2043.278261
18742	18746	0.58471	8414.82910	4920.234723
18744	18733	0.02529	404.37140	10.22655271
18744	18755	0.01561	414.27139	6.466776398
18745	18742	0.25097	8414.82910	2111.869659
18745	18751	1.24933	8141.52393	10171.45009
18746	1883	0.51990	121.99512	63.42526289
18746	18742	0.58471	8141.52393	4760.430457
18746	18747	0.11240	8389.02148	942.9260144
18747	18746	0.11240	8116.06738	912.2459735
18747	18759	0.50066	8389.02148	4200.047494
18748	311	0.07714	145.12640	11.1950505
18748	322	0.02377	5.30916	0.126198733
18748	18734	0.05279	276.31870	14.58686417
18748	18782	0.05781	190.96754	11.03983349
18748	18784	0.02305	144.35867	3.327467344
18750	18448	0.49763	430.23309	214.0968926
18750	18751	0.25028	8545.51465	2138.771407
18750	18753	0.25097	8335.04199	2091.845488
18750	18998	0.50261	487.70151	245.1236559
18751	1882	0.70878	130.68588	92.62753803
18751	18745	1.24933	8414.82910	10512.89844
18751	18750	0.25028	8272.58789	2070.463297
18752	18730	0.08819	732.82062	64.62745048
18752	18772	0.03636	830.81708	30.20850903
18753	18750	0.25097	8600.05176	2158.35499
18753	18758	0.24686	8335.04199	2057.588466

18755	18744	0.01561	404.37140	6.312237554
18755	18836	0.13142	414.27139	54.44354607
18758	1856	0.47924	81.83160	39.21697598
18758	1857	0.49265	100.60351	49.5623192
18758	18753	0.24686	8600.05176	2123.008777
18758	18762	1.00250	8414.71777	8435.754564
18759	18732	0.03749	10018.14648	375.5803115
18759	18747	0.50066	8116.06738	4063.390294
18759	18760	0.14780	4971.65088	734.8100001
18759	18908	0.14975	13224.71582	1980.401194
18760	1907	0.47963	62.75296	30.0982022
18760	18759	0.14780	5348.31494	790.4809481
18760	18773	0.35357	4908.89795	1735.639048
18762	18758	1.00250	8680.21973	8701.920279
18762	18763	0.24752	8414.71777	2082.810942
18763	18762	0.24752	8680.21973	2148.527988
18763	18764	0.05361	8414.71777	451.1130196
18764	1668	0.50706	117.93249	59.79884838
18764	1669	0.25687	9.47830	2.434690921
18764	18763	0.05361	8680.21973	465.3465797
18764	18765	0.20085	8482.27832	1703.665601
18765	18670	0.23669	1730.04407	409.4841309
18765	18764	0.20085	8747.41211	1756.917722
18765	18767	0.02414	6888.10303	166.2788071
18766	18767	0.09997	7181.78662	717.9632084
18766	18769	0.16066	6867.06006	1103.261869
18766	18900	0.13423	32.32086	4.338429038
18767	18765	0.02414	7181.78662	173.368329
18767	18766	0.09997	6888.10303	688.6036599
18768	18769	0.02896	7051.41748	204.2090502
18768	18770	0.06068	6764.54053	410.4723194
18769	317	0.13270	208.61569	27.68330206
18769	333	0.12819	58.34894	7.479750619
18769	18766	0.16066	7160.89160	1150.468844
18769	18768	0.02896	6764.54053	195.9010937
18770	18768	0.06068	7051.41748	427.8800127
18770	18771	0.12755	6764.54053	862.8171446
18771	18725	0.06866	525.08752	36.05250912
18771	18770	0.12755	7051.41748	899.4082996
18771	18772	0.02620	7098.58203	185.9828492
18771	18847	0.07487	543.70343	40.7070758
18772	18752	0.03636	732.82062	26.64535774
18772	18771	0.02620	7356.12695	192.7305261
18772	18774	0.05930	6368.71777	377.6649638
18773	1905	0.49522	54.73049	27.10363326
18773	18760	0.35357	5285.67920	1868.857595
18773	18788	0.24691	1002.88934	247.6234069
18773	18946	0.25314	4999.47168	1265.566261
18774	18772	0.05930	6528.26611	387.1261803
18774	18775	0.05723	6368.71777	364.481718
18775	18774	0.05723	6528.26611	373.6126695
18775	18776	0.02344	6368.71777	149.2827445
18776	18775	0.02344	6528.26611	153.0225576
18776	18777	0.00827	6368.71777	52.66929596

18777	18776	0.00827	6528.26611	53.98876073
18777	18778	0.04826	6368.71777	307.3543196
18778	18777	0.04826	6528.26611	315.0541225
18778	18779	0.02689	6368.71777	171.2548208
18779	312	0.16364	155.82639	25.49943046
18779	331	0.04618	21.99532	1.015743878
18779	18778	0.02689	6528.26611	175.5450757
18779	18780	0.11583	6255.65088	724.5920414
18780	18729	0.06166	621.15436	38.30037784
18780	18779	0.11583	6408.35010	742.2791921
18780	18781	0.00689	6842.59619	47.14548775
18781	18780	0.00689	6974.11865	48.0516775
18781	18782	0.02552	6842.59619	174.6230548
18782	18748	0.05781	276.43649	15.98079349
18782	18781	0.02552	6974.11865	177.9795079
18782	18784	0.06137	6566.15967	402.9652189
18783	1906	0.52081	68.78534	35.82409293
18783	1908	1.29190	143.84445	185.832645
18783	18808	0.03117	208.56506	6.50097292
18784	322	0.02182	3.72222	0.08121884
18784	18748	0.02305	145.01627	3.342625024
18784	18782	0.06137	6783.15088	416.2819695
18784	18785	0.03930	6714.28027	263.8712146
18785	18734	0.04521	289.34576	13.08132181
18785	18784	0.03930	6931.88965	272.4232632
18785	18786	0.06552	6568.57227	430.3728551
18785	18830	0.06084	1043.48462	63.48560428
18786	18785	0.06552	6793.63770	445.1191421
18786	18787	0.01896	6568.57227	124.5401302
18787	321	0.03514	3.81786	0.1341596
18787	18786	0.01896	6793.63770	128.8073708
18787	18790	0.03828	6564.75488	251.2988168
18788	18773	0.24691	939.16992	231.8904449
18788	18793	0.25103	1002.88934	251.755311
18790	18787	0.03828	6789.62305	259.9067704
18790	18791	0.04563	6564.75488	299.5497652
18791	323	0.10308	1348.97681	139.0525296
18791	18741	0.03766	1251.19751	47.12009823
18791	18790	0.04563	6789.62305	309.8104998
18791	18794	0.07597	8370.53223	635.9093335
18793	18788	0.25103	939.16992	235.759825
18793	18797	0.25172	1002.88934	252.4473047
18794	18791	0.07597	8604.94336	653.7175471
18794	18795	0.00896	8370.53223	74.99996878
18795	18794	0.00896	8604.94336	77.10029251
18795	18796	0.01105	8370.53223	92.49438114
18796	301	0.07730	70.91653	5.481847769
18796	18795	0.01105	8604.94336	95.08462413
18796	18798	0.10495	7949.81445	834.3330265
18796	18864	0.07199	490.37222	35.30189612
18797	18793	0.25172	939.16992	236.4078523
18797	18799	0.24897	1002.88934	249.689359
18798	302	0.14357	313.20093	44.96625752
18798	18714	0.11111	260.02213	28.89105886

18798	18796	0.10495	8202.46289	860.8484803
18798	18800	0.03589	8190.07422	293.9417638
18799	18797	0.24897	939.16992	233.825135
18799	18804	0.25241	1002.88934	253.1392983
18800	18798	0.03589	8472.36719	304.0732584
18800	18802	0.06696	8190.07422	548.4073698
18802	18800	0.06696	8472.36719	567.309707
18802	18805	0.04831	8190.07422	395.6624856
18804	18799	0.25241	939.16992	237.0558795
18804	18808	0.25037	1002.88934	251.0934041
18805	18802	0.04831	8472.36719	409.3000589
18805	18806	0.03105	8190.07422	254.3018045
18806	18805	0.03105	8472.36719	263.0670012
18806	18809	0.07047	8190.07422	577.1545303
18807	18658	0.31935	1237.09644	395.0667481
18807	19409	1.54533	1335.48181	2063.760105
18808	18783	0.03117	207.34862	6.463056485
18808	18804	0.25037	939.16992	235.1399729
18808	18816	0.50068	869.24054	435.2113536
18809	18806	0.07047	8472.36719	597.0477159
18809	18812	0.06928	8190.07422	567.408342
18812	296	0.25200	820.74756	206.8283851
18812	1667	0.54206	39.69778	21.51857863
18812	18809	0.06928	8472.36719	586.9655989
18812	18813	0.04459	8923.66602	397.9062678
18813	18812	0.04459	9254.54395	412.6601147
18813	18819	0.26226	8923.66602	2340.32065
18816	18808	0.50068	804.30463	402.6992421
18816	18824	0.50138	869.24054	435.8198219
18819	18682	0.25818	253.65945	65.4897968
18819	18813	0.26226	9254.54395	2427.096696
18819	18825	0.47902	9210.15527	4411.848577
18819	18964	0.25894	120.81736	31.2844472
18820	18821	0.00621	3696.89014	22.95768777
18820	18827	1.02691	3627.49634	3725.112267
18821	18820	0.00621	3627.49634	22.52675227
18821	18823	0.51435	3642.28345	1873.408493
18821	18835	0.01561	121.29285	1.893381389
18822	18530	0.49877	924.22369	460.9750499
18822	19039	0.50268	957.33026	481.2307751
18823	18245	0.96929	481.30643	466.5255095
18823	18821	0.51435	3572.87793	1837.709763
18823	18840	0.01672	3687.94922	61.66251096
18824	18531	0.49979	843.07306	421.3594847
18824	18816	0.50138	804.30463	403.2622554
18824	18828	0.25102	840.20093	210.9072374
18824	19204	1.00126	708.24713	709.1395214
18825	1835	0.38304	88.78033	34.0064176
18825	1836	0.50495	20.84492	10.52564235
18825	18819	0.47902	9536.95117	4568.390349
18825	18838	0.49894	9342.37109	4661.282632
18827	18820	1.02691	3696.89014	3796.373454
18827	18844	0.49320	3627.49634	1789.081195
18827	18857	0.02453	0.00000	0

18828	18824	0.25102	745.96326	187.2516975
18828	18831	0.24895	840.20093	209.1680215
18830	18785	0.06084	1034.88293	62.96227746
18830	18898	0.06422	1043.48462	67.0125823
18831	18828	0.24895	745.96326	185.7075536
18831	18837	0.22563	840.20093	189.5745358
18835	1803	0.53220	81.22349	43.22714138
18835	1804	0.49368	40.56839	20.02780278
18835	18821	0.01561	121.30450	1.893563245
18836	18755	0.13142	404.37140	53.14248939
18836	18889	0.05448	414.27139	22.56950533
18837	1933	0.51997	204.18980	106.1725703
18837	1935	0.76083	86.09937	65.50698368
18837	18831	0.22563	745.96326	168.3116904
18837	18845	0.27503	847.93170	233.2066555
18838	18825	0.49894	9604.29785	4791.968369
18838	18841	0.02480	9342.37109	231.690803
18840	18823	0.01672	3494.53418	58.42861149
18840	18862	0.01505	3687.94922	55.50363576
18841	18838	0.02480	9604.29785	238.1865867
18841	18842	0.00896	13064.81934	117.0607813
18841	18911	0.07822	6564.51904	513.4766793
18842	17975	1.75205	18025.02539	31580.74573
18842	18841	0.00896	1353.78320	12.12989747
18842	18843	0.07233	4965.73047	359.1712849
18843	18842	0.07233	4905.49854	354.8147094
18843	18865	0.41204	4965.73047	2046.079583
18844	1815	0.96388	894.41791	862.1115351
18844	1817	1.01779	273.19714	278.0573171
18844	18827	0.49320	3696.89014	1823.306217
18844	18854	0.33810	4137.39941	1398.854741
18845	18837	0.27503	754.67261	207.5576079
18845	18863	0.49453	847.93170	419.3276636
18847	18771	0.07487	569.28278	42.62220174
18847	18901	0.05750	543.70343	31.26294723
18850	18690	0.25986	1522.32568	395.5915512
18850	18875	0.01393	1391.03247	19.37708231
18852	18690	0.30499	764.96503	233.3066845
18852	18877	0.01489	772.02484	11.49544987
18853	18736	0.11981	2201.22314	263.7285444
18853	19061	0.50110	1820.30273	912.153698
18854	1816	1.10040	506.63910	557.5056656
18854	18844	0.33810	4194.31396	1418.09755
18854	18891	0.83469	4422.59717	3691.497632
18857	18827	0.02453	0.00000	0
18858	18616	0.46922	1559.95813	731.9635538
18858	18887	0.01510	1399.49719	21.13240757
18861	18739	0.11663	3269.46411	381.3175991
18861	19067	0.49932	2903.32788	1449.689677
18862	18840	0.01505	3494.53418	52.59273941
18862	18868	0.49643	292.61459	145.2626609
18862	19065	0.49607	3397.47241	1685.384138
18863	18845	0.49453	754.67261	373.2082458
18863	18866	0.06552	1530.65320	100.2883977

18863	18967	0.24277	891.86639	216.5184035
18864	18796	0.07199	474.10938	34.13113427
18864	18912	0.06753	490.37222	33.11483602
18865	18843	0.41204	4905.49854	2021.261618
18865	18884	0.44963	4965.73047	2232.741391
18866	18863	0.06552	1363.25317	89.3203477
18866	18869	0.06278	1530.65320	96.0944079
18868	18862	0.49643	132.36665	65.71077606
18868	18870	0.27332	292.61459	79.97741974
18869	18866	0.06278	1363.25317	85.58503401
18869	18876	0.06001	1530.65320	91.85449853
18870	1592	0.54722	13.35798	7.309753816
18870	18868	0.27332	132.36665	36.17845278
18870	18872	0.12106	306.06488	37.05221437
18872	18870	0.12106	145.72462	17.6414225
18872	18873	0.01241	306.06488	3.798265161
18873	18872	0.01241	145.72462	1.808442534
18873	18875	0.09584	306.06488	29.3332581
18874	18589	0.50315	639.55511	321.7921536
18874	18982	0.34177	1138.70874	389.1764861
18875	18850	0.01393	1522.32568	21.20599672
18875	18873	0.09584	145.72462	13.96624758
18875	19073	0.49599	1245.30786	617.6602455
18876	18869	0.06001	1363.25317	81.80882273
18876	18881	0.05932	1530.65320	90.79834782
18877	18852	0.01489	764.96503	11.3903293
18877	19100	0.64928	772.02484	501.2602881
18881	1934	0.24607	285.67001	70.29481936
18881	18876	0.05932	1363.25317	80.86817804
18881	18890	0.24141	1559.95813	376.5894922
18882	18720	0.17597	1375.64197	242.0717175
18882	18936	0.12919	1397.42029	180.5327273
18884	1827	0.49981	286.85117	143.3710833
18884	1828	0.61995	316.65768	196.3119287
18884	18865	0.44963	4905.49854	2205.659309
18884	18886	0.04900	4477.89893	219.4170476
18886	18884	0.04900	4422.59717	216.7072613
18886	18891	0.84188	4477.89893	3769.853551
18887	18858	0.01510	0.00000	0
18887	18890	0.01242	1399.49719	17.3817551
18889	18836	0.05448	404.37140	22.03015387
18889	18924	0.13015	414.27139	53.91742141
18890	18858	0.02023	1559.95813	31.55795297
18890	18881	0.24141	1399.49719	337.8526166
18890	18887	0.01242	0.00000	0
18891	18854	0.83469	4477.89893	3737.657458
18891	18886	0.84188	4422.59717	3723.296105
18898	312	0.21167	396.59207	83.94664346
18898	323	0.14374	508.35425	73.0708399
18898	18830	0.06422	1034.88293	66.46018176
18898	18923	0.06477	381.02753	24.67915312
18900	317	0.18778	17.01858	3.195748952
18900	18766	0.13423	32.17327	4.318618032
18900	18951	0.13267	49.75252	6.600666828

18901	18847	0.05750	569.28278	32.73375985
18901	18914	0.02729	543.70343	14.8376666
18908	18759	0.14975	12682.60547	1899.220169
18908	19002	0.35257	13224.71582	4662.638057
18909	18842	0.06871	6374.22217	437.9728053
18911	19053	0.42282	6564.51904	2775.60994
18912	302	0.14015	15.66773	2.19583236
18912	18864	0.06753	474.10938	32.01660643
18912	18935	0.06814	506.20468	34.4927869
18914	312	0.29094	22.14246	6.442127312
18914	317	0.19152	286.53549	54.87727704
18914	18901	0.02729	569.28278	15.53572707
18914	18942	0.07598	337.63950	25.65384921
18922	18924	0.00909	191.90096	1.744379726
18922	18944	0.24076	185.17795	44.58344324
18923	18898	0.06477	381.97223	24.74034134
18923	18925	0.12842	0.00000	0
18923	18932	0.02464	381.02753	9.388518339
18924	18889	0.13015	404.37140	52.62893771
18924	18922	0.00909	185.17795	1.683267566
18924	19004	0.34528	531.60956	183.5541489
18925	303	0.45384	6.97109	3.163759486
18925	323	0.09271	6.98327	0.647418962
18925	18923	0.12842	0.00000	0
18932	18923	0.02464	381.97223	9.411795747
18932	18956	0.05583	381.02753	21.272767
18935	18912	0.06814	467.27197	31.83991204
18935	18952	0.04690	506.20468	23.74099949
18936	18882	0.12919	1375.64197	177.7191861
18936	19089	0.37647	1397.42029	526.0868166
18942	18914	0.07598	370.61664	28.15945231
18942	18948	0.02569	337.63950	8.673958755
18944	18922	0.24076	191.90096	46.20207513
18944	19115	0.85936	185.17795	159.1345231
18946	18773	0.25314	5440.96729	1377.32646
18946	18991	0.22308	4999.47168	1115.282142
18948	18942	0.02569	370.61664	9.521141482
18948	18953	0.00670	337.63950	2.26218465
18951	18900	0.13267	49.19184	6.526281413
18951	19006	0.24451	49.75252	12.16498867
18952	18935	0.04690	467.27197	21.91505539
18952	19014	0.26464	506.20468	133.9620065
18953	18948	0.00670	370.61664	2.483131488
18953	18962	0.03572	337.63950	12.06048294
18956	18932	0.05583	381.97223	21.3255096
18956	18960	0.01230	381.02753	4.686638619
18960	18956	0.01230	381.97223	4.698258429
18960	18961	0.01507	381.02753	5.742084877
18961	18960	0.01507	381.97223	5.756321506
18961	18962	0.50014	129.71661	64.87646533
18961	18977	0.08430	421.40314	35.5242847
18962	18953	0.03572	370.61664	13.23842638
18962	18961	0.50014	96.08195	48.05442647
18962	18974	0.05694	293.38974	16.7056118

18964	18819	0.25894	119.62521	30.97575188
18964	19038	0.24500	120.81736	29.6002532
18967	1934	0.25208	184.86807	46.60154309
18967	18863	0.24277	966.00726	234.5175825
18967	19059	0.24943	1072.10107	267.4141699
18974	332	0.24979	46.02954	11.4977188
18974	18962	0.05694	292.73221	16.66817204
18974	19108	0.32283	302.02264	97.50196887
18977	332	0.24945	75.52859	18.84060678
18977	18961	0.08430	455.98248	38.43932306
18977	18979	0.02958	364.35938	10.77775046
18978	18983	0.75785	185.17795	140.3371094
18978	19036	0.47642	191.90096	91.42545536
18979	18977	0.02958	397.91129	11.77021596
18979	18990	0.05246	364.35938	19.11429307
18982	1936	2.53072	265.54108	672.010122
18982	1974	0.48548	85.46381	41.49097048
18982	18874	0.34177	639.55511	218.5807499
18982	19063	0.14911	1411.84839	210.5207134
18983	18978	0.75785	191.90096	145.4321425
18983	19092	0.67951	185.17795	125.8302688
18990	18979	0.05246	397.91129	20.87442627
18990	19010	0.04858	364.35938	17.70057868
18991	1907	0.27089	63.83538	17.29236609
18991	18946	0.22308	5440.96729	1213.770983
18991	19005	0.02564	5047.07373	129.4069704
18998	1857	0.45388	86.32948	39.18322438
18998	1882	0.75087	14.89643	11.18528239
18998	18750	0.50261	517.75702	260.2298558
18998	19149	0.41997	525.20526	220.570453
19000	1668	0.75659	0.68977	0.521873084
19000	1857	0.56636	0.69540	0.393846744
19002	1883	0.71950	63.88181	45.9629623
19002	1907	0.23235	19.75385	4.589807048
19002	18908	0.35257	12682.60547	4471.506211
19002	19094	0.12348	13309.53809	1643.461763
19004	18924	0.34528	514.98657	177.8145629
19004	19102	0.72273	531.60956	384.2101773
19005	18991	0.02564	5488.36182	140.7215971
19005	19096	0.12573	5047.07373	634.5685801
19006	18951	0.24451	49.19184	12.0278968
19006	19032	0.03736	49.75252	1.858754147
19010	18990	0.04858	397.91129	19.33053047
19010	19103	0.14634	364.35938	53.32035167
19013	19016	0.13808	191.90096	26.49768456
19013	19035	0.13299	185.17795	24.62681557
19014	18952	0.26464	467.27197	123.6588541
19014	19192	0.51019	506.20468	258.2605657
19016	19013	0.13808	185.17795	25.56937134
19016	19043	0.69424	191.90096	133.2253225
19018	2022	2.11261	0.00000	0
19018	18509	0.99471	1421.95776	1414.435603
19018	19374	1.01546	1391.20007	1412.708023
19032	318	0.25651	9.94362	2.550637966

19032	1668	0.34776	2.14583	0.746233841
19032	19006	0.03736	49.19184	1.837807142
19032	19181	0.47069	38.25346	18.00552109
19033	18519	1.00275	1425.82788	1429.748907
19033	19091	0.06386	1508.98853	96.36400753
19035	19013	0.13299	191.90096	25.52090867
19035	19036	0.05472	185.17795	10.13293742
19036	18978	0.47642	185.17795	88.22247894
19036	19035	0.05472	191.90096	10.50082053
19038	1667	0.33923	102.77404	34.86403759
19038	1836	0.50093	0.40331	0.202030078
19038	18964	0.24500	119.62521	29.30817645
19038	19205	0.50393	18.45382	9.299433513
19039	18822	0.50268	924.22369	464.5887645
19039	19042	0.48613	257.55209	125.2037975
19039	19396	1.00989	986.88129	996.641546
19040	19041	0.00689	261.90015	1.804492034
19040	19044	0.04001	257.55209	10.30465912
19041	19040	0.00689	257.55209	1.7745339
19041	19042	0.01034	261.90015	2.708047551
19042	19039	0.48613	261.90015	127.3175199
19042	19041	0.01034	257.55209	2.663088611
19043	19016	0.69424	185.17795	128.55794
19043	19104	0.22321	191.90096	42.83421328
19044	19040	0.04001	261.90015	10.478625
19044	19046	0.14894	257.55209	38.35980828
19046	19044	0.14894	261.90015	39.00740834
19046	19048	0.19790	257.55209	50.96955861
19048	67	4.50000	257.55209	1158.984405
19048	19046	0.19790	261.90015	51.83003969
19049	18536	1.00877	1309.38623	1320.869547
19049	19127	0.25484	1568.56287	399.7325618
19050	18535	1.01118	750.90106	759.2961339
19050	19126	0.25210	664.02045	167.3995554
19053	1836	0.50253	66.76638	33.55210894
19053	19211	0.50195	6506.44482	3265.909977
19059	18967	0.24943	1150.87537	287.0628435
19059	19231	0.51000	1072.10107	546.7715457
19061	1977	0.67280	30.64579	20.61848751
19061	1978	1.04661	2.28963	2.396349654
19061	18853	0.50110	2201.22314	1103.032915
19061	19420	1.00052	1788.47327	1789.403276
19063	18982	0.14911	924.84674	137.9038974
19063	19077	0.00784	1411.84839	11.06889138
19065	1592	0.54790	105.73963	57.93474328
19065	1804	0.48465	28.75657	13.93687165
19065	18862	0.49607	3364.30542	1668.93099
19065	19133	0.25584	3293.90234	842.7119747
19067	1974	0.52198	78.60805	41.03182994
19067	1977	0.61458	104.82764	64.42497099
19067	18861	0.49932	3269.46411	1632.508819
19067	19422	0.99585	2873.60059	2861.675148
19073	1592	0.45121	0.00000	0
19073	18875	0.49599	1216.26086	603.253224

19073	19113	0.13264	1245.30786	165.1776346
19075	19076	0.37072	708.79675	262.7651312
19075	19079	0.50126	709.55896	355.6735243
19076	1576	0.41195	43.28189	17.82997459
19076	1776	1.26733	388.24670	492.0366903
19076	19075	0.37072	709.55896	263.0476977
19076	19106	0.64113	1047.07935	671.3139837
19077	19063	0.00784	924.84674	7.250798442
19077	19418	1.03269	1411.84839	1458.001714
19079	19075	0.50126	708.79675	355.2914589
19079	19080	0.01448	709.55896	10.27441374
19079	19090	0.01399	740.13501	10.35448879
19080	19079	0.01448	1448.93176	20.98053188
19080	19083	0.48683	1435.65503	698.9199383
19083	19080	0.48683	1448.93176	705.3834487
19083	19084	0.12894	1435.65503	185.1133596
19084	19083	0.12894	1448.93176	186.8252611
19084	19085	0.05036	1435.65503	72.29958731
19085	1776	1.29046	97.76771	126.165319
19085	1777	0.36026	42.16286	15.18959194
19085	19084	0.05036	1448.93176	72.96820343
19085	19086	0.05393	1511.65320	81.52345708
19086	19085	0.05393	1526.70837	82.33538239
19086	19098	0.07510	1511.65320	113.5251553
19089	18936	0.37647	1375.64197	517.8879324
19089	19117	0.15203	1397.42029	212.4498067
19090	19079	0.01399	0.00000	0
19090	19080	0.01954	726.09607	14.18791721
19090	19217	0.47183	740.13501	349.2179018
19091	2022	1.85719	206.50525	383.5194852
19091	19033	0.06386	1425.82788	91.05336842
19091	19384	0.94283	1719.76416	1621.445243
19092	18983	0.67951	191.90096	130.3986213
19092	19116	0.27130	185.17795	50.23877784
19093	19102	0.32738	514.98657	168.5963033
19093	19111	0.22652	531.60956	120.4201975
19094	19002	0.12348	12764.12598	1576.114276
19094	19137	0.25088	13309.53809	3339.096916
19096	19005	0.12573	5488.36182	690.0517316
19096	19143	0.25090	5047.07373	1266.310799
19098	19086	0.07510	1526.70837	114.6557986
19098	19101	0.02148	1511.65320	32.47031074
19099	303	0.14097	0.23612	0.033285836
19099	1667	0.38945	0.23607	0.091937462
19100	18877	0.64928	764.96503	496.6764947
19100	19107	0.04938	772.02484	38.1225866
19101	19098	0.02148	1526.70837	32.79369579
19101	19112	0.14880	1511.65320	224.9339962
19102	19004	0.72273	514.98657	372.1962437
19102	19093	0.32738	531.60956	174.0383378
19102	19110	0.03665	0.00000	0
19103	303	0.13789	89.28803	12.31192646
19103	313	0.27088	157.18324	42.57779605
19103	19010	0.14634	397.91129	58.23033818

19103	19198	0.37611	397.86981	149.6428142
19104	19043	0.22321	185.17795	41.33357022
19104	19119	0.55766	191.90096	107.0154894
19106	19076	0.64113	1054.34265	675.9707032
19106	19107	0.47640	732.80670	349.1091119
19106	19189	0.35749	948.45966	339.0648439
19107	1579	0.40186	32.59615	13.09908884
19107	19100	0.04938	764.96503	37.77397318
19107	19106	0.47640	739.42871	352.2638374
19108	313	0.25791	31.04291	8.006276918
19108	318	0.21016	44.15528	9.279673645
19108	18974	0.32283	300.38507	96.97331215
19108	19186	0.34201	227.95352	77.96238338
19110	19102	0.03665	0.00000	0
19111	19093	0.22652	514.98657	116.6547578
19111	19132	0.22394	531.60956	119.0486449
19112	19101	0.14880	1526.70837	227.1742055
19112	19120	0.17813	1511.65320	269.2707845
19113	19073	0.13264	1216.26086	161.3248405
19113	19226	0.36614	1245.30786	455.9570199
19115	18944	0.85936	191.90096	164.912009
19115	19119	0.12722	185.17795	23.5583388
19116	19092	0.27130	191.90096	52.06273045
19116	19139	0.14421	185.17795	26.70451217
19117	19089	0.15203	1375.64197	209.1388487
19117	19122	0.03064	1397.42029	42.81695769
19119	19104	0.55766	185.17795	103.2663356
19119	19115	0.12722	191.90096	24.41364013
19120	19112	0.17813	1526.70837	271.9525619
19120	19121	0.06772	1511.65320	102.3691547
19121	19120	0.06772	1526.70837	103.3886908
19121	19122	0.31488	1511.65320	475.9893596
19122	19117	0.03064	1375.64197	42.14966996
19122	19121	0.31488	1526.70837	480.7299315
19122	19141	0.50758	191.90096	97.40508928
19125	18909	0.67620	6374.22217	4310.249031
19126	19050	0.25210	750.90106	189.3021572
19126	19215	0.25491	664.02045	169.2654529
19127	1978	0.96356	20.37049	19.62818934
19127	19049	0.25484	1309.38623	333.6839869
19127	19218	0.25654	1588.80322	407.5915781
19130	1935	0.78692	2.70669	2.129948495
19130	1936	1.99647	2.66203	5.314663034
19132	19111	0.22394	514.98657	115.3260925
19132	19138	0.04197	531.60956	22.31165323
19133	19065	0.25584	3260.23486	834.0984866
19133	19223	0.24637	3293.90234	811.5187195
19136	1742	2.18170	0.04745	0.103521665
19136	1743	1.70011	0.04744	0.080653218
19137	19094	0.25088	12764.12598	3202.263926
19137	19168	0.13187	13309.53809	1755.128788
19138	19132	0.04197	514.98657	21.61398634
19138	19478	0.83841	531.60956	445.7067712
19139	19116	0.14421	191.90096	27.67403744

19139	19142	0.04766	185.17795	8.825581097
19140	19141	0.81949	185.17795	151.7514782
19140	19142	0.53329	191.90096	102.338863
19141	19122	0.50758	185.17795	93.99262386
19141	19140	0.81949	191.90096	157.2609177
19142	19139	0.04766	191.90096	9.145999754
19142	19140	0.53329	185.17795	98.75354896
19143	19096	0.25090	5488.36182	1377.029981
19143	19177	0.13132	5047.07373	662.7817222
19149	18998	0.41997	554.66718	232.9435756
19149	19162	0.08156	525.20526	42.83574101
19153	19154	0.12135	2262.27490	274.5270591
19153	19156	0.12689	2261.24023	286.9287728
19154	1883	0.53482	40.61092	21.71953223
19154	19153	0.12135	2261.24023	274.4015019
19154	19155	0.11101	1860.40100	206.523115
19154	19266	0.19389	836.28845	162.1479676
19155	19154	0.11101	1862.85413	206.795437
19155	19158	0.21929	1860.40100	407.9673353
19156	19153	0.12689	2262.27490	287.0600621
19156	19157	0.24821	2261.24023	561.2624375
19157	1884	0.22064	82.62206	18.22973132
19157	19156	0.24821	2262.27490	561.5192529
19157	30192	0.31733	2297.45581	729.0516522
19158	19155	0.21929	1862.85413	408.5052822
19158	19163	0.14150	1860.40100	263.2467415
19159	19160	0.32268	2139.46411	690.362279
19159	30077	0.33702	2140.59790	721.4243043
19160	19159	0.32268	2140.59790	690.7281304
19160	19162	0.17858	2139.46411	382.0655008
19162	19149	0.08156	554.66718	45.2386552
19162	19160	0.17858	2140.59790	382.267973
19162	19165	0.25029	3805.82202	952.5591934
19162	19321	0.42763	2151.66943	920.1183984
19163	513	0.19589	86.27828	16.90105227
19163	19158	0.14150	1862.85413	263.5938594
19163	19168	0.46706	1846.69531	862.5175115
19164	5074	0.10112	8977.04199	907.758486
19164	5207	0.02815	2361.42139	66.47401213
19165	19162	0.25029	3902.56226	976.7723081
19165	19166	0.24961	3805.82202	949.9712344
19166	1857	0.51691	15.87378	8.20531562
19166	1861	0.37107	101.26420	37.57610669
19166	19165	0.24961	3902.56226	974.1185657
19166	19167	0.25166	3878.39331	976.0364604
19167	19166	0.25166	3975.77368	1000.543204
19167	19169	0.24891	3878.39331	965.3708788
19168	19137	0.13187	12764.12598	1683.205293
19168	19163	0.46706	1848.89294	863.5439366
19168	19174	0.24619	300.22681	73.91283835
19168	23458	0.18478	14496.33691	2678.633134
19169	19167	0.24891	3975.77368	989.6098267
19169	19170	0.01036	3878.39331	40.18015469
19170	19169	0.01036	3975.77368	41.18901532

19170	19171	0.01103	3878.39331	42.77867821
19171	19170	0.01103	3975.77368	43.85278369
19171	19172	0.01517	3878.39331	58.83522651
19172	19171	0.01517	3975.77368	60.31248673
19172	19175	0.44270	3986.35840	1764.760864
19172	19298	0.34605	232.10431	80.31969648
19174	522	0.23728	22.64179	5.372443931
19174	1907	0.53758	1.58511	0.852123434
19174	19168	0.24619	165.10506	40.64721472
19174	19177	0.25245	307.20224	77.55320549
19175	1860	0.49777	52.07509	25.92141755
19175	19172	0.44270	4084.48950	1808.203502
19175	19176	0.01724	3999.66602	68.95424218
19176	19175	0.01724	4097.23438	70.63632071
19176	19179	0.31175	3999.66602	1246.895882
19177	19143	0.13132	5488.36182	720.7316742
19177	19174	0.25245	179.08383	45.20971288
19177	19279	0.24818	5100.82764	1265.923404
19179	1668	0.50864	54.21646	27.57666021
19179	1858	0.35575	85.24112	30.32452844
19179	19176	0.31175	4097.23438	1277.312818
19179	19181	0.31159	3885.75928	1210.763734
19181	19032	0.47069	37.68020	17.73569334
19181	19179	0.31159	3983.44775	1241.202484
19181	19183	0.16550	3866.28931	639.8708808
19182	19183	0.05930	4135.61621	245.2420413
19182	19186	0.15527	4034.48486	626.4344642
19183	318	0.28452	21.69059	6.171406667
19183	1858	0.36970	201.22960	74.39458312
19183	19181	0.16550	3963.40454	655.9434514
19183	19182	0.05930	4034.48486	239.2449522
19186	19108	0.34201	225.68636	77.18699198
19186	19182	0.15527	4135.61621	642.1371289
19186	19190	0.25324	3812.94653	965.5905793
19189	1576	0.61336	129.07957	79.17224506
19189	1579	0.47245	42.87054	20.25418662
19189	19106	0.35749	949.10083	339.2940557
19189	19304	0.30892	856.32098	264.5346771
19190	313	0.27372	63.24892	17.31249438
19190	19186	0.25324	3911.81079	990.6269645
19190	19198	0.24546	3751.09912	920.74479
19192	19014	0.51019	467.27197	238.3974864
19192	19195	0.06620	3932.59912	260.3380617
19192	19201	0.18691	4306.72803	804.9705361
19195	19192	0.06620	3802.68579	251.7377993
19195	19197	0.11075	3932.59912	435.5353525
19197	303	0.38360	95.29697	36.55591769
19197	19195	0.11075	3802.68579	421.1474512
19197	19198	0.13747	3837.30225	527.5139403
19198	19103	0.37611	428.02213	160.9834033
19198	19190	0.24546	3848.47632	944.6469975
19198	19197	0.13747	3709.91846	510.0024907
19198	19515	0.66387	124.85904	82.89017088
19201	19192	0.18691	4397.70850	821.9756957

19201	19202	0.16816	4306.72803	724.2193855
19202	1667	0.47091	31.97924	15.05934391
19202	19201	0.16816	4397.70850	739.5186614
19202	19205	0.32934	4292.89941	1413.823492
19204	1935	0.73665	98.71030	72.7149425
19204	18824	1.00126	690.96106	691.8316709
19204	19385	0.49926	807.10046	402.9529757
19205	1837	0.35726	307.82321	109.97292
19205	19038	0.50393	19.07972	9.6148433
19205	19202	0.32934	4383.29980	1443.595956
19205	19206	0.49336	4352.62354	2147.41035
19206	1836	0.49905	22.25431	11.10601341
19206	19205	0.49336	4440.99023	2191.00694
19206	19208	0.12308	4338.91309	534.0334231
19208	19206	0.12308	4435.73633	545.9504275
19208	19211	0.37240	4338.91309	1615.811235
19211	19208	0.37240	4435.73633	1651.868209
19211	19212	0.01103	4023.71973	44.38162862
19211	19260	0.05753	4448.27246	255.9091146
19212	19125	0.25792	6374.22217	1644.039382
19212	19211	0.01103	2062.37061	22.74794783
19212	19220	0.49993	1739.06531	869.4109204
19215	19126	0.25491	750.90106	191.4121892
19215	19296	0.24929	664.02045	165.533658
19216	1740	1.01703	3.66397	3.726367409
19216	1828	0.56276	3.69915	2.081733654
19217	19090	0.47183	726.09607	342.5939087
19217	19238	0.01463	740.13501	10.8281752
19218	19127	0.25654	1329.75671	341.1357864
19218	19294	0.24645	1588.80322	391.5605536
19220	19212	0.49993	1732.11218	865.9348421
19220	19233	0.49994	1739.06531	869.4283111
19222	1587	0.20717	129.49750	26.82799708
19222	19223	0.37775	3260.23486	1231.553718
19222	19225	0.12213	3226.18091	394.0134745
19223	19133	0.24637	3260.23486	803.2240625
19223	19222	0.37775	3293.90234	1244.271609
19225	19222	0.12213	3189.66211	389.5534335
19225	19228	0.24936	3226.18091	804.4804717
19226	1579	0.52663	137.39474	72.35619193
19226	19113	0.36614	1216.26086	445.3217513
19226	19229	0.12915	2767.94604	357.4802311
19226	19300	0.25068	3980.23486	997.7652747
19228	1592	0.53515	63.18320	33.81248948
19228	19225	0.24936	3189.66211	795.3741437
19228	19229	0.12158	3043.11426	369.9818317
19228	19333	0.37284	268.91574	100.2625445
19229	1586	0.28627	247.68060	70.90352536
19229	19226	0.12915	2795.43359	361.0302481
19229	19228	0.12158	3013.56494	366.3892254
19231	19059	0.51000	1150.87537	586.9464387
19231	19436	0.49826	1072.10107	534.1850791
19233	19220	0.49994	1732.11218	865.9521633
19233	19243	0.24828	1739.06531	431.7751352

19235	19237	0.15794	734.45367	115.9996126
19235	19242	0.01154	748.49249	8.637603335
19236	1577	0.51962	8.44804	4.389770545
19236	19237	0.09763	748.49249	73.0753218
19236	19238	0.23333	742.81915	173.3219923
19237	19235	0.15794	748.49249	118.2169039
19237	19236	0.09763	734.45367	71.7047118
19238	1777	0.60655	16.72307	10.14337811
19238	19217	0.01463	726.09607	10.6227855
19238	19236	0.23333	756.94055	176.6169385
19242	19235	0.01154	734.45367	8.475595352
19242	19248	0.01244	748.49249	9.311246576
19243	19233	0.24828	1732.11218	430.0488121
19243	19249	0.49442	1739.06531	859.8286706
19248	19242	0.01244	734.45367	9.136603655
19248	19267	0.09801	748.49249	73.35974894
19249	19243	0.49442	1732.11218	856.390904
19249	19252	0.25514	1739.06531	443.7051232
19251	19252	0.11032	1732.11218	191.0866157
19251	19254	0.14107	1739.06531	245.3299433
19252	19249	0.25514	1732.11218	441.9311016
19252	19251	0.11032	1739.06531	191.853685
19254	19251	0.14107	1732.11218	244.3490652
19254	19258	0.01177	1739.06531	20.4687987
19258	19254	0.01177	1732.11218	20.38696036
19258	19276	0.11929	1739.06531	207.4531008
19260	19272	0.07548	4448.27246	335.7556053
19266	513	0.46477	0.57702	0.268181585
19266	1884	0.41472	58.90520	24.42916454
19266	19154	0.19389	834.68347	161.836778
19266	19323	0.24863	895.18604	222.5701051
19267	19248	0.09801	734.45367	71.9838042
19267	19306	0.24664	748.49249	184.6081877
19271	513	0.47458	57.18483	27.13877662
19271	522	0.24532	137.81731	33.80934249
19271	22665	0.00693	14446.67578	100.1154632
19271	22666	0.00646	14088.24512	91.01006348
19272	19212	0.13294	4419.82617	587.571691
19272	19275	0.01841	4448.27246	81.89269599
19273	66	4.50000	1215.08386	5467.87737
19273	19277	0.06573	1207.50610	79.36937595
19275	19272	0.01841	4419.82617	81.36899979
19275	19335	0.24193	4448.27246	1076.170556
19276	19258	0.11929	1732.11218	206.623662
19276	19706	0.77869	1739.06531	1354.192766
19277	19273	0.06573	1215.08386	79.86746212
19277	19289	0.11545	1207.50610	139.4065792
19279	19177	0.24818	5413.99756	1343.645914
19279	19292	0.06176	5100.82764	315.027115
19287	1219	0.19160	215.65277	41.31907073
19287	1239	0.23842	336.91461	80.32718132
19287	11289	0.24848	1802.43860	447.8699433
19287	12088	0.15913	1629.35913	259.2799184
19289	19277	0.11545	1215.08386	140.2814316

19289	19291	0.03565	1207.50610	43.04759247
19291	19289	0.03565	1215.08386	43.31773961
19291	19299	0.03269	1207.50610	39.47337441
19292	522	0.27241	5.04927	1.375471641
19292	533	0.32880	283.39478	93.18020366
19292	19279	0.06176	5413.99756	334.3684893
19292	19354	0.17744	5013.42578	889.5822704
19293	19302	0.01397	14446.67578	201.8200606
19293	23734	0.12251	14030.89160	1718.92453
19294	19218	0.24645	1329.75671	327.7185412
19294	19412	0.25316	1588.80322	402.2214232
19296	19215	0.24929	750.90106	187.1921252
19296	19413	0.25265	664.02045	167.7647667
19298	19172	0.34605	231.35367	80.0599375
19298	19352	0.16474	232.10431	38.23686403
19299	19291	0.03269	1215.08386	39.72109138
19299	19301	0.00942	1207.50610	11.37470746
19300	1586	0.13693	280.29645	38.3809929
19300	19226	0.25068	3922.35425	983.2557634
19300	19355	0.16061	4043.08008	649.3590916
19301	19299	0.00942	1215.08386	11.44608996
19301	19314	0.07551	1207.50610	91.17878561
19302	19293	0.01397	14030.89160	196.0115557
19302	19307	0.01117	12089.14258	135.0357226
19302	19312	0.03621	2884.16016	104.4354394
19304	19189	0.30892	856.60236	264.6216011
19304	19407	0.23513	856.32098	201.346752
19306	19267	0.24664	734.45367	181.1456532
19306	19326	0.13017	748.49249	97.43126742
19307	19302	0.01117	11630.59375	129.9137322
19307	19319	0.05765	12089.14258	696.9390697
19312	19302	0.03621	2926.92554	105.9839738
19312	19329	0.07884	2884.16016	227.387187
19314	19301	0.07551	1215.08386	91.75098227
19314	19318	0.07638	1207.50610	92.22931592
19318	19314	0.07638	1215.08386	92.80810523
19318	19320	0.01597	1207.50610	19.28387242
19319	19307	0.05765	11630.59375	670.5037297
19319	19353	0.09585	12089.14258	1158.744316
19320	19318	0.01597	1215.08386	19.40488924
19320	19327	0.05710	1207.50610	68.94859831
19321	1861	0.35347	46.86277	16.56458331
19321	19162	0.42763	2085.52490	891.833013
19321	19345	0.07058	2133.64258	150.5924933
19323	19266	0.24863	893.00867	222.0287456
19323	19324	0.45983	248.11636	114.0913458
19323	19340	0.05810	843.89410	49.03024721
19324	513	0.24561	36.26612	8.907321733
19324	19323	0.45983	257.54099	118.4250734
19324	19325	0.23892	275.21423	65.75418383
19325	517	0.15789	451.90375	71.35108309
19325	19324	0.23892	284.17783	67.89576714
19325	19330	0.19858	480.81424	95.48009178
19326	1576	0.43986	34.57153	15.20663319

19326	1577	0.47942	44.43473	21.30289826
19326	19306	0.13017	734.45367	95.60383422
19326	19720	0.82695	824.99512	682.2297145
19327	19320	0.05710	1215.08386	69.38128841
19327	19332	0.03602	1207.50610	43.49436972
19329	19312	0.07884	2926.92554	230.7588096
19329	19330	0.03378	493.63968	16.67514839
19329	19356	0.05771	2438.37280	140.7184943
19330	19325	0.19858	493.63968	98.02696765
19330	19329	0.03378	480.81424	16.24190503
19332	2023	0.37332	30.44980	11.36751934
19332	19327	0.03602	1215.08386	43.76732064
19332	19338	0.03837	1177.05627	45.16364908
19333	1586	0.14885	36.33412	5.408333762
19333	1587	0.50151	64.53770	32.36630193
19333	19228	0.37284	260.52005	97.13229544
19333	19439	0.12818	355.02795	45.50748263
19335	1837	0.95306	20.11506	19.17085908
19335	19275	0.24193	4419.82617	1069.288545
19335	19404	0.10623	4468.86230	474.7272421
19338	19332	0.03837	1185.82654	45.50016434
19338	19348	0.03775	1177.05627	44.43387419
19340	19323	0.05810	832.29211	48.35617159
19340	19377	0.07292	843.89410	61.53675777
19345	19321	0.07058	2067.02319	145.8904968
19345	19683	0.43923	2133.64258	937.1598304
19348	19338	0.03775	1185.82654	44.76495189
19348	19360	0.03714	1177.05627	43.71586987
19352	19298	0.16474	231.35367	38.1132036
19352	19687	0.49586	232.10431	115.0912432
19353	19319	0.09585	11630.59375	1114.792411
19353	19393	0.11550	12089.14258	1396.295968
19354	19292	0.17744	5328.68311	945.521531
19354	21993	0.04557	5013.42578	228.4618128
19355	19300	0.16061	3990.55396	640.9228715
19355	19410	0.07969	4043.08008	322.1930516
19356	19329	0.05771	2493.96362	143.9266405
19356	19399	0.06929	2438.37280	168.9548513
19360	19348	0.03714	1185.82654	44.0415977
19360	19455	0.20845	1177.05627	245.3573795
19366	19368	0.21718	1006.72583	218.6407158
19366	19374	1.00044	1005.25739	1005.699703
19368	19366	0.21718	1005.25739	218.3218
19368	19369	0.24615	1006.72583	247.8055631
19369	19368	0.24615	1005.25739	247.4441065
19369	19370	0.25169	1006.72583	253.3828242
19370	19369	0.25169	1005.25739	253.0132325
19370	19372	0.25236	1006.72583	254.0573305
19372	2022	0.95526	758.88507	724.932552
19372	19370	0.25236	1005.25739	253.6867549
19372	19376	0.99842	247.84073	247.4491416
19374	19018	1.01546	1421.95776	1443.941227
19374	19366	1.00044	1006.72583	1007.168789
19374	19379	0.99974	319.29303	319.2100138

19374	20377	1.53722	2012.47290	3093.613591
19376	19372	0.99842	231.96730	231.6007917
19376	19384	1.00320	247.84073	248.6338203
19377	1673	0.13748	16.68257	2.293519724
19377	19340	0.07292	832.29211	60.69074066
19377	19492	0.11816	829.03583	97.95887367
19378	1449	0.24730	0.18712	0.046274776
19378	1513	0.98974	0.18167	0.179806066
19379	19374	0.99974	472.53989	472.4170296
19379	19383	0.49987	319.29303	159.6050069
19383	19379	0.49987	472.53989	236.2085148
19383	19395	1.50121	319.29303	479.3258896
19384	19091	0.94283	1632.33313	1539.012645
19384	19376	1.00320	231.96730	232.7095954
19384	19396	1.99676	1868.93713	3731.818904
19384	20095	1.02352	89.51150	91.61681048
19385	19204	0.49926	789.67139	394.2513382
19385	19572	0.25271	807.10046	203.9623572
19393	19353	0.11550	11630.59375	1343.333578
19393	19427	0.04538	12146.46191	551.2064415
19393	19620	0.31031	68.43332	21.23554353
19395	19383	1.50121	325.65134	488.8710481
19395	19403	0.99907	319.29303	318.9960875
19396	19039	1.00989	949.42664	958.8164695
19396	19384	1.99676	1798.85474	3591.881191
19396	19476	0.08257	2835.75781	234.1485224
19397	1936	0.99209	10.14850	10.06822537
19397	1940	1.23826	10.08841	12.49207457
19399	19356	0.06929	2493.96362	172.8067392
19399	19511	0.12243	2438.37280	298.5299819
19403	19395	0.99907	325.65134	325.3484843
19403	19409	0.99974	319.29303	319.2100138
19404	19335	0.10623	4439.94141	471.654976
19404	19588	0.25007	4468.86230	1117.528395
19407	1580	0.47488	88.37543	41.9677242
19407	19304	0.23513	856.60236	201.4129129
19407	19444	0.01504	772.02435	11.61124622
19409	18807	1.54533	1237.09644	1911.722242
19409	19403	0.99974	325.65134	325.5666707
19409	19411	0.99835	519.01831	518.1619298
19409	19691	0.42262	1300.82361	549.7540741
19410	1580	0.52073	401.18417	208.9086328
19410	19355	0.07969	3990.55396	318.0072451
19410	19484	0.07524	3641.89575	274.0162362
19411	19409	0.99835	530.32300	529.4479671
19411	19414	1.00042	519.01831	519.2362977
19412	19294	0.25316	1329.75671	336.6412087
19412	19413	0.99904	1218.19214	1217.022676
19412	19416	0.97805	224.10519	219.1860811
19412	20145	1.02386	2439.13135	2497.329024
19413	1996	1.81454	145.08969	263.2710461
19413	19296	0.25265	750.90106	189.7151528
19413	19412	0.99904	1122.40137	1121.323865
19413	19414	1.00110	530.32300	530.9063553

19414	19411	1.00042	530.32300	530.5457357
19414	19413	1.00110	519.01831	519.5892301
19415	1938	1.09678	14.29417	15.67755977
19415	19423	0.90480	135.83530	122.9037794
19415	19425	0.59066	79.23172	46.79900774
19416	1978	0.95966	92.56202	88.82806811
19416	1983	0.51715	36.02359	18.62959957
19416	19412	0.97805	232.29968	227.200702
19416	19417	0.02099	318.60556	6.687530704
19417	19416	0.02099	325.97702	6.84225765
19417	19420	0.99559	318.60556	317.2005095
19418	19077	1.03269	924.84674	955.0799799
19418	19422	0.83425	920.23523	767.7062406
19418	19424	0.16479	1793.03870	295.4748474
19420	19061	1.00052	2170.96240	2172.0913
19420	19417	0.99559	325.97702	324.5394613
19420	19421	0.50400	318.11197	160.3284329
19420	19801	0.52982	1756.55408	930.6574827
19421	1977	0.59898	266.27719	159.4947113
19421	1980	0.52296	17.85966	9.339887794
19421	19420	0.50400	259.95267	131.0161457
19421	19422	0.50055	436.70862	218.5944997
19422	19067	0.99585	3240.97437	3227.524326
19422	19418	0.83425	1181.70422	985.8367455
19422	19421	0.50055	380.25043	190.3343527
19422	19660	0.36609	2735.15283	1001.3121
19423	19415	0.90480	93.52589	84.62222527
19423	19429	0.50056	135.83530	67.99371777
19424	19418	0.16479	1044.56799	172.1343591
19424	19425	0.49917	119.87547	59.83823836
19424	19821	0.55410	1676.46301	928.9281538
19425	19415	0.59066	119.87547	70.80564511
19425	19424	0.49917	79.23172	39.55009767
19427	523	0.26313	113.39162	29.83673697
19427	19393	0.04538	11688.62305	530.429714
19427	20747	0.03887	12033.06934	467.7254052
19429	19423	0.50056	93.52589	46.8153195
19429	19430	0.50262	135.83530	68.27353849
19430	19429	0.50262	93.52589	47.00798283
19430	19431	0.99973	135.83530	135.7986245
19431	19430	0.99973	93.52589	93.50063801
19431	19453	0.01512	135.83530	2.053829736
19436	19231	0.49826	1150.87537	573.4351619
19436	19453	0.49591	93.52589	46.38042411
19436	19746	0.49770	1137.91272	566.3391607
19439	19333	0.12818	345.68704	44.31016479
19439	19539	0.12864	355.02795	45.67079549
19444	19407	0.01504	773.80688	11.63805548
19444	19480	0.06073	772.02435	46.88503878
19453	19431	0.01512	93.52589	1.414111457
19453	19436	0.49591	135.83530	67.36208362
19455	19360	0.20845	1185.82654	247.1855423
19455	19460	0.04297	1177.05627	50.57810792
19456	1974	1.11349	2.64858	2.949167344

19456	1979	0.43177	2.72002	1.174423035
19460	19455	0.04297	1185.82654	50.95496642
19460	19493	0.11788	1177.05627	138.7513931
19463	522	0.38419	197.55191	75.8974683
19463	19488	0.07400	12207.22461	903.3346211
19463	19595	0.20932	268.98969	56.30492191
19463	20747	0.05214	11574.61719	603.5005403
19476	19396	0.08257	2728.22070	225.2691832
19476	19493	0.02190	2835.75781	62.10309604
19478	1712	2.12134	11.93185	25.31151068
19478	19138	0.83841	514.98657	431.7698902
19478	19540	0.46819	543.83972	254.6203185
19480	19444	0.06073	773.80688	46.99329182
19480	19538	0.06408	772.02435	49.47132035
19484	19410	0.07524	3599.64380	270.8371995
19484	19529	0.05963	3641.89575	217.1662436
19488	551	0.21334	720.43207	153.6969778
19488	19463	0.07400	11740.13477	868.769973
19488	19496	0.06626	12219.77441	809.6822524
19492	19377	0.11816	816.55157	96.48373351
19492	19495	0.23585	197.11694	46.4900303
19492	19565	0.12295	693.68079	85.28805313
19493	19460	0.11788	1185.82654	139.7852325
19493	19476	0.02190	2728.22070	59.74803333
19493	19544	0.17617	2003.01721	352.8715419
19493	19547	0.07863	2350.05640	184.7849347
19495	549	0.15877	64.69767	10.27204907
19495	1673	0.15883	4.95168	0.786475334
19495	19492	0.23585	200.45163	47.27651694
19495	19497	0.20689	218.39198	45.18311674
19496	19520	0.06208	12219.77441	758.6035954
19497	19495	0.20689	222.41159	46.01473386
19497	19504	0.24902	218.39198	54.38397086
19504	19497	0.24902	222.41159	55.38493414
19504	19505	0.02483	218.39198	5.422672863
19505	517	0.13062	122.35812	15.98241763
19505	518	0.27462	197.31087	54.18551112
19505	19504	0.02483	222.41159	5.52247978
19505	19508	0.07584	339.82446	25.77228705
19507	19508	0.02689	343.76648	9.243880647
19507	19509	0.04828	339.82446	16.40672493
19508	19505	0.07584	343.76648	26.07124984
19508	19507	0.02689	339.82446	9.137879729
19509	19507	0.04828	343.76648	16.59704565
19509	19511	0.07658	339.82446	26.02375715
19511	550	0.11995	117.62244	14.10881168
19511	19399	0.12243	2493.96362	305.335966
19511	19509	0.07658	343.76648	26.32563704
19511	19579	0.12852	2398.36792	308.2382451
19512	19548	0.05983	5013.42578	299.9532644
19512	21861	0.12907	5328.68311	687.773129
19515	19198	0.66387	125.00501	82.98707599
19515	19805	0.42408	124.85904	52.95022168
19518	19524	0.00836	0.00000	0

19520	19548	0.08367	12219.77441	1022.428525
19524	19518	0.00836	0.00000	0
19524	19525	0.02689	2669.77515	71.79025378
19524	19529	0.05999	1869.68555	112.1624361
19525	19524	0.02689	1869.68555	50.27584444
19525	19526	0.02689	2669.77515	71.79025378
19526	1582	0.18224	386.48187	70.43245599
19526	19525	0.02689	1869.68555	50.27584444
19526	19527	0.01172	2452.05347	28.73806667
19527	19526	0.01172	1655.54907	19.4030351
19527	19528	0.06481	2452.05347	158.9175854
19528	19527	0.06481	1655.54907	107.2961352
19528	19530	0.05861	2452.05347	143.7148539
19529	19484	0.05963	3599.64380	214.6467598
19529	19524	0.05999	2669.77515	160.1598112
19529	19580	0.10700	1004.05786	107.434191
19530	19528	0.05861	1655.54907	97.03173099
19530	19531	0.12686	671.23761	85.1532032
19530	19561	0.07523	1926.39417	144.9226334
19531	19530	0.12686	664.34650	84.27899699
19531	19532	0.06205	671.23761	41.6502937
19532	1581	0.18458	343.13965	63.3367166
19532	19531	0.06205	664.34650	41.22270033
19532	19533	0.05999	1018.49774	61.09967942
19533	1580	0.13858	173.15894	23.99636591
19533	19532	0.05999	1007.48615	60.43909414
19533	19534	0.12273	930.64417	114.217959
19534	19533	0.12273	923.17560	113.3013414
19534	19535	0.12618	384.59210	48.52783118
19534	19638	0.18332	546.05206	100.1022636
19535	19534	0.12618	373.31659	47.10508733
19535	19536	0.07984	384.59210	30.70583326
19536	1596	0.18377	267.48557	49.1558232
19536	19535	0.07984	373.31659	29.80559655
19536	19537	0.04496	643.64923	28.93846938
19537	19536	0.04496	640.80212	28.81046332
19537	19538	0.12480	643.64923	80.3274239
19538	19480	0.06408	773.80688	49.58554487
19538	19537	0.12480	640.80212	79.97210458
19538	19587	0.10475	148.47755	15.55302336
19539	1588	0.29288	143.60498	42.05902654
19539	19439	0.12864	345.68704	44.46918083
19539	19555	0.06029	361.48798	21.79411031
19540	19478	0.46819	526.91840	246.6979257
19540	19622	0.53621	543.83972	291.6122963
19544	19493	0.17617	1983.63501	349.4569797
19544	19839	0.93307	2003.01721	1868.955268
19547	19493	0.07863	2270.67163	178.5429103
19547	19567	0.05070	2350.05640	119.1478595
19548	19512	0.05983	5328.68311	318.8151105
19548	19552	0.01789	2081.62354	37.24024513
19548	19566	0.08013	15732.57617	1260.651329
19552	19488	0.22001	11748.57910	2584.804888
19552	19548	0.01789	5909.68262	105.7242221

19552	19570	0.03802	2312.91333	87.93696481
19555	19539	0.06029	355.32501	21.42254485
19555	19628	0.10812	361.48798	39.0840804
19561	19530	0.07523	1136.78076	85.52001657
19561	19583	0.03232	1926.39417	62.26105957
19565	19492	0.12295	677.86188	83.34311815
19565	19675	0.18380	693.68079	127.4985292
19566	19623	0.18958	15732.57617	2982.58179
19567	2023	0.43349	1727.22095	748.7330096
19567	19547	0.05070	2270.67163	115.1230516
19567	19599	0.03862	1026.52283	39.64431169
19570	19552	0.03802	1819.19641	69.16584751
19570	19636	0.08559	2312.91333	197.9622519
19571	19552	0.07452	16070.35449	1197.562817
19572	19385	0.25271	789.67139	199.557857
19572	19729	0.24767	807.10046	199.8945709
19579	19511	0.12852	2459.66406	316.116025
19579	19689	0.17940	2398.36792	430.2672048
19580	19529	0.10700	1761.89551	188.5228196
19580	19626	0.06521	1004.05786	65.47461305
19583	19561	0.03232	1136.78076	36.74075416
19583	19619	0.03455	1926.39417	66.55691857
19587	19538	0.10475	147.41295	15.44150651
19587	19643	0.08023	148.47755	11.91235384
19588	19404	0.25007	4439.94141	1110.296148
19588	20041	0.68743	4468.86230	3072.030011
19595	523	0.05912	193.07877	11.41481688
19595	551	0.12836	11.13929	1.429839264
19595	19463	0.20932	274.43567	57.44487444
19595	19658	0.11090	201.08005	22.29977755
19599	19567	0.03862	991.79224	38.30301631
19599	19768	0.25050	1026.52283	257.1439689
19615	534	0.09201	446.01163	41.03753008
19615	19571	0.08979	16070.35449	1442.95713
19619	19583	0.03455	1136.78076	39.27577526
19619	19632	0.03121	1926.39417	60.12276205
19620	523	0.06975	46.99352	3.27779802
19620	550	0.10318	103.45892	10.67489137
19620	19393	0.31031	67.72203	21.01482313
19620	19692	0.12624	87.43130	11.03732731
19622	19540	0.53621	526.91840	282.5389153
19622	19819	0.54761	543.83972	297.8120691
19623	19655	0.09510	15732.57617	1496.167994
19626	19580	0.06521	1761.89551	114.8932062
19626	19645	0.01920	1004.05786	19.27791091
19628	19555	0.10812	355.32501	38.41774008
19628	19641	0.01449	361.48798	5.23796083
19632	19619	0.03121	1136.78076	35.47892752
19632	19646	0.01944	1926.39417	37.44910266
19636	534	0.13945	403.75897	56.30418837
19636	19570	0.08559	1819.19641	155.7050207
19636	19700	0.11689	1909.15430	223.1610461
19638	1596	0.20637	685.34875	141.4354215
19638	19534	0.18332	549.85907	100.8001647

19638	19670	0.06185	371.48904	22.97659712
19641	19628	0.01449	355.32501	5.148659395
19641	19664	0.05239	361.48798	18.93835527
19643	19587	0.08023	147.41295	11.82694098
19643	19759	0.18610	148.47755	27.63167206
19645	1582	0.11811	104.38001	12.32832298
19645	19626	0.01920	1761.89551	33.82839379
19645	19656	0.02428	1109.77136	26.94524862
19646	1581	0.15443	1041.10364	160.7776351
19646	1582	0.13223	85.24597	11.27207461
19646	19632	0.01944	1136.78076	22.09901797
19646	19663	0.04689	971.68341	45.56223509
19655	20834	0.08927	15732.57617	1404.447075
19656	19645	0.02428	1866.27551	45.31316938
19656	19665	0.02452	1109.77136	27.21159375
19657	19615	0.19840	15678.79395	3110.67272
19658	19595	0.11090	206.41150	22.89103535
19658	19694	0.05869	201.08005	11.80138813
19660	1979	0.44722	401.36182	179.4970331
19660	19422	0.36609	3307.53735	1210.856348
19660	19918	0.37337	2878.62964	1074.793949
19663	19646	0.04689	185.32185	8.689741547
19663	19710	0.06576	971.68341	63.89790104
19664	19641	0.05239	355.32501	18.61547727
19664	19708	0.06520	361.48798	23.5690163
19665	19656	0.02452	1866.27551	45.76107551
19665	19682	0.03176	1109.77136	35.24633839
19670	19638	0.06185	372.02145	23.00952668
19670	19715	0.06074	371.48904	22.56424429
19673	1837	0.95741	3.54446	3.393501449
19673	1838	1.02258	3.63831	3.72046304
19675	514	0.29197	342.53812	100.0108549
19675	1672	0.34310	113.04312	38.78509447
19675	19565	0.18380	677.86188	124.5910135
19675	19861	0.24921	242.29997	60.38357552
19682	19665	0.03176	1866.27551	59.2729102
19682	19711	0.03400	1109.77136	37.73222624
19683	1885	0.83956	43.27746	36.33402432
19683	19345	0.43923	2067.02319	907.8985957
19683	19688	0.07015	2092.90356	146.8171847
19687	1860	0.62451	0.39849	0.24886099
19687	1862	0.47750	76.93384	36.7359086
19687	19352	0.49586	231.35367	114.7190308
19687	20051	0.53034	157.34708	83.44745041
19688	19683	0.07015	2027.09448	142.2006778
19688	19701	0.01342	2092.90356	28.08676578
19689	518	0.25062	184.27626	46.18331628
19689	19579	0.17940	2459.66406	441.2637324
19689	19690	0.06062	400.45602	24.27564393
19689	19829	0.15100	2660.73364	401.7707796
19690	550	0.21125	23.24333	4.910153463
19690	19689	0.06062	465.27213	28.20479652
19690	19692	0.06282	377.21271	23.69650244
19691	19409	0.42262	1197.49182	506.083993

19691	19753	0.08632	1300.82361	112.287094
19692	524	0.14876	5.35513	0.796629139
19692	19620	0.12624	88.32725	11.15043204
19692	19690	0.06282	442.24957	27.78211799
19692	19693	0.06093	369.21118	22.4960372
19693	523	0.15646	0.00000	0
19693	19692	0.06093	435.00635	26.50493691
19693	19694	0.06046	369.21118	22.32250794
19694	19658	0.05869	206.41150	12.11429094
19694	19693	0.06046	435.00635	26.30048392
19694	19697	0.12688	460.13391	58.3817905
19694	19734	0.06988	72.54949	5.069758361
19695	534	0.06670	474.63364	31.65806379
19695	19696	0.03622	175.10201	6.342194802
19695	19700	0.12165	495.75702	60.30884148
19696	19695	0.03622	172.62241	6.25238369
19696	19699	0.08310	175.10201	14.55097703
19697	530	0.14251	279.51059	39.83305418
19697	551	0.14711	334.62418	49.22656312
19697	19694	0.12688	530.35632	67.29160988
19697	19698	0.03518	557.33276	19.6069665
19698	19697	0.03518	627.51599	22.07601253
19698	19700	0.09447	557.33276	52.65122584
19699	535	0.26217	89.23203	23.39396131
19699	19696	0.08310	172.62241	14.34492227
19699	19824	0.13274	102.92430	13.66217158
19700	19636	0.11689	1819.19641	212.6458684
19700	19695	0.12165	446.89072	54.36425609
19700	19698	0.09447	627.51599	59.28143558
19700	19744	0.07265	2074.13623	150.6859971
19701	19688	0.01342	2027.09448	27.20360792
19701	19719	0.01342	2092.90356	28.08676578
19705	533	0.60320	172.89478	104.2901313
19705	1908	1.26635	113.74046	144.0352315
19705	19723	0.01509	523.84076	7.904757068
19705	19851	0.42396	15553.14844	6593.912813
19706	19276	0.77869	1732.11218	1348.778433
19706	19721	0.00948	1739.06531	16.48633914
19708	19664	0.06520	355.32501	23.16719065
19708	19756	0.06912	361.48798	24.98604918
19710	19663	0.06576	185.32185	12.18676486
19710	19758	0.06910	971.68341	67.14332363
19711	19682	0.03400	1866.27551	63.45336734
19711	30213	0.05247	1109.77136	58.22970326
19715	19670	0.06074	372.02145	22.59658287
19715	19772	0.06909	371.48904	25.66617777
19719	19701	0.01342	2027.09448	27.20360792
19719	20035	0.47664	2092.90356	997.5615528
19720	19326	0.82695	811.42755	671.0100125
19720	19759	0.09541	824.99512	78.7127844
19721	19706	0.00948	1732.11218	16.42042347
19721	19784	0.06775	1739.06531	117.8216748
19723	19705	0.01509	341.40024	5.151729622
19723	19885	0.21966	581.54504	127.7421835

19723	20754	0.12559	15678.79395	1969.099732
19729	19572	0.24767	789.67139	195.5779132
19729	20075	0.48979	807.10046	395.3097343
19734	19694	0.06988	73.45367	5.13294246
19734	19826	0.07211	72.54949	5.231543724
19744	19700	0.07265	2005.49524	145.6992292
19744	19769	0.00782	2074.13623	16.21974532
19746	19436	0.49770	1174.37756	584.4877116
19746	19998	0.38810	1137.91272	441.6239266
19748	19749	0.07034	1599.62842	112.5178631
19748	19755	0.09309	1724.98767	160.5791022
19748	19818	0.04515	131.64511	5.943776717
19749	19748	0.07034	1598.08533	112.4093221
19749	19750	0.06205	1599.62842	99.25694346
19750	19749	0.06205	1598.08533	99.16119473
19750	19751	0.02290	1599.62842	36.63149082
19751	1588	0.37452	136.15413	50.99244477
19751	19750	0.02290	1598.08533	36.59615406
19751	19754	0.22187	1470.13062	326.1778807
19752	1589	0.47481	409.58890	194.4769056
19752	19754	0.11721	1469.65454	172.2582086
19752	19756	0.13100	1421.06946	186.1600993
19753	19691	0.08632	1197.49182	103.3674939
19753	19875	0.15484	1300.82361	201.4195278
19754	19751	0.22187	1469.65454	326.0722528
19754	19752	0.11721	1470.13062	172.31401
19755	19748	0.09309	1727.96521	160.8562814
19755	19761	0.09862	1724.98767	170.118284
19756	19708	0.06912	355.32501	24.56006469
19756	19752	0.13100	1427.39343	186.9885393
19756	19757	0.12480	1301.87195	162.4736194
19757	17832	0.10445	1301.87195	135.9805252
19757	19756	0.12480	1302.03296	162.4937134
19758	19710	0.06910	185.32185	12.80573984
19758	19762	0.04068	1710.40833	69.57941086
19758	19763	0.12343	1738.59998	214.5953955
19758	19836	0.06966	715.80396	49.86290385
19759	19643	0.18610	147.41295	27.43355
19759	19720	0.09541	811.42755	77.41830255
19759	19774	0.09058	923.39642	83.64124772
19761	19755	0.09862	1727.96521	170.411929
19761	19775	0.07177	1724.98767	123.8023651
19762	19758	0.04068	1697.11157	69.03849867
19762	19764	0.08550	1710.40833	146.2399122
19763	1582	0.19409	67.43034	13.08755469
19763	1584	0.26148	66.35551	17.35063875
19763	17714	0.11729	2490.25781	292.0823385
19763	19758	0.12343	844.45813	104.231467
19764	1581	0.19638	533.63074	104.7944047
19764	1583	0.24475	540.18243	132.2096497
19764	19762	0.08550	1697.11157	145.1030392
19764	19765	0.04068	1049.16370	42.67997932
19765	19764	0.04068	1046.23010	42.56064047
19765	19766	0.08618	1049.16370	90.41692767

19766	19765	0.08618	1046.23010	90.16411002
19766	19767	0.01517	763.64758	11.58453379
19766	19815	0.03850	444.62918	17.11822343
19767	19766	0.01517	769.72620	11.67674645
19767	19772	0.10480	763.64758	80.03026638
19768	19599	0.25050	991.79224	248.4439561
19768	19825	0.05195	1026.52283	53.32786102
19769	19744	0.00782	2005.49524	15.68297278
19769	19804	0.02682	2074.13623	55.62833369
19770	19771	0.02275	1042.16760	23.7093129
19770	19773	0.09653	596.31177	57.56197516
19770	19877	0.15100	463.87189	70.04465539
19771	19770	0.02275	1060.18372	24.11917963
19771	19777	0.09722	1042.16760	101.3195341
19772	19715	0.06909	372.02145	25.70296198
19772	19767	0.10480	769.72620	80.66730576
19772	19773	0.03172	589.70081	18.70530969
19773	19770	0.09653	589.70081	56.92381919
19773	19772	0.03172	596.31177	18.91500934
19774	19759	0.09058	908.76422	82.31586305
19774	19777	0.03724	923.39642	34.38728268
19775	1658	0.53074	53.69299	28.49701751
19775	19761	0.07177	1727.96521	124.0160631
19775	19780	0.14172	1674.16626	237.2628424
19777	1593	0.23848	358.27576	85.44160324
19777	1596	0.19439	33.86514	6.583044565
19777	19771	0.09722	1060.18372	103.0710613
19777	19774	0.03724	908.76422	33.84237955
19780	1591	0.51935	84.25700	43.75887295
19780	19775	0.14172	1677.78357	237.7754875
19780	19790	0.21970	1598.48352	351.1868293
19784	19721	0.06775	1732.11218	117.3506002
19784	19793	0.00753	1739.06531	13.09516178
19788	4968	0.12635	35380.51172	4470.327656
19790	19780	0.21970	1600.60828	351.6536391
19790	19794	0.41328	1586.70959	655.7553394
19790	19904	0.20302	460.97458	93.58705923
19793	19784	0.00753	1732.11218	13.04280472
19793	19795	0.01105	1816.94470	20.07723894
19793	19802	0.01475	75.68498	1.116353455
19794	1591	0.72772	86.30971	62.80930216
19794	19790	0.41328	1595.27991	659.2972812
19794	19797	0.08669	1673.03345	145.0352698
19795	19793	0.01105	1807.79712	19.97615818
19795	19798	0.12485	1816.94470	226.8455458
19797	19794	0.08669	1681.58960	145.7770024
19797	19799	0.11174	1673.03345	186.9447577
19798	19795	0.12485	1807.79712	225.7034704
19798	19807	0.46630	1816.94470	847.2413136
19799	19797	0.11174	1681.58960	187.9008219
19799	19800	0.06074	1673.03345	101.6200518
19800	1818	0.15516	31.57984	4.899927974
19800	1819	0.48856	88.30392	43.14176316
19800	19799	0.06074	1681.58960	102.1397523

19800	19806	0.55447	1769.48901	981.1285714
19801	1980	0.50206	34.10437	17.12244
19801	1983	0.99217	67.08151	66.55626178
19801	19420	0.52982	2204.57397	1168.027381
19801	20164	0.51719	1856.89233	960.3661442
19802	1740	1.12939	75.68498	85.47785956
19802	19793	0.01475	77.87929	1.148719528
19804	19769	0.02682	2005.49524	53.78738234
19804	19814	0.01118	2074.13623	23.18884305
19805	1859	0.73116	60.62128	44.32385508
19805	19515	0.42408	125.00501	53.01212464
19805	19909	0.49356	64.23775	31.70518389
19806	19800	0.55447	1780.14893	987.0391772
19806	19808	0.08620	1769.48901	152.5299527
19807	1820	0.18496	108.01917	19.97922568
19807	19798	0.46630	1807.79712	842.9757971
19807	19809	0.04485	1780.14893	79.83967951
19808	19806	0.08620	1780.14893	153.4488378
19808	19811	0.19168	1769.48901	339.1756534
19809	19807	0.04485	1769.48901	79.3615821
19809	19811	0.16135	1780.14893	287.2270299
19811	19808	0.19168	1780.14893	341.2189469
19811	19809	0.16135	1769.48901	285.5070518
19814	19804	0.01118	2005.49524	22.42143678
19814	19830	0.02348	2074.13623	48.70071868
19815	19766	0.03850	435.61703	16.77125566
19815	19838	0.03068	444.62918	13.64122324
19818	19748	0.04515	130.21074	5.879014911
19818	19846	0.06522	131.64511	8.585894074
19819	19622	0.54761	526.91840	288.545785
19819	20098	0.64810	543.83972	352.4625225
19821	19424	0.55410	968.63605	536.7212353
19821	20172	0.49979	1676.46301	837.8794478
19824	547	0.15921	42.54321	6.773304464
19824	19699	0.13274	85.78841	11.38755354
19824	19883	0.10730	60.38110	6.47889203
19825	2024	0.84228	316.07748	266.2257399
19825	19768	0.05195	991.79224	51.52360687
19825	20112	0.44792	739.10376	331.0593562
19826	524	0.12200	8.18930	0.9990946
19826	530	0.12827	0.14299	0.018341327
19826	19734	0.07211	73.45367	5.296744144
19826	19843	0.03576	67.46288	2.412472589
19829	524	0.12079	2.44295	0.295083931
19829	19689	0.15100	2660.76733	401.7758668
19829	19848	0.05409	2662.00073	143.9876195
19830	19814	0.02348	2005.49524	47.08902824
19830	19840	0.01454	2074.13623	30.15794078
19835	19921	0.18118	1390.86072	251.9961452
19835	30214	0.05637	501.72620	28.28230589
19836	19758	0.06966	836.88116	58.29714161
19836	19859	0.06631	715.80396	47.46496059
19838	19815	0.03068	435.61703	13.36473048
19838	19845	0.02957	444.62918	13.14768485

19839	19544	0.93307	1983.63501	1850.870319
19839	20189	1.11672	2003.01721	2236.809379
19840	19830	0.01454	2005.49524	29.15990079
19840	19847	0.03807	2074.13623	78.96236628
19843	19826	0.03576	68.30562	2.442608971
19843	19852	0.03576	67.46288	2.412472589
19845	19838	0.02957	435.61703	12.88119558
19845	19858	0.03566	444.62918	15.85547656
19846	19818	0.06522	130.21074	8.492344463
19846	19945	0.17000	131.64511	22.3796687
19847	19840	0.03807	2005.49524	76.34920379
19847	19862	0.02292	2074.13623	47.53920239
19848	19829	0.05409	2662.07495	143.991634
19848	19872	0.02685	2662.00073	71.4747196
19851	19987	0.48806	15553.14844	7590.869628
19852	19843	0.03576	68.30562	2.442608971
19852	19906	0.15996	67.46288	10.79136228
19858	19845	0.03566	435.61703	15.53410329
19858	19888	0.03400	444.62918	15.11739212
19859	19836	0.06631	836.88116	55.49358972
19859	19887	0.03344	715.80396	23.93648442
19861	19675	0.24921	237.61885	59.21699361
19861	20000	0.25144	242.29997	60.92390446
19862	530	0.14611	9.84064	1.43781591
19862	547	0.12447	489.04883	60.87190787
19862	19847	0.02292	2005.49524	45.9659509
19862	19873	0.01347	1880.41211	25.32915112
19870	19723	0.42431	15476.46484	6566.818796
19872	19848	0.02685	2662.07495	71.47671241
19872	19895	0.05085	2662.00073	135.3627371
19873	19862	0.01347	1807.71570	24.34993048
19873	19894	0.04196	1880.41211	78.90209214
19875	19753	0.15484	1197.49182	185.4196334
19875	19884	0.02865	1300.82361	37.26859643
19877	19770	0.15100	452.46680	68.3224868
19877	19920	0.08737	463.87189	40.52848703
19883	19824	0.10730	44.24147	4.747109731
19883	19933	0.09922	60.38110	5.991012742
19884	19875	0.02865	1197.49182	34.30814064
19884	20100	0.33071	1300.82361	430.1953761
19885	535	0.14035	211.80203	29.72641491
19885	541	0.31610	21.02624	6.646394464
19885	19723	0.21966	601.43365	132.1109156
19885	20036	0.25040	379.05899	94.9163711
19887	19859	0.03344	836.88116	27.98530599
19887	19923	0.08194	715.80396	58.65297648
19888	19858	0.03400	435.61703	14.81097902
19888	19901	0.03233	444.62918	14.37486139
19894	19873	0.04196	1807.71570	75.85175077
19894	19908	0.03782	1880.41211	71.117186
19895	19872	0.05085	2662.07495	135.3665112
19895	19917	0.03409	2662.00073	90.74760489
19897	541	0.20419	24.59348	5.021742681
19897	19870	0.12679	15476.46484	1962.260977

19901	19888	0.03233	435.61703	14.08349858
19901	19925	0.04960	444.62918	22.05360733
19904	19790	0.20302	454.52896	92.27846946
19904	19932	0.04576	460.97458	21.09419678
19906	530	0.16186	67.12515	10.86487678
19906	19852	0.15996	68.30562	10.92616698
19906	19930	0.08948	133.18166	11.91709494
19908	19894	0.03782	1807.71570	68.36780777
19908	19930	0.03629	1880.41211	68.24015547
19909	19805	0.49356	64.42592	31.79805708
19909	30204	0.88570	64.23775	56.89537518
19917	519	0.26477	416.63583	110.3126687
19917	525	0.13428	237.03073	31.82848642
19917	19895	0.03409	2662.07495	90.75013505
19917	19934	0.03408	2571.33936	87.63124539
19918	19660	0.37337	3455.87378	1290.319593
19918	20168	0.31236	2878.62964	899.1687544
19920	1593	0.12646	64.83047	8.198461236
19920	1595	0.13416	101.66228	13.63901148
19920	19877	0.08737	452.46680	39.53202432
19920	20103	0.25647	429.64160	110.1901812
19921	19835	0.18118	501.72620	90.90275292
19921	19944	0.02699	1390.86072	37.53933083
19923	1583	0.12203	102.18717	12.46990036
19923	1584	0.13010	359.60248	46.78428265
19923	19887	0.08194	836.88116	68.57404225
19923	19985	0.10204	455.38815	46.46780683
19925	1583	0.12849	8.49012	1.090895519
19925	1595	0.11689	406.81927	47.55310447
19925	19901	0.04960	435.61703	21.60660469
19925	19963	0.06464	180.26297	11.65219838
19930	19906	0.08948	135.43077	12.1183453
19930	19908	0.03629	1807.71570	65.60200275
19930	19949	0.09058	964.39130	87.35456395
19930	19953	0.04842	2277.53809	110.2783943
19932	19904	0.04576	454.52896	20.79924521
19932	20032	0.14955	460.97458	68.93874844
19933	19883	0.09922	44.24147	4.389638653
19933	19950	0.03923	60.38110	2.368750553
19934	19917	0.03408	2556.36914	87.12106029
19934	19956	0.04249	2571.33936	109.2562094
19939	5218	0.01142	145.12695	1.657349769
19939	20280	0.02285	159.43288	3.643041308
19944	1584	0.12243	871.93884	106.7514722
19944	19921	0.02699	501.72620	13.54159014
19944	19982	0.07280	760.94043	55.3964633
19945	19846	0.17000	130.21074	22.1358258
19945	20381	0.72125	131.64511	94.94903559
19949	531	0.12416	226.62221	28.13741359
19949	547	0.16740	324.88907	54.38643032
19949	19930	0.09058	919.91425	83.32583277
19949	19968	0.09114	1261.87610	115.0073878
19950	19933	0.03923	44.24147	1.735592868
19950	19988	0.07458	60.38110	4.503222438

19953	19930	0.04842	2251.56812	109.0209284
19953	19969	0.03833	2277.53809	87.29803499
19956	19934	0.04249	2556.36914	108.6201248
19956	19975	0.03914	2571.33936	100.6422226
19963	19925	0.06464	180.32207	11.6560186
19963	19993	0.05684	180.26297	10.24614721
19968	19949	0.09114	1211.34900	110.4023479
19968	19988	0.09227	1215.55933	112.1596594
19968	19995	0.04713	46.31672	2.182907014
19969	19953	0.03833	2251.56812	86.30260604
19969	30018	0.04617	2277.53809	105.1539336
19970	19971	0.01315	1257.77747	16.53977373
19970	19972	0.06759	1280.11121	86.52271668
19971	19970	0.01315	1280.11121	16.83346241
19971	20009	0.08842	1257.77747	111.2126839
19972	19970	0.06759	1257.77747	85.0131792
19972	19975	0.04967	1280.11121	63.5831238
19975	19956	0.03914	2556.36914	100.0562881
19975	19972	0.04967	1257.77747	62.47380693
19975	19977	0.09586	709.89142	68.05019152
19975	20004	0.04698	3014.00342	141.5978807
19976	525	0.11049	239.90169	26.50673773
19976	545	0.05315	99.22841	5.273989992
19976	19977	0.05056	657.31616	33.23390505
19976	19991	0.15831	841.59375	133.2327066
19977	19975	0.09586	657.31616	63.0103271
19977	19976	0.05056	709.89142	35.8921102
19982	19944	0.07280	621.13092	45.21833098
19982	20023	0.05238	760.94043	39.85805972
19984	5217	0.02931	7789.04883	228.2970212
19984	5218	0.01425	1471.20374	20.9646533
19985	19923	0.10204	574.38422	58.61016581
19985	20022	0.04904	455.38815	22.33223488
19987	1908	1.17403	147.05811	172.6506329
19987	19989	0.01297	298.51099	3.87168754
19987	20067	0.21029	19877.76367	4180.094922
19988	536	0.12732	208.77588	26.58134504
19988	19950	0.07458	44.24147	3.299528833
19988	19968	0.09227	1166.09216	107.5953236
19988	20033	0.09360	1067.16455	99.88660188
19989	19897	0.35450	15501.05762	5495.124926
19989	19987	0.01297	4621.57324	59.94180492
19989	20049	0.06653	4707.66162	313.2007276
19991	19976	0.15831	799.52747	126.5731938
19991	30022	0.07007	841.59375	58.97047406
19993	19963	0.05684	180.32207	10.24950646
19993	20056	0.06523	180.26297	11.75855353
19995	19968	0.04713	45.25686	2.132955812
19995	20034	0.03861	46.31672	1.788288559
19998	19746	0.38810	1174.37756	455.775931
19998	20104	0.11128	1137.91272	126.6269275
20000	511	0.14573	300.37186	43.77319116
20000	19861	0.25144	237.61885	59.74688364
20000	20001	0.09785	2133.94067	208.8060946

20000	20007	0.33238	2032.35669	675.5147166
20001	20000	0.09785	2077.14478	203.2486167
20001	20003	0.09069	2133.94067	193.5270794
20002	20005	0.12824	2395.43701	307.1908422
20002	20006	0.12480	1372.81848	171.3277463
20002	20099	0.10280	1243.31042	127.8123112
20003	514	0.29902	331.55756	99.14234159
20003	20001	0.09069	2077.14478	188.3762601
20003	20005	0.13040	2449.57471	319.4245422
20004	19975	0.04698	3029.27490	142.3153348
20004	20039	0.03241	3014.00342	97.68385084
20005	20002	0.12824	2449.57471	314.1334608
20005	20003	0.13040	2395.43701	312.3649861
20006	20002	0.12480	1349.29053	168.3914581
20006	20008	0.06481	1372.81848	88.97236569
20007	1672	0.41738	75.21886	31.39484779
20007	20000	0.33238	2089.66748	694.563677
20007	20013	0.29116	2046.34631	595.8141916
20008	519	0.18044	109.99011	19.84661545
20008	20006	0.06481	1349.29053	87.44751925
20008	20010	0.06619	1297.55188	85.88495894
20009	520	0.26214	17.44062	4.571884127
20009	19971	0.08842	1280.11121	113.1874332
20009	20012	0.03655	1275.06030	46.60345397
20010	20008	0.06619	1275.06030	84.39624126
20010	20012	0.01242	1297.55188	16.11559435
20012	20009	0.03655	1297.55188	47.42552121
20012	20010	0.01242	1275.06030	15.83624893
20013	20007	0.29116	2105.59912	613.0662398
20013	20014	0.25235	2046.34631	516.3954913
20014	1886	0.49990	56.08477	28.03677652
20014	1888	0.58124	119.07479	69.21103094
20014	20013	0.25235	2105.59912	531.3479379
20014	20024	0.38133	1988.08240	758.1154616
20016	20017	0.01517	1988.08240	30.15921001
20016	20024	0.22202	2049.42310	455.0129167
20017	20016	0.01517	2049.42310	31.08974843
20017	20018	0.01724	1988.08240	34.27454058
20018	20017	0.01724	2049.42310	35.33205424
20018	20029	0.08636	1988.08240	171.6907961
20022	19985	0.04904	574.38422	28.16780215
20022	20122	0.10143	455.38815	46.19002005
20023	19982	0.05238	621.13092	32.53483759
20023	20114	0.09980	760.94043	75.94185491
20024	20014	0.38133	2049.42310	781.5065107
20024	20016	0.22202	1988.08240	441.3940544
20029	1886	0.39087	56.65400	22.14434898
20029	1887	0.44567	219.59050	97.86489814
20029	20018	0.08636	2049.42310	176.9881789
20029	20031	0.08964	2061.74512	184.8148326
20030	20031	0.06827	2127.39453	145.2372246
20030	20035	0.24963	2061.74512	514.6734343
20031	20029	0.08964	2127.39453	190.6996457
20031	20030	0.06827	2061.74512	140.7553393

20032	19932	0.14955	454.52896	67.97480597
20032	20117	0.09501	460.97458	43.79719485
20033	535	0.26568	79.84072	21.21208249
20033	19988	0.09360	996.28784	93.25254182
20033	20036	0.21720	3413.25635	741.3592792
20033	20052	0.02674	2518.34961	67.34066857
20034	19995	0.03861	45.25686	1.747367365
20034	20083	0.07389	46.31672	3.422342441
20035	1862	0.62888	55.42149	34.85346663
20035	1863	0.41540	19.86971	8.253877534
20035	19719	0.47664	2027.09448	966.1943129
20035	20030	0.24963	2127.39453	531.0614965
20036	19885	0.25040	407.94174	102.1486117
20036	20033	0.21720	3356.06592	728.9375178
20036	20037	0.12554	4417.09619	554.5222557
20036	20159	0.12073	1485.23840	179.312832
20037	20036	0.12554	4376.81445	549.4652861
20037	20038	0.12344	4417.09619	545.2463537
20038	541	0.16324	12.18552	1.989164285
20038	20037	0.12344	4376.81445	540.2739757
20038	20045	0.30894	4429.90186	1368.573881
20039	20004	0.03241	3029.27490	98.17879951
20039	20048	0.24675	930.34100	229.5616418
20039	20076	0.04025	3160.27344	127.201006
20041	1740	1.20736	391.46219	472.6357897
20041	1838	0.89731	464.60254	416.8925052
20041	19588	0.68743	4439.94141	3052.148923
20041	20217	0.18691	3738.17773	698.7027995
20044	20047	0.02906	0.00000	0
20044	20074	0.03547	0.00000	0
20045	542	0.20382	45.70387	9.315362783
20045	20038	0.30894	4365.09766	1348.553271
20045	20046	0.19242	4476.06152	861.2837577
20046	20045	0.19242	4410.38477	848.6462374
20046	20049	0.04344	4476.06152	194.4401124
20047	20044	0.02906	0.00000	0
20047	20051	0.42637	0.00000	0
20048	526	0.11919	1.01020	0.120405738
20048	545	0.08056	110.05872	8.866330483
20048	20039	0.24675	949.51007	234.2916098
20048	20057	0.02903	1038.15308	30.13758391
20049	19989	0.06653	4773.07080	317.5524003
20049	20046	0.04344	4410.38477	191.5871144
20049	20102	0.22493	297.94040	67.01573417
20051	1864	0.81510	157.34708	128.2536049
20051	19687	0.53034	157.57974	83.57083931
20051	20047	0.42637	0.00000	0
20052	20033	0.02674	2502.70996	66.92246433
20052	20061	0.01529	2518.34961	38.50556554
20056	19993	0.06523	180.32207	11.76240863
20056	20126	0.06576	180.26297	11.85409291
20057	20048	0.02903	1058.57043	30.73029958
20057	20082	0.08950	1038.15308	92.91470066
20061	20052	0.01529	2502.70996	38.26643529

20061	20086	0.03704	2518.34961	93.27966955
20067	20320	1.06726	19877.76367	21214.74205
20074	20044	0.03547	0.00000	0
20074	21064	2.02158	0.00000	0
20075	1941	0.81231	324.20258	263.3529978
20075	19729	0.48979	789.67139	386.7731501
20075	20310	0.35898	1086.64795	390.0848811
20076	20039	0.04025	3156.37573	127.0441231
20076	20079	0.00838	3160.27344	26.48309143
20077	19989	0.21612	19758.71094	4270.252608
20079	20076	0.00838	3156.37573	26.45042862
20079	20130	0.03409	3160.27344	107.7337216
20082	20057	0.08950	1058.57043	94.74205349
20082	20137	0.03912	992.39624	38.82254091
20082	20140	0.09104	2113.09082	192.3757883
20082	30019	0.05337	1595.10071	85.13052489
20083	531	0.09943	35.68769	3.548427017
20083	536	0.09448	152.79637	14.43620104
20083	20034	0.07389	45.25686	3.344029385
20083	20175	0.07589	224.12944	17.0091832
20086	536	0.10347	233.86360	24.19786669
20086	537	0.12932	13.73026	1.775597223
20086	20061	0.03704	2502.70996	92.70037692
20086	20181	0.07490	2274.04053	170.3256357
20095	19384	1.02352	56.28950	57.61342904
20095	20186	0.07299	89.51150	6.533444385
20098	19819	0.64810	526.91840	341.495815
20098	20585	1.11702	543.83972	607.479844
20099	20002	0.10280	1212.70068	124.6656299
20099	20149	0.02514	1243.31042	31.25682396
20100	19884	0.33071	1197.49182	396.0225198
20100	20451	0.57735	1300.82361	751.0305112
20102	20049	0.22493	297.67294	66.95557439
20102	20350	0.44051	297.94040	131.2457256
20103	19920	0.25647	417.96347	107.1950912
20103	20115	0.02177	429.64160	9.353297632
20104	1940	1.25235	195.46724	244.793398
20104	1941	0.70255	76.99213	54.09082093
20104	19998	0.11128	1174.37756	130.6847349
20104	20277	0.22536	1153.68396	259.9942172
20108	1589	0.44909	0.03822	0.01716422
20108	1590	0.06107	0.03805	0.002323714
20111	20112	0.06274	23.86296	1.49716211
20111	20129	0.43508	23.66493	10.29613774
20112	19825	0.44792	700.84131	313.9208396
20112	20111	0.06274	23.66493	1.484737708
20112	20390	0.50102	715.57031	358.5150367
20114	1589	0.42275	97.24102	41.10864121
20114	20023	0.09980	621.13092	61.98886582
20114	20119	0.05586	155.03387	8.660191978
20114	20203	0.09092	622.90558	56.63457533
20115	20103	0.02177	417.96347	9.099064742
20115	20128	0.21215	429.64160	91.14846544
20116	20122	0.05723	930.49365	53.25215159

20116	20124	0.06826	934.16541	63.76613089
20117	1658	0.33693	79.14183	26.66525678
20117	1819	0.47267	40.50849	19.14714797
20117	20032	0.09501	454.52896	43.18479649
20117	20289	0.25658	354.19611	90.8796379
20118	20125	0.04620	609.90460	28.17759252
20118	20126	0.02965	598.28552	17.73916567
20119	20114	0.05586	30.08772	1.680700039
20119	20120	0.07102	155.03387	11.01050545
20120	1584	0.24130	102.74558	24.79250845
20120	1594	0.25437	82.57421	21.0044018
20120	20119	0.07102	30.08772	2.136829874
20120	20127	0.02276	286.55124	6.521906222
20121	20122	0.05309	286.55124	15.21300533
20121	20127	0.04965	159.98349	7.943180279
20122	20022	0.10143	574.38422	58.25979143
20122	20116	0.05723	934.16541	53.46228641
20122	20121	0.05309	159.98349	8.493523484
20122	20230	0.12436	449.96796	55.95801551
20124	1583	0.25796	11.71599	3.02225678
20124	1585	0.29137	696.26044	202.8694044
20124	20116	0.06826	930.49365	63.51549655
20124	20125	0.04620	598.28552	27.64079102
20125	20118	0.04620	598.28552	27.64079102
20125	20124	0.04620	609.90460	28.17759252
20126	20056	0.06576	180.32207	11.85797932
20126	20118	0.02965	609.90460	18.08367139
20126	20128	0.05735	417.96347	23.970205
20127	20120	0.02276	159.98349	3.641224232
20127	20121	0.04965	286.55124	14.22726907
20128	20115	0.21215	417.96347	88.67095016
20128	20126	0.05735	429.64160	24.63994576
20129	20111	0.43508	23.86296	10.38229664
20129	20134	0.24892	23.66493	5.890674376
20130	20079	0.03409	3156.37573	107.6008486
20130	20156	0.02179	3160.27344	68.86235826
20134	20129	0.24892	23.86296	5.939968003
20134	20136	0.25098	23.66493	5.939424131
20136	65	4.50000	24.42986	109.93437
20136	2024	0.45901	0.76685	0.351991819
20136	20134	0.25098	23.86296	5.989125701
20137	20082	0.03912	982.26569	38.42623379
20137	20167	0.03782	992.39624	37.5324258
20140	531	0.11494	6.71904	0.772286458
20140	532	0.21869	971.24866	212.4023695
20140	20082	0.09104	2075.27637	188.9331607
20140	20175	0.09248	1897.84790	175.5129738
20145	19412	1.02386	2267.68115	2321.788022
20145	20422	0.51249	2439.13135	1250.030426
20149	20099	0.02514	1212.70068	30.4872951
20149	20163	0.02235	1243.31042	27.78798789
20156	526	0.18407	131.28014	24.16473537
20156	20130	0.02179	3156.37573	68.77742716
20156	20182	0.02459	3062.07300	75.29637507

20159	20036	0.12073	1497.21240	180.7584531
20159	20176	0.01509	1485.23840	22.41224746
20163	20149	0.02235	1212.70068	27.1038602
20163	20233	0.09964	1243.31042	123.8834502
20164	19801	0.51719	2305.52783	1192.395938
20164	20299	0.24984	1856.89233	463.9259797
20167	526	0.14416	151.60205	21.85495153
20167	20137	0.03782	982.26569	37.1492884
20167	20188	0.03755	871.78363	32.73547531
20168	19918	0.31236	3455.87378	1079.476734
20168	20287	0.20824	2878.62964	599.4458362
20172	1937	0.39197	48.06958	18.84183327
20172	1938	0.94877	38.41839	36.45021588
20172	19821	0.49979	968.63605	484.1146114
20172	20483	0.61285	1673.04858	1025.327822
20175	20083	0.07589	222.78293	16.90699656
20175	20140	0.09248	1870.04285	172.9415628
20175	20194	0.08948	2548.82764	228.0690972
20175	20224	0.07468	1342.38269	100.2491393
20176	537	0.13582	62.51675	8.491024985
20176	542	0.47429	63.53083	30.13203736
20176	20159	0.01509	1497.21240	22.59293512
20176	20261	0.12353	1418.14734	175.1837409
20181	20086	0.07490	2253.49561	168.7868212
20181	20228	0.07537	2274.04053	171.3944347
20182	20156	0.02459	3060.17090	75.24960243
20182	20196	0.03241	3062.07300	99.24178593
20186	20095	0.07299	56.28950	4.108570605
20186	20189	0.01628	89.51150	1.45724722
20188	20167	0.03755	864.62781	32.46677427
20188	20219	0.03703	871.78363	32.28214782
20189	19839	1.11672	1983.63501	2215.164888
20189	20186	0.01628	56.28950	0.91639306
20189	20326	0.59794	2092.52881	1251.206677
20194	536	0.11080	38.93629	4.314140932
20194	20175	0.08948	2565.42944	229.5546263
20194	20228	0.08956	2588.72559	231.8462638
20196	520	0.23505	865.11261	203.344719
20196	20182	0.03241	3060.17090	99.18013887
20196	20225	0.03521	2254.15991	79.36897043
20203	20114	0.09092	609.14703	55.38364797
20203	20288	0.16415	622.90558	102.249951
20217	20041	0.18691	3715.14355	694.3974809
20217	20305	0.19920	3738.17773	744.6450038
20219	20188	0.03703	864.62781	32.0171678
20219	20246	0.06310	871.78363	55.00954705
20224	20175	0.07468	1296.62952	96.83229255
20224	20251	0.03474	1342.38269	46.63437465
20225	20196	0.03521	2259.07813	79.54214096
20225	20253	0.03409	2254.15991	76.84431133
20228	538	0.15361	784.10626	120.4465626
20228	20181	0.07537	2253.49561	169.8459641
20228	20194	0.08956	2604.36572	233.2469939
20228	20240	0.05742	219.25090	12.58938668

20230	20122	0.12436	446.06802	55.47301897
20230	20300	0.16584	449.96796	74.62268649
20233	520	0.27704	281.65195	78.02885623
20233	20163	0.09964	1212.70068	120.8334958
20233	20237	0.12727	999.54419	127.2119891
20234	20235	0.01655	999.54419	16.54245634
20234	20237	0.05930	966.75238	57.32841613
20235	20234	0.01655	966.75238	15.99975189
20235	20236	0.05378	999.54419	53.75548654
20236	511	0.21209	38.54509	8.175028138
20236	20235	0.05378	966.75238	51.991943
20236	20309	0.17607	1015.08636	178.7262554
20237	20233	0.12727	966.75238	123.0385754
20237	20234	0.05930	999.54419	59.27297047
20240	20228	0.05742	215.76907	12.38946
20240	20247	0.01170	219.25090	2.56523553
20245	5217	0.01931	8953.84277	172.8987039
20245	5516	0.35586	8662.24707	3082.547242
20246	20219	0.06310	864.62781	54.55801481
20246	20258	0.02117	871.78363	18.45565945
20247	20240	0.01170	215.76907	2.524498119
20247	20259	0.08500	219.25090	18.6363265
20251	20224	0.03474	1296.62952	45.04490952
20251	20267	0.03242	1342.38269	43.52004681
20253	20225	0.03409	2259.07813	77.01197345
20253	20260	0.01957	2254.15991	44.11390944
20258	527	0.14169	401.24466	56.85235588
20258	532	0.14336	109.76252	15.73555487
20258	20246	0.02117	864.62781	18.30417074
20258	20264	0.01459	570.75995	8.327387671
20259	537	0.12134	21.28496	2.582717046
20259	20247	0.08500	215.76907	18.34037095
20259	20261	0.15974	197.96596	31.62308245
20260	20253	0.01957	2259.07813	44.210159
20260	20270	0.01564	2254.15991	35.25506099
20261	20176	0.12353	1428.59985	176.4749395
20261	20259	0.15974	194.06682	31.00023383
20261	20268	0.23776	269.96381	64.18659547
20261	20306	0.13636	1325.04468	180.6830926
20264	20258	0.01459	555.86603	8.110085378
20264	20274	0.03186	570.75995	18.18441201
20267	20251	0.03242	1296.62952	42.03672904
20267	20275	0.03353	1342.38269	45.0100916
20268	543	0.11733	87.00478	10.20827084
20268	20261	0.23776	265.79041	63.19432788
20268	20307	0.34183	182.95903	62.54088522
20270	20260	0.01564	2259.07813	35.33198195
20270	20272	0.01676	2254.15991	37.77972009
20272	20270	0.01676	2259.07813	37.86214946
20272	20278	0.01844	2254.15991	41.56670874
20274	20264	0.03186	555.86603	17.70989172
20274	20283	0.03129	570.75995	17.85907884
20275	20267	0.03353	1296.62952	43.47598781
20275	20290	0.04694	1342.38269	63.01144347

20277	20104	0.22536	1189.33167	268.0277852
20277	20376	0.27401	1153.68396	316.1209419
20278	20272	0.01844	2259.07813	41.65740072
20278	20281	0.01341	2254.15991	30.22828439
20280	5339	0.51454	159.43288	82.03459408
20280	19939	0.02285	145.12695	3.316150808
20281	20278	0.01341	2259.07813	30.29423772
20281	20293	0.03802	2254.15991	85.70315978
20283	20274	0.03129	555.86603	17.39304808
20283	20294	0.03858	570.75995	22.01991887
20287	20168	0.20824	3455.87378	719.6511559
20287	20454	0.32019	2878.62964	921.7084244
20288	1594	0.11877	205.00960	24.34899019
20288	20203	0.16415	609.14703	99.99148497
20288	20328	0.12175	442.31439	53.85177698
20289	20117	0.25658	349.01105	89.54925521
20289	20453	0.31374	354.19611	111.1254876
20290	20275	0.04694	1296.62952	60.86378967
20290	20297	0.02125	1342.38269	28.52563216
20293	527	0.13262	363.47580	48.2041606
20293	20281	0.03802	2259.07813	85.8901505
20293	20301	0.02683	1978.40576	53.08062654
20294	20283	0.03858	555.86603	21.44531144
20294	20308	0.03186	570.75995	18.18441201
20297	532	0.13083	102.70421	13.43679179
20297	538	0.23173	88.53506	20.51622945
20297	20290	0.02125	1296.62952	27.5533773
20297	20302	0.01844	1499.45825	27.65001013
20299	20164	0.24984	2305.52783	576.013073
20299	20406	0.21688	1856.89233	402.7228085
20300	1585	0.13419	39.84137	5.34631344
20300	1594	0.13657	8.61650	1.176755405
20300	20230	0.16584	446.06802	73.97592044
20300	20329	0.08604	484.42575	41.67999153
20301	20293	0.02683	1992.33240	53.45427829
20301	20312	0.02741	1978.40576	54.22810188
20302	20297	0.01844	1451.98914	26.77467974
20302	20318	0.03694	1499.45825	55.38998776
20305	20217	0.19920	3715.14355	740.0565952
20305	20368	0.17130	3738.17773	640.3498451
20306	538	0.27802	57.41830	15.96343577
20306	543	0.23960	12.48767	2.992045732
20306	20261	0.13636	1335.77148	182.145799
20306	20341	0.10570	1384.77966	146.3712101
20307	542	0.21656	5.01173	1.085340249
20307	543	0.31588	7.73461	2.443208607
20307	20268	0.34183	178.57712	61.04301693
20307	20348	0.30365	195.10031	59.24220913
20308	20294	0.03186	555.86603	17.70989172
20308	20315	0.02236	570.75995	12.76219248
20309	512	0.41173	113.92336	46.90566501
20309	548	0.13545	36.02585	4.879701383
20309	20236	0.17607	982.66235	173.01736
20309	20322	0.04698	869.75366	40.86102695

20310	20075	0.35898	1065.87573	382.6280696
20310	20320	0.04083	1086.64795	44.3678358
20312	20301	0.02741	1992.33240	54.60983108
20312	20323	0.03352	1978.40576	66.31616108
20315	20308	0.02236	555.86603	12.42916443
20315	20336	0.06485	570.75995	37.01378276
20318	20302	0.03694	1451.98914	53.63647883
20318	20339	0.06258	1499.45825	93.83609729
20320	20310	0.04083	1065.87573	43.51970606
20320	20325	0.01398	886.38983	12.39172982
20320	20524	1.07710	19953.87109	21492.31455
20322	20309	0.04698	840.32495	39.47846615
20322	20355	0.08026	869.75366	69.80642875
20323	20312	0.03352	1992.33240	66.78298205
20323	20333	0.03130	1978.40576	61.92410029
20325	20077	1.06747	19758.71094	21091.83117
20325	20320	0.01398	941.72473	13.16531173
20325	20363	0.08721	775.25330	67.60984029
20326	20189	0.59794	2039.92456	1219.752491
20326	20696	0.78046	2092.52881	1633.135035
20328	20288	0.12175	433.75305	52.80943384
20328	20353	0.06130	442.31439	27.11387211
20329	20300	0.08604	481.07629	41.39180399
20329	20356	0.06353	484.42575	30.7755679
20331	520	0.24080	138.54852	33.36248362
20331	521	0.26277	1418.34863	372.6994695
20331	20332	0.13031	1335.12781	173.9805049
20331	20407	0.32738	288.47995	94.44256603
20332	20331	0.13031	1335.86938	174.0771389
20332	20333	0.11447	1335.12781	152.8320804
20333	20323	0.03130	1992.33240	62.36000412
20333	20332	0.11447	1335.86938	152.9169679
20333	20335	0.08757	973.04364	85.20943155
20333	20357	0.05029	1243.30176	62.52564551
20334	527	0.15313	48.51688	7.429389834
20334	546	0.25687	15.54091	3.991993552
20334	20335	0.03309	986.37292	32.63907992
20334	20336	0.12212	1006.92194	122.9653073
20335	20333	0.08757	986.37292	86.3766766
20335	20334	0.03309	973.04364	32.19801405
20336	20315	0.06485	555.86603	36.04791205
20336	20334	0.12212	1019.64246	124.5187372
20336	20337	0.12617	925.03992	116.7122867
20336	20362	0.05085	1065.78333	54.19508233
20337	528	0.24875	0.00000	0
20337	20336	0.12617	937.50189	118.2846135
20337	20338	0.05587	925.03992	51.68198033
20338	20337	0.05587	937.50189	52.37823059
20338	20339	0.06828	925.03992	63.16172574
20339	20318	0.06258	1451.98914	90.86548038
20339	20338	0.06828	937.50189	64.01262905
20339	20340	0.25033	172.23314	43.11512194
20339	20358	0.04140	691.18420	28.61502588
20340	538	0.13735	17.41196	2.391532706

20340	539	0.26336	17.85095	4.701226192
20340	20339	0.25033	172.55374	43.19537773
20340	20341	0.25452	172.23314	43.83677879
20341	20306	0.10570	1394.61926	147.4112558
20341	20340	0.25452	172.55374	43.9183779
20341	20343	0.18550	221.08640	41.0115272
20341	20436	0.12462	1350.67004	168.3205004
20342	543	0.11792	0.38065	0.044886248
20342	544	0.26348	0.74462	0.196192478
20342	20343	0.07023	220.46875	15.48352031
20342	20346	0.24708	221.41962	54.70835971
20343	20341	0.18550	220.46875	40.89695313
20343	20342	0.07023	221.08640	15.52689787
20346	20342	0.24708	220.81860	54.55985969
20346	20348	0.33511	221.41962	74.19992886
20348	20307	0.30365	190.30615	57.78646245
20348	20346	0.33511	220.81860	73.99852105
20348	20402	0.17912	415.83685	74.48469657
20350	1909	0.50699	23.79588	12.0642732
20350	20102	0.44051	297.67294	131.1279068
20350	20367	0.04136	291.74222	12.06645822
20353	20328	0.06130	433.75305	26.58906197
20353	20392	0.06409	442.31439	28.34792926
20355	20322	0.08026	840.32495	67.44448049
20355	20398	0.06314	869.75366	54.91624609
20356	20329	0.06353	481.07629	30.5627767
20356	20395	0.06133	484.42575	29.70983125
20357	20333	0.05029	1244.64063	62.59297728
20357	20441	0.11231	1243.30176	139.6352207
20358	20339	0.04140	655.85645	27.15245703
20358	20369	0.03858	691.18420	26.66588644
20362	20336	0.05085	1051.14795	53.45087326
20362	20416	0.07264	1065.78333	77.41850109
20363	20325	0.08721	768.54675	67.02496207
20363	20497	0.24989	775.25330	193.7280471
20367	20350	0.04136	291.57535	12.05955648
20367	20402	0.02907	291.74222	8.480946335
20368	20305	0.17130	3715.14355	636.4040901
20368	20465	0.13630	3738.17773	509.5136246
20369	20358	0.03858	655.85645	25.30294184
20369	20420	0.04415	691.18420	30.51578243
20376	20277	0.27401	1189.33167	325.8887709
20376	20515	0.25052	1153.68396	289.0209057
20377	19374	1.53722	1891.45215	2907.578074
20377	20439	0.05734	2012.47290	115.3951961
20381	1805	0.14654	11.04240	1.618153296
20381	19945	0.72125	130.21074	93.91449623
20381	20386	0.09722	126.37369	12.28605014
20386	20381	0.09722	124.98457	12.1509999
20386	20388	0.34482	126.37369	43.57617579
20388	1656	0.21020	10.11192	2.125525584
20388	20386	0.34482	124.98457	43.09717943
20388	20391	0.21712	116.26177	25.2427555
20390	20112	0.50102	677.10980	339.245552

20390	20722	0.50382	715.57031	360.5186336
20391	20388	0.21712	115.04116	24.97773666
20391	20392	0.21581	116.26177	25.09045258
20392	20353	0.06409	433.75305	27.79923297
20392	20391	0.21581	115.04116	24.82703274
20392	20393	0.12124	442.60785	53.66177573
20392	20452	0.06632	998.56274	66.22468092
20393	1594	0.24689	0.00000	0
20393	20392	0.12124	445.75754	54.04364415
20393	20395	0.12835	442.60785	56.80871755
20395	20356	0.06133	481.07629	29.50440887
20395	20393	0.12835	445.75754	57.21298026
20395	20397	0.14537	38.66821	5.621197688
20397	1578	1.01063	42.12393	42.57170738
20397	1585	0.21057	3.49378	0.735685255
20397	20395	0.14537	38.46845	5.592158577
20398	20355	0.06314	840.32495	53.05811734
20398	20401	0.09102	236.49199	21.52550093
20398	20470	0.12596	682.01263	85.90631087
20401	20398	0.09102	217.34929	19.78313238
20401	20404	0.04782	236.49199	11.30904696
20402	20348	0.17912	410.44168	73.51831372
20402	20367	0.02907	291.57535	8.476095425
20402	20489	0.18687	547.74664	102.3574146
20402	20503	0.54444	467.44247	254.4943784
20404	515	0.16024	43.50653	6.971486367
20404	548	0.18863	27.84339	5.252098656
20404	20401	0.04782	217.34929	10.39364305
20404	20407	0.11145	306.05453	34.10977737
20406	839	0.50341	132.87611	66.89116254
20406	1981	0.43299	48.72243	21.09632497
20406	15352	0.48650	1957.49951	952.3235116
20406	20299	0.21688	2305.52783	500.0228758
20407	20331	0.32738	306.05453	100.196132
20407	20404	0.11145	288.47995	32.15109043
20416	20362	0.07264	1051.14795	76.35538709
20416	20457	0.06035	1065.78333	64.32002397
20420	20369	0.04415	655.85645	28.95606227
20420	20428	0.00674	691.18420	4.658581508
20422	1996	1.43103	106.27533	152.0831855
20422	20145	0.51249	2267.68115	1162.163913
20422	20425	0.24063	2435.20898	585.9843369
20422	20529	0.24308	115.67602	28.11852694
20425	20422	0.24063	2267.23462	545.5646666
20425	20431	0.31859	2435.20898	775.8332289
20428	20420	0.00674	655.85645	4.420472473
20428	20446	0.02738	691.18420	18.9246234
20431	824	0.71540	44.44146	31.79342048
20431	20425	0.31859	2267.23462	722.3182776
20431	20432	0.11032	2390.76758	263.7494794
20432	20431	0.11032	2221.35229	245.0595846
20432	20435	0.32819	2390.76758	784.6260121
20435	20432	0.32819	2221.35229	729.0256081
20435	20762	0.50344	2390.76758	1203.60803

20436	20341	0.12462	1361.44788	169.6636348
20436	20485	0.13245	1350.67004	178.8962468
20439	2021	2.46558	220.88240	544.6032278
20439	20377	0.05734	1891.45215	108.4558663
20439	20703	0.44200	1972.00513	871.6262675
20441	20357	0.11231	1244.64063	139.7855892
20441	20448	0.00838	1243.30176	10.41886875
20446	20428	0.02738	655.85645	17.9573496
20446	20460	0.02962	691.18420	20.472876
20448	20441	0.00838	1244.64063	10.43008848
20448	20475	0.07878	1243.30176	97.94731265
20451	1997	0.51111	459.29749	234.7515401
20451	2021	2.53572	151.85725	385.067466
20451	20100	0.57735	1197.49182	691.3719023
20451	20693	0.42203	1319.33459	556.798777
20452	20392	0.06632	985.63110	65.36705455
20452	20471	0.06094	998.56274	60.85241338
20453	20289	0.31374	349.01105	109.4987268
20453	20525	0.18686	354.19611	66.18508511
20454	20287	0.32019	3455.87378	1106.536226
20454	20472	0.06270	2878.62964	180.4900784
20457	20416	0.06035	1051.14795	63.43677878
20457	20467	0.03188	1065.78333	33.97717256
20460	20446	0.02962	655.85645	19.42646805
20460	20476	0.05366	691.18420	37.08894417
20465	20368	0.13630	3715.14355	506.3740659
20465	20487	0.07169	164.42882	11.78790211
20465	20683	0.60524	3605.41431	2182.140957
20467	20457	0.03188	1051.14795	33.51059665
20467	20477	0.02962	1065.78333	31.56850223
20469	20325	0.70122	19820.75195	13898.70768
20470	512	0.41484	22.58125	9.36760575
20470	515	0.13725	22.59316	3.10091121
20470	20398	0.12596	671.72656	84.6106775
20470	20596	0.25755	648.82648	167.1052599
20471	1656	0.26461	9.73258	2.575337994
20471	20452	0.06094	985.63110	60.06435923
20471	20523	0.12409	989.19342	122.7490115
20472	20454	0.06270	3455.87378	216.683286
20472	20550	0.16311	2878.62964	469.5332806
20474	5165	0.04735	8.97355	0.424897593
20474	5217	0.06078	15.15400	0.92106012
20475	521	0.25177	36.37692	9.158617148
20475	546	0.11550	632.82806	73.09164093
20475	20448	0.07878	1244.64063	98.05278883
20475	20501	0.06985	726.48206	50.74477189
20476	528	0.12417	337.23398	41.8743433
20476	539	0.25054	165.59111	41.4871967
20476	20460	0.05366	655.85645	35.19325711
20476	20595	0.24196	233.18892	56.42239108
20477	528	0.12348	478.17288	59.04478722
20477	546	0.12492	546.60101	68.28139817
20477	20467	0.02962	1051.14795	31.13500228
20477	20484	0.02683	166.63367	4.470781366

20483	20172	0.61285	967.02545	592.641547
20483	20527	0.10410	1673.04858	174.1643572
20484	20477	0.02683	166.32913	4.462610558
20484	20492	0.02571	166.63367	4.284151656
20485	539	0.26249	368.39429	96.69981718
20485	544	0.24658	52.91776	13.04846126
20485	20436	0.13245	1361.44788	180.3237717
20485	20539	0.11233	931.35773	104.6194138
20487	20465	0.07169	162.55855	11.65382245
20487	20512	0.06982	164.42882	11.48042021
20489	544	0.75387	32.02159	24.14011605
20489	20402	0.18687	542.30853	101.341195
20489	20650	0.24856	515.72504	128.1886159
20492	20484	0.02571	166.32913	4.276321932
20492	20509	0.03968	166.63367	6.612024026
20497	1942	0.52709	31.56703	16.63866584
20497	20363	0.24989	768.54675	192.0521474
20497	20618	0.19679	753.49835	148.2809403
20501	20475	0.06985	737.81531	51.5363994
20501	20507	0.02067	726.48206	15.01638418
20503	1909	0.26935	22.74952	6.127583212
20503	1910	0.34289	101.90847	34.94339528
20503	20402	0.54444	467.31854	254.4269059
20503	20648	0.54281	591.28638	320.9561599
20507	20501	0.02067	737.81531	15.25064246
20507	20532	0.04023	726.48206	29.22637327
20509	20492	0.03968	166.32913	6.599939878
20509	20536	0.04249	166.63367	7.080264638
20512	20487	0.06982	162.55855	11.34983796
20512	20562	0.18770	164.42882	30.86328951
20515	20376	0.25052	1189.33167	297.95137
20515	20640	0.18230	1153.68396	210.3165859
20519	1805	0.14043	1.05196	0.147726743
20519	20520	0.37232	1.06626	0.396989923
20520	1656	0.26738	1.57447	0.420981789
20520	20519	0.37232	1.05196	0.391665747
20520	20522	0.23032	0.07176	0.016527763
20520	20823	0.37294	2.55357	0.952328396
20522	1657	0.40327	83.61311	33.71865887
20522	20520	0.23032	0.07189	0.016557705
20522	20523	0.27166	81.95778	22.26465051
20523	20471	0.12409	976.44244	121.1667424
20523	20522	0.27166	83.68501	22.73386982
20523	20659	0.19522	905.65210	176.801403
20524	1941	0.91707	406.77533	373.0414519
20524	20531	0.01454	0.00000	0
20524	20582	0.27484	20365.89453	5597.362453
20525	20453	0.18686	349.01105	65.2162048
20525	20821	0.34866	354.19611	123.4940157
20527	20483	0.10410	967.02545	100.6673493
20527	20543	0.02265	1673.04858	37.89455034
20529	20422	0.24308	106.72182	25.94194001
20529	20749	0.26325	115.67602	30.45171227
20531	20469	0.37614	19820.75195	7455.377638

20531	20524	0.01454	406.77533	5.914513298
20532	20507	0.04023	737.81531	29.68230992
20532	20553	0.04135	726.48206	30.04003318
20536	20509	0.04249	166.32913	7.067324734
20536	20554	0.04024	166.63367	6.705338881
20539	20485	0.11233	927.47192	104.1829208
20539	20552	0.02068	931.35773	19.26047786
20543	719	0.25148	270.30267	67.97571545
20543	733	0.22255	113.21758	25.19657243
20543	20527	0.02265	967.02545	21.90312644
20543	20616	0.11516	1321.12207	152.1404176
20546	20472	0.15695	3455.87378	542.3993898
20550	20630	0.11923	2878.62964	343.219012
20552	20539	0.02068	927.47192	19.18011931
20552	20571	0.03410	931.35773	31.75929859
20553	20532	0.04135	737.81531	30.50866307
20553	20566	0.02067	726.48206	15.01638418
20554	20536	0.04024	166.32913	6.693084191
20554	20584	0.04416	166.63367	7.358542867
20562	20512	0.18770	162.55855	30.51223984
20562	20575	0.04759	164.42882	7.825167544
20566	20553	0.02067	737.81531	15.25064246
20566	20581	0.02291	726.48206	16.64370399
20571	20552	0.03410	927.47192	31.62679247
20571	20586	0.03242	931.35773	30.19461761
20575	20562	0.04759	162.55855	7.736161395
20575	20583	0.04545	164.42882	7.473289869
20580	20531	0.21916	20227.52734	4433.064892
20581	20566	0.02291	737.81531	16.90334875
20581	20607	0.04023	726.48206	29.22637327
20582	20672	0.26765	20365.89453	5450.931671
20583	20575	0.04545	162.55855	7.388286098
20583	20887	1.37120	164.42882	225.464798
20584	20554	0.04416	166.32913	7.345094381
20584	20617	0.04191	166.63367	6.98361711
20585	20098	1.11702	526.91840	588.5783912
20585	20603	0.02937	543.83972	15.97257258
20586	20571	0.03242	927.47192	30.06863965
20586	20635	0.05030	931.35773	46.84729382
20595	20476	0.24196	228.69069	55.33399935
20595	20619	0.02363	233.18892	5.51025418
20596	20470	0.25755	639.20349	164.6268588
20596	20597	0.12955	631.65009	81.83026916
20596	20599	0.15789	6.98867	1.103441106
20596	20840	0.25319	45.77382	11.58947349
20597	515	0.22290	4.23144	0.943187976
20597	20596	0.12955	623.51141	80.77590317
20597	20600	0.13246	635.82068	84.22080727
20598	1674	0.24056	0.08956	0.021544554
20598	20599	0.06636	7.02602	0.466246687
20598	20602	0.21771	7.07651	1.540626992
20599	20596	0.15789	7.02602	1.109338298
20599	20598	0.06636	6.98867	0.463768141
20600	20597	0.13246	627.74280	83.15081129

20600	20605	0.24004	635.82068	152.622396
20602	20598	0.21771	7.11558	1.549132922
20602	20608	0.76040	7.07651	5.380978204
20603	20585	0.02937	526.91840	15.47559341
20603	20916	0.49406	543.83972	268.6894521
20605	516	0.25793	2106.69653	543.380236
20605	521	0.24356	96.65479	23.54124065
20605	20600	0.24004	627.74280	150.6833817
20605	20607	0.24822	1569.15747	389.4962672
20607	20581	0.04023	737.81531	29.68230992
20607	20605	0.24822	1560.43848	387.3320395
20607	20614	0.12139	1007.87640	122.3461162
20607	20845	0.25647	39.31503	10.08312574
20608	20602	0.76040	7.11558	5.410687032
20608	20609	0.24212	7.07651	1.713364601
20609	1888	0.55577	7.07651	3.932911963
20609	20608	0.24212	7.11558	1.72282423
20613	546	0.25196	25.35697	6.388942161
20613	20614	0.01517	1010.71130	15.33249042
20613	20617	0.09794	1033.04431	101.1763597
20614	20607	0.12139	1010.71130	122.6902447
20614	20613	0.01517	1007.87640	15.28948499
20616	20543	0.11516	608.73364	70.10176598
20616	20785	0.14440	1321.12207	190.7700269
20617	529	0.33921	96.96133	32.89025275
20617	20584	0.04191	166.32913	6.970853838
20617	20613	0.09794	1036.06824	101.4725234
20617	20619	0.25444	847.85242	215.7275697
20618	20497	0.19679	746.91681	146.985759
20618	20636	0.01677	753.49835	12.63616733
20619	20595	0.02363	228.69069	5.403961005
20619	20617	0.25444	852.61163	216.9385031
20619	20621	0.06347	985.33673	62.53932225
20619	20850	0.26055	437.91754	114.099415
20620	20621	0.01999	989.95520	19.78920445
20620	20622	0.03863	985.33673	38.06355788
20621	20619	0.06347	989.95520	62.83245654
20621	20620	0.01999	985.33673	19.69688123
20622	20620	0.03863	989.95520	38.24196938
20622	20623	0.04414	985.33673	43.49276326
20623	20622	0.04414	989.95520	43.69662253
20623	20625	0.07934	985.33673	78.17661616
20624	753	0.27795	343.22949	95.40063675
20624	20546	0.12259	3455.87378	423.6555667
20624	20630	0.00991	347.41522	3.44288483
20625	539	0.24530	42.17233	10.34487255
20625	540	0.26339	36.32581	9.567855096
20625	20623	0.07934	989.95520	78.54304557
20625	20632	0.12688	1000.46039	126.9384143
20630	781	0.23433	106.44738	24.94381456
20630	20624	0.00991	96.25918	0.953928474
20630	20768	0.12539	3127.45020	392.1509806
20631	20632	0.03516	1003.11096	35.26938135
20631	20633	0.03656	1000.46039	36.57683186

20632	20625	0.12688	1003.11096	127.2747186
20632	20631	0.03516	1000.46039	35.17618731
20633	20631	0.03656	1003.11096	36.6737367
20633	20634	0.03449	1000.46039	34.50587885
20634	20633	0.03449	1003.11096	34.59729701
20634	20635	0.03311	1000.46039	33.12524351
20635	20586	0.05030	927.47192	46.65183758
20635	20634	0.03311	1003.11096	33.21300389
20635	20638	0.24401	178.94420	43.66417424
20636	20618	0.01677	746.91681	12.5257949
20636	20648	0.01677	753.49835	12.63616733
20638	544	0.24558	6.18538	1.51900562
20638	552	0.26122	100.05753	26.13702799
20638	20635	0.24401	177.70894	43.36275845
20638	20641	0.16702	147.20064	24.58545089
20640	20515	0.18230	1189.33167	216.8151634
20640	20647	0.01062	2797.71265	29.71170834
20640	20733	0.52002	1613.41199	839.006503
20641	20638	0.16702	148.59244	24.81790933
20641	20643	0.03517	147.20064	5.177046509
20643	20641	0.03517	148.59244	5.225996115
20643	20644	0.05328	147.20064	7.842850099
20644	20643	0.05328	148.59244	7.917005203
20644	20650	0.49859	147.20064	73.3927671
20647	20640	0.01062	2740.36035	29.10262692
20647	20672	0.02238	2242.31323	50.18297009
20647	20675	0.04272	555.39948	23.72666579
20648	20503	0.54281	591.26642	320.9453254
20648	20636	0.01677	746.91681	12.5257949
20648	20674	0.02572	466.47708	11.9977905
20648	20818	0.39759	476.92868	189.6220739
20650	1910	0.34302	101.51099	34.82029979
20650	20489	0.24856	510.40393	126.8660008
20650	20644	0.49859	148.59244	74.08670466
20650	20869	0.25767	421.54489	108.6194718
20659	1659	0.14857	20.01401	2.973481466
20659	20523	0.19522	894.62836	174.6493484
20659	20706	0.04780	891.08246	42.59374159
20672	20647	0.02238	2740.36035	61.32926463
20672	20675	0.02817	17859.41211	503.0996391
20672	20677	0.01174	3985.36060	46.78813344
20674	20648	0.02572	461.00162	11.85696167
20674	20961	0.33138	466.47708	154.5811748
20675	21029	0.87308	18414.81250	16077.6045
20677	20580	0.32227	20227.52734	6518.725236
20677	20672	0.01174	1976.92639	23.20911582
20677	20705	0.02461	3435.02905	84.53606492
20683	20465	0.60524	3584.25049	2169.331767
20683	21243	1.01828	3605.41431	3671.321284
20693	20451	0.42203	1234.59094	521.0344144
20693	20695	0.12548	1319.33459	165.5501044
20695	20693	0.12548	1234.59094	154.9164712
20695	21088	0.49998	1319.33459	659.6409083
20696	20326	0.78046	2039.92456	1592.079522

20696	20739	0.02108	2092.52881	44.11050731
20700	1940	1.00595	281.67163	283.3475762
20700	1944	0.39418	141.81503	55.90064853
20700	20701	0.12824	1936.57764	248.3467166
20700	20702	0.12411	1713.69177	212.6862856
20701	20700	0.12824	2033.21802	260.7398789
20701	20710	0.24412	1936.57764	472.7573335
20702	20700	0.12411	1620.11401	201.0723498
20702	20704	0.25164	1713.69177	431.233397
20703	20439	0.44200	1981.25293	875.7137951
20703	21532	0.98853	1972.00513	1949.386231
20704	1943	0.35689	36.14841	12.90100604
20704	20702	0.25164	1620.11401	407.6854895
20704	20708	0.51574	1706.41199	880.0649197
20705	911	0.36885	595.96606	219.8220812
20705	20677	0.02461	3102.38745	76.34975514
20705	20799	0.05648	2839.06299	160.3502777
20706	20659	0.04780	880.10382	42.0689626
20706	20908	0.24636	891.08246	219.5270748
20708	20704	0.51574	1613.41199	832.1010997
20708	20733	0.01007	1706.41199	17.18356874
20710	20701	0.24412	2033.21802	496.349183
20710	20728	0.24833	1601.76538	397.7663968
20710	21107	0.49674	335.23999	166.5271126
20714	20722	0.49988	707.99451	353.9122957
20714	21571	1.00023	747.30481	747.4766901
20722	20390	0.50382	677.10980	341.1414594
20722	20714	0.49988	747.30481	373.5627284
20722	20729	0.73365	61.82813	45.36020757
20728	1945	0.39405	106.74500	42.06286725
20728	20710	0.24833	1697.91736	421.643818
20728	20743	0.24563	1642.22571	403.3799011
20729	20722	0.73365	62.67792	45.98365601
20729	20737	0.25720	61.82813	15.90219504
20733	20640	0.52002	1706.41199	887.368363
20733	20708	0.01007	1613.41199	16.24705874
20737	64	4.50000	61.82813	278.226585
20737	20729	0.25720	62.67792	16.12076102
20739	20696	0.02108	2039.92456	43.00160972
20739	20892	0.25223	2092.52881	527.7985417
20743	20728	0.24563	1740.13013	427.4281638
20743	20746	0.24219	1642.22571	397.7306447
20746	1939	0.69442	47.92248	33.27832856
20746	1946	0.27854	35.53106	9.896821452
20746	20743	0.24219	1740.13013	421.4421162
20746	20753	0.24984	1563.83496	390.7085264
20747	19427	0.03887	11574.61719	449.9053702
20747	19463	0.05214	12033.06934	627.4042354
20749	20529	0.26325	106.72182	28.09451912
20749	21494	0.90119	115.67602	104.2460725
20753	20746	0.24984	1661.84082	415.1943105
20753	20758	0.26329	1509.91711	397.5460759
20753	20969	0.26388	103.93771	27.42708291
20754	19657	0.07957	15678.79395	1247.561635

20755	13866	0.02016	1925.32251	38.8145018
20755	13909	0.01914	1522.20496	29.13500293
20755	13944	0.02365	2405.13867	56.88152955
20755	13945	0.01909	1470.43323	28.07057036
20756	1982	0.37222	2.56348	0.954178526
20756	15382	0.22568	1923.79102	434.1611574
20756	20757	0.31973	1519.64148	485.8749704
20757	20756	0.31973	1921.98792	614.5171977
20757	20759	0.04827	1519.64148	73.35309424
20758	1947	0.26811	0.00000	0
20758	20753	0.26329	1607.01965	423.1122036
20758	20796	0.23612	1509.91711	356.521628
20759	1981	0.58556	57.19826	33.49301313
20759	20757	0.04827	1921.98792	92.7743569
20759	20760	0.05516	1220.33606	67.31373707
20759	20944	0.24283	362.41266	88.00466623
20760	20759	0.05516	1556.43298	85.85284318
20760	20761	0.01103	1220.33606	13.46030674
20761	20760	0.01103	1556.43298	17.16745577
20761	20763	0.05171	1220.33606	63.10357766
20762	13538	0.08303	1565.27380	129.9646836
20762	13581	0.07254	2354.87061	170.822314
20762	20435	0.50344	2221.35229	1118.317597
20763	20761	0.05171	1556.43298	80.4831494
20763	20764	0.05171	1220.33606	63.10357766
20764	781	0.24775	41.56982	10.29892291
20764	782	0.27843	600.67883	167.2470066
20764	20763	0.05171	1556.43298	80.4831494
20764	20765	0.09032	1903.76733	171.9482652
20765	20764	0.09032	2116.30566	191.1447272
20765	20766	0.03172	1903.76733	60.38749971
20766	20765	0.03172	2116.30566	67.12921554
20766	20767	0.01241	1903.76733	23.62575257
20767	20766	0.01241	2116.30566	26.26335324
20767	20772	0.03034	1903.76733	57.76030079
20768	20769	0.00758	2461.42505	18.65760188
20768	20773	0.01449	2116.30566	30.66526901
20768	20797	0.01064	1956.20911	20.81406493
20769	20624	0.12764	3712.38403	473.8486976
20769	20768	0.00758	1502.72217	11.39063405
20769	20770	0.02551	2291.02417	58.44402658
20770	20769	0.02551	2661.67310	67.89928078
20770	20774	0.08343	2291.02417	191.1401465
20771	20779	0.05448	1896.04736	103.2966602
20771	20780	0.11653	1756.25317	204.6561819
20772	20767	0.03034	2116.30566	64.20871372
20772	20773	0.01931	1903.76733	36.76174714
20773	20768	0.01449	1903.76733	27.58558861
20773	20772	0.01931	2116.30566	40.86586229
20774	20770	0.08343	2661.67310	222.0633867
20774	20775	0.05240	2291.02417	120.0496665
20775	20774	0.05240	2661.67310	139.4716704
20775	20776	0.01379	2291.02417	31.5932233
20776	20775	0.01379	2661.67310	36.70447205

20776	20777	0.04619	2291.02417	105.8224064
20777	20776	0.04619	2661.67310	122.9426805
20777	20778	0.02896	2291.02417	66.34805996
20778	753	0.24965	267.98990	66.90367854
20778	754	0.24852	421.37570	104.720289
20778	20777	0.02896	2661.67310	77.08205298
20778	20782	0.15582	2131.13086	332.0728106
20779	20771	0.05448	1756.25317	95.6806727
20779	20784	0.05105	1896.04736	96.79321773
20780	20771	0.11653	1896.04736	220.9463989
20780	20781	0.05378	1756.25317	94.45129548
20781	733	0.25219	747.93347	188.6213418
20781	734	0.24571	10.51621	2.583937959
20781	20780	0.05378	1896.04736	101.969427
20781	20783	0.13514	1694.56812	229.0039357
20782	20778	0.15582	2496.91357	389.0690725
20782	20784	0.09515	2131.13086	202.7771013
20783	20781	0.13514	1852.85620	250.3949869
20783	20785	0.08757	1694.56812	148.3933303
20784	20779	0.05105	1756.25317	89.65672433
20784	20782	0.09515	2496.91357	237.5813262
20784	20831	0.08452	1671.79724	141.3003027
20785	20616	0.14440	608.73364	87.90113762
20785	20783	0.08757	1852.85620	162.2546174
20785	20786	0.01448	2782.99023	40.29769853
20785	20800	0.01175	2719.86426	31.95840506
20786	20785	0.01448	2636.64331	38.17859513
20786	20787	0.12272	2782.99023	341.528561
20787	20786	0.12272	2636.64331	323.568867
20787	20788	0.11269	2782.99023	313.615169
20788	719	0.24957	1876.65649	468.3571602
20788	720	0.24525	118.23879	28.99806325
20788	20787	0.11269	2636.64331	297.1233346
20788	20789	0.06727	2037.77869	137.0813725
20789	20788	0.06727	1915.39026	128.8483028
20789	20790	0.18409	2037.77869	375.134679
20790	20789	0.18409	1915.39026	352.604193
20790	20791	0.10756	1805.75671	194.2271917
20790	20872	0.15224	287.29544	43.73785779
20791	20790	0.10756	1692.64075	182.0604391
20791	20792	0.11721	1805.75671	211.652744
20792	20791	0.11721	1692.64075	198.3944223
20792	20793	0.03516	1805.75671	63.49040592
20793	20792	0.03516	1692.64075	59.51324877
20793	20794	0.15974	1805.75671	288.4515769
20794	706	0.24409	91.78961	22.4049259
20794	1938	0.96897	229.53343	222.4110077
20794	20793	0.15974	1692.64075	270.3824334
20794	20795	0.08230	1727.40430	142.1653739
20795	20794	0.08230	1618.15759	133.1743697
20795	20796	0.24616	1727.40430	425.2178425
20796	1939	0.56328	143.88582	81.04800469
20796	20758	0.23612	1607.01965	379.4494798
20796	20795	0.24616	1618.15759	398.3256724

20796	20962	0.24399	403.26605	98.39288354
20797	20958	0.24015	1956.20911	469.7836178
20798	20769	0.01064	2383.03223	25.35546293
20799	20705	0.05648	2508.47046	141.6784116
20799	20844	0.09842	2839.06299	279.4205795
20800	20785	0.01175	2312.11084	27.16730237
20800	20862	0.12761	2719.86426	347.0818782
20818	20648	0.39759	475.80267	189.1743836
20818	20848	0.14906	476.92868	71.09098904
20821	501	1.34909	184.19380	248.4940136
20821	1806	1.05173	181.12291	190.4923981
20821	20525	0.34866	349.01105	121.6861927
20823	1657	0.23942	8.77922	2.101920852
20823	20520	0.37294	2.53126	0.944008104
20823	21127	0.39288	11.03382	4.334967202
20831	20784	0.08452	1897.78577	160.4008533
20831	20890	0.08564	1671.79724	143.1727156
20834	19705	0.11589	15732.57617	1823.248252
20840	1674	0.19215	40.29028	7.741777302
20840	20596	0.25319	44.25218	11.20420945
20840	20851	0.03117	6.58262	0.205180265
20844	20799	0.09842	2508.47046	246.8836627
20844	20895	0.08277	2839.06299	234.9892437
20845	20607	0.25647	39.09439	10.0265382
20845	21027	0.25144	39.31503	9.885371143
20848	1942	0.29525	29.82200	8.8049455
20848	1954	0.16936	28.95127	4.903187087
20848	20818	0.14906	475.80267	70.92314599
20848	21005	0.54540	509.35999	277.8049385
20850	529	0.27768	53.41150	14.83130532
20850	540	0.24361	17.86672	4.352511659
20850	20619	0.26055	433.56006	112.9640736
20850	21031	0.25011	372.81079	93.24370669
20851	20840	0.03117	6.00906	0.1873024
20851	20856	0.00950	6.58262	0.06253489
20856	20851	0.00950	6.00906	0.05708607
20856	21014	0.21118	6.58262	1.390117692
20862	20800	0.12761	2312.11084	295.0484643
20862	20957	0.10732	2719.86426	291.8958324
20869	20650	0.25767	417.42960	107.559085
20869	21059	0.25098	421.54489	105.7993365
20872	20790	0.15224	278.02292	42.32620934
20872	20959	0.09403	287.29544	27.01439022
20887	20583	1.37120	162.55855	222.9002838
20887	20893	0.03705	164.42882	6.092087781
20890	20831	0.08564	1897.78577	162.5263733
20890	20899	0.02239	1671.79724	37.4315402
20892	20739	0.25223	2039.92456	514.5301718
20892	20907	0.02842	2092.52881	59.46966878
20893	20887	0.03705	162.55855	6.022794278
20893	20971	0.27064	164.42882	44.50101584
20895	20844	0.08277	2508.47046	207.6261
20895	20945	0.04979	2839.06299	141.3569463
20899	20890	0.02239	1897.78577	42.49142339

20899	20947	0.04772	1671.79724	79.77816429
20907	20892	0.02842	2039.92456	57.974656
20907	21120	0.30069	2092.52881	629.2024879
20908	1657	0.28111	1.22479	0.344300717
20908	20706	0.24636	880.10382	216.8223771
20908	20942	0.03288	891.96552	29.3278263
20916	1705	1.89639	75.71257	143.5805606
20916	20603	0.49406	526.91840	260.3293047
20916	22050	2.17986	491.95926	1072.402313
20942	20908	0.03288	881.00732	28.96752068
20942	21092	0.21583	891.96552	192.5129182
20944	782	0.07168	296.72913	21.26954404
20944	1982	0.38063	5.80558	2.209777915
20944	20759	0.24283	429.55463	104.3087508
20944	21173	0.26105	65.62617	17.13171168
20945	914	0.22252	1163.63477	258.932009
20945	20895	0.04979	2508.47046	124.8967442
20945	21116	0.21641	1750.81079	378.8929631
20947	734	0.27512	749.78650	206.2812619
20947	754	0.25226	1025.74023	258.7532304
20947	20899	0.04772	1897.78577	90.56233694
20947	20986	0.04745	2200.12378	104.3958734
20955	754	0.25045	682.44037	170.9171907
20955	20798	0.23958	2383.03223	570.9268617
20955	20958	0.00829	678.22662	5.62249868
20957	720	0.24683	508.56577	125.529289
20957	734	0.22429	625.14813	140.2144741
20957	20862	0.10732	2312.11084	248.1357353
20957	21057	0.15295	3152.74707	482.2126644
20958	20955	0.00829	0.00000	0
20958	21128	0.21496	2634.43579	566.2983174
20959	706	0.40620	12.37532	5.026854984
20959	720	0.25352	35.72583	9.057212422
20959	20872	0.09403	278.02292	26.14249517
20959	21052	0.15054	327.33890	49.27759801
20961	1954	0.40185	0.68144	0.273836664
20961	20674	0.33138	461.00162	152.7667168
20961	21072	0.17686	467.16318	82.62248001
20962	706	0.34118	256.04675	87.35803017
20962	1947	0.24302	73.33850	17.82272227
20962	20796	0.24399	392.90552	95.86501782
20962	21074	0.18018	380.44788	68.54909902
20969	1946	0.24278	111.33440	27.02976563
20969	1947	0.25573	21.73763	5.55896412
20969	20753	0.26388	104.84099	27.66544044
20969	21082	0.18708	154.62059	28.92641998
20971	20893	0.27064	162.55855	43.99484597
20971	20984	0.07972	164.42882	13.10826553
20984	20971	0.07972	162.55855	12.95916761
20984	20992	0.03838	228.66656	8.776222573
20984	30204	0.88570	64.42592	57.06203734
20986	20947	0.04745	2442.91309	115.9162261
20986	21008	0.04478	2200.12378	98.52154287
20992	20984	0.03838	226.98447	8.711663959

20992	21004	0.21282	228.66656	48.6648173
21004	20992	0.21282	226.98447	48.30683491
21004	21068	0.49301	228.66656	112.7349007
21005	911	0.28533	66.55083	18.98894832
21005	20848	0.54540	508.63312	277.4085036
21005	21089	0.21817	464.62271	101.3667366
21007	20677	0.81173	18551.73438	15058.99935
21008	20986	0.04478	2442.91309	109.3936482
21008	21177	0.16792	2200.12378	369.4447851
21014	516	0.48907	0.50930	0.249083351
21014	1890	0.78040	6.07332	4.739618928
21014	20856	0.21118	6.00906	1.268993291
21027	516	0.42465	2.64906	1.124923329
21027	529	0.28597	2.19165	0.626746151
21027	1890	0.14161	40.22437	5.696173036
21027	20845	0.25144	39.09439	9.829893422
21029	21277	0.49651	18414.81250	9143.138554
21031	20850	0.25011	371.75098	92.97863761
21031	21380	0.38142	372.81079	142.1974915
21035	21007	0.08402	18551.73438	1558.716723
21052	20959	0.15054	320.94736	48.31541557
21052	21162	0.09961	327.33890	32.60622783
21057	20957	0.15295	2772.73584	424.0899467
21057	21106	0.04981	3152.74707	157.0383316
21059	20869	0.25098	417.42960	104.766481
21059	21503	0.50361	421.54489	212.2942221
21064	20074	2.02158	0.00000	0
21064	21068	0.28691	0.00000	0
21068	1839	2.19651	45.98660	101.0100268
21068	1859	1.60350	1.60749	2.577610215
21068	21004	0.49301	226.98447	111.9056136
21068	21064	0.28691	0.00000	0
21068	21195	0.14249	181.85579	25.91263152
21072	20961	0.17686	461.68307	81.65326776
21072	21514	0.49924	467.16318	233.226546
21073	13581	0.36033	2494.33228	898.7827505
21073	21152	0.05880	2582.39746	151.8449706
21074	20962	0.18018	487.19226	87.78230141
21074	21202	0.10799	380.44788	41.08456656
21082	20969	0.18708	157.43236	29.45244591
21082	21452	0.39098	154.62059	60.45355828
21088	20695	0.49998	1234.59094	617.2707782
21088	21524	0.48877	1319.33459	644.8511676
21089	912	0.15236	542.08411	82.591935
21089	21005	0.21817	462.66043	100.938626
21089	21134	0.07149	572.55273	40.93179467
21092	20942	0.21583	881.00732	190.1478099
21092	21114	0.00853	891.96552	7.608465886
21106	21057	0.04981	2772.73584	138.1099722
21106	21184	0.05653	3152.74707	178.2247919
21107	20710	0.49674	335.72827	166.7696608
21107	21547	0.49674	335.23999	166.5271126
21109	840	0.32911	149.47256	49.19291422
21109	1982	0.27352	9.37330	2.563785016

21109	14386	0.42279	1876.53479	793.3801439
21109	21155	0.04144	1999.43652	82.85664939
21114	1578	0.37632	98.47526	37.05820984
21114	21092	0.00853	881.00732	7.51499244
21114	21124	0.01082	829.82733	8.978731711
21116	911	0.31824	63.04639	20.06388315
21116	20945	0.21641	1417.43848	306.7478615
21116	21185	0.05257	1807.07239	94.99779554
21118	21119	0.20041	829.82733	166.3056952
21118	21123	0.17170	819.53394	140.7139775
21119	21118	0.20041	819.53394	164.2427969
21119	21125	0.01126	829.82733	9.343855736
21120	20907	0.30069	2039.92456	613.3849159
21120	21139	0.02276	2092.52881	47.62595572
21123	21118	0.17170	829.82733	142.4813526
21123	21124	0.09311	819.53394	76.30680515
21124	21114	0.01082	819.53394	8.867357231
21124	21123	0.09311	829.82733	77.2652227
21125	21119	0.01126	819.53394	9.227952164
21125	21127	0.01658	0.00000	0
21125	21141	0.01872	829.82733	15.53436762
21127	20823	0.39288	11.02738	4.332437054
21127	21125	0.01658	0.00000	0
21127	21150	0.02472	11.03382	0.27275603
21128	21163	0.03583	2634.43579	94.39183436
21129	20955	0.21552	3065.47266	660.6706677
21134	21089	0.07149	576.82263	41.23704982
21134	21153	0.06512	572.55273	37.28463378
21139	21120	0.02276	2039.92456	46.42868299
21139	21149	0.01309	2092.52881	27.39120212
21141	21125	0.01872	819.53394	15.34167536
21141	21150	0.01114	829.82733	9.244276456
21149	21139	0.01309	2039.92456	26.70261249
21149	21227	0.09445	2092.52881	197.6393461
21150	21127	0.02472	11.02738	0.272596834
21150	21141	0.01114	819.53394	9.129608092
21150	21241	0.08862	840.86121	74.51712043
21152	21073	0.05880	2494.33228	146.6667381
21152	21617	0.49167	2582.39746	1269.687359
21153	21134	0.06512	576.82263	37.56268967
21153	21186	0.06921	572.55273	39.62637444
21155	21109	0.04144	1951.44971	80.86807598
21155	21369	0.24691	1999.43652	493.6808712
21156	21157	0.04967	28.96539	1.438710921
21156	21165	0.05251	29.02438	1.524070194
21157	21156	0.04967	29.02438	1.441640955
21157	21164	0.04209	28.96539	1.219153265
21159	707	0.25567	0.00000	0
21159	21169	0.07303	91.58411	6.688387553
21159	21170	0.02763	95.33875	2.634209663
21160	754	0.25134	18.24157	4.584836204
21160	755	0.26700	18.22030	4.8648201
21160	21161	0.04482	29.02438	1.300872712
21160	21165	0.10756	28.96539	3.115517348

21161	21160	0.04482	28.96539	1.29822878
21161	21172	0.15169	29.02438	4.402708202
21162	21052	0.09961	320.94736	31.96956653
21162	21166	0.05516	14.85917	0.819631817
21162	21169	0.05033	95.33875	4.798399288
21162	21299	0.17517	237.52504	41.60726126
21163	21164	0.00896	18.15643	0.162681613
21163	21168	0.18754	1290.21851	241.9675794
21163	21344	0.22392	3676.73462	823.2944161
21164	21129	0.03583	3065.47266	109.8358854
21164	21157	0.04209	29.02438	1.221636154
21164	21163	0.00896	1300.83191	11.65545391
21165	21156	0.05251	28.96539	1.520972629
21165	21160	0.10756	29.02438	3.121862313
21166	21162	0.05516	14.98860	0.826771176
21166	21176	0.05241	14.85917	0.7787691
21167	782	0.24940	1306.95032	325.9534098
21167	783	0.25802	81.69820	21.07976956
21167	21168	0.06067	1049.84192	63.69390929
21167	21174	0.06068	61.58139	3.736758745
21168	21163	0.18754	1049.84192	196.8873537
21168	21167	0.06067	1290.21851	78.277557
21169	21159	0.07303	95.33875	6.962588913
21169	21162	0.05033	91.58411	4.609428256
21170	21159	0.02763	91.58411	2.530468959
21170	21187	0.07053	95.33875	6.724242038
21172	21161	0.15169	28.96539	4.393760009
21172	21177	0.05586	29.02438	1.621301867
21173	20944	0.26105	61.58139	16.07582186
21173	21174	0.05929	65.62617	3.890975619
21174	21167	0.06068	65.62617	3.982195996
21174	21173	0.05929	61.58139	3.651160613
21176	21166	0.05241	14.98860	0.785552526
21176	21179	0.05380	14.85917	0.799423346
21177	21008	0.16792	2442.91309	410.2139661
21177	21172	0.05586	28.96539	1.618006685
21177	21224	0.06157	2207.66675	135.9260418
21179	21176	0.05380	14.98860	0.80638668
21179	21182	0.08895	14.85917	1.321723172
21182	720	0.25525	8.95056	2.28463044
21182	721	0.25550	289.13809	73.874782
21182	21179	0.08895	14.98860	1.33323597
21182	21184	0.24963	293.91742	73.37060555
21184	21106	0.05653	2772.73584	156.742757
21184	21182	0.24963	295.16763	73.68269548
21184	21338	0.21324	2867.04321	611.3682941
21185	915	0.26531	81.72631	21.68280731
21185	21116	0.05257	1470.82678	77.32136382
21185	21196	0.02353	1765.84155	41.55025167
21186	21153	0.06921	576.82263	39.92189422
21186	21199	0.06760	572.55273	38.70456455
21187	21170	0.07053	91.58411	6.459427278
21187	21192	0.03363	95.33875	3.206242163
21190	706	0.27314	177.63074	48.51806032

21190	21191	0.05172	283.20959	14.64759999
21191	21190	0.05172	177.63074	9.187061873
21191	21192	0.09999	283.20959	28.3181269
21192	21187	0.03363	91.58411	3.079973619
21192	21191	0.09999	177.63074	17.76129769
21192	21238	0.05036	378.54834	19.0636944
21195	21068	0.14249	180.00894	25.64947386
21195	21698	0.56225	181.85579	102.2484179
21196	21185	0.02353	1430.20898	33.6528173
21196	21212	0.02495	1765.84155	44.05774667
21199	21186	0.06760	576.82263	38.99320979
21199	21212	0.05723	572.55273	32.76719274
21202	21074	0.10799	487.19226	52.61189216
21202	21382	0.21541	380.44788	81.95227783
21212	21196	0.02495	1430.20898	35.68371405
21212	21199	0.05723	576.82263	33.01155911
21212	21246	0.09667	1369.00110	132.3413363
21212	21276	0.08305	1962.78723	163.0094795
21224	21177	0.06157	2450.39697	150.8709414
21224	21309	0.12874	2207.66675	284.2150174
21227	21149	0.09445	2039.92456	192.6708747
21227	21272	0.15436	2092.52881	323.0027471
21238	21192	0.05036	269.21484	13.55765934
21238	21353	0.15221	378.54834	57.61884283
21241	21150	0.08862	830.56134	73.60434595
21241	21325	0.12821	840.86121	107.8068157
21243	1829	0.78735	502.28299	395.4725122
21243	20683	1.01828	3584.25049	3649.770589
21243	21289	0.10562	3231.34644	341.294811
21246	21212	0.09667	1056.20459	102.1032977
21246	21264	0.10525	1369.00110	144.0873658
21264	916	0.16279	416.39850	67.78551182
21264	21246	0.10525	1056.20459	111.1655331
21264	21288	0.07354	1399.58594	102.92555
21272	21227	0.15436	2039.92456	314.8827551
21272	21279	0.01636	2092.52881	34.23377133
21274	21212	0.08240	1944.22095	160.2038063
21276	21328	0.06599	1962.78723	129.5243293
21277	21458	0.38212	18414.81250	7036.668153
21279	21272	0.01636	2039.92456	33.3731658
21279	21287	0.01600	2092.52881	33.48046096
21287	21279	0.01600	2039.92456	32.63879296
21287	21335	0.13254	2092.52881	277.3437685
21288	21264	0.07354	1097.86377	80.73690165
21288	21347	0.16753	1399.58594	234.4726325
21289	21243	0.10562	3218.40894	339.9283522
21289	21340	0.07044	3231.34644	227.6160432
21299	21162	0.17517	234.75870	41.12268148
21299	21381	0.07968	237.52504	18.92599519
21309	21224	0.12874	2450.39697	315.4641059
21309	21387	0.07501	2207.66675	165.5970829
21325	21241	0.12821	830.56134	106.4862694
21325	21413	0.07747	840.86121	65.14151794
21328	21329	0.01105	0.00000	0

21328	21391	0.06263	1995.43823	124.9742963
21329	912	0.30884	31.89944	9.85182305
21329	21274	0.06767	1944.22095	131.5654317
21329	21328	0.01105	32.65107	0.360794324
21335	21287	0.13254	2039.92456	270.3716012
21335	21366	0.07384	2092.52881	154.5123273
21338	21184	0.21324	2488.28223	530.6013027
21338	21373	0.02520	2867.04321	72.24948889
21340	1830	1.79842	566.39526	1018.616563
21340	21289	0.07044	3218.40894	226.7047257
21340	21396	0.06557	2780.36230	182.308356
21344	21375	0.02687	3676.73462	98.79385924
21345	21164	0.22392	4348.20703	973.6505182
21347	922	0.10825	110.27376	11.93713452
21347	21288	0.16753	1097.86377	183.9251174
21347	21392	0.10530	1412.16626	148.7011072
21353	21238	0.15221	269.21484	40.9771908
21353	21374	0.02402	378.54834	9.092731127
21366	21335	0.07384	2039.92456	150.6280295
21366	21505	0.50997	2092.52881	1067.126917
21369	21155	0.24691	1951.44971	481.8324479
21369	21629	0.25251	1999.43652	504.8777157
21373	735	0.26988	104.14330	28.1061938
21373	21338	0.02520	2488.28223	62.7047122
21373	21477	0.12826	2762.89990	354.3695412
21374	707	0.12472	7.32348	0.913384426
21374	826	0.25886	102.11708	26.43402733
21374	21353	0.02402	269.21484	6.466540457
21374	21397	0.02524	278.15421	7.02061226
21375	21376	0.00896	316.04617	2.831773683
21375	21643	0.24911	4106.13428	1022.87911
21376	755	0.25145	208.30299	52.37778684
21376	783	0.25297	891.20563	225.4482882
21376	21345	0.02687	4348.20703	116.8363229
21376	21375	0.00896	745.44586	6.679194906
21380	1889	1.95655	242.70119	474.8570133
21380	1890	0.54803	0.87928	0.481871818
21380	1892	0.79664	134.19557	106.9055589
21380	21031	0.38142	371.75098	141.7932588
21381	707	0.12254	128.04402	15.69051421
21381	721	0.25052	23.58994	5.909751769
21381	21299	0.07968	234.75870	18.70557322
21381	21490	0.12682	109.39783	13.8738328
21382	701	0.24558	23.23648	5.706414758
21382	826	0.23874	433.29669	103.4452518
21382	21202	0.21541	487.19226	104.9460847
21382	21424	0.04646	589.44373	27.3855557
21387	735	0.23270	1030.19861	239.7272165
21387	755	0.24959	66.68629	16.64423112
21387	21309	0.07501	2450.39697	183.8042767
21387	21451	0.06605	2708.25366	178.8801542
21389	913	0.30256	787.07495	238.1373969
21389	21329	0.06152	1976.12048	121.5709319
21389	21391	0.01105	5.40113	0.059682487

21391	21389	0.01105	781.73676	8.638191198
21391	21423	0.03299	1219.10266	40.21819675
21392	915	0.32901	79.98701	26.31652616
21392	21347	0.10530	1112.28943	117.124077
21392	21432	0.11826	1492.04688	176.449464
21396	21340	0.06557	2778.69751	182.1991957
21396	21493	0.14039	2780.36230	390.3350633
21397	21374	0.02524	172.59607	4.356324807
21397	21509	0.14830	278.15421	41.25026934
21413	21325	0.07747	830.56134	64.34358701
21413	21461	0.06912	840.86121	58.12032684
21422	21389	0.03299	1207.50659	39.8356424
21422	21423	0.01105	15.48261	0.171082841
21423	916	0.16188	23.72513	3.840624044
21423	21422	0.01105	8.15552	0.090118496
21423	21463	0.05424	1226.02014	66.49933239
21424	21382	0.04646	879.66998	40.86946727
21424	21479	0.07442	589.44373	43.86640239
21432	919	0.25561	22.31423	5.70374033
21432	921	0.07874	15.19576	1.196514142
21432	21392	0.11826	1191.26025	140.8784372
21432	21487	0.16133	1498.61047	241.7708271
21451	21387	0.06605	2948.58350	194.7539402
21451	21484	0.04368	2708.25366	118.2965199
21452	701	0.26368	39.60069	10.44190994
21452	1676	0.20837	5.68854	1.18532108
21452	21082	0.39098	157.43236	61.55290411
21452	21584	0.12935	185.39674	23.98106832
21458	21468	0.01512	154.98308	2.34334417
21458	21512	0.16557	19718.37500	3264.771349
21461	21413	0.06912	830.56134	57.40839982
21461	21686	0.24683	840.86121	207.5497725
21463	21464	0.01172	0.00000	0
21463	21502	0.05258	1226.02014	64.46413896
21464	21422	0.05481	1214.83374	66.58503729
21464	21463	0.01172	0.00000	0
21468	21035	0.88566	18551.73438	16430.52907
21468	21458	0.01512	1458.54541	22.0532066
21468	30202	0.08914	1347.63892	120.1285333
21477	21373	0.12826	2395.50000	307.24683
21477	21553	0.07556	2762.89990	208.7647164
21479	21424	0.07442	879.66998	65.46503991
21479	21620	0.10687	589.44373	62.99385143
21484	21451	0.04368	2948.58350	128.7941273
21484	21531	0.06269	2708.25366	169.7804219
21487	21432	0.16133	1198.43274	193.3431539
21487	21631	0.28134	1498.61047	421.6190696
21490	21381	0.12682	110.53322	14.01782296
21490	21513	0.04533	109.39783	4.959003634
21493	21396	0.14039	2778.69751	390.1013434
21493	21519	0.04911	2780.36230	136.5435926
21494	20749	0.90119	106.72182	96.17663697
21494	21600	0.08401	115.67602	9.71794244
21502	21521	0.02589	1226.02014	31.74166142

21503	21059	0.50361	417.42960	210.2217209
21503	21971	0.50193	421.54489	211.5860266
21505	21366	0.50997	2039.92456	1040.300328
21505	21510	0.02128	2092.52881	44.52901308
21509	21397	0.14830	172.59607	25.59599718
21509	21661	0.08170	278.15421	22.72519896
21510	21505	0.02128	2039.92456	43.40959464
21510	21535	0.05065	2092.52881	105.9865842
21512	22113	1.27844	19718.37500	25208.75934
21513	21490	0.04533	110.53322	5.010470863
21513	21679	0.08674	109.39783	9.489167774
21514	21072	0.49924	461.68307	230.4906559
21514	21705	0.15133	467.16318	70.69580403
21519	21493	0.04911	2778.69751	136.4618347
21519	21799	0.33826	2780.36230	940.4853516
21521	21464	0.07859	1214.83374	95.47378363
21521	21563	0.02126	1226.02014	26.06518818
21524	21088	0.48877	1234.59094	603.4310137
21524	21579	0.02579	1319.33459	34.02563908
21527	21468	0.15852	19587.75586	3105.051059
21531	21484	0.06269	2948.58350	184.8466996
21531	21656	0.06270	2708.25366	169.8075045
21532	20703	0.98853	1981.25293	1958.527959
21532	21534	0.01105	2039.92456	22.54116639
21532	21585	0.02526	4064.53394	102.6701273
21534	21532	0.01105	2092.52881	23.12244335
21534	21558	0.14414	2039.92456	294.0347261
21535	21510	0.05065	2039.92456	103.322179
21535	21559	0.17613	2092.52881	368.5570993
21543	1675	0.12930	106.68645	13.79455799
21543	21546	0.20842	389.64240	81.20926901
21543	21547	0.28799	335.72827	96.68638448
21546	21543	0.20842	392.71426	81.84950607
21546	21557	0.12415	389.64240	48.37410396
21547	21107	0.49674	335.72827	166.7696608
21547	21543	0.28799	335.23999	96.54576472
21551	21554	0.69295	3696.77710	2561.681691
21551	21677	1.42417	3619.06274	5154.160582
21553	21477	0.07556	2395.50000	181.00398
21553	21663	0.05597	2762.89990	154.6395074
21554	2027	3.83366	136.64703	523.858253
21554	21551	0.69295	3619.06274	2507.829526
21554	21556	0.30679	3832.92920	1175.904349
21556	21554	0.30679	3755.70972	1152.214185
21556	21569	0.99700	3832.92920	3821.430412
21557	21546	0.12415	392.71426	48.75547538
21557	21566	0.16200	389.64240	63.1220688
21558	21534	0.14414	2092.52881	301.6171027
21558	21564	0.34612	2039.92456	706.0586887
21559	21535	0.17613	2039.92456	359.2919128
21559	21560	0.02137	2092.52881	44.71734067
21560	21559	0.02137	2039.92456	43.59318785
21560	21564	1.00731	2092.52881	2107.825196
21563	21521	0.02126	1214.83374	25.82736531

21563	21727	0.16797	1226.02014	205.9346029
21564	21558	0.34612	2092.52881	724.2660717
21564	21560	1.00731	2039.92456	2054.836409
21566	1676	0.10732	68.49370	7.350743884
21566	1677	0.23662	1.38068	0.326696502
21566	21557	0.16200	392.71426	63.61971012
21566	21568	0.02080	454.13123	9.445929584
21568	21566	0.02080	458.75967	9.542201136
21568	21584	0.18628	454.13123	84.59556552
21569	21556	0.99700	3755.70972	3744.442591
21569	21571	0.49849	3832.92920	1910.676877
21570	939	0.27744	509.90152	141.4670777
21570	21572	0.04232	7436.64209	314.7186932
21570	30205	0.72968	6994.09912	5103.454246
21571	20714	1.00023	707.99451	708.1573487
21571	21569	0.49849	3755.70972	1872.183738
21571	21575	0.50194	4233.48193	2124.95392
21572	21570	0.04232	7269.95947	307.6646848
21572	21579	0.37577	7436.64209	2794.466998
21573	2021	1.60757	564.41455	907.3358981
21573	21576	0.61639	6131.90820	3779.646895
21573	21792	0.23438	409.17316	95.90200524
21573	30205	0.72968	7139.03662	5209.212241
21575	21571	0.50194	4116.95215	2066.462962
21575	21581	0.73774	4233.48193	3123.208959
21576	21573	0.61639	6250.30518	3852.62561
21576	21578	1.01076	6131.90820	6197.887532
21578	21576	1.01076	6250.30518	6317.558464
21578	21585	1.37067	6131.90820	8404.822612
21579	21524	0.02579	1234.59094	31.84010034
21579	21572	0.37577	7269.95947	2731.83267
21579	21582	0.64001	8705.96777	5571.906432
21579	21621	0.02186	1983.52771	43.35991574
21581	63	4.50000	4233.48193	19050.66869
21581	21575	0.73774	4116.95215	3037.240279
21582	936	0.25531	178.15063	45.48363735
21582	21579	0.64001	8410.20313	5382.614105
21582	21589	0.49223	8786.41797	4324.938517
21583	824	0.76245	17.16576	13.08803371
21583	825	0.40063	17.06409	6.836386377
21584	21452	0.12935	188.81897	24.42373377
21584	21568	0.18628	458.75967	85.45775133
21584	21588	0.11454	809.40222	92.70893028
21584	21752	0.17905	1172.96240	210.0189177
21585	21532	0.02526	4021.17749	101.5749434
21585	21578	1.37067	6250.30518	8567.105801
21585	21586	0.25097	3696.77710	927.7801488
21585	21744	0.16663	1821.67310	303.5453887
21586	21585	0.25097	3619.06274	908.2761759
21586	21677	1.31520	3696.77710	4862.001242
21588	21584	0.11454	827.24994	94.75320813
21588	21590	0.06349	809.40222	51.38894695
21589	21582	0.49223	8497.14941	4182.551854
21589	21943	1.08144	8786.41797	9501.983849

21590	21588	0.06349	827.24994	52.52209869
21590	21596	0.06632	809.40222	53.67955523
21596	701	0.21524	114.85992	24.72244918
21596	702	0.28292	102.91586	29.11695511
21596	21590	0.06632	827.24994	54.86321602
21596	21620	0.25381	1015.11749	257.6469701
21600	21494	0.08401	106.72182	8.965700098
21600	21605	0.02075	0.00000	0
21600	21913	0.37285	115.67602	43.12980406
21605	21600	0.02075	0.00000	0
21605	21607	0.22683	0.00000	0
21607	21605	0.22683	0.00000	0
21607	21608	0.24683	0.00000	0
21608	21607	0.24683	0.00000	0
21608	21609	0.09653	0.00000	0
21609	21608	0.09653	0.00000	0
21609	21610	0.05102	0.00000	0
21610	21609	0.05102	0.00000	0
21610	21613	0.06481	0.00000	0
21613	21610	0.06481	0.00000	0
21613	21614	0.04482	0.00000	0
21614	21613	0.04482	0.00000	0
21614	21617	0.24960	0.00000	0
21617	21152	0.49167	2494.33228	1226.388352
21617	21614	0.24960	0.00000	0
21617	21619	0.11653	143.12494	16.67834926
21617	21931	0.38917	2786.73169	1084.512372
21618	807	0.38319	553.80011	212.2106642
21618	13146	0.25447	322.47028	82.05901215
21618	21619	0.13005	457.98486	59.56093104
21619	21617	0.11653	457.98486	53.36897574
21619	21618	0.13005	143.12494	18.61339845
21620	21479	0.10687	879.66998	94.01033076
21620	21596	0.25381	1043.76538	264.9180911
21620	21630	0.21628	757.90515	163.9197258
21620	21742	0.14829	441.69797	65.49939197
21621	21579	0.02186	2027.86572	44.32914464
21621	21669	0.02578	1983.52771	51.13534436
21629	21369	0.25251	1951.44971	492.7605663
21629	21825	0.23515	2164.63379	509.0136357
21629	30206	0.25075	625.47418	156.8376506
21630	708	0.25291	367.76074	93.01036875
21630	826	0.25856	283.70706	73.35529743
21630	21620	0.21628	804.85822	174.0747358
21630	21634	0.03293	1505.15051	49.56460629
21631	920	0.23762	129.90637	30.86835164
21631	1948	0.23537	184.30917	43.38084934
21631	21487	0.28134	1198.43274	337.1670671
21631	21789	0.53651	1582.56946	849.064341
21633	830	0.23377	448.65915	104.8830495
21633	21635	0.04967	437.61682	21.73642745
21634	21630	0.03293	1401.50439	46.15153956
21634	21639	0.08217	1505.15051	123.6782174
21635	21633	0.04967	448.65915	22.28489998

21635	21637	0.04760	437.61682	20.83056063
21637	21635	0.04760	448.65915	21.35617554
21637	21638	0.04827	437.61682	21.1237639
21638	785	0.39104	166.26331	65.01560474
21638	21637	0.04827	448.65915	21.65677717
21638	21645	0.05381	602.45892	32.41831449
21639	21634	0.08217	1401.50439	115.1616157
21639	21658	0.05598	1505.15051	84.25832555
21640	21376	0.24854	4770.48779	1185.657035
21640	21643	0.00829	1545.84265	12.81503557
21640	21647	0.12687	1671.19641	212.0246885
21643	21640	0.00829	1008.26428	8.358510881
21643	21644	0.10128	837.13556	84.78508952
21643	21703	0.07837	4642.54248	363.8360542
21644	784	0.20679	258.53101	53.46162756
21644	21643	0.10128	835.96539	84.6665747
21644	21651	0.04835	607.23633	29.35987656
21645	21638	0.05381	607.23633	32.67538692
21645	21650	0.19443	602.45892	117.1360878
21647	21640	0.12687	1696.46570	215.2306034
21647	21648	0.12479	1671.19641	208.5486
21648	755	0.23399	1012.97583	237.0262145
21648	756	0.26869	29.27388	7.865598817
21648	21647	0.12479	1696.46570	211.7019547
21648	21649	0.12479	1727.25769	215.5444871
21649	21648	0.12479	1778.74976	221.9701826
21649	21656	0.12549	1727.25769	216.7535675
21650	21645	0.19443	607.23633	118.0649596
21650	21653	0.06136	602.45892	36.96687933
21651	21644	0.04835	602.45892	29.12888878
21651	21653	0.05999	607.23633	36.42810744
21653	21650	0.06136	607.23633	37.26002121
21653	21651	0.05999	602.45892	36.14151061
21653	21729	0.12036	0.00000	0
21656	21531	0.06270	2948.58350	184.8761855
21656	21649	0.12549	1778.74976	223.2153074
21656	21668	0.11190	1181.80249	132.2436986
21656	21712	0.08459	2389.07227	202.0916233
21658	21639	0.05598	1401.50439	78.45621575
21658	21662	0.05319	1505.15051	80.05895563
21661	21509	0.08170	172.59607	14.10109892
21661	21662	0.05447	1401.50439	76.33994412
21661	21664	0.09657	1428.83301	137.9824038
21661	21766	0.15447	423.00775	65.34200714
21662	21658	0.05319	1401.50439	74.5460185
21662	21661	0.05447	1505.15051	81.98554828
21663	21553	0.05597	2395.50000	134.076135
21663	21666	0.25105	3659.71289	918.770921
21663	21673	0.18921	2917.28198	551.9789234
21663	21683	0.02351	3513.58594	82.60440545
21664	21661	0.09657	1586.27979	153.1870393
21664	21674	0.02546	1428.83301	36.37808843
21666	721	0.24931	1612.82520	402.0934506
21666	722	0.24483	1912.45313	468.2258998

21666	21663	0.25105	3454.30640	867.2036217
21666	21675	0.14827	2022.93018	299.9398578
21668	21656	0.11190	1469.05261	164.3869871
21668	21670	0.07171	1181.80249	84.74705656
21669	21621	0.02578	2027.86572	52.27837826
21669	21794	0.19058	1983.52771	378.020711
21670	21668	0.07171	1469.05261	105.3457627
21670	21671	0.02827	1181.80249	33.40955639
21671	21670	0.02827	1469.05261	41.53011728
21671	21672	0.04964	1181.80249	58.6646756
21672	735	0.25939	739.75562	191.8852103
21672	736	0.24434	960.79419	234.7604524
21672	21671	0.04964	1469.05261	72.92377156
21672	21673	0.04826	2624.26978	126.6472596
21673	21663	0.18921	2624.26978	496.5380851
21673	21672	0.04826	2917.28198	140.7880284
21674	707	0.25556	782.29730	199.923898
21674	709	0.23963	15.06671	3.610435717
21674	21664	0.02546	1586.27979	40.38668345
21674	21676	0.02642	1819.58081	48.073325
21675	21666	0.14827	1791.58875	265.638864
21675	21679	0.10136	2022.93018	205.044203
21676	21674	0.02642	1995.73169	52.72723125
21676	21679	0.09998	1819.58081	181.9216894
21677	21551	1.42417	3696.77710	5264.839043
21677	21586	1.31520	3619.06274	4759.791316
21679	21513	0.08674	110.53322	9.587651503
21679	21675	0.10136	1791.58875	181.5954357
21679	21676	0.09998	1995.73169	199.5332544
21679	21722	0.09123	514.67133	46.95346544
21683	21663	0.02351	3644.60449	85.68465156
21683	21846	0.22050	3513.58594	774.7456998
21686	21461	0.24683	830.56134	205.0074556
21686	21750	0.11485	840.86121	96.57290997
21698	21195	0.56225	180.00894	101.2100265
21698	21755	0.09064	181.85579	16.48340881
21703	21725	0.04198	4642.54248	194.8939333
21705	1955	0.62254	107.34433	66.8261392
21705	21514	0.15133	461.68307	69.86649898
21705	21985	0.34847	369.19281	128.6526185
21707	21640	0.08286	5282.79688	437.7325495
21712	21656	0.08459	2393.64380	202.478329
21712	21765	0.07223	2389.07227	172.5626901
21722	21679	0.09123	460.61606	42.02200315
21722	21759	0.05149	514.67133	26.50042678
21725	21726	0.00896	0.00000	0
21725	21842	0.12707	4642.54248	589.9278729
21726	21707	0.03806	5282.79688	201.0632493
21726	21725	0.00896	0.00000	0
21727	913	0.29831	29.94998	8.934378534
21727	917	0.21807	196.33197	42.8141127
21727	21563	0.16797	1214.83374	204.0556233
21727	21923	0.23806	1079.62146	257.0146848
21729	21653	0.12036	0.00000	0

21729	21839	0.12428	0.00000	0
21742	21620	0.14829	713.61902	105.8225645
21742	21774	0.04029	441.69797	17.79601121
21744	21585	0.16663	1974.42834	328.9989943
21744	21814	0.08920	1821.67310	162.4932405
21750	21686	0.11485	830.56134	95.3899699
21750	21921	0.23538	840.86121	197.9219116
21752	21584	0.17905	1163.16528	208.2647434
21752	21786	0.04476	1172.96240	52.50179702
21755	21698	0.09064	180.00894	16.31601032
21755	21853	0.14538	181.85579	26.43819475
21759	21722	0.05149	460.61606	23.71712093
21759	21847	0.09626	514.67133	49.54226223
21765	21712	0.07223	2393.64380	172.8928917
21765	21812	0.06157	2389.07227	147.0951797
21766	21661	0.15447	56.35661	8.705405547
21766	21805	0.05764	423.00775	24.38216671
21774	21742	0.04029	713.61902	28.75171032
21774	21777	0.00615	441.69797	2.716442516
21776	21789	0.01735	1340.93262	23.26518096
21776	30202	0.22187	1608.56921	356.8932506
21777	21774	0.00615	713.61902	4.388756973
21777	21826	0.05260	441.69797	23.23331322
21786	21752	0.04476	1163.16528	52.06327793
21786	21800	0.02264	1172.96240	26.55586874
21789	21631	0.53651	1280.66309	687.0885544
21789	21776	0.01735	1608.56921	27.90867579
21789	21867	0.26527	462.64954	122.7270435
21789	22024	0.26122	408.43689	106.6918844
21792	21573	0.23438	430.38318	100.8732097
21792	21990	0.23999	409.17316	98.19746667
21794	936	0.63752	10.44329	6.657806241
21794	939	0.43735	150.31737	65.74130177
21794	21669	0.19058	2027.86572	386.4706489
21794	21960	0.20011	1843.42163	368.8871024
21799	21519	0.33826	2778.69751	939.9222197
21799	22415	0.95975	2780.36230	2668.452717
21800	702	0.25488	100.94473	25.72879278
21800	1677	0.20052	171.36270	34.3616486
21800	21786	0.02264	1163.16528	26.33406194
21800	21957	0.18775	1375.19495	258.1928519
21805	21766	0.05764	56.35661	3.248395
21805	21838	0.02799	423.00775	11.83998692
21812	21765	0.06157	2393.64380	147.3766488
21812	21851	0.03949	2389.07227	94.34446394
21814	226	0.23785	264.52563	62.9174211
21814	228	0.15944	245.85715	39.199464
21814	21744	0.08920	1974.42834	176.1190079
21814	21883	0.08696	1528.66162	132.9324145
21825	21629	0.23515	2419.65088	568.9809044
21825	21873	0.07576	2220.00757	168.1877735
21826	21777	0.05260	713.61902	37.53636045
21826	21848	0.02321	441.69797	10.25180988
21838	708	0.28077	6.83742	1.919742413

21838	709	0.13590	6.88671	0.935903889
21838	21805	0.02799	56.35661	1.577421514
21838	21878	0.06100	423.00775	25.80347275
21839	21729	0.12428	0.00000	0
21839	21935	0.12820	0.00000	0
21842	784	0.18202	492.42517	89.63122944
21842	21843	0.00965	290.72522	2.805498373
21842	21898	0.07504	5615.02783	421.3516884
21843	756	0.25191	1061.68237	267.4484058
21843	21726	0.12708	5282.79688	671.3378275
21843	21842	0.00965	1262.49768	12.18310261
21846	736	0.25217	0.00000	0
21846	21683	0.22050	3644.60449	803.63529
21846	21914	0.10245	3513.58594	359.9668796
21847	709	0.10896	570.96863	62.21274192
21847	722	0.25091	65.16404	16.35030928
21847	21759	0.09626	460.61606	44.33890194
21847	21896	0.06212	611.49023	37.98577309
21848	702	0.24738	244.56660	60.50088551
21848	708	0.21431	4.61967	0.990041478
21848	21826	0.02321	713.61902	16.56309745
21848	21869	0.04002	680.13312	27.21892746
21851	736	0.24250	2114.60474	512.7916495
21851	756	0.25484	1098.27490	279.8843755
21851	21812	0.03949	2393.64380	94.52499366
21851	21895	0.05233	3771.29224	197.3517229
21853	21755	0.14538	180.00894	26.1696997
21853	21970	0.20144	181.85579	36.63303034
21861	19512	0.12907	5013.42578	647.0828654
21861	21993	0.01875	5328.68311	99.91280831
21867	835	0.21008	65.03319	13.66217256
21867	1951	0.22148	27.23039	6.030986777
21867	21789	0.26527	435.94797	115.643918
21867	21906	0.13807	535.83307	73.98247197
21869	21848	0.04002	953.53040	38.16028661
21869	21901	0.03134	680.13312	21.31537198
21873	21984	0.12142	2220.00757	269.5533191
21878	21838	0.06100	56.35661	3.43775321
21878	21930	0.06212	423.00775	26.27724143
21883	21814	0.08696	1687.70398	146.7627381
21883	21949	0.08387	1528.66162	128.2088501
21895	21851	0.05233	3737.63965	195.5906829
21895	21940	0.06608	3771.29224	249.2069912
21896	21847	0.06212	692.64886	43.02734718
21896	21938	0.06044	611.49023	36.9584695
21897	21843	0.07445	6229.87256	463.8140121
21897	21898	0.00829	0.00000	0
21898	21897	0.00829	0.00000	0
21898	22038	0.14218	5615.02783	798.3446569
21901	21869	0.03134	953.53040	29.88364274
21901	21978	0.09289	680.13312	63.17756552
21906	21867	0.13807	511.29706	70.59478507
21906	21952	0.17273	535.83307	92.55444618
21913	825	0.50135	231.25458	115.9394837

21913	21600	0.37285	106.72182	39.79123059
21913	22048	0.12677	241.21455	30.5787685
21914	21846	0.10245	3644.60449	373.38973
21914	22100	0.15169	3513.58594	532.9758512
21921	1806	0.70639	85.84254	60.63831183
21921	21750	0.23538	830.56134	195.4975282
21921	21962	0.04701	843.02423	39.63056905
21923	918	0.29897	125.02293	37.37810538
21923	1955	0.95159	148.87154	141.6646687
21923	21727	0.23806	1071.84241	255.1628041
21923	22026	0.09336	841.35022	78.54845654
21930	21878	0.06212	56.35661	3.500872613
21930	21987	0.06100	423.00775	25.80347275
21931	825	0.49704	1378.69470	685.2664137
21931	21617	0.38917	2383.80688	927.7061235
21931	22067	0.11483	3827.51685	439.5137599
21935	21839	0.12820	0.00000	0
21935	22001	0.06916	0.00000	0
21938	21896	0.06044	692.64886	41.8636971
21938	21992	0.06044	611.49023	36.9584695
21940	21895	0.06608	3737.63965	246.9832281
21940	21997	0.06157	3771.29224	232.1984632
21943	21589	1.08144	8497.14941	9189.157258
21943	22210	0.55871	8786.41797	4909.059584
21945	21958	0.05291	1677.85901	88.77552022
21945	22127	0.99414	1396.46753	1388.28423
21949	21883	0.08387	1687.70398	141.5477328
21949	22023	0.06031	1528.66162	92.1935823
21952	834	0.15310	108.06777	16.54517559
21952	1950	0.16396	35.41655	5.806897538
21952	21906	0.17273	511.29706	88.31634117
21952	22043	0.22272	596.59894	132.8745159
21957	21800	0.18775	1368.95337	257.0209952
21957	22119	0.19420	1375.19495	267.0628593
21958	21945	0.05291	1396.46753	73.88709701
21958	21967	0.02801	1677.85901	46.99683087
21960	21794	0.20011	1810.19519	362.2381595
21960	22012	0.04877	1843.42163	89.9036729
21962	21921	0.04701	832.10858	39.11742435
21962	22199	0.21181	843.02423	178.5609622
21967	21958	0.02801	1396.46753	39.11505552
21967	21983	0.12429	1365.54370	169.7234265
21967	22502	0.55589	324.43405	180.3496441
21970	2041	0.65326	0.00000	0
21970	21853	0.20144	180.00894	36.26100087
21970	22123	0.24274	181.85579	44.14367446
21971	1911	0.24910	129.95108	32.37081403
21971	1912	0.49924	106.85153	53.34455784
21971	21503	0.50193	417.42960	209.5204391
21971	22034	0.05086	219.66783	11.17230583
21978	21901	0.09289	953.53040	88.57343886
21978	22058	0.06267	680.13312	42.62394263
21979	22017	0.03029	0.00000	0
21983	21967	0.12429	1087.12695	135.1190086

21983	22022	0.34651	1365.54370	473.1745475
21984	22046	0.04671	2220.00757	103.6965536
21985	21705	0.34847	364.73761	127.100115
21985	22457	0.48414	369.19281	178.741007
21987	21930	0.06100	56.35661	3.43775321
21987	22074	0.06044	423.00775	25.56658841
21990	21792	0.23999	430.38318	103.2876594
21990	22011	0.01516	409.17316	6.203065106
21992	21938	0.06044	692.64886	41.8636971
21992	22086	0.06159	611.49023	37.66168327
21993	19354	0.04557	5328.68311	242.8280893
21993	21861	0.01875	5013.42578	94.00173338
21996	22019	0.01066	0.00000	0
21997	21940	0.06157	3737.63965	230.1264733
21997	22104	0.06717	3771.29224	253.3176998
21998	21999	0.40937	1217.54712	498.4272645
21998	22011	0.99839	1046.43604	1044.751278
21999	2026	1.08146	513.83020	555.6868081
21999	21998	0.40937	1046.43604	428.3795217
21999	22007	0.08994	984.50897	88.54673676
22001	784	0.24974	0.00000	0
22001	21935	0.06916	0.00000	0
22001	22045	0.02774	0.00000	0
22002	22030	0.01291	0.00000	0
22006	30194	0.14961	2475.09814	370.2994327
22007	21999	0.08994	813.43921	73.16072255
22007	22017	0.50056	984.50897	492.80581
22011	21990	0.01516	430.38318	6.524609009
22011	21998	0.99839	1217.54712	1215.586869
22011	22027	0.49990	702.26483	351.0621885
22012	21960	0.04877	1810.19519	88.28321942
22012	22033	0.01121	1843.42163	20.66475647
22014	22015	0.02965	813.43921	24.11847258
22014	22019	0.02209	984.50897	21.74780315
22015	22014	0.02965	984.50897	29.19069096
22015	22016	0.19238	813.43921	156.4894352
22016	22015	0.19238	984.50897	189.3998356
22016	22018	0.12893	813.43921	104.8767173
22017	21979	0.03029	0.00000	0
22017	22007	0.50056	813.43921	407.175131
22017	22018	0.12548	984.50897	123.5361856
22018	22016	0.12893	984.50897	126.9327415
22018	22017	0.12548	813.43921	102.0703521
22019	21996	0.01066	0.00000	0
22019	22014	0.02209	813.43921	17.96887215
22019	22021	0.24890	984.50897	245.0442826
22021	227	0.25304	38.40179	9.717188942
22021	22019	0.24890	813.43921	202.4650194
22021	22023	0.25097	976.10565	244.973235
22022	936	0.23362	67.48174	15.7650841
22022	2001	0.45560	31.68763	14.43688423
22022	21983	0.34651	1087.12695	376.7003594
22022	22042	0.22959	1398.30872	321.037699
22023	21949	0.06031	1687.70398	101.785427

22023	22021	0.25097	805.42505	202.1375248
22023	22099	0.05218	1440.94348	75.18843079
22024	21789	0.26122	400.86865	104.7149088
22024	22062	0.02924	408.43689	11.94269466
22026	21923	0.09336	838.37622	78.2708039
22026	22441	0.43394	841.35022	365.0955145
22027	2025	1.61652	381.86444	617.2915045
22027	22011	0.49990	894.58594	447.2035114
22027	22030	0.50056	823.56763	412.2450129
22030	22002	0.01291	0.00000	0
22030	22027	0.50056	1018.43707	509.7888598
22030	22054	0.50271	823.56763	414.0156833
22033	22012	0.01121	1810.19519	20.29228808
22033	22063	0.02187	1843.42163	40.31563105
22034	21971	0.05086	217.09908	11.04165921
22034	22452	0.44604	219.66783	97.98063889
22038	22039	0.00965	0.00000	0
22038	22076	0.02800	5615.02783	157.2207792
22039	21897	0.14275	6229.87256	889.3143079
22039	22038	0.00965	0.00000	0
22041	22042	0.19423	840.97479	163.3425335
22041	22047	0.07668	1101.50208	84.46317949
22042	937	0.24572	296.80664	72.93132758
22042	22022	0.22959	1131.46619	259.7733226
22042	22041	0.19423	1101.50208	213.944749
22043	21952	0.22272	574.78656	128.0164626
22043	22125	0.21244	596.59894	126.7414788
22045	22001	0.02774	0.00000	0
22045	22079	0.02355	0.00000	0
22046	22093	0.02746	2220.00757	60.96140787
22047	22041	0.07668	840.97479	64.4859469
22047	22064	0.05999	1101.50208	66.07910978
22048	21913	0.12677	224.31519	28.43643664
22048	22294	0.27052	241.21455	65.25336007
22050	20916	2.17986	476.00674	1037.628052
22050	22708	1.12308	491.95926	552.5096057
22054	939	0.25060	397.85022	99.70126513
22054	940	0.25151	1448.12573	364.2181024
22054	22030	0.50271	1018.43707	511.9784995
22054	22055	0.04275	1799.65308	76.93516917
22055	22054	0.04275	2079.56226	88.90128662
22055	22056	0.06068	1799.65308	109.2029489
22056	22055	0.06068	2079.56226	126.1878379
22056	22059	0.06826	1799.65308	122.8443192
22058	21978	0.06267	953.53040	59.75775017
22058	22066	0.20582	920.79883	189.5188152
22058	22126	0.06211	3363.15405	208.885498
22059	22056	0.06826	2079.56226	141.9509199
22059	22060	0.06688	1799.65308	120.360798
22060	22059	0.06688	2079.56226	139.0811239
22060	22061	0.06757	1799.65308	121.6025586
22061	22060	0.06757	2079.56226	140.5160219
22061	22063	0.07309	1799.65308	131.5366436
22062	835	0.16919	29.58501	5.005487842

22062	22024	0.02924	400.86865	11.72139933
22062	22155	0.10501	380.64859	39.97190844
22063	22033	0.02187	1810.19519	39.58896881
22063	22061	0.07309	2079.56226	151.9952056
22063	22064	0.06757	840.97479	56.82466656
22063	22097	0.01906	1121.25183	21.37105988
22064	22047	0.05999	840.97479	50.45007765
22064	22063	0.06757	1101.50208	74.42849555
22066	708	0.23783	965.14166	229.539641
22066	710	0.13162	69.36861	9.130296448
22066	22058	0.20582	2760.94214	568.2571113
22066	22068	0.04521	623.05951	28.16852045
22067	21931	0.11483	3402.67749	390.7294562
22067	22304	0.26954	3827.51685	1031.668892
22068	22066	0.04521	2483.32129	112.2709555
22068	22070	0.07171	623.05951	44.67959746
22069	22006	0.03949	2475.09814	97.74162555
22070	22068	0.07171	2483.32129	178.0789697
22070	22071	0.05172	623.05951	32.22463786
22071	22070	0.05172	2483.32129	128.4373771
22071	22074	0.11931	623.05951	74.33723014
22074	21987	0.06044	56.35661	3.406193508
22074	22071	0.11931	2483.32129	296.2850631
22074	22078	0.12762	2295.13965	292.9057221
22074	22130	0.05988	1020.93042	61.13331355
22076	22079	0.19582	0.00000	0
22076	22116	0.03639	5615.02783	204.3308627
22077	22039	0.02799	6229.87256	174.374133
22078	709	0.24315	135.23723	32.88293247
22078	711	0.13599	284.05463	38.62858913
22078	22074	0.12762	2391.88818	305.2527695
22078	22080	0.02273	2299.31372	52.26340086
22079	22045	0.02355	0.00000	0
22079	22076	0.19582	0.00000	0
22080	22078	0.02273	2419.74780	55.00086749
22080	22086	0.09243	2299.31372	212.5255671
22086	21992	0.06159	692.64886	42.66024329
22086	22080	0.09243	2419.74780	223.6572892
22086	22088	0.04551	2232.38013	101.5956197
22086	22147	0.07499	700.27234	52.51342278
22088	22086	0.04551	2549.78833	116.0408669
22088	22092	0.05586	2232.38013	124.7007541
22090	22069	0.01184	2475.09814	29.30516198
22090	22093	0.01036	464.89117	4.816272521
22092	22088	0.05586	2549.78833	142.4311761
22092	22095	0.08689	2232.38013	193.9715095
22093	806	0.29776	529.25214	157.5901172
22093	22090	0.01036	78.18354	0.809981474
22093	22134	0.06057	96.86565	5.867152421
22093	22162	0.09695	2504.07324	242.7699006
22095	22092	0.08689	2549.78833	221.551108
22095	22096	0.05861	2232.38013	130.8397994
22096	722	0.24715	5324.43164	1315.93328
22096	723	0.14369	71.31404	10.24711441

22096	22095	0.05861	2549.78833	149.443094
22096	22098	0.09930	3275.22266	325.2296101
22097	22063	0.01906	1107.40710	21.10717933
22097	22108	0.01177	1121.25183	13.19713404
22098	22096	0.09930	3536.49072	351.1735285
22098	22100	0.15032	3275.22266	492.3314703
22099	22023	0.05218	1429.30530	74.58115055
22099	22214	0.13801	1440.94348	198.8646097
22100	21914	0.15169	3644.60449	552.8500551
22100	22098	0.15032	3536.49072	531.605285
22100	22101	0.25028	2030.30371	508.1444125
22100	22159	0.08675	7347.84082	637.4251911
22101	736	0.25078	1057.90625	265.3017294
22101	737	0.12765	626.35895	79.95471997
22101	22100	0.25028	2046.04663	512.0845506
22101	22104	0.24224	1038.56311	251.5815278
22102	756	0.23622	16.42862	3.880768616
22102	22104	0.25787	757.03223	195.2159012
22102	22120	0.02632	677.44873	17.83045057
22104	21997	0.06717	3737.63965	251.0572553
22104	22101	0.24224	1019.74969	247.0241649
22104	22102	0.25787	660.91132	170.4292021
22104	22211	0.12540	3017.92114	378.447311
22108	22097	0.01177	1107.40710	13.03418157
22108	22189	0.09473	1121.25183	106.2161859
22113	22131	0.06202	19718.37500	1222.933618
22116	22117	0.00965	15.20022	0.146682123
22116	22145	0.04031	6247.84521	251.8506404
22117	22077	0.03639	6229.87256	226.7050625
22117	22116	0.00965	648.01758	6.253369647
22117	22118	0.12549	757.03223	94.99997454
22118	22117	0.12549	660.91132	82.93776155
22118	22120	0.12480	757.03223	94.4776223
22119	21957	0.19420	1368.95337	265.8507445
22119	22131	0.02014	842.50311	16.96801264
22119	22137	0.03075	532.69183	16.38027377
22120	757	0.10488	16.53741	1.734443561
22120	22102	0.02632	773.46088	20.35749036
22120	22118	0.12480	660.91132	82.48173274
22121	21527	1.27756	19587.75586	25024.53338
22123	21970	0.24274	180.00894	43.6953701
22123	22132	0.06937	181.85579	12.61533615
22125	836	0.24315	6.88913	1.67509196
22125	837	0.09136	23.41074	2.138805206
22125	22043	0.21244	574.78656	122.1076568
22125	22242	0.34460	589.49072	203.1385021
22126	22058	0.06211	1796.40784	111.5748909
22126	22175	0.05932	3363.15405	199.5022982
22127	21945	0.99414	1677.85901	1668.026756
22127	22361	0.55623	1396.46753	776.7571342
22130	22074	0.05988	2417.79248	144.7774137
22130	22206	0.07469	1020.93042	76.25329307
22131	22119	0.02014	1368.95337	27.57072087
22131	22137	0.01969	19061.25977	375.3162049

22131	22140	0.01270	867.40735	11.01607335
22132	2042	0.63315	0.00000	0
22132	22123	0.06937	180.00894	12.48722017
22132	22138	0.01700	181.85579	3.09154843
22134	22321	0.35045	96.86565	33.94656704
22137	22149	0.03293	19593.95117	645.228812
22138	22132	0.01700	180.00894	3.06015198
22138	22220	0.24788	181.85579	45.07841323
22140	22121	0.06350	19562.21289	1242.200519
22140	22131	0.01270	736.74243	9.356628861
22140	22172	0.04364	49.19998	2.147087127
22144	22117	0.03975	6958.81055	276.6127194
22144	22145	0.00967	0.00000	0
22145	22144	0.00967	0.00000	0
22145	22201	0.05552	6247.84521	346.8803661
22147	22086	0.07499	584.45709	43.82843718
22147	22209	0.05536	700.27234	38.76707674
22148	22140	0.02204	19279.78711	424.9265079
22149	22255	0.39512	19593.95117	7741.961986
22152	22148	0.01559	19279.78711	300.571881
22152	22172	0.06151	191.54085	11.78167768
22155	22062	0.10501	373.16177	39.18571747
22155	22247	0.12026	380.64859	45.77679943
22159	22100	0.08675	7724.38428	670.0903363
22159	22217	0.06609	7347.84082	485.6187998
22162	22213	0.04592	2504.07324	114.9870432
22163	22090	0.09747	2861.80566	278.9401977
22172	22121	0.08172	25.54305	2.087378046
22172	22140	0.04364	200.96098	8.769937167
22172	22202	0.02589	240.74083	6.232780089
22175	703	0.16443	83.79420	13.77828031
22175	710	0.19892	209.44568	41.66293467
22175	22126	0.05932	1796.40784	106.5629131
22175	22224	0.06211	3496.40479	217.1617015
22189	22108	0.09473	1107.40710	104.9046746
22189	22270	0.11659	1121.25183	130.7267509
22199	21962	0.21181	832.10858	176.2489183
22199	22222	0.04683	843.02423	39.47882469
22201	757	0.25814	412.93478	106.5949841
22201	785	0.55976	1047.82019	586.5278296
22201	22144	0.05494	6958.81055	382.3170516
22201	22248	0.08520	7265.28418	619.0022121
22202	837	0.31188	63.32375	19.74941115
22202	22172	0.02589	226.50403	5.864189337
22202	22215	0.02807	177.41708	4.980097436
22206	710	0.29390	1.28383	0.377317637
22206	711	0.12229	207.42233	25.36567674
22206	22130	0.07469	2417.79248	180.5849203
22206	22225	0.04507	1374.51770	61.94951274
22209	711	0.12123	240.12334	29.11015251
22209	723	0.24994	83.00680	20.74671959
22209	22147	0.05536	584.45709	32.3555445
22209	22212	0.00814	780.75470	6.355343258
22210	21943	0.55871	8497.14941	4747.442347

22210	22286	0.51815	8786.41797	4552.682471
22211	22104	0.12540	2869.33423	359.8145124
22211	22218	0.02757	3017.92114	83.20408583
22212	22209	0.00814	741.82269	6.038436697
22212	22313	0.12039	780.75470	93.99505833
22213	22329	0.12208	2504.07324	305.6972611
22214	22099	0.13801	1429.30530	197.2584245
22214	22244	0.06366	1440.94348	91.73046194
22215	22202	0.02807	167.93250	4.713865275
22215	22242	0.06496	177.41708	11.52501352
22217	723	0.24494	902.03162	220.943625
22217	737	0.24642	793.11285	195.4388685
22217	22159	0.06604	7724.38428	510.1183379
22217	22282	0.07562	8638.64941	653.2546684
22218	737	0.25149	571.64154	143.7621309
22218	757	0.25239	290.63376	73.35305469
22218	22211	0.02757	2869.33423	79.10754472
22218	22226	0.01447	3678.63403	53.22983441
22220	22138	0.24788	180.00894	44.62061605
22220	22343	0.19358	181.85579	35.20364383
22222	22199	0.04683	832.10858	38.9676448
22222	22351	0.13179	843.02423	111.1021633
22224	22175	0.06211	2067.40454	128.406496
22224	22255	0.05148	3496.40479	179.9949186
22225	22206	0.04507	2397.40723	108.0511439
22225	22280	0.05988	1374.51770	82.30611988
22226	22218	0.01447	3474.05908	50.26963489
22226	22349	0.10139	3678.63403	372.9767043
22242	22125	0.34460	561.91864	193.6371633
22242	22215	0.06496	167.93250	10.9088952
22242	22253	0.01379	478.03931	6.592162085
22244	227	0.25426	6.69944	1.703399614
22244	22214	0.06366	1429.30530	90.9895754
22244	22389	0.10804	1447.88147	156.429114
22247	22155	0.12026	373.16177	44.87643446
22247	22569	0.29769	380.64859	113.3152788
22248	22274	0.01625	7265.28418	118.0608679
22250	22201	0.08685	8058.77979	699.9050248
22253	22242	0.01379	440.98257	6.08114964
22253	22411	0.26521	478.03931	126.7808054
22255	22224	0.05148	2067.40454	106.4299857
22255	22278	0.01287	7646.46631	98.41002141
22255	22299	0.46260	15892.30957	7351.782407
22269	22250	0.01457	8058.77979	117.4164215
22269	22274	0.00903	7019.42383	63.38539718
22270	937	0.33401	250.07359	83.5270798
22270	940	0.44176	105.25146	46.49588497
22270	22189	0.11659	1107.40710	129.1125938
22270	22302	0.02578	1050.73401	27.08792278
22274	22312	0.19078	5299.41162	1011.021749
22274	22372	0.07617	8985.29590	684.4099887
22278	22152	0.41506	19471.32813	8081.769454
22278	22255	0.01287	2515.82446	32.3786608
22278	22410	0.11807	5367.24512	633.7106313

22280	22225	0.05988	2397.40723	143.5567449
22280	22303	0.03103	1374.51770	42.65128423
22282	22292	0.24642	5754.92432	1418.128451
22282	22297	0.01343	7031.13770	94.42817931
22283	22217	0.07615	9013.91504	686.4096303
22283	22282	0.00692	4147.41260	28.70009519
22286	1996	2.06770	447.43301	925.1572348
22286	22210	0.51815	8497.14941	4402.797967
22286	22291	0.49642	9091.18457	4513.045844
22288	22278	0.07432	13983.57129	1039.259018
22290	22269	0.26879	5972.57275	1605.367829
22290	22312	0.46462	10767.03516	5002.579876
22291	22286	0.49642	8802.35352	4369.664334
22291	22293	0.47436	9091.18457	4312.494313
22292	22290	0.47880	16739.60742	8014.924033
22293	22291	0.47436	8802.35352	4175.484416
22293	22294	0.02621	9091.18457	238.2799476
22294	22048	0.27052	224.31519	60.6817452
22294	22293	0.02621	8802.35352	230.7096858
22294	22304	1.00046	9515.33691	9519.713965
22294	22309	0.01064	1641.51074	17.46567427
22296	22292	0.02553	10984.68359	280.4389721
22297	22356	0.04142	7031.13770	291.2297235
22298	22283	0.01289	9276.59180	119.5752683
22299	22280	0.03733	2397.40723	89.4952119
22299	22300	0.01656	13494.90234	223.4755828
22300	22303	0.03518	13494.90234	474.7506643
22302	22270	0.02578	1041.05908	26.83850308
22302	22333	0.01569	1050.73401	16.48601662
22303	22318	0.33732	14869.41992	5015.752727
22304	22067	0.26954	3402.67749	917.1576907
22304	22294	1.00046	9419.99121	9424.324406
22304	22315	0.43782	13144.73145	5755.026323
22304	22523	0.22885	1600.43860	366.2603736
22305	22330	0.14898	2492.89526	371.3915358
22306	22315	0.27008	12515.84766	3380.280136
22307	22163	0.28867	810.47363	233.9594228
22307	22330	0.16987	7759.55762	1318.116053
22308	22314	0.32821	16066.44727	5273.168658
22309	22294	0.01064	1431.12585	15.22717904
22309	22517	0.21900	1641.51074	359.4908521
22310	22308	0.02965	16066.44727	476.3701616
22311	22310	0.07860	16066.44727	1262.822755
22312	22311	0.01448	16066.44727	232.6421565
22313	22212	0.12039	741.82269	89.30803365
22313	22337	0.01287	780.75470	10.04831299
22314	22307	0.13587	8570.03125	1164.410146
22314	22323	0.08296	7496.41602	621.902673
22315	22304	0.43782	12515.84766	5479.688423
22315	22334	0.26907	13144.73145	3536.852891
22316	22329	0.14247	5329.88623	759.3488912
22317	22326	0.43747	16653.32031	7285.328036
22318	22283	0.37604	3884.73608	1460.816156
22318	22319	0.01793	10984.68359	196.9553768

22319	22296	0.58516	10984.68359	6427.79745
22320	22288	0.38764	13983.57129	5420.591575
22321	22306	0.08585	12515.84766	1074.485522
22322	22320	0.01725	13983.57129	241.2166048
22323	22335	0.05809	7496.41602	435.4668066
22324	22317	0.04559	16653.32031	759.2248729
22326	22331	0.01727	16653.32031	287.6028418
22327	22322	0.04414	13886.19141	612.9364888
22327	22370	0.05312	547.29663	29.07239699
22328	22316	0.00999	5329.88623	53.24556344
22328	22336	0.13588	4922.56641	668.8783238
22329	22375	0.03809	7833.95947	298.3955162
22330	22328	0.07930	10252.45313	813.0195332
22331	22344	0.62380	10468.40039	6530.188163
22331	22367	0.26961	6184.92041	1667.516392
22332	22163	0.16854	2051.33203	345.7315003
22332	22305	0.01073	2492.89526	26.74876614
22333	22302	0.01569	1041.05908	16.33421697
22333	22407	0.07455	1050.73401	78.33222045
22334	22346	0.08585	9524.10645	817.6445387
22334	22363	0.14628	3620.62549	529.6250967
22335	22347	0.19541	7496.41602	1464.874654
22336	22321	0.05750	12418.98242	714.0914892
22337	22313	0.01287	741.82269	9.54725802
22337	22439	0.11081	780.75470	86.51542831
22338	22339	0.03034	16926.31836	513.544499
22339	22340	0.07860	11259.61426	885.0056808
22339	22372	0.28311	5666.70459	1604.300736
22340	22341	0.01310	11259.61426	147.5009468
22341	22324	0.42216	11259.61426	4753.358756
22342	22338	0.32823	16926.31836	5555.725475
22343	22220	0.19358	180.00894	34.84613061
22343	22506	0.20485	181.85579	37.25315858
22344	22348	0.02625	14433.48730	378.8790416
22346	22353	0.04790	9524.10645	456.204699
22347	22336	0.18505	7496.41602	1387.211785
22348	22327	0.32847	14433.48730	4740.967573
22349	22226	0.10131	3474.05908	351.9569254
22349	22352	0.25386	259.64828	65.91431236
22349	22355	0.24620	315.15323	77.59072523
22349	22436	0.09684	3409.12598	330.1397599
22350	22342	0.09607	16926.31836	1626.111405
22351	22222	0.13179	832.10858	109.6635898
22351	22405	0.08216	843.02423	69.26287074
22352	22349	0.25386	285.10083	72.3756967
22352	22362	0.12551	268.05679	33.64380771
22352	22438	0.09629	82.75902	7.968866036
22353	22358	0.19539	9524.10645	1860.915159
22354	22350	0.05676	10037.70020	569.7398634
22355	22349	0.24620	280.00253	68.93662289
22355	22364	0.11994	315.15323	37.79947841
22356	22367	0.01007	7031.13770	70.80355664
22357	22298	0.04147	9276.59180	384.7002619
22358	22359	0.02137	9524.10645	203.5301548

22359	22354	0.16220	9524.10645	1544.810066
22361	22127	0.55623	1677.85901	933.2755171
22361	22580	0.55338	1396.46753	772.7772018
22362	759	0.11045	238.06337	26.29409922
22362	22352	0.12551	205.22331	25.75757764
22362	22397	0.12587	531.29932	66.87464541
22363	22377	0.13762	81.79518	11.25665267
22363	22525	0.27819	3538.83032	984.4672067
22364	738	0.11181	94.79846	10.59941581
22364	22355	0.11994	280.00253	33.58350345
22364	22412	0.13855	1142.38867	158.2779502
22367	22368	0.00896	5755.07861	51.56550435
22367	22412	0.04925	7460.97949	367.4532399
22368	22344	0.34774	3965.08765	1378.819579
22368	22357	0.01007	9276.59180	93.41527943
22370	22322	0.04277	97.37997	4.164941317
22370	22404	0.03862	547.29663	21.13659585
22371	22269	0.07670	9105.63086	698.401887
22371	22324	0.22665	5393.70557	1222.483367
22372	22371	0.00898	4492.60205	40.34356641
22372	22399	0.02967	10159.39844	301.4293517
22373	22332	0.03697	4544.22705	168.000074
22375	22387	0.01184	513.59448	6.080958643
22375	22525	0.18309	7320.36523	1340.28567
22376	22354	0.15374	513.59448	78.96001536
22376	22382	0.01213	81.79518	0.992175533
22377	22376	0.07793	595.38965	46.39871542
22382	22373	0.14008	81.79518	11.45786881
22387	22377	0.14206	513.59448	72.96123183
22389	22244	0.10804	1436.00476	155.1459543
22389	22497	0.13858	1447.88147	200.6474141
22397	22362	0.12587	443.28668	55.79649441
22397	22371	0.02799	10006.73438	280.0884953
22399	22432	0.04142	10159.39844	420.8022834
22404	22370	0.03862	97.37997	3.760814441
22404	22464	0.08900	547.29663	48.70940007
22405	22351	0.08216	832.10858	68.36604093
22405	22414	0.04999	843.02423	42.14278126
22407	22333	0.07455	1041.05908	77.61095441
22407	22488	0.10650	1050.73401	111.9031721
22410	712	0.21468	480.15359	103.0793727
22410	22278	0.11807	5724.36035	675.8752265
22410	22556	0.15164	4887.09180	741.0786006
22411	704	0.09549	143.73798	13.72553971
22411	22253	0.26521	440.98257	116.9529874
22411	22556	0.30023	557.55127	167.3936178
22412	22364	0.13855	132.07253	18.29864903
22412	22413	0.01040	2475.04785	25.74049764
22412	30075	0.06504	6039.10352	392.7832929
22413	724	0.24394	1415.98828	345.416181
22413	22368	0.05039	7486.60059	377.2498037
22413	22412	0.01040	42.85570	0.44569928
22414	22405	0.04999	832.10858	41.59710791
22414	22435	0.09447	843.02423	79.64049901

22415	21799	0.95975	2778.69751	2666.854935
22415	22423	0.02326	2780.36230	64.6712271
22423	502	0.60160	279.26361	168.0049878
22423	1821	1.21023	149.64586	181.1059091
22423	22415	0.02326	2778.69751	64.63250408
22423	22700	0.79699	2500.88843	1993.18307
22432	786	0.15496	430.33386	66.68453495
22432	22433	0.00965	714.90582	6.898841163
22432	22552	0.12439	9531.68652	1185.646486
22433	22397	0.04367	9918.72168	433.1505758
22433	22432	0.00965	123.12376	1.188144284
22435	22414	0.09447	832.10858	78.60929755
22435	22583	0.24354	843.02423	205.310121
22436	739	0.14601	156.83180	22.89901112
22436	758	0.14124	185.90236	26.25684933
22436	22349	0.09684	3214.24902	311.2678751
22436	22565	0.12930	3071.17505	397.102934
22438	22352	0.09629	171.04506	16.46992883
22438	22468	0.05540	82.75902	4.584849708
22439	724	0.24278	125.06660	30.36366915
22439	22337	0.11081	741.82269	82.20137228
22439	22469	0.05150	655.68811	33.76793767
22441	22026	0.43394	838.37622	363.8049769
22441	22483	0.05704	841.35022	47.99061655
22452	22034	0.44604	217.09908	96.83487364
22452	22813	0.49914	219.66783	109.6450007
22456	22350	0.27427	6888.61865	1889.341437
22457	1912	0.70136	93.35285	65.47395488
22457	1956	0.75180	78.63647	59.11889815
22457	21985	0.48414	364.73761	176.5840665
22457	22470	0.02405	211.28574	5.081422047
22461	4703	0.01104	3325.73608	36.71612632
22461	4704	0.17822	3236.31201	576.7755264
22462	22413	0.07636	5101.26465	389.5325687
22464	22404	0.08900	97.37997	8.66681733
22464	22521	0.05600	547.29663	30.64861128
22468	758	0.12444	2.99549	0.372758776
22468	759	0.08312	303.96414	25.26549932
22468	22438	0.05540	171.04506	9.475896324
22468	22560	0.07056	202.97472	14.32189624
22469	22439	0.05150	622.82037	32.07524906
22469	22542	0.06380	655.68811	41.83290142
22470	22457	0.02405	207.92467	5.000588314
22470	22824	0.49141	211.28574	103.8279255
22483	1953	0.79913	131.55086	105.1262388
22483	1956	0.74313	126.21255	93.79233228
22483	22441	0.05704	838.37622	47.82097959
22483	22850	0.51111	652.98071	333.7449707
22488	22407	0.10650	1041.05908	110.872792
22488	22590	0.09865	1050.73401	103.6549101
22497	22389	0.13858	1436.00476	199.0015396
22497	22852	0.50437	1447.88147	730.267977
22502	2001	0.33073	49.24541	16.28693445
22502	21967	0.55589	321.45944	178.6960881

22502	23201	1.00060	283.21207	283.3819972
22506	2042	0.54026	0.00000	0
22506	22343	0.20485	180.00894	36.87483136
22506	24093	0.44254	181.85579	80.47846131
22517	22309	0.21900	1431.12585	313.4165612
22517	22518	0.62605	181.47096	113.6098945
22517	22748	0.31162	1491.85913	464.8931421
22518	22517	0.62605	177.82233	111.3256697
22518	22519	0.06289	181.47096	11.41270867
22519	1681	0.36738	1321.51196	485.4970639
22519	22518	0.06289	177.82233	11.18324633
22519	22520	0.18464	1200.26038	221.6160766
22520	22519	0.18464	1171.86035	216.372295
22520	22523	0.12756	1200.26038	153.1052141
22521	712	0.29645	380.36984	112.7606391
22521	713	0.05611	174.23618	9.77639206
22521	22464	0.05600	97.37997	5.45327832
22522	22373	0.18201	4462.43213	812.207272
22523	22304	0.22885	1709.13721	391.1360505
22523	22520	0.12756	1171.86035	149.4825062
22523	22526	0.25235	484.10535	122.1639851
22525	22595	0.07222	10859.19531	784.2510853
22526	809	0.11794	265.38620	31.29964843
22526	22523	0.25235	564.40393	142.4273317
22526	22530	0.19447	234.70506	45.64309302
22526	22684	0.20943	196.15533	41.08081076
22530	22526	0.19447	274.03198	53.29099915
22530	22534	0.33243	235.08481	78.14924339
22531	22532	0.04896	488.58762	23.92124988
22531	22533	0.04551	0.00000	0
22531	22584	0.04871	476.34183	23.20261054
22532	22531	0.04896	476.34183	23.321696
22532	22535	0.08250	488.58762	40.30847865
22533	22531	0.04551	0.00000	0
22533	22537	0.04827	0.00000	0
22534	808	0.12073	174.89500	21.11507335
22534	810	0.44040	108.27754	47.68542862
22534	22530	0.33243	243.22382	80.85489448
22534	22539	0.12677	211.81079	26.85125385
22535	797	0.14584	488.58762	71.2556185
22535	22532	0.08250	476.34183	39.29820098
22537	22533	0.04827	0.00000	0
22537	22538	0.04353	0.00000	0
22538	798	0.20980	0.00000	0
22538	22537	0.04353	0.00000	0
22538	22540	0.02545	0.00000	0
22539	22534	0.12677	223.95676	28.39099847
22539	22541	0.02827	211.81079	5.987891033
22540	22538	0.02545	0.00000	0
22540	22546	0.04694	0.00000	0
22541	22539	0.02827	223.95676	6.331257605
22541	22573	0.07689	211.81079	16.28613164
22542	713	0.18866	294.35376	55.53278036
22542	22469	0.06380	622.82037	39.73593961

22542	22548	0.04828	570.79376	27.55792273
22542	22578	0.02799	669.05756	18.7269211
22544	22546	0.04413	0.00000	0
22545	22549	0.11721	113.71898	13.32900165
22545	22596	0.07092	155.14426	11.00283092
22546	22540	0.04694	0.00000	0
22546	22544	0.04413	0.00000	0
22547	22548	0.04757	463.01553	22.02564876
22547	22557	0.04834	570.79376	27.59217036
22548	22542	0.04828	463.01553	22.35438979
22548	22547	0.04757	570.79376	27.15265916
22549	22545	0.11721	155.14426	18.18445871
22549	22550	0.08238	113.71898	9.368169572
22550	786	0.13564	37.26776	5.054998966
22550	787	0.24650	2647.44873	652.5961119
22550	22549	0.08238	155.14426	12.78078414
22550	22551	0.07069	2755.23315	194.7674314
22551	22550	0.07069	2725.62622	192.6745175
22551	22555	0.03587	2755.23315	98.83021309
22552	22553	0.00965	3439.08765	33.18719582
22552	22554	0.02207	2725.62622	60.15457068
22552	22637	0.12651	7113.80713	899.96774
22553	22433	0.12436	9326.93945	1159.89819
22553	22552	0.00965	991.60083	9.56894801
22553	22558	0.12619	1422.71704	179.5326633
22554	22552	0.02207	2755.23315	60.80799562
22554	22555	0.02483	2725.62622	67.67729904
22555	22551	0.03587	2725.62622	97.76821251
22555	22554	0.02483	2755.23315	68.41243911
22556	22410	0.15164	4903.34619	743.5434163
22556	22411	0.30023	518.51630	155.6741487
22556	22605	0.14824	5292.82422	784.6082624
22557	725	0.18139	421.59830	76.47371564
22557	22547	0.04834	463.01553	22.38217072
22557	22559	0.04898	886.31342	43.41163131
22558	761	0.12210	177.76726	21.70538245
22558	22553	0.12619	1587.65222	200.3458336
22558	22560	0.12551	1571.08765	197.187211
22559	22557	0.04898	731.86145	35.84657382
22559	22562	0.05103	886.31342	45.22857382
22560	22468	0.07056	218.14125	15.3920466
22560	22558	0.12551	1765.41943	221.5777927
22560	22561	0.05929	1814.39355	107.5753936
22560	22636	0.12203	532.71759	65.00752751
22561	22560	0.05929	2014.73987	119.4539269
22561	22564	0.06828	1814.39355	123.8867916
22562	724	0.12872	514.39093	66.21240051
22562	22559	0.05103	731.86145	37.34688979
22562	22570	0.12060	1390.53320	167.6983039
22563	22565	0.06274	1733.24829	108.7439977
22563	22566	0.05933	1623.78223	96.33899971
22564	758	0.07117	305.86929	21.76871737
22564	760	0.12509	125.26480	15.66937383
22564	22561	0.06828	2014.73987	137.5664383

22564	22565	0.12479	1560.43860	194.7271329
22565	22436	0.12930	2886.12427	373.1758681
22565	22563	0.06274	1623.78223	101.8760971
22565	22564	0.12479	1847.80688	230.5878206
22565	22601	0.06157	3112.35718	191.6278316
22566	22563	0.05933	1733.24829	102.833621
22566	22567	0.02272	1623.78223	36.89233227
22567	739	0.12439	262.33734	32.63214172
22567	741	0.12618	75.44199	9.519270298
22567	22566	0.02272	1733.24829	39.37940115
22567	22568	0.03939	1735.39551	68.35722914
22568	22567	0.03939	1833.85852	72.2356871
22568	22571	0.06482	1735.39551	112.488337
22569	838	0.18809	43.77710	8.234034739
22569	1953	0.78699	202.64545	159.4799427
22569	22247	0.29769	373.16177	111.0865273
22569	22765	0.32544	138.25822	44.99475512
22570	726	0.24423	26.53079	6.479614842
22570	22562	0.12060	1134.97266	136.8777028
22570	22572	0.02771	1364.00244	37.79650761
22571	22568	0.06482	1833.85852	118.8707093
22571	22574	0.12756	1735.39551	221.3670513
22572	22570	0.02771	1108.04187	30.70384022
22572	22576	0.09732	1364.00244	132.7447175
22573	22541	0.07689	223.95676	17.22003528
22573	22658	0.14557	211.81079	30.8332967
22574	738	0.10454	495.23846	51.77222861
22574	740	0.13601	620.98737	84.46049219
22574	22571	0.12756	1833.85852	233.9269928
22574	22576	0.12207	1918.91956	234.2425107
22576	22462	0.08635	5101.26465	440.4942025
22576	22572	0.09732	1108.04187	107.8346348
22576	22574	0.12207	1993.99158	243.4065522
22576	22652	0.12314	4280.39893	527.0883242
22578	22542	0.02799	681.76691	19.08265581
22578	22689	0.17721	669.05756	118.5636902
22580	1998	1.05399	362.17783	381.731811
22580	22361	0.55338	1677.85901	928.493619
22580	22741	0.56230	1577.82446	887.2106939
22583	22435	0.24354	832.10858	202.6517236
22583	22606	0.03679	843.02423	31.01486142
22584	22531	0.04871	488.58762	23.79910297
22584	22613	0.04591	476.34183	21.86885342
22590	22488	0.09865	1041.05908	102.7004782
22590	22667	0.13033	1050.73401	136.9421635
22591	22456	0.14079	6888.61865	969.8486197
22594	22522	0.07280	4462.43213	324.8650591
22594	22591	0.00675	6888.61865	46.49817589
22595	22901	0.43841	10859.19531	4760.779816
22596	22545	0.07092	113.71898	8.064950062
22596	22641	0.06719	155.14426	10.42414283
22601	22565	0.06157	3105.20874	191.1877021
22601	22643	0.06157	3112.35718	191.6278316
22605	712	0.16223	159.76152	25.91811139

22605	22556	0.14824	5270.04395	781.2313151
22605	22703	0.28743	4869.65820	1399.685856
22605	22812	0.32821	636.44037	208.8860938
22606	22583	0.03679	832.10858	30.61327466
22606	22753	0.23538	843.02423	198.4310433
22613	22584	0.04591	488.58762	22.43105763
22613	22650	0.04537	476.34183	21.61162883
22635	761	0.11997	463.54828	55.61188715
22635	22553	0.12599	6714.51758	845.9620699
22635	22637	0.01105	202.59221	2.238643921
22636	760	0.12918	5.68782	0.734752588
22636	761	0.12825	5.61062	0.719562015
22636	22560	0.12203	541.86963	66.12435095
22636	22713	0.12538	532.71759	66.79213143
22637	22635	0.01105	262.66882	2.902490461
22637	22660	0.03253	7053.73047	229.4578522
22641	22596	0.06719	113.71898	7.640778266
22641	22676	0.06327	155.14426	9.81597733
22643	741	0.13269	169.22221	22.45409504
22643	760	0.12465	333.95660	41.62769019
22643	22601	0.06157	3105.20874	191.1877021
22643	22675	0.06214	2946.32788	183.0848145
22650	22613	0.04537	488.58762	22.16722032
22650	22668	0.04479	476.34183	21.33535057
22652	740	0.14008	54.39221	7.619260777
22652	22576	0.12314	4134.27393	509.0944917
22652	22733	0.12817	4334.48438	555.550863
22655	17323	0.02243	3795.29907	85.12855814
22658	22573	0.14557	223.95676	32.60138555
22658	22698	0.06159	211.81079	13.04542656
22660	22681	0.03868	7053.73047	272.8382946
22661	22635	0.03303	6624.29688	218.8005259
22665	19271	0.00693	14030.89160	97.23407879
22665	23734	0.00284	14446.67578	41.02855922
22666	19271	0.00646	14496.33691	93.64633644
22666	23458	0.00358	14088.24512	50.43591753
22667	938	0.08832	179.72113	15.8729702
22667	22590	0.13033	1041.05908	135.6812299
22667	22688	0.02382	900.45264	21.44878188
22668	22650	0.04479	488.58762	21.8838395
22668	22696	0.03510	476.34183	16.71959823
22675	22643	0.06214	2943.38306	182.9018233
22675	22717	0.06325	2946.32788	186.3552384
22676	22641	0.06327	113.71898	7.194999865
22676	22693	0.01735	155.14426	2.691752911
22681	22682	0.00896	0.00000	0
22681	22721	0.05766	7053.73047	406.7180989
22682	22661	0.03866	6624.29688	256.0953174
22682	22681	0.00896	0.00000	0
22684	22526	0.20943	231.72250	48.52964318
22684	22707	0.03955	196.15533	7.757943302
22688	22667	0.02382	895.45789	21.32980694
22688	22844	0.24999	900.45264	225.1041555
22689	725	0.14514	271.07199	39.34338863

22689	22578	0.17721	681.76691	120.8159141
22689	22705	0.03349	879.16675	29.44329446
22693	22676	0.01735	113.71898	1.973024303
22693	22715	0.04367	155.14426	6.775149834
22696	798	0.14874	787.60840	117.1488734
22696	799	0.12618	997.22528	125.8298858
22696	22668	0.03510	488.58762	17.14942546
22696	22699	0.00971	2202.80103	21.389198
22698	810	0.27776	0.00000	0
22698	22658	0.06159	223.95676	13.79349685
22698	22706	0.02072	211.81079	4.388719569
22699	22696	0.00971	2216.00269	21.51738612
22699	22723	0.03472	2202.80103	76.48125176
22700	22423	0.79699	2506.92334	1997.992833
22700	22835	0.36745	2500.88843	918.9514536
22703	22605	0.28743	4744.29150	1363.651706
22703	22760	0.18191	4869.65820	885.8395232
22705	22689	0.03349	952.83893	31.91057577
22705	22751	0.06604	879.16675	58.06017217
22706	22698	0.02072	223.95676	4.640384067
22706	22739	0.03136	211.81079	6.642386374
22707	811	0.15351	29.20152	4.482725335
22707	22684	0.03955	231.72250	9.164624875
22707	22745	0.04781	166.95381	7.982061656
22708	22050	1.12308	476.00674	534.5936496
22708	22973	0.45219	491.95926	222.4590578
22712	761	0.12657	112.50133	14.23929334
22712	763	0.13412	395.42850	53.03487042
22712	22713	0.12160	848.21552	103.1430072
22712	22718	0.12403	427.81259	53.06159554
22713	22636	0.12538	541.86963	67.93961421
22713	22712	0.12160	887.51318	107.9216027
22713	22716	0.13013	588.04004	76.52165041
22713	22782	0.09740	371.96191	36.22909003
22715	787	0.19015	3.69683	0.702952225
22715	788	0.12457	90.17562	11.23317698
22715	22693	0.04367	113.71898	4.966107857
22715	22796	0.12989	68.69384	8.922642878
22716	760	0.12309	183.17896	22.54749819
22716	762	0.14991	5.84156	0.87570826
22716	22713	0.13013	632.83344	82.35061555
22716	22717	0.12293	410.79639	50.49920022
22717	22675	0.06325	2943.38306	186.1689785
22717	22716	0.12293	456.42084	56.10781386
22717	22725	0.10429	545.73779	56.91499412
22717	22766	0.08173	3142.79858	256.8609279
22718	787	0.19279	619.01135	119.3391982
22718	22682	0.05710	6624.29688	378.2473518
22718	22712	0.12403	374.30054	46.42449598
22718	22721	0.00898	340.18210	3.054835258
22721	22718	0.00898	6.88869	0.061860436
22721	22758	0.06830	7387.02393	504.5337344
22723	22699	0.03472	2216.00269	76.9396134
22723	22779	0.08847	2202.80103	194.8818071

22725	22717	0.10429	586.51337	61.16747936
22725	22727	0.03165	545.73779	17.27260105
22726	22728	0.06964	759.15149	52.86730976
22726	22731	0.05727	715.67621	40.98677655
22727	741	0.12742	18.01086	2.294943781
22727	743	0.13946	156.20123	21.78382354
22727	22725	0.03165	586.51337	18.56314816
22727	22728	0.04006	715.67621	28.66998897
22728	22726	0.06964	715.67621	49.83969126
22728	22727	0.04006	759.15149	30.41160869
22729	740	0.11589	256.49182	29.72483702
22729	742	0.14256	97.19150	13.85562024
22729	22731	0.05172	759.15149	39.26331506
22729	22732	0.05103	369.65872	18.86368448
22730	22732	0.04758	380.81543	18.11919816
22730	22733	0.04834	369.65872	17.86930252
22731	22726	0.05727	759.15149	43.47660583
22731	22729	0.05172	715.67621	37.01477358
22732	22729	0.05103	380.81543	19.43301139
22732	22730	0.04758	369.65872	17.5883619
22733	726	0.09677	519.50616	50.2726111
22733	22652	0.12817	4188.66650	536.8613853
22733	22730	0.04834	380.81543	18.40861789
22733	22801	0.11926	4220.24414	503.3063161
22739	22706	0.03136	223.95676	7.023283994
22739	22771	0.07558	211.81079	16.00865951
22741	22580	0.56230	1865.23694	1048.822731
22741	22768	0.13250	1577.82446	209.061741
22745	22707	0.04781	231.72250	11.07865273
22745	22764	0.04424	166.95381	7.386036554
22748	1681	0.68678	134.68660	92.50006315
22748	22517	0.31162	1285.12292	400.4700043
22748	22926	0.22327	1632.42871	364.4723581
22749	1984	0.58604	0.00000	0
22751	22705	0.06604	952.83893	62.92548294
22751	22811	0.10130	879.16675	89.05959178
22753	22606	0.23538	832.10858	195.8617176
22753	22855	1.34488	474.67313	638.3783991
22753	23046	0.56127	1135.50696	637.3259914
22758	22783	0.02631	7387.02393	194.3525996
22759	22718	0.06942	7339.35791	509.4982261
22760	22703	0.18191	4744.29150	863.0340668
22760	22802	0.10005	4869.65820	487.2093029
22764	22745	0.04424	231.72250	10.2514034
22764	22890	0.16438	166.95381	27.44386729
22765	22569	0.32544	135.14752	43.98240891
22765	23186	0.62146	138.25822	85.9219534
22766	22717	0.08173	3144.70264	257.0165468
22766	22809	0.06672	3142.79858	209.6875213
22768	22741	0.13250	1806.09241	239.3072443
22768	22926	0.41672	1577.82446	657.511009
22770	22785	0.12350	482.16077	59.5468551
22770	22805	0.13515	473.82925	64.03802314
22771	22739	0.07558	223.95676	16.92665192

22771	22899	0.15556	211.81079	32.94928649
22779	22723	0.08847	2216.00269	196.049758
22779	22806	0.05153	2202.80103	113.5103371
22782	22713	0.09740	375.61819	36.58521171
22782	22808	0.05152	371.96191	19.1634776
22783	22784	0.00896	1193.37732	10.69266079
22783	22924	0.16110	6193.64648	997.7964479
22784	763	0.11948	1193.37732	142.5847222
22784	22759	0.02575	7339.35791	188.9884662
22784	22783	0.00896	0.00000	0
22785	1755	2.63406	52.32555	137.8286382
22785	1756	2.44082	21.96088	53.60255512
22785	22770	0.12350	473.82925	58.51791238
22785	23097	5.22038	415.92886	2171.306702
22796	22715	0.12989	29.21369	3.794566194
22796	22911	0.11868	68.69384	8.152584931
22799	22784	0.03422	6134.96973	209.9386642
22801	742	0.13255	414.66083	54.96329302
22801	22733	0.11926	4095.92603	488.4801383
22801	22823	0.04417	4108.22266	181.4601949
22802	714	0.07110	13.98555	0.994372605
22802	715	0.28597	438.56393	125.4161271
22802	22760	0.10005	4744.29150	474.6663646
22802	22872	0.16105	5296.68848	853.0316797
22805	22770	0.13515	482.16077	65.16402807
22805	22851	0.15650	473.82925	74.15427763
22806	22779	0.05153	2216.00269	114.1906186
22806	22858	0.06664	2202.80103	146.7946606
22808	762	0.12390	402.61636	49.884167
22808	763	0.13076	298.08826	38.97802088
22808	22782	0.05152	375.61819	19.35184915
22808	22814	0.01064	753.18866	8.013927342
22809	743	0.11951	365.96249	43.73617718
22809	762	0.12848	408.48776	52.4825074
22809	22766	0.06672	3144.70264	209.8145601
22809	22821	0.02174	2833.28418	61.59559807
22811	714	0.11745	48.72759	5.723055446
22811	22751	0.10130	952.83893	96.52258361
22811	22822	0.02243	913.76624	20.49577676
22811	22869	0.12031	125.05557	15.04543563
22812	715	0.19543	148.26805	28.97602501
22812	22605	0.32821	699.72162	229.6556329
22812	22867	0.07023	515.83441	36.22705061
22813	22452	0.49914	217.09908	108.3628348
22813	23151	0.49802	219.66783	109.3989727
22814	22808	0.01064	749.69122	7.976714581
22814	22832	0.03191	753.18866	24.03425014
22821	22809	0.02174	2841.88843	61.78265447
22821	22874	0.06047	2833.28418	171.3286944
22822	22811	0.02243	986.95404	22.13737912
22822	22872	0.05932	913.76624	54.20461336
22823	22801	0.04417	3988.66528	176.1793454
22823	22896	0.06772	4108.22266	278.2088385
22824	22470	0.49141	207.92467	102.1762621

22824	23009	0.25213	211.28574	53.27147363
22832	22814	0.03191	749.69122	23.92264683
22832	22863	0.02519	753.18866	18.97282235
22835	22700	0.36745	2506.92334	921.1689813
22835	22864	0.05006	2500.88843	125.1944748
22844	941	0.40825	467.85602	191.0022202
22844	22688	0.24999	895.45789	223.8555179
22844	23185	0.50167	529.15430	265.4608377
22850	22483	0.51111	651.13947	332.8038945
22850	23199	0.50112	652.98071	327.2216934
22851	22805	0.15650	482.16077	75.45816051
22851	22856	0.24719	473.82925	117.1258523
22852	22497	0.50437	1436.00476	724.2777208
22852	23212	0.50549	1447.88147	731.8896043
22855	22753	1.34488	466.56598	627.4752552
22855	22856	0.10605	474.67313	50.33908544
22856	1578	1.98898	3.16195	6.289055311
22856	1807	1.03214	4.68201	4.832489801
22856	22851	0.24719	482.16077	119.1853207
22856	22855	0.10605	466.56598	49.47932218
22858	22806	0.06664	2216.00269	147.6744193
22858	22912	0.03584	2202.80103	78.94838892
22863	22832	0.02519	749.69122	18.88472183
22863	22928	0.04590	753.18866	34.57135949
22864	501	1.31264	463.96744	609.0222204
22864	1822	1.76902	318.98062	564.2830964
22864	22835	0.05006	2506.92334	125.4965824
22864	22877	0.05666	2004.20581	113.5583012
22867	22812	0.07023	575.17853	40.39478816
22867	22882	0.01798	515.83441	9.274702692
22869	727	0.07955	77.66633	6.178356552
22869	22811	0.12031	125.92315	15.14981418
22869	22879	0.07569	152.28253	11.5262647
22872	22802	0.16105	5168.72021	832.4223898
22872	22822	0.05932	986.95404	58.54611365
22872	23010	0.32805	5404.14355	1772.829292
22874	22821	0.06047	2841.88843	171.8489934
22874	22934	0.06047	2833.28418	171.3286944
22877	22864	0.05666	2008.90833	113.824746
22877	22907	0.11256	2004.20581	225.593406
22879	827	0.06062	174.40958	10.57270874
22879	22869	0.07569	155.22723	11.74914904
22879	22881	0.08248	221.97249	18.30829098
22881	22879	0.08248	222.31209	18.33630118
22881	22884	0.10330	221.97249	22.92975822
22882	22867	0.01798	575.17853	10.34170997
22882	22919	0.01119	515.83441	5.772187048
22884	726	0.24513	12.75284	3.126103669
22884	728	0.16074	250.33296	40.23851999
22884	22881	0.10330	222.31209	22.9648389
22884	22896	0.12841	451.73175	58.00687402
22887	22892	0.30184	1030.23132	310.9650216
22887	22897	0.10275	1012.85156	104.0704978
22890	1681	0.58467	975.67059	570.4453239

22890	22764	0.16438	231.72250	38.09054455
22890	22892	0.12824	881.46448	113.0390049
22890	22940	0.05906	732.68317	43.27226802
22892	811	0.23479	170.44218	40.01811944
22892	22887	0.30184	1012.85156	305.7191149
22892	22890	0.12824	896.45959	114.9619778
22893	22894	0.02118	1012.85156	21.45219604
22893	22897	0.06068	1030.23132	62.5144365
22894	810	0.07275	803.85413	58.48038796
22894	812	0.09694	1130.05334	109.5473708
22894	22893	0.02118	1030.23132	21.82029936
22894	22895	0.03400	2650.49731	90.11690854
22895	22894	0.03400	2647.12646	90.00229964
22895	22898	0.05033	2650.49731	133.3995296
22896	22823	0.06772	3988.66528	270.1124128
22896	22884	0.12841	458.14029	58.82979464
22896	23002	0.17599	3818.42725	672.0050117
22897	22887	0.10275	1030.23132	105.8562681
22897	22893	0.06068	1012.85156	61.45983266
22898	22895	0.05033	2647.12646	133.2298747
22898	22899	0.03725	2650.49731	98.7310248
22899	22771	0.15556	223.95676	34.83871359
22899	22898	0.03725	2647.12646	98.60546064
22899	22901	0.02760	2841.71265	78.43126914
22900	788	0.22754	142.79976	32.49265739
22900	790	0.30335	196.42250	59.58476538
22900	22905	0.13448	3521.31396	473.5463013
22900	22908	0.05930	3024.13525	179.3312203
22901	22899	0.02760	2850.48755	78.67345638
22901	22902	0.01034	3779.95337	39.08471785
22901	23098	0.33361	10265.10645	3424.542163
22902	22594	0.43952	11351.05078	4989.013839
22902	22901	0.01034	3194.63965	33.03257398
22902	22906	0.02483	3917.79492	97.27884786
22903	22907	0.04896	2008.90833	98.35615184
22903	22914	0.10208	2004.20581	204.5893291
22905	22900	0.13448	3227.50488	434.0348563
22905	22912	0.12343	3521.31396	434.6357821
22906	22902	0.02483	4229.01123	105.0063488
22906	22910	0.10618	3917.79492	415.9914646
22907	22877	0.11256	2008.90833	226.1227216
22907	22903	0.04896	2004.20581	98.12591646
22908	22900	0.05930	3332.78564	197.6341885
22908	22911	0.06413	3024.13525	193.9377936
22910	22906	0.10618	4229.01123	449.0364124
22910	22912	0.09791	3917.79492	383.5913006
22911	22796	0.11868	29.21369	3.467080729
22911	22908	0.06413	3332.78564	213.7315431
22911	22917	0.06552	3021.96558	197.9991848
22912	22858	0.03584	2216.00269	79.42153641
22912	22905	0.12343	3227.50488	398.3709273
22912	22910	0.09791	4229.01123	414.0624895
22912	23001	0.16898	1636.51868	276.5389265
22914	22903	0.10208	2008.90833	205.0693623

22914	22930	0.06363	2004.20581	127.5276157
22917	22911	0.06552	3291.13574	215.6352137
22917	22920	0.13172	3195.81665	420.9529691
22917	22941	0.05434	642.44421	34.91041837
22919	22882	0.01119	575.17853	6.436247751
22919	23054	0.24711	515.83441	127.4678411
22920	787	0.25933	513.72949	133.2254686
22920	789	0.20049	264.24146	52.97777032
22920	22917	0.13172	3545.28369	466.9847676
22920	22924	0.17106	2893.71631	494.999112
22921	22922	0.03858	1544.42749	59.58401256
22921	22925	0.07867	1556.67004	122.463232
22922	763	0.12549	805.10364	101.0324558
22922	765	0.19668	469.65247	92.3712478
22922	22921	0.03858	1556.67004	60.05633014
22922	22923	0.02096	490.28339	10.27633985
22923	22922	0.02096	485.74673	10.18125146
22923	22927	0.05539	490.28339	27.15679697
22924	22920	0.17106	2844.54907	486.5885639
22924	22925	0.00896	1808.31641	16.20251503
22924	22947	0.05768	6324.20068	364.7798952
22925	22799	0.12697	6134.96973	778.9571066
22925	22921	0.07867	1544.42749	121.5001106
22925	22924	0.00896	1889.70325	16.93174112
22926	22748	0.22327	1419.80957	317.0008827
22926	22768	0.41672	1806.09241	752.6348291
22926	22932	0.02912	952.73761	27.7437192
22926	23241	1.34932	991.43939	1337.768998
22927	22923	0.05539	485.74673	26.90551137
22927	22928	0.05654	490.28339	27.72062287
22928	22863	0.04590	749.69122	34.410827
22928	22927	0.05654	485.74673	27.46412011
22928	22950	0.05262	736.80408	38.77063069
22930	22914	0.06363	2008.90833	127.826837
22930	22957	0.07164	2004.20581	143.5813042
22932	22926	0.02912	736.71436	21.45312216
22932	23239	0.44079	952.73761	419.9572111
22934	22874	0.06047	2841.88843	171.8489934
22934	22951	0.02128	2833.28418	60.29228735
22940	22890	0.05906	781.59198	46.16082234
22940	23057	0.20018	732.68317	146.668517
22941	22917	0.05434	562.14758	30.5470995
22941	22952	0.01120	642.44421	7.195375152
22947	22948	0.00896	0.00000	0
22947	22970	0.02724	6324.20068	172.2712265
22948	22925	0.05770	6204.11426	357.9773928
22948	22947	0.00896	0.00000	0
22950	22928	0.05262	728.76996	38.3478753
22950	22969	0.02127	736.80408	15.67182278
22951	22934	0.02128	2841.88843	60.47538579
22951	22981	0.05206	2833.28418	147.5007744
22952	22941	0.01120	562.14758	6.296052896
22952	22968	0.02015	642.44421	12.94525083
22957	22930	0.07164	2008.90833	143.9181928

22957	22962	0.06929	2004.20581	138.8714206
22958	22959	0.03176	2008.90833	63.80292856
22958	22960	0.02999	2004.20581	60.10613224
22959	22958	0.03176	2004.20581	63.65357653
22959	22961	0.05316	2008.90833	106.7935668
22960	22958	0.02999	2008.90833	60.24716082
22960	22980	0.05273	2004.20581	105.6817724
22961	22959	0.05316	2004.20581	106.5435809
22961	22963	0.06831	2008.90833	137.228528
22962	22957	0.06929	2008.90833	139.1972582
22962	22963	0.01862	2004.20581	37.31831218
22963	22961	0.06831	2004.20581	136.9072989
22963	22962	0.01862	2008.90833	37.4058731
22968	22952	0.02015	562.14758	11.32727374
22968	22979	0.02744	642.44421	17.62866912
22969	22950	0.02127	728.76996	15.50093705
22969	22991	0.04283	736.80408	31.55731875
22970	22988	0.03373	6324.20068	213.3152889
22972	22948	0.03034	6204.11426	188.2328266
22973	22708	0.45219	476.00674	215.2454878
22973	23136	0.38862	491.95926	191.1852076
22979	22968	0.02744	562.14758	15.4253296
22979	22995	0.02128	642.44421	13.67121279
22980	22960	0.05273	2008.90833	105.9297362
22980	23013	0.07270	2004.20581	145.7057624
22981	22951	0.05206	2841.88843	147.9487117
22981	23014	0.06774	2833.28418	191.9266704
22988	22989	0.00827	0.00000	0
22988	23011	0.06174	6324.20068	390.45615
22989	22972	0.03080	6204.11426	191.0867192
22989	22988	0.00827	0.00000	0
22991	22969	0.04283	728.76996	31.21321739
22991	23028	0.07361	736.80408	54.23614833
22995	22979	0.02128	562.14758	11.9625005
22995	22997	0.01120	642.44421	7.195375152
22997	22995	0.01120	562.14758	6.296052896
22997	23004	0.02688	642.44421	17.26890036
23001	801	0.12213	1424.50623	173.9749459
23001	22912	0.16898	1667.12769	281.7112371
23001	23104	0.16864	221.38338	37.3340932
23002	728	0.13694	211.77351	29.00026446
23002	744	0.12751	962.52643	122.7317451
23002	22896	0.17599	3705.27832	652.0919315
23002	23081	0.11764	3309.29077	389.3049662
23004	22997	0.02688	562.14758	15.11052695
23004	23026	0.02912	642.44421	18.7079754
23009	22824	0.25213	207.92467	52.42404705
23009	23162	0.24934	211.28574	52.68198641
23010	728	0.10172	124.40742	12.65472276
23010	729	0.13445	445.05844	59.83810726
23010	22872	0.32805	5349.36279	1754.858463
23010	23111	0.26605	5450.28467	1450.048236
23011	23016	0.00706	0.00000	0
23011	23033	0.03475	6324.20068	219.7659736

23013	22980	0.07270	2008.90833	146.0476356
23013	23044	0.15348	2004.20581	307.6055077
23014	745	0.12855	668.65320	85.95536886
23014	764	0.11986	453.92590	54.40755837
23014	22981	0.06774	2841.88843	192.5095222
23014	23032	0.02183	2405.75757	52.51768775
23016	22989	0.06530	6204.11426	405.1286612
23016	23011	0.00706	0.00000	0
23026	789	0.14354	288.40936	41.39827953
23026	790	0.16925	433.61084	73.38863467
23026	23004	0.02912	562.14758	16.36973753
23026	23040	0.02912	713.28851	20.77096141
23028	764	0.13037	401.98892	52.4072955
23028	765	0.14249	113.31337	16.14602209
23028	22991	0.07361	728.76996	53.64475676
23028	23074	0.07677	869.97247	66.78778652
23032	23014	0.02183	2422.77368	52.88914943
23032	23059	0.05262	2405.75757	126.5909633
23033	765	0.15429	210.91150	32.54153534
23033	789	0.12757	1049.99963	133.9484528
23033	23016	0.03157	6204.11426	195.8638872
23033	23069	0.05556	6087.26318	338.2083423
23036	23042	0.35184	2008.90833	706.8143068
23036	23056	0.09502	2004.20581	190.4396361
23040	23026	0.02912	634.60669	18.47974681
23040	23064	0.03667	713.28851	26.15628966
23042	23036	0.35184	2004.20581	705.1597722
23042	23044	0.02207	2008.90833	44.33660684
23044	23013	0.15348	2008.90833	308.3272505
23044	23042	0.02207	2004.20581	44.23282223
23045	716	0.32225	2.14964	0.69272149
23045	729	0.21893	2.11069	0.462093362
23046	22753	0.56127	1132.69849	635.7496815
23046	23056	0.02088	1135.50696	23.70938532
23054	716	0.29168	125.73178	36.67344559
23054	22919	0.24711	575.17853	142.1323665
23054	23222	0.22180	390.10266	86.52476999
23056	23036	0.09502	2008.90833	190.8864695
23056	23046	0.02088	1132.69849	23.65074447
23056	23205	0.31439	2228.10522	700.4940001
23057	813	0.41193	119.78126	49.34149443
23057	22940	0.20018	781.59198	156.4590826
23057	23078	0.02830	709.38190	20.07550777
23059	23032	0.05262	2422.77368	127.486351
23059	23079	0.02183	2405.75757	52.51768775
23064	23040	0.03667	634.60669	23.27102732
23064	23087	0.03835	713.28851	27.35461436
23069	23070	0.00689	0.00000	0
23069	23086	0.02800	6087.26318	170.443369
23070	23033	0.05554	5975.22412	331.8639476
23070	23069	0.00689	0.00000	0
23074	23028	0.07677	871.18182	66.88062832
23074	23121	0.07389	869.97247	64.28226581
23078	23057	0.02830	746.78949	21.13414257

23078	23089	0.02800	709.38190	19.8626932
23079	23059	0.02183	2422.77368	52.88914943
23079	23095	0.03863	2405.75757	92.93441493
23081	23002	0.11764	3171.50098	373.0953753
23081	23091	0.02482	3309.29077	82.13659691
23083	23097	0.11854	407.21393	48.27113926
23083	23235	1.38637	415.92886	576.6312936
23085	23070	0.02744	5975.22412	163.9601499
23086	23115	0.04759	6087.26318	289.6928547
23087	23064	0.03835	634.60669	24.33716656
23087	23109	0.03472	713.28851	24.76537707
23089	23078	0.02800	746.78949	20.91010572
23089	23241	0.17527	709.38190	124.3333656
23091	23081	0.02482	3171.50098	78.71665432
23091	23129	0.05376	3309.29077	177.9074718
23095	23079	0.03863	2422.77368	93.59174726
23095	23099	0.01457	2405.75757	35.05188779
23097	22785	5.22038	407.21393	2125.811456
23097	23083	0.11854	415.92886	49.30420706
23098	813	0.32763	386.46237	126.6166663
23098	23274	0.19832	9990.26172	1981.268704
23099	23095	0.01457	2422.77368	35.29981252
23099	23126	0.02240	2405.75757	53.88896957
23101	1681	0.48937	14.45737	7.075003157
23101	1985	0.30599	14.75525	4.514958948
23104	800	0.10268	221.38338	22.73164546
23104	23001	0.16864	221.38451	37.33428377
23109	23087	0.03472	634.60669	22.03354428
23109	23110	0.09034	13.74027	1.241295992
23109	23137	0.04544	699.54828	31.78747384
23110	23109	0.09034	13.86640	1.252690576
23110	23112	0.05191	13.74027	0.713257416
23111	23010	0.26605	5396.00879	1435.608139
23111	23091	0.05815	160.81343	9.351300955
23111	23129	0.04643	5289.47119	245.5901474
23112	831	0.04900	0.00000	0
23112	23110	0.05191	13.86640	0.719804824
23112	23114	0.03983	56.11275	2.234970833
23113	23130	0.02401	181.85579	4.366357518
23113	24093	0.44254	180.00894	79.66115631
23114	23112	0.03983	13.86640	0.552298712
23114	23115	0.08630	56.11275	4.842530325
23115	23114	0.08630	13.86640	1.19667032
23115	23117	0.00692	145.29836	1.005464651
23115	23140	0.04984	6027.18164	300.3947329
23116	23117	0.08756	145.24911	12.71801207
23116	23118	0.06907	131.18083	9.060659928
23117	23085	0.04871	5975.22412	291.0531669
23117	23115	0.00692	42.97048	0.297355722
23117	23116	0.08756	131.18083	11.48619347
23118	767	0.04541	110.95253	5.038354387
23118	23116	0.06907	145.24911	10.03235603
23118	23120	0.11160	63.91785	7.13323206
23119	23121	0.06344	69.02435	4.378904764

23119	23123	0.05380	66.22641	3.562980858
23120	23118	0.11160	67.31871	7.512768036
23120	23121	0.03999	63.91785	2.556074822
23121	23074	0.07389	871.18182	64.37162468
23121	23119	0.06344	66.22641	4.20140345
23121	23120	0.03999	67.31871	2.692075213
23121	23142	0.05038	812.63196	40.94039814
23123	766	0.05318	0.00000	0
23123	23119	0.05380	69.02435	3.71351003
23123	23125	0.05671	66.22641	3.755699711
23125	23123	0.05671	69.02435	3.914370889
23125	23126	0.06481	66.22641	4.292133632
23126	23099	0.02240	2422.77368	54.27013043
23126	23125	0.06481	69.02435	4.473468124
23126	23148	0.04957	2336.73315	115.8318622
23129	23091	0.05376	3010.68750	161.85456
23129	23111	0.04643	5396.00879	250.5366881
23129	23135	0.03582	6862.49170	245.8144527
23129	23232	0.11026	2332.53418	257.1852187
23130	23113	0.02401	180.00894	4.322014649
23130	23345	0.21934	181.85579	39.88824898
23130	23394	0.28015	0.00000	0
23131	23133	0.05332	379.84796	20.25349323
23131	23135	0.02573	343.80923	8.846211488
23133	23131	0.05332	343.80923	18.33190814
23133	23139	0.06729	379.84796	25.55996923
23135	23129	0.03582	6724.02734	240.8546593
23135	23131	0.02573	379.84796	9.773488011
23135	23138	0.01176	6487.43066	76.29218456
23136	1707	7.22935	1.14128	8.250712568
23136	22973	0.38862	476.00674	184.9857393
23136	23240	0.40347	829.03552	334.4909613
23136	23423	0.97462	375.86755	366.3280316
23137	831	0.14461	12.86961	1.861074302
23137	23109	0.04544	620.74030	28.20643923
23137	23154	0.02399	686.67865	16.47342081
23138	23135	0.01176	6385.00537	75.08766315
23138	23146	0.02671	6487.43066	173.2792729
23139	744	0.22917	544.56189	124.7972483
23139	23133	0.06729	343.80923	23.13492309
23139	23144	0.05444	930.42560	50.65236966
23140	831	0.12382	42.15031	5.219051384
23140	23168	0.03639	5985.03125	217.7952872
23141	23117	0.04927	5858.82813	288.664462
23142	766	0.11726	59.00887	6.919380096
23142	767	0.14845	61.74257	9.165684517
23142	23121	0.05038	814.44421	41.0316993
23142	23166	0.03135	808.69250	25.35250988
23144	23139	0.05444	888.37109	48.36292214
23144	23156	0.06563	930.42560	61.06383213
23146	23138	0.02671	6385.00537	170.5434934
23146	23159	0.04432	6487.43066	287.5229269
23148	766	0.11859	54.13308	6.419641957
23148	23126	0.04957	2356.54736	116.8140526

23148	23181	0.04441	2282.60010	101.3702704
23151	1913	0.26657	59.52768	15.86829366
23151	1914	0.50204	102.03747	51.22689144
23151	22813	0.49802	217.09908	108.1196838
23151	23541	0.50027	165.85608	82.97282114
23154	23137	0.02399	607.99585	14.58582044
23154	23160	0.01959	686.67865	13.45203475
23156	23144	0.06563	888.37109	58.30379464
23156	23158	0.03682	930.42560	34.25827059
23157	23394	0.28015	0.00000	0
23157	30203	0.56030	0.00000	0
23158	23156	0.03682	888.37109	32.70982353
23158	23161	0.02023	930.42560	18.82250989
23159	23146	0.04432	6385.00537	282.983438
23159	23230	0.09708	6487.43066	629.7997685
23160	23154	0.01959	607.99585	11.9106387
23160	23164	0.08897	141.02930	12.54737682
23160	23215	0.03807	591.57733	22.52134895
23161	745	0.24276	88.33898	21.44517078
23161	23158	0.02023	888.37109	17.97174715
23161	23173	0.03778	842.08667	31.81403439
23162	1914	0.50003	64.07233	32.03808717
23162	1957	0.83518	107.09629	89.44467948
23162	23009	0.24934	207.92467	51.84393722
23162	23413	0.25045	50.56879	12.66495346
23163	831	0.03925	43.55739	1.709627558
23163	832	0.05781	134.05284	7.74959468
23163	23164	0.05142	146.49983	7.533021259
23163	23167	0.03962	220.98344	8.755363893
23164	23160	0.08897	146.49983	13.03408988
23164	23163	0.05142	141.02930	7.251726606
23166	23142	0.03135	816.76984	25.60573448
23166	23172	0.05932	1772.14160	105.1234397
23166	23174	0.05824	1812.27856	105.5471033
23166	23247	0.05964	317.16818	18.91591026
23167	23163	0.03962	214.16695	8.485294559
23167	23168	0.08756	220.98344	19.34931001
23168	23167	0.08756	214.16695	18.75245814
23168	23171	0.00760	2381.04663	18.09595439
23168	23262	0.07557	4270.68604	322.735744
23169	23170	0.02888	1772.14160	51.17944941
23169	23172	0.06895	1789.75537	123.4036328
23170	769	0.05729	2343.97021	134.2860533
23170	23169	0.02888	1789.75537	51.68813509
23170	23171	0.15249	2786.40967	424.8996106
23171	23141	0.03695	5858.82813	216.4836994
23171	23168	0.00760	659.88501	5.015126076
23171	23170	0.15249	2819.03784	429.8750802
23172	23166	0.05932	1789.75537	106.1682885
23172	23169	0.06895	1772.14160	122.1891633
23173	23161	0.03778	819.84991	30.9739296
23173	23179	0.05212	842.08667	43.88955724
23174	23166	0.05824	1804.53967	105.0963904
23174	23176	0.05794	1812.27856	105.0034198

23176	766	0.03583	138.09869	4.948076063
23176	768	0.05375	338.95935	18.21906506
23176	23174	0.05794	1804.53967	104.5550285
23176	23177	0.05724	1759.67407	100.7237438
23177	23176	0.05724	1742.72986	99.75385719
23177	23181	0.05889	1759.67407	103.627206
23179	23173	0.05212	819.84991	42.73057731
23179	23181	0.06082	842.08667	51.21571127
23181	23148	0.04441	2305.07056	102.3681836
23181	23177	0.05889	1742.72986	102.6293615
23181	23179	0.06082	819.84991	49.86327153
23181	23253	0.04704	1940.43738	91.27817436
23185	2002	0.67245	334.91217	225.2116887
23185	22844	0.50167	530.80176	266.2873189
23185	23660	0.61713	233.94926	144.3771068
23186	1952	0.25457	138.25822	35.19639507
23186	22765	0.62146	135.14752	83.98877778
23199	1957	0.71484	108.04113	77.23212137
23199	22850	0.50112	651.13947	326.2990112
23199	23819	0.99986	544.93958	544.8632885
23201	2002	0.45350	556.03003	252.1596186
23201	22502	1.00060	281.39395	281.5627864
23201	23813	0.99361	272.45984	270.7188216
23205	23056	0.31439	2229.99927	701.0894705
23205	23482	0.41761	2228.10522	930.4790209
23212	22852	0.50549	1436.00476	725.8860461
23212	23829	0.99583	1447.88147	1441.843804
23213	705	0.24568	250.77051	61.6092989
23213	23216	0.11606	253.26201	29.39358888
23215	23160	0.03807	507.42401	19.31763206
23215	23258	0.03751	591.57733	22.19006565
23216	23213	0.11606	250.77051	29.10442539
23216	23222	0.25305	253.26201	64.08795163
23222	23054	0.22180	443.18872	98.2992581
23222	23216	0.25305	250.77051	63.45747756
23222	23228	0.29768	263.08371	78.31475879
23222	23432	0.24427	336.04071	82.08466423
23224	23225	0.05585	604.64020	33.76915517
23224	23226	0.05033	543.55768	27.35725803
23225	729	0.16615	19.53961	3.246506202
23225	23224	0.05585	543.55768	30.35769643
23225	23229	0.18133	600.46497	108.882313
23226	23224	0.05033	604.64020	30.43154127
23226	23231	0.05103	543.55768	27.73774841
23228	716	0.22833	205.20444	46.85432979
23228	717	0.24466	228.05766	55.7965871
23228	23222	0.29768	307.49429	91.53490025
23228	23229	0.33670	539.24225	181.5628656
23229	23225	0.18133	539.24225	97.78079719
23229	23228	0.33670	600.46497	202.1765554
23230	746	0.14041	249.31212	35.00591477
23230	23159	0.09708	6385.00537	619.8563213
23230	23250	0.03775	6725.64697	253.8931731
23231	23226	0.05103	604.64020	30.85478941

23231	23233	0.04413	543.55768	23.98720042
23232	23129	0.11026	2278.93237	251.2750831
23232	23233	0.10549	597.13531	62.99180385
23232	23324	0.08620	1894.62109	163.316338
23233	730	0.11287	7.62668	0.860823372
23233	23231	0.04413	604.64020	26.68277203
23233	23232	0.10549	535.93097	56.53535803
23235	23083	1.38637	407.21393	564.5491761
23235	23552	1.40948	415.92886	586.2434096
23239	1984	0.61066	473.20068	288.9647272
23239	1985	0.56971	50.70485	28.88706009
23239	22932	0.44079	736.71436	324.7363227
23239	23599	0.50241	548.08630	275.364038
23240	23136	0.40347	806.79510	325.517619
23240	23391	0.43429	829.03552	360.041836
23241	22926	1.34932	1223.11133	1650.36858
23241	23089	0.17527	746.78949	130.8897939
23241	23243	0.02557	921.14398	23.55365157
23241	23256	0.01848	736.99536	13.61967425
23243	23241	0.02557	1086.64417	27.78549143
23243	23261	0.14464	921.14398	133.2342653
23247	768	0.12069	37.99723	4.585885689
23247	769	0.15298	39.39736	6.027008133
23247	23166	0.05964	315.37079	18.80871392
23247	23279	0.03513	317.16818	11.14211816
23250	23230	0.03775	6629.53027	250.2647677
23250	23284	0.07291	6725.64697	490.3669206
23253	768	0.11516	0.00000	0
23253	23181	0.04704	1923.72693	90.49211479
23253	23287	0.03247	1940.43738	63.00600173
23254	2043	0.24056	0.00000	0
23254	2047	0.08948	0.00000	0
23254	23377	0.30289	0.00000	0
23254	23403	0.15144	0.00000	0
23256	23241	0.01848	840.57477	15.53382175
23256	23430	0.21000	736.99536	154.7690256
23258	832	0.14189	61.50867	8.727465186
23258	23215	0.03751	507.42401	19.03347462
23258	23297	0.03583	655.21881	23.47648996
23261	820	0.25198	138.65047	34.93714543
23261	23243	0.14464	1086.64417	157.1722127
23261	23272	0.02171	1056.97058	22.94683129
23262	769	0.15955	1294.89929	206.6011817
23262	832	0.12797	10.84435	1.38775147
23262	23263	0.00631	0.00000	0
23262	23307	0.04058	5595.73730	227.0750196
23263	23171	0.07616	4170.29443	317.6096238
23263	23262	0.00631	1283.96533	8.101821232
23264	800	0.17658	121.36282	21.43024676
23264	802	0.25387	539.09033	136.8588621
23264	23266	0.04927	2003.49060	98.71198186
23264	23288	0.26290	1584.60657	416.5930673
23266	23264	0.04927	1612.79297	79.46230963
23266	23267	0.01184	2003.49060	23.7213287

23267	23266	0.01184	1612.79297	19.09546876
23267	23270	0.04425	2003.49060	88.65445905
23270	23267	0.04425	1612.79297	71.36608892
23270	23359	0.10163	2499.58228	254.0325471
23270	29966	0.03738	1354.44177	50.62903336
23272	23261	0.02171	1225.29468	26.6011475
23272	23282	0.17837	1056.97058	188.5318424
23274	23384	0.12216	2012.06555	245.7939276
23274	23418	0.16443	7978.19629	1311.854816
23275	22902	0.53327	10454.52051	5575.082152
23277	23278	0.10789	3000.62915	323.737879
23277	29966	0.04614	3463.32666	159.7978921
23278	814	0.23791	884.28949	210.3813126
23278	23277	0.10789	3097.44849	334.1837176
23278	23281	0.04242	2288.29004	97.0692635
23279	23247	0.03513	315.37079	11.07897585
23279	23318	0.03359	317.16818	10.65367917
23280	813	0.26582	175.81000	46.7338142
23280	815	0.21524	1278.13135	275.1049918
23280	23281	0.13686	2344.88477	320.9209296
23280	23282	0.04034	1225.29468	49.42838739
23281	23278	0.04242	2344.88477	99.47001194
23281	23280	0.13686	2288.29004	313.1753749
23282	23272	0.17837	1225.29468	218.5558121
23282	23280	0.04034	1056.97058	42.6381932
23284	23250	0.07291	6629.53027	483.359052
23284	23299	0.03742	6725.64697	251.6737096
23287	23253	0.03247	1923.72693	62.46341342
23287	23292	0.01008	1940.43738	19.55960879
23288	23264	0.26290	1981.80627	521.0168684
23288	23289	0.04714	1584.60657	74.69835371
23289	794	0.18313	523.16595	95.80738042
23289	23288	0.04714	1981.80627	93.42234757
23289	23290	0.07492	1767.84521	132.4469631
23290	790	0.24587	229.64011	56.46161385
23290	23289	0.07492	2175.66528	163.0008428
23290	23291	0.04275	1777.74280	75.9985047
23290	23338	0.03807	107.62444	4.097262431
23291	23290	0.04275	2146.94336	91.78182864
23291	23294	0.04482	1777.74280	79.6784323
23292	23287	0.01008	1923.72693	19.39116745
23292	23328	0.02352	1940.43738	45.63908718
23294	793	0.18980	93.15566	17.68094427
23294	23291	0.04482	2146.94336	96.2260014
23294	23297	0.09308	1684.58716	156.8013729
23297	23258	0.03583	568.93268	20.38485792
23297	23294	0.09308	2053.19165	191.1110788
23297	23301	0.08828	3538.43188	312.3727664
23297	23340	0.03865	2826.52783	109.2453006
23299	23284	0.03742	6629.53027	248.0770227
23299	23309	0.03826	6725.64697	257.3232531
23301	23297	0.08828	3881.41772	342.6515563
23301	23303	0.05723	3538.43188	202.5044565
23303	791	0.11474	353.79926	40.59492709

23303	832	0.05399	49.66632	2.681484617
23303	23301	0.05723	3881.41772	222.1335361
23303	23305	0.03448	3932.22949	135.5832728
23305	23303	0.03448	4281.13477	147.6135269
23305	23307	0.09005	3932.22949	354.0972656
23307	23263	0.04045	5454.25977	220.6248077
23307	23305	0.09005	4281.13477	385.516186
23307	23313	0.13498	1172.56836	158.2732772
23307	23344	0.03415	3041.17432	103.856103
23309	23299	0.03826	6629.53027	253.6458281
23309	23314	0.01900	6725.64697	127.7872924
23313	23307	0.13498	1392.55420	187.9669659
23313	23315	0.02362	1172.56836	27.69606466
23314	747	0.09186	309.38983	28.42054978
23314	23309	0.01900	6629.53027	125.9610751
23314	23319	0.02220	6416.25732	142.4409125
23315	769	0.06464	2071.40869	133.8958577
23315	771	0.03654	114.10075	4.169241405
23315	23313	0.02362	1392.55420	32.8921302
23315	23316	0.03224	3237.16187	104.3660987
23316	23315	0.03224	3349.54199	107.9892338
23316	23317	0.06344	3237.16187	205.365549
23317	23316	0.06344	3349.54199	212.4949438
23317	23318	0.04482	3237.16187	145.089595
23318	23279	0.03359	315.37079	10.59330484
23318	23317	0.04482	3349.54199	150.126472
23318	23323	0.07519	3527.60205	265.2403981
23318	30076	0.02777	1826.82874	50.73103411
23319	23314	0.02220	6320.23779	140.3092789
23319	23327	0.03395	6416.25732	217.831936
23323	23318	0.07519	3572.68018	268.6298227
23323	23325	0.05724	3527.60205	201.9199413
23324	23232	0.08620	1902.22363	163.9716769
23324	23347	0.03289	1894.62109	62.31408765
23325	768	0.06717	557.55011	37.45064089
23325	770	0.07943	766.17236	60.85707055
23325	23323	0.05724	3572.68018	204.5002135
23325	23326	0.05723	4357.62793	249.3870464
23326	23325	0.05723	4393.84277	251.4596217
23326	23328	0.05792	4357.62793	252.3938097
23327	23319	0.03395	6320.23779	214.572073
23327	23328	0.06136	6416.25732	393.7015492
23328	23292	0.02352	1923.72693	45.24605739
23328	23326	0.05792	4393.84277	254.4913732
23328	23327	0.06136	6320.23779	387.8097908
23328	23362	0.05657	4634.64209	262.181703
23338	23290	0.03807	143.78891	5.474043804
23338	23356	0.03919	107.62444	4.217801804
23340	23297	0.03865	2765.86011	106.9004933
23340	23390	0.07727	2826.52783	218.4058054
23344	771	0.15643	668.60645	104.590107
23344	23307	0.03415	3028.61646	103.4272521
23344	23352	0.02967	2372.56787	70.3940887
23345	23130	0.21934	180.00894	39.4831609

23345	23377	0.04215	181.85579	7.665221549
23347	730	0.10390	342.34512	35.56965797
23347	746	0.11491	269.42850	30.96002894
23347	23324	0.03289	1902.22363	62.56413519
23347	23380	0.03653	1408.50317	51.4526208
23349	23350	0.03500	518.88977	18.16114195
23349	23353	0.06206	556.15546	34.51500785
23350	771	0.02164	463.87210	10.03819224
23350	773	0.19299	83.97526	16.20638543
23350	23349	0.03500	556.15546	19.4654411
23350	23351	0.02247	623.35352	14.00675359
23351	23350	0.02247	654.61066	14.70910153
23351	23352	0.13376	623.35352	83.37976684
23352	23344	0.02967	2346.31030	69.6150266
23352	23351	0.13376	654.61066	87.56072188
23352	23368	0.00952	2451.00464	23.33356417
23353	23349	0.06206	518.88977	32.20229913
23353	23354	0.04620	556.15546	25.69438225
23354	770	0.12661	643.53125	81.47749156
23354	23353	0.04620	518.88977	23.97270737
23354	23402	0.05598	744.01465	41.64994011
23354	30076	0.02821	1048.87854	29.58886361
23356	23338	0.03919	143.78891	5.635087383
23356	23388	0.03695	107.62444	3.976723058
23359	23275	0.09737	2499.58228	243.3843266
23362	23328	0.05657	4558.12695	257.8532416
23362	23386	0.02282	4634.64209	105.7625325
23368	23352	0.00952	2456.00415	23.38115951
23368	23395	0.04310	2451.00464	105.6383
23369	23275	0.09537	7954.93799	758.6624361
23377	23254	0.30289	0.00000	0
23377	23345	0.04215	180.00894	7.587376821
23377	24259	0.24596	181.85579	44.72925011
23380	23347	0.03653	1422.57837	51.96678786
23380	23404	0.03974	1408.50317	55.97391598
23384	23277	0.12537	2012.06555	252.252658
23386	747	0.11720	679.17651	79.59948697
23386	770	0.12383	93.40642	11.56651699
23386	23362	0.02282	4558.12695	104.016457
23386	23411	0.03325	4379.16602	145.6072702
23387	23406	0.33395	375.86755	125.5209683
23387	23522	0.87333	382.13571	333.7305796
23388	23356	0.03695	143.78891	5.313000225
23388	23433	0.06495	107.62444	6.990207378
23390	791	0.13818	243.54039	33.65241109
23390	23340	0.07727	2765.86011	213.7180107
23390	23447	0.07451	2806.95776	209.1464227
23391	23240	0.43429	806.79510	350.383044
23391	23434	0.08707	829.03552	72.18412273
23394	2043	0.35197	0.00000	0
23394	23130	0.28015	0.00000	0
23394	23157	0.28015	0.00000	0
23395	791	0.13442	65.45860	8.798945012
23395	23368	0.04310	2456.00415	105.8537789

23395	23420	0.03192	2462.08521	78.5897599
23402	23354	0.05598	759.78961	42.53302237
23402	23438	0.05598	744.01465	41.64994011
23403	2047	0.10059	0.00000	0
23403	23254	0.15144	0.00000	0
23403	24170	0.15144	0.00000	0
23404	23380	0.03974	1422.57837	56.53326442
23404	23416	0.01567	1408.50317	22.07124467
23406	1713	2.03896	134.35417	273.9427785
23406	23387	0.33395	382.13571	127.6142204
23406	23552	4.24238	407.21393	1727.556232
23411	23386	0.03325	4301.17285	143.0139973
23411	23449	0.05710	4379.16602	250.0503797
23413	23162	0.25045	49.79337	12.47074952
23413	23553	0.25045	50.56879	12.66495346
23416	23404	0.01567	1422.57837	22.29180306
23416	23456	0.05821	1408.50317	81.98896953
23417	23369	0.06259	7954.93799	497.8995688
23418	30110	0.26486	7978.19629	2113.105069
23420	23395	0.03192	2466.36597	78.72640176
23420	23452	0.03807	2462.08521	93.73158394
23423	23136	0.97462	382.13571	372.4371057
23423	23522	1.07539	375.86755	404.2042046
23426	23431	0.67184	537.11462	360.8550863
23426	23459	1.29221	521.66626	674.1023578
23430	23256	0.21000	840.57477	176.5207017
23430	23457	0.03457	736.99536	25.4779296
23431	61	24.00000	55.92117	1342.10808
23431	1702	6.80987	491.02475	3343.814714
23431	23426	0.67184	521.66626	350.4762601
23432	717	0.29774	4.68899	1.396099883
23432	23222	0.24427	342.22467	83.59522014
23432	23584	0.26049	340.63113	88.73100305
23433	23388	0.06495	143.78891	9.339089705
23433	23442	0.01064	107.62444	1.145124042
23434	23391	0.08707	806.79510	70.24764936
23434	23455	0.06098	537.11462	32.75324953
23434	23554	0.30535	594.25696	181.4563627
23438	23402	0.05598	759.78961	42.53302237
23438	23463	0.03980	744.01465	29.61178307
23442	793	0.08688	4.08139	0.354591163
23442	794	0.08934	129.83817	11.59974211
23442	23433	0.01064	143.78891	1.529914002
23442	23486	0.07503	231.25732	17.35123672
23447	793	0.09034	298.68420	26.98313063
23447	23390	0.07451	2742.22388	204.3231013
23447	23448	0.09033	267.17017	24.13348146
23447	23488	0.07574	2805.95581	212.523093
23448	23447	0.09033	271.91656	24.56222286
23448	23450	0.04872	267.17017	13.01653068
23449	23411	0.05710	4301.17285	245.5969697
23449	23464	0.03417	4379.16602	149.6361029
23450	791	0.07560	0.11688	0.008836128
23450	833	0.06433	7.89162	0.507667915

23450	23448	0.04872	271.91656	13.2477748
23450	23451	0.04300	274.94302	11.82254986
23451	23450	0.04300	279.68985	12.02666355
23451	23452	0.09173	274.94302	25.22052322
23452	23420	0.03807	2466.36597	93.89455248
23452	23451	0.09173	279.68985	25.65594994
23452	23473	0.04089	2217.60010	90.67766809
23455	23434	0.06098	521.66626	31.81120853
23455	23459	0.03186	537.11462	17.11247179
23456	23416	0.05821	1422.57837	82.80828692
23456	23461	0.01959	1408.50317	27.5925771
23457	820	0.12038	60.12531	7.237884818
23457	1985	0.71649	190.67804	136.6189089
23457	23430	0.03457	840.57477	29.0586698
23457	23557	0.20232	595.81604	120.5455012
23458	19168	0.18478	14088.24512	2603.225933
23458	22666	0.00358	14496.33691	51.89688614
23458	24089	0.00458	0.00000	0
23459	23426	1.29221	537.11462	694.0648831
23459	23455	0.03186	521.66626	16.62028704
23461	23456	0.01959	1422.57837	27.86831027
23461	23485	0.03313	1408.50317	46.66371002
23463	23438	0.03980	759.78961	30.23962648
23463	23475	0.01343	744.01465	9.99211675
23464	23449	0.03417	4301.17285	146.9710763
23464	23477	0.01623	4379.16602	71.0738645
23473	23452	0.04089	2226.62769	91.04680624
23473	23499	0.04719	2217.60010	104.6485487
23474	23476	0.06589	3.56901	0.235162069
23474	23477	0.06084	3.55569	0.21632818
23475	23463	0.01343	759.78961	10.20397446
23475	23476	0.12377	266.80652	33.02264298
23475	23489	0.03247	1014.65607	32.94588259
23476	770	0.13581	274.30316	37.25311216
23476	772	0.10953	10.80954	1.183968916
23476	23474	0.06589	3.55569	0.234284414
23476	23475	0.12377	272.83359	33.76861343
23477	23464	0.01623	4301.17285	69.80803536
23477	23474	0.06084	3.56901	0.217138568
23477	23502	0.05486	4378.40088	240.1990723
23482	1807	0.52500	41.09372	21.574203
23482	23205	0.41761	2229.99927	931.2699951
23482	23815	0.68084	2203.97998	1500.55773
23485	731	0.13705	634.59448	86.97117348
23485	23461	0.03313	1422.57837	47.1300214
23485	23577	0.17340	1027.70593	178.2042083
23486	23442	0.07503	269.46442	20.21791543
23486	23504	0.03696	231.25732	8.547270547
23488	792	0.14830	252.76367	37.48485226
23488	833	0.09724	5.44935	0.529894794
23488	23447	0.07574	2740.28027	207.5488276
23488	23510	0.04215	2587.46338	109.0615815
23489	773	0.14576	8.69555	1.267463368
23489	23475	0.03247	1024.40405	33.2623995

23489	23505	0.03026	1007.85742	30.49776553
23499	773	0.15354	126.02785	19.35031609
23499	23473	0.04719	2226.62769	105.0745607
23499	23525	0.06107	2158.62964	131.8275121
23502	23477	0.05486	4300.42090	235.9210906
23502	23523	0.04693	4378.40088	205.4783533
23504	23486	0.03696	269.46442	9.959404963
23504	23517	0.04087	231.25732	9.451486668
23505	23489	0.03026	1017.80212	30.79869215
23505	23514	0.03303	1007.85742	33.28953058
23510	23488	0.04215	2512.28125	105.8926547
23510	23519	0.05067	2587.46338	131.1067695
23514	772	0.12046	151.02057	18.19193786
23514	23505	0.03303	1017.80212	33.61800402
23514	23534	0.02687	856.83685	23.02320616
23517	23504	0.04087	269.46442	11.01301085
23517	23588	0.09742	231.25732	22.52908811
23519	23510	0.05067	2512.28125	127.2972909
23519	23550	0.05916	2587.46338	153.0743336
23522	23387	0.87333	375.86755	328.2564074
23522	23423	1.07539	382.13571	410.9449212
23523	749	0.12175	189.68153	23.09372628
23523	772	0.13000	292.46143	38.0199859
23523	23502	0.04693	4300.42090	201.8187528
23523	23540	0.01973	3976.86572	78.46356066
23525	792	0.16276	1321.78284	215.133375
23525	23499	0.06107	2170.03027	132.5237486
23525	23604	0.10335	1124.88745	116.257118
23534	23514	0.02687	833.00061	22.38272639
23534	23546	0.00954	856.83685	8.174223549
23540	23523	0.01973	3907.59644	77.09687776
23540	23610	0.08676	3976.86572	345.0328699
23541	23151	0.50027	165.71510	82.90229308
23541	23694	0.25213	165.85608	41.81729345
23546	23534	0.00954	833.00061	7.946825819
23546	23570	0.04926	856.83685	42.20778323
23550	793	0.19653	75.55595	14.84901085
23550	23519	0.05916	2512.28125	148.6265588
23550	23588	0.10427	2663.54053	277.7273711
23552	23235	1.40948	407.21393	573.9598901
23552	23406	4.24238	415.92886	1764.528277
23553	1915	0.40246	50.56879	20.35191522
23553	23413	0.25045	49.79337	12.47074952
23554	1706	3.51952	594.25696	2091.499256
23554	23434	0.30535	587.46484	179.3823889
23557	23457	0.20232	702.38354	142.1062378
23557	23579	0.02409	595.81604	14.3532084
23570	23546	0.04926	833.00061	41.03361005
23570	23622	0.03750	856.83685	32.13138188
23577	23485	0.17340	1041.49377	180.5950197
23577	23598	0.01119	1027.70593	11.50002936
23578	23584	0.46955	724.42139	340.1520637
23578	23794	0.65682	718.29071	471.7877041
23579	23557	0.02409	702.38354	16.92041948

23579	23613	0.01904	595.81604	11.3443374
23580	23582	0.28889	1107.92566	320.0686439
23580	23583	0.20951	1126.01917	235.9122763
23582	1998	1.01219	104.47370	105.7472344
23582	23580	0.28889	1126.01917	325.295678
23582	23587	0.50195	1177.67468	591.1338056
23583	23580	0.20951	1107.92566	232.121505
23583	23702	0.20488	1126.01917	230.6988075
23584	23432	0.26049	346.91367	90.3675419
23584	23578	0.46955	718.29071	337.2734029
23584	23586	0.31296	381.07904	119.2624964
23586	717	0.25994	40.53527	10.53673808
23586	23584	0.31296	381.23093	119.3100319
23586	23595	0.31447	421.04865	132.407169
23587	23582	0.50195	1184.50537	594.5624705
23587	23599	0.49782	1277.47900	635.9545958
23588	23517	0.09742	269.46442	26.2512238
23588	23550	0.10427	2587.83716	269.8337807
23588	23648	0.05263	2861.84595	150.6189523
23591	23592	0.05033	421.76620	21.22749285
23591	23597	0.04964	421.04865	20.90085499
23592	23591	0.05033	421.04865	21.19137855
23592	23593	0.01517	421.76620	6.398193254
23593	23592	0.01517	421.04865	6.387308021
23593	23594	0.07101	421.76620	29.94961786
23594	23593	0.07101	421.04865	29.89866464
23594	23595	0.16133	421.76620	68.04354105
23595	23586	0.31447	421.76620	132.6328169
23595	23594	0.16133	421.04865	67.9277787
23596	23597	0.07377	1348.35327	99.46802073
23596	23598	0.07447	1335.52563	99.45659367
23597	731	0.19801	9.54024	1.889062922
23597	732	0.25556	960.22357	245.3947355
23597	23591	0.04964	421.76620	20.93647417
23597	23596	0.07377	1335.52563	98.52172573
23598	23577	0.01119	1041.49377	11.65431529
23598	23596	0.07447	1348.35327	100.411868
23598	23601	0.12978	1100.77588	142.8586937
23598	23723	0.25186	178.08589	44.85271226
23599	23239	0.50241	505.60217	254.0195862
23599	23587	0.49782	1167.60242	581.2558367
23599	23600	0.44090	1169.32239	515.5542418
23599	23863	0.50017	257.50671	128.7971311
23600	1985	0.36977	13.86083	5.125319109
23600	1986	0.25350	89.45399	22.67658647
23600	23599	0.44090	1059.03601	466.9289768
23600	23611	0.56507	1212.92542	685.3877671
23601	748	0.11633	35.59021	4.140209129
23601	750	0.24676	79.65357	19.65531493
23601	23598	0.12978	1124.43835	145.9296091
23601	23603	0.11850	1179.68250	139.7923763
23603	23601	0.11850	1208.80542	143.2434423
23603	23605	0.07310	1179.68250	86.23479075
23604	23525	0.10335	1128.70996	116.6521744

23604	23626	0.01287	1124.88745	14.47730148
23605	23603	0.07310	1208.80542	88.3636762
23605	23606	0.04254	1179.68250	50.18369355
23606	749	0.11910	6.53494	0.778311354
23606	751	0.23793	91.05640	21.66504925
23606	23605	0.04254	1208.80542	51.42258257
23606	23609	0.04710	1083.17029	51.01732066
23608	23609	0.01931	1113.63196	21.50423315
23608	23610	0.06688	1083.17029	72.442429
23609	23606	0.04710	1113.63196	52.45206532
23609	23608	0.01931	1083.17029	20.9160183
23610	23540	0.08676	3907.59644	339.0230671
23610	23608	0.06688	1113.63196	74.47970548
23610	23612	0.02765	1078.39087	29.81750756
23610	23654	0.05765	3462.70435	199.6249058
23611	23600	0.56507	1104.49670	624.1179503
23611	23613	0.24890	1420.58154	353.5827453
23611	23701	0.18145	338.67349	61.45230476
23612	23610	0.02765	1127.19531	31.16695032
23612	23616	0.03596	1078.39087	38.77893569
23613	821	0.18802	98.86890	18.58933058
23613	23579	0.01904	702.38354	13.3733826
23613	23611	0.24890	1248.95203	310.8641603
23613	23614	0.12175	1654.90527	201.4847166
23614	820	0.23501	39.11141	9.191572464
23614	23613	0.12175	1590.23865	193.6115556
23614	23615	0.12439	1693.33533	210.6339817
23615	23614	0.12439	1629.34998	202.674844
23615	23618	0.11036	2150.82617	237.3651761
23615	23688	0.15624	623.60626	97.43224206
23616	23612	0.03596	1127.19531	40.53394335
23616	23617	0.06207	1078.39087	66.9357213
23617	772	0.11020	200.15042	22.05657628
23617	774	0.23651	1.33487	0.315710104
23617	23616	0.06207	1127.19531	69.96501289
23617	23619	0.05862	1187.76819	69.6269713
23618	815	0.26037	358.22293	93.27050428
23618	23615	0.11036	2075.95557	229.1024567
23618	23621	0.02906	2386.45459	69.35037039
23619	23617	0.05862	1277.99915	74.91631017
23619	23620	0.02689	1187.76819	31.93908663
23620	23619	0.02689	1277.99915	34.36539714
23620	23622	0.03861	1187.76819	45.85972982
23621	23618	0.02906	2320.26587	67.42692618
23621	23628	0.16278	2386.45459	388.4670782
23622	23570	0.03750	833.00061	31.23752288
23622	23620	0.03861	1277.99915	49.34354718
23622	23623	0.05518	1864.47266	102.8816014
23622	23661	0.07389	1773.26587	131.0266151
23623	23622	0.05518	1948.08374	107.4952608
23623	23625	0.03174	1864.47266	59.17836223
23624	23626	0.12245	1853.10645	226.9128848
23624	23627	0.05728	1936.70325	110.9343622
23625	23623	0.03174	1948.08374	61.83217791

23625	23627	0.02896	1864.47266	53.99512823
23626	23604	0.01287	1128.70996	14.52649719
23626	23624	0.12245	1936.70325	237.149313
23626	23642	0.12699	1730.62341	219.7718668
23627	773	0.19499	11.36616	2.216287538
23627	23624	0.05728	1853.10645	106.1459375
23627	23625	0.02896	1948.08374	56.41650511
23628	23621	0.16278	2320.26587	377.6928783
23628	23629	0.04211	2386.45459	100.4936028
23629	814	0.25480	136.54102	34.7906519
23629	816	0.18702	88.33117	16.51969541
23629	12429	0.09806	2589.59155	253.9353474
23629	23628	0.04211	2320.26587	97.70639579
23631	23632	0.01034	4565.62061	47.20851711
23631	30104	0.02386	2525.80273	60.26565314
23631	30105	0.02788	7323.47949	204.1786082
23632	23631	0.01034	3847.11450	39.77916393
23632	30101	0.02290	3829.13013	87.68707998
23632	30102	0.02993	7954.93799	238.091294
23633	23635	0.04069	5686.72314	231.3927646
23633	30101	0.01642	5612.54395	92.15797166
23634	802	0.25285	150.87917	38.14979813
23634	803	0.20865	634.50378	132.3892137
23634	23636	0.02078	5526.30859	114.8366925
23634	23638	0.00888	5612.54395	49.83939028
23635	23633	0.04069	5612.54395	228.3744133
23635	23637	0.02138	5686.72314	121.5821407
23636	23634	0.02078	5448.09863	113.2114895
23636	23639	0.02898	5526.30859	160.1524229
23637	23635	0.02138	5612.54395	119.9961897
23637	23638	0.01931	5686.72314	109.8106238
23638	23634	0.00888	5686.72314	50.49810148
23638	23637	0.01931	5612.54395	108.3782237
23639	23636	0.02898	5448.09863	157.8858983
23639	23641	0.04697	5526.30859	259.5707145
23641	23639	0.04697	5448.09863	255.8971927
23641	23644	0.20384	5526.30859	1126.482743
23642	775	0.25815	418.32690	107.9910892
23642	23626	0.12699	1818.04248	230.8732145
23642	23643	0.00991	1771.56616	17.55622065
23643	23642	0.00991	1865.36987	18.48581541
23643	23652	0.05210	1771.56616	92.29859694
23644	266	0.41174	794.79529	327.2490127
23644	23641	0.20384	5448.09863	1110.540425
23644	23647	0.03386	5734.84180	194.1817433
23647	23644	0.03386	5667.10449	191.888158
23647	23648	0.04140	5734.84180	237.4224505
23648	23588	0.05263	2824.34985	148.6455326
23648	23647	0.04140	5667.10449	234.6181259
23648	23649	0.02898	2302.69604	66.73213124
23648	23657	0.03248	2452.43652	79.65513817
23649	23648	0.02898	2216.09399	64.22240383
23649	23650	0.05655	2302.69604	130.2174611
23650	795	0.22509	750.26514	168.8771804

23650	23649	0.05655	2216.09399	125.3201151
23650	23651	0.08343	2464.76953	205.6357219
23651	23650	0.08343	2374.83423	198.1324198
23651	23653	0.05379	2464.76953	132.579953
23652	792	0.13574	630.36450	85.56567723
23652	23643	0.05210	1865.36987	97.18577023
23652	23653	0.04759	2374.83423	113.018361
23653	23651	0.05379	2374.83423	127.7423332
23653	23652	0.04759	2464.76953	117.2983819
23654	23610	0.05765	3375.09229	194.5740705
23654	23680	0.09012	3462.70435	312.058916
23657	23648	0.03248	2433.80518	79.04999225
23657	23733	0.18922	2452.43652	464.0500383
23660	2025	1.24193	270.95428	336.506249
23660	23185	0.61713	236.16939	145.7472157
23660	23796	0.33855	424.81290	143.8204073
23661	23622	0.07389	1756.04944	129.7544931
23661	23674	0.04590	1773.26587	81.39290343
23674	23661	0.04590	1756.04944	80.6026693
23674	23687	0.02967	1773.26587	52.61279836
23680	23654	0.09012	3375.09229	304.1633172
23680	23726	0.09852	3462.70435	341.1456326
23687	23674	0.02967	1756.04944	52.10198688
23687	23713	0.05934	1773.26587	105.2255967
23688	23615	0.15624	634.49139	99.13293477
23688	23705	0.03926	623.60626	24.48278177
23694	23541	0.25213	165.71510	41.78174816
23694	23710	0.03956	165.85608	6.561266525
23701	821	0.26025	20.17747	5.251186568
23701	23611	0.18145	401.87433	72.92009718
23701	23866	0.31470	326.57684	102.7737315
23702	23583	0.20488	1107.92566	226.9918092
23702	23848	0.29693	1126.01917	334.3488721
23705	816	0.24718	11.15999	2.758526328
23705	821	0.23626	440.35919	104.0392622
23705	23688	0.03926	634.49139	24.91013197
23705	23772	0.15784	227.78143	35.95302091
23710	1915	0.66698	13.60987	9.077511093
23710	23694	0.03956	165.71510	6.555689356
23710	23795	0.20749	152.24622	31.58956819
23713	23687	0.05934	1756.04944	104.2039738
23713	23727	0.02083	1773.26587	36.93712807
23719	23724	0.01624	7323.47949	118.9333069
23720	23633	0.22730	1857.59290	422.2308662
23720	30108	0.16559	5453.01807	902.9652622
23723	732	0.19132	4.67414	0.894256465
23723	750	0.13146	74.03958	9.733243187
23723	23598	0.25186	181.03891	45.59645987
23723	23760	0.06996	108.67939	7.603210124
23724	23768	0.09630	7323.47949	705.2510749
23726	751	0.12158	224.88858	27.34195356
23726	774	0.13072	146.88025	19.20018628
23726	23680	0.09852	3375.09229	332.5140924
23726	23784	0.14329	3143.94653	450.4960983

23727	774	0.12027	194.66696	23.41259528
23727	775	0.27711	315.83691	87.52156613
23727	23713	0.02083	1756.04944	36.57850984
23727	23730	0.02173	1362.95398	29.61698999
23730	23727	0.02173	1338.12512	29.07745886
23730	23776	0.11084	1362.95398	151.0698191
23733	795	0.12894	63.13793	8.141004694
23733	23657	0.18922	2433.80518	460.5246162
23733	23879	0.23738	2517.60205	597.6283746
23734	19293	0.12251	14446.67578	1769.86225
23734	22665	0.00284	14030.89160	39.84773214
23734	25115	0.00364	0.00000	0
23747	23720	0.05375	7310.61084	392.9453327
23760	23723	0.06996	105.56379	7.385242748
23760	23861	0.17910	108.67939	19.46447875
23768	23832	0.12933	7323.47949	947.1456024
23772	23705	0.15784	231.91101	36.60483382
23772	23982	0.41604	227.78143	94.76618614
23776	23730	0.11084	1338.12512	148.3177883
23776	23859	0.12091	1362.95398	164.7947657
23784	23726	0.14329	3064.44727	439.1046493
23784	23858	0.09970	3143.94653	313.451469
23794	23578	0.65682	724.42139	475.8144574
23794	23842	0.88115	718.29071	632.9218591
23795	23710	0.20749	152.21461	31.58300943
23795	23799	0.50481	169.01280	85.31935157
23795	23856	0.07418	110.13799	8.170036098
23796	23660	0.33855	430.54346	145.7604884
23796	23846	0.06670	424.81290	28.33502043
23799	1915	0.29966	66.91262	20.05103571
23799	1916	0.96712	35.22854	34.0702256
23799	23795	0.50481	169.20380	85.41577028
23799	23807	0.99098	197.66861	195.8856391
23807	23799	0.99098	198.91660	197.1223723
23807	23808	0.15377	197.66861	30.39550216
23808	1916	0.78952	79.33682	62.63800613
23808	23807	0.15377	198.91660	30.58740558
23808	23809	0.09653	276.01996	26.64420674
23809	1957	0.80551	99.36468	80.03924339
23809	23808	0.09653	278.25342	26.85980263
23809	23810	0.24902	368.20642	91.69076271
23810	23809	0.24902	370.07794	92.15680862
23810	23819	0.50414	368.20642	185.6275846
23812	23747	0.17580	7310.61084	1285.205386
23813	23201	0.99361	278.26453	276.4864197
23813	23836	0.01009	272.45984	2.749119786
23815	23482	0.68084	2206.23853	1502.095441
23815	23925	0.17856	2203.97998	393.5426652
23818	2002	1.00704	32.24245	32.46943685
23818	23831	0.25098	690.56104	173.3170098
23818	23846	0.62904	730.38409	459.440808
23819	23199	0.99986	546.96136	546.8847854
23819	23810	0.50414	370.07794	186.5710927
23819	23838	0.49442	511.50064	252.8961464

23819	24015	0.36462	601.60229	219.356227
23829	23212	0.99583	1436.00476	1430.01662
23829	24063	0.50156	1447.88147	726.1994301
23831	23818	0.25098	698.05725	175.1984086
23831	23836	0.24891	690.56104	171.8875485
23832	23872	0.02855	7323.47949	209.0853394
23836	23813	0.01009	278.26453	2.807689108
23836	23831	0.24891	698.05725	173.7534301
23836	23839	0.49988	960.43604	480.1027677
23836	24050	0.46626	0.53573	0.24978947
23838	23819	0.49442	514.60229	254.4296642
23838	23842	1.09929	511.50064	562.2875385
23839	23836	0.49988	973.74677	486.7565354
23839	23845	0.47304	960.43604	454.3246644
23842	1952	0.76987	59.07085	45.47687529
23842	1958	1.29791	364.78354	473.4562044
23842	23794	0.88115	724.42139	638.3239078
23842	23838	1.09929	514.60229	565.6971514
23845	23839	0.47304	973.74677	460.6211721
23845	23848	0.53227	960.43604	511.211291
23846	23796	0.06670	430.54346	28.71724878
23846	23818	0.62904	722.80347	454.6722948
23846	23888	0.02915	692.18573	20.17721403
23848	23702	0.29693	1107.92566	328.9763662
23848	23845	0.53227	973.74677	518.2961933
23848	23989	0.28068	238.52231	66.94844197
23849	750	0.27385	26.26697	7.193209735
23849	752	0.25124	171.13928	42.99703271
23849	23850	0.04416	191.38820	8.451702912
23850	23849	0.04416	195.17953	8.619128045
23850	23851	0.04757	191.38820	9.104336674
23851	23850	0.04757	195.17953	9.284690242
23851	23854	0.02666	191.38820	5.102409412
23854	751	0.25227	1.57876	0.398273785
23854	23851	0.02666	195.17953	5.20348627
23854	23858	0.12985	189.80945	24.64675708
23855	23812	0.02799	7310.61084	204.6239974
23856	1891	2.52237	110.13799	277.8087618
23856	23795	0.07418	109.91541	8.153525114
23858	23784	0.09970	3064.44727	305.5253928
23858	23854	0.12985	193.62819	25.14262047
23858	23862	0.17515	722.21100	126.4952567
23858	23967	0.27140	2452.89331	665.7152443
23859	23776	0.12091	1338.12512	161.7927083
23859	23862	0.07310	746.91620	54.59957422
23859	23878	0.00896	1741.94348	15.60781358
23861	23760	0.17910	105.56379	18.90647479
23861	23874	0.03779	108.67939	4.106994148
23862	828	0.12934	182.99205	23.66819175
23862	23858	0.17515	709.22552	124.2208498
23862	23859	0.07310	755.72821	55.24373215
23863	1986	0.55868	1.16931	0.653270111
23863	23599	0.50017	215.43256	107.7529035
23863	23971	0.25150	258.64545	65.04933068

23864	23868	0.05171	734.42798	37.97727085
23864	23871	0.03105	729.29120	22.64449176
23866	23701	0.31470	389.52713	122.5841878
23866	23980	0.25480	326.57684	83.21177883
23867	775	0.30679	141.27812	43.34271443
23867	23871	0.03379	734.42798	24.81632144
23867	23883	0.02847	622.34686	17.7182151
23868	795	0.24035	78.76200	18.9304467
23868	23864	0.05171	729.29120	37.71164795
23868	23869	0.11790	1107.03003	130.5188405
23868	23926	0.13230	1066.31458	141.0734189
23869	23868	0.11790	1099.91370	129.6798252
23869	23873	0.03938	1315.99731	51.82397407
23869	23970	0.25561	436.58878	111.5964581
23871	23864	0.03105	734.42798	22.80398878
23871	23867	0.03379	729.29120	24.64274965
23872	23932	0.14816	7323.47949	1085.046721
23873	278	0.03667	9.28627	0.340527521
23873	23869	0.03938	1316.74573	51.85344685
23873	23879	0.03104	1306.71106	40.5603113
23874	23861	0.03779	105.56379	3.989255624
23874	23930	0.14485	108.67939	15.74220964
23875	23876	0.13514	849.90820	114.8565941
23875	23878	0.08894	831.09283	73.9173963
23876	23875	0.13514	831.09283	112.313885
23876	23877	0.02965	849.90820	25.19977813
23877	777	0.17359	760.16455	131.9569642
23877	23876	0.02965	831.09283	24.64190241
23877	23880	0.09515	623.44757	59.32103629
23878	23859	0.00896	1708.30261	15.30639139
23878	23875	0.08894	849.90820	75.59083531
23878	23937	0.15113	912.74091	137.9425337
23879	266	0.15447	64.45271	9.956010114
23879	23733	0.23738	2496.94312	592.7243578
23879	23873	0.03104	1307.54053	40.58605805
23879	23892	0.03690	1248.20398	46.05872686
23880	23877	0.09515	622.34686	59.21630373
23880	23883	0.06895	623.44757	42.98670995
23883	23867	0.02847	623.44757	17.74955232
23883	23880	0.06895	622.34686	42.910816
23888	23846	0.02915	690.33569	20.12328536
23888	24000	0.30246	692.18573	209.3584959
23892	278	0.02967	31.55506	0.93623863
23892	23879	0.03690	1228.43872	45.32938877
23892	23968	0.20756	1223.80176	254.0122933
23918	24014	0.21310	185.02943	39.42977153
23918	24175	0.24596	180.00894	44.27499888
23918	24313	0.64569	0.00000	0
23918	30203	1.12059	3.07956	3.45092414
23925	23815	0.17856	2206.23853	393.9459519
23925	23998	0.16409	2203.97998	361.6510749
23926	777	0.35565	4.99984	1.778193096
23926	23868	0.13230	1065.69458	140.9913929
23926	23962	0.10880	1071.23792	116.5506857

23930	752	0.19539	108.67939	21.23486601
23930	23874	0.14485	105.56379	15.29091498
23932	23958	0.06868	7323.47949	502.9765714
23933	23855	0.15761	7310.61084	1152.225374
23937	23878	0.15113	897.91534	135.7019453
23937	23951	0.04870	912.74091	44.45048232
23949	23933	0.04791	7310.61084	350.2513653
23951	23937	0.04870	897.91534	43.72847706
23951	23972	0.04534	912.74091	41.38367286
23957	804	0.18623	1307.63647	243.5211398
23957	23949	0.02072	7310.61084	151.4758566
23957	23958	0.01103	174.29150	1.922435245
23958	817	0.25234	513.00146	129.4507884
23958	23957	0.01103	1636.61206	18.05183102
23958	23990	0.05321	5845.87109	311.0588007
23962	267	0.09367	320.51270	30.02242461
23962	23926	0.10880	1070.69434	116.4915442
23962	24030	0.14037	803.85034	112.8364722
23964	776	0.12712	267.63364	34.02158832
23964	828	0.11933	12.20163	1.456020508
23964	23965	0.05033	1299.50500	65.40408665
23964	23967	0.08832	1200.22729	106.0040743
23965	23964	0.05033	1253.14124	63.07059861
23965	23972	0.05158	1299.50500	67.0284679
23967	752	0.34840	17.41864	6.068654176
23967	23858	0.27140	2390.19849	648.6998702
23967	23964	0.08832	1252.87561	110.6539739
23967	24023	0.12986	1481.55249	192.3944064
23968	23892	0.20756	1203.61133	249.8215677
23968	24018	0.11321	1223.80176	138.5465972
23970	267	0.09047	355.73187	32.18306228
23970	23869	0.25561	428.72415	109.58618
23970	24061	0.23317	150.40909	35.07088752
23971	1987	0.50621	22.27189	11.27425344
23971	1999	0.75954	177.59419	134.8898911
23971	23863	0.25150	216.60187	54.47537031
23971	23995	0.03249	103.03710	3.347675379
23972	829	0.17759	22.95432	4.076457689
23972	23951	0.04534	897.91534	40.71148152
23972	23965	0.05158	1253.14124	64.63702516
23972	23974	0.06649	1666.08118	110.7777377
23974	23972	0.06649	1605.30432	106.7366842
23974	23987	0.02472	1666.08118	41.18552677
23980	822	0.25244	6.20905	1.567412582
23980	1987	0.49436	106.15785	52.48019473
23980	23866	0.25480	389.52713	99.25151272
23980	24071	0.22568	243.76804	55.01357127
23982	822	0.18178	148.83882	27.0559207
23982	23772	0.41604	231.91101	96.4842566
23982	24033	0.14508	100.82236	14.62730799
23987	777	0.15189	48.85436	7.42048874
23987	23974	0.02472	1605.30432	39.68312279
23987	24026	0.17020	1701.27588	289.5571548
23989	23848	0.28068	233.73944	65.60598602

23989	24177	0.64828	238.52231	154.6292431
23990	30097	0.18661	5845.87109	1090.898004
23995	23971	0.03249	71.56247	2.32506465
23995	24001	0.00784	103.03710	0.807810864
23998	23925	0.16409	2206.23853	362.0216804
23998	24042	0.11912	2203.97998	262.5380952
24000	23888	0.30246	690.33569	208.7989328
24000	24078	0.19868	692.18573	137.5234608
24001	23995	0.00784	71.56247	0.561049765
24001	24064	0.18763	103.03710	19.33285107
24014	23918	0.21310	183.08850	39.01615935
24014	24022	0.02879	185.02943	5.32699729
24015	23819	0.36462	602.39398	219.644893
24015	24053	0.11800	601.60229	70.98907022
24018	23968	0.11321	1203.61133	136.2608387
24018	24055	0.11019	1223.80176	134.8507159
24022	24014	0.02879	183.08850	5.271117915
24022	24028	0.02391	185.02943	4.424053671
24023	23967	0.12986	1471.54919	191.0953778
24023	24096	0.14451	1481.55249	214.0991503
24026	23987	0.17020	1640.37646	279.1920735
24026	24060	0.10028	1701.27588	170.6039452
24028	24022	0.02391	183.08850	4.377646035
24028	24108	0.17813	185.02943	32.95929237
24030	23962	0.14037	802.82654	112.6927614
24030	24103	0.17972	803.85034	144.4679831
24033	23982	0.14508	107.55686	15.60434925
24033	24043	0.03737	100.82236	3.767731593
24041	23957	0.17468	5832.98145	1018.9052
24042	1822	1.84090	98.60226	181.5169004
24042	23998	0.11912	2206.23853	262.8071337
24042	24114	0.89710	2304.15967	2067.06164
24043	817	0.33116	62.74966	20.78017741
24043	24033	0.03737	107.55686	4.019399858
24043	24076	0.06571	67.59122	4.441419066
24050	23836	0.46626	0.52583	0.245173496
24050	24118	0.15322	0.53573	0.082084551
24053	24015	0.11800	602.39398	71.08248964
24053	24327	1.12374	601.60229	676.0445574
24055	266	0.51515	55.67301	28.6799511
24055	24018	0.11019	1203.61133	132.6259325
24055	24061	0.02657	217.43256	5.777183119
24055	24087	0.05106	1251.41028	63.8970089
24060	24026	0.10028	1640.37646	164.4969514
24060	24105	0.03809	1701.27588	64.80159827
24061	23970	0.23317	138.89986	32.38728036
24061	24055	0.02657	224.02533	5.952353018
24061	24088	0.02367	179.44995	4.247580317
24063	23829	0.50156	1436.00476	720.2425474
24063	24166	0.33172	1447.88147	480.2912412
24064	24001	0.18763	71.56247	13.42726625
24064	24066	0.29923	200.13370	59.88600705
24064	24188	0.42231	223.69115	94.46700956
24066	24064	0.29923	165.93233	49.65193111

24066	24080	0.19230	200.13370	38.48571051
24070	24072	0.01173	55.83213	0.654910885
24070	24075	0.12586	54.72227	6.887344902
24071	23980	0.22568	306.43192	69.15555571
24071	24082	0.00840	243.76804	2.047651536
24072	24070	0.01173	54.72227	0.641892227
24072	24076	0.11242	55.83213	6.276648055
24075	24070	0.12586	55.83213	7.027031882
24075	24084	0.10859	54.72227	5.942291299
24076	24043	0.06571	71.28046	4.683839027
24076	24072	0.11242	54.72227	6.151877593
24076	24107	0.04088	110.84576	4.531374669
24076	30098	0.45952	0.00000	0
24078	24000	0.19868	690.33569	137.1558949
24078	24131	0.15925	692.18573	110.2305775
24079	24080	0.01034	176.72287	1.827314476
24079	24081	0.24062	210.96887	50.7633295
24080	1988	0.20172	16.22647	3.273203528
24080	24066	0.19230	165.93233	31.90878706
24080	24079	0.01034	210.96887	2.181418116
24081	24079	0.24062	176.72287	42.52305698
24081	24082	0.25993	210.96887	54.83713838
24082	24071	0.00840	306.43192	2.574028128
24082	24081	0.25993	176.72287	45.9355756
24082	24083	0.11794	164.51456	19.40284721
24083	24082	0.11794	192.93245	22.75445315
24083	24084	0.02416	164.51456	3.97467177
24084	24075	0.10859	55.83213	6.062810997
24084	24083	0.02416	192.93245	4.661247992
24084	24112	0.08207	108.68242	8.919566209
24085	24086	0.00923	0.00000	0
24085	30084	0.02166	5832.98145	126.3423782
24086	24085	0.00923	0.00000	0
24086	30082	0.02047	5845.87109	119.6649812
24087	24055	0.05106	1223.65063	62.47960117
24087	24130	0.18683	1251.41028	233.8009826
24088	24061	0.02367	174.53349	4.131207708
24088	24129	0.13871	179.44995	24.89150256
24090	776	0.13392	0.00000	0
24093	2041	0.62905	0.00000	0
24093	22506	0.44254	180.00894	79.66115631
24093	23113	0.44254	181.85579	80.47846131
24093	24803	0.38742	0.00000	0
24094	718	0.93090	255.71637	238.0463688
24094	24095	0.13169	251.98677	33.18413774
24095	24094	0.13169	255.71637	33.67528877
24095	24097	0.07378	251.98677	18.59158389
24096	24023	0.14451	1471.54919	212.6535734
24096	24097	0.28269	255.71637	72.28846064
24096	24128	0.12475	1259.41833	157.1124367
24097	24095	0.07378	255.71637	18.86675378
24097	24096	0.28269	251.98677	71.23414001
24099	24100	0.03172	1642.96436	52.1148295
24099	24105	0.02552	1580.49146	40.33414206

24100	24099	0.03172	1580.49146	50.13318911
24100	24101	0.04757	1642.96436	78.15581461
24101	24100	0.04757	1580.49146	75.18397875
24101	24102	0.02068	1642.96436	33.97650296
24102	24101	0.02068	1580.49146	32.68456339
24102	24103	0.12617	1642.96436	207.2928133
24103	24030	0.17972	802.82654	144.2839858
24103	24102	0.12617	1580.49146	199.4106075
24103	24136	0.16907	1656.58508	280.0788395
24105	24060	0.03809	1640.37646	62.48193936
24105	24099	0.02552	1642.96436	41.92845047
24105	24125	0.11308	842.05511	95.21959184
24107	24076	0.04088	113.42516	4.636820541
24107	24109	0.01120	110.84576	1.241472512
24108	24028	0.17813	183.08850	32.61355451
24108	24139	0.21465	185.02943	39.71656715
24109	24107	0.01120	113.42516	1.270361792
24109	24126	0.08456	110.84576	9.373117466
24112	24084	0.08207	138.21017	11.34290865
24112	24142	0.15881	108.68242	17.25985512
24114	24042	0.89710	2302.10352	2065.217068
24114	24284	0.83100	2304.15967	1914.756686
24118	24050	0.15322	0.52583	0.080567673
24118	24208	0.37323	0.53573	0.199950508
24125	779	0.12157	26.67180	3.242490726
24125	24105	0.11308	843.62872	95.39753566
24125	24156	0.13897	817.65613	113.6296724
24126	24109	0.08456	113.42516	9.59123153
24126	24143	0.10808	110.84576	11.98020974
24128	778	0.12603	25.21675	3.178067003
24128	24096	0.12475	1253.14465	156.3297951
24128	24145	0.12547	1234.20154	154.8552672
24129	269	0.14314	137.30067	19.6532179
24129	270	0.10899	23.19780	2.528328222
24129	24088	0.13871	174.53349	24.2095404
24129	24153	0.12543	50.30928	6.31029299
24130	24087	0.18683	1223.65063	228.6146472
24130	24132	0.01874	1251.41028	23.45142865
24131	24078	0.15925	690.33569	109.9359586
24131	24207	0.32303	692.18573	223.5967564
24132	270	0.06691	101.45395	6.788283795
24132	24130	0.01874	1223.65063	22.93121281
24132	24157	0.10686	1164.67712	124.457397
24136	24103	0.16907	1593.08826	269.3434321
24136	24154	0.08229	1656.58508	136.3203862
24139	2049	0.62294	0.00000	0
24139	24108	0.21465	183.08850	39.29994653
24139	24144	0.12352	185.02943	22.85483519
24142	24112	0.15881	138.21017	21.9491571
24142	24161	0.07024	108.68242	7.633853181
24143	24126	0.10808	113.42516	12.25899129
24143	24155	0.02968	110.84576	3.289902157
24144	2048	0.33474	0.00000	0
24144	24139	0.12352	183.08850	22.61509152

24144	24396	1.32049	185.02943	244.329512
24145	24128	0.12547	1228.49109	154.1387771
24145	24146	0.12528	1234.20154	154.6207689
24146	778	0.13448	1.84787	0.248501558
24146	24145	0.12528	1228.49109	153.9053638
24146	24148	0.12432	1236.05676	153.6665764
24147	779	0.13635	0.23065	0.031449128
24147	24150	0.03940	697.68353	27.48873108
24147	24156	0.12403	700.53174	86.88695171
24148	24146	0.12432	1230.33899	152.9557432
24148	24150	0.08825	700.76245	61.84228621
24148	24273	0.49826	1898.99207	946.1917888
24149	279	0.10953	393.71521	43.12362695
24149	24151	0.02367	383.41760	9.075494592
24149	24154	0.13904	669.83643	93.13405723
24150	24147	0.03940	700.76245	27.61004053
24150	24148	0.08825	697.68353	61.57057152
24151	24149	0.02367	336.70438	7.969792675
24151	24152	0.08274	383.41760	31.72397222
24152	24151	0.08274	336.70438	27.8589204
24152	24153	0.07929	383.41760	30.4011815
24153	24129	0.12543	49.20469	6.171744267
24153	24152	0.07929	336.70438	26.69729029
24153	24157	0.17100	254.02225	43.43780475
24153	24173	0.07576	157.03331	11.89684357
24154	24136	0.08229	1593.08826	131.0952329
24154	24149	0.13904	723.14966	100.5467287
24154	24179	0.10887	947.56006	103.1608637
24155	818	0.08097	7.00950	0.567559215
24155	24143	0.02968	113.42516	3.366458749
24155	24248	0.31303	105.00112	32.86850059
24156	268	0.11342	123.11224	13.96339026
24156	24125	0.13897	819.86462	113.9365862
24156	24147	0.12403	697.44269	86.50381684
24156	24191	0.15069	131.38010	19.79766727
24157	24132	0.10686	1138.42542	121.6521404
24157	24153	0.17100	208.34218	35.62651278
24157	24169	0.06046	1418.69934	85.7745621
24158	24161	0.04348	0.00000	0
24158	24162	0.06683	0.00000	0
24159	24162	0.01017	0.00000	0
24161	823	0.26035	107.21515	27.9134643
24161	24142	0.07024	138.21017	9.707882341
24161	24158	0.04348	0.00000	0
24161	24165	0.04020	1.46728	0.058984656
24162	24158	0.06683	0.00000	0
24162	24159	0.01017	0.00000	0
24162	24239	0.31316	0.00000	0
24165	24161	0.04020	1.44997	0.058288794
24165	24190	0.10706	1.46728	0.157086997
24166	2027	3.53666	837.74341	2962.813608
24166	2028	2.41895	288.39172	697.6051511
24166	24063	0.33172	1436.00476	476.351499
24166	24422	1.17072	906.02600	1060.702759

24168	24176	0.03247	5845.87109	189.8154343
24169	24157	0.06046	1346.76758	81.42556789
24169	24178	0.04681	1418.69934	66.40931611
24170	23403	0.15144	0.00000	0
24170	24175	0.24596	181.85579	44.72925011
24170	24259	0.24596	180.00894	44.27499888
24173	271	0.12578	105.83242	13.31160179
24173	24153	0.07576	154.89558	11.73488914
24173	24251	0.25741	51.58157	13.27761193
24175	2045	0.39563	0.00000	0
24175	23918	0.24596	181.85579	44.72925011
24175	24170	0.24596	180.00894	44.27499888
24176	24232	0.15565	5845.87109	909.9098352
24177	23989	0.64828	233.73944	151.5286042
24177	24198	0.24956	214.99449	53.65402492
24177	24216	0.61009	95.64478	58.35192383
24178	277	0.08493	6.45111	0.547892772
24178	24169	0.04681	1346.76758	63.04219042
24178	24186	0.01869	1413.13391	26.41147278
24179	279	0.14051	9.98210	1.402584871
24179	24154	0.10887	937.37653	102.0521828
24179	24231	0.14026	957.61047	134.3144445
24182	30100	0.34725	5832.98145	2025.502809
24186	24178	0.01869	1341.33154	25.06948648
24186	24195	0.03924	1413.13391	55.45137463
24188	24064	0.42231	226.41788	95.6185349
24188	24219	0.07785	223.69115	17.41435603
24190	24165	0.10706	1.44997	0.155233788
24190	24267	0.34910	1.46728	0.512227448
24191	24156	0.15069	132.02104	19.89425052
24191	24233	0.09798	131.38010	12.8726222
24195	271	0.07004	208.79655	14.62411036
24195	24186	0.03924	1341.33154	52.63384963
24195	24200	0.01955	1245.80090	24.3554076
24198	24177	0.24956	211.34846	52.74412168
24198	24202	0.40182	214.99449	86.38908597
24200	24195	0.01955	1179.16772	23.05272893
24200	24245	0.09406	1245.80090	117.1800327
24202	24198	0.40182	211.34846	84.9240382
24202	24203	0.05316	214.99449	11.42910709
24203	24202	0.05316	211.34846	11.23528413
24203	24204	0.03539	214.99449	7.608655001
24204	24203	0.03539	211.34846	7.479621999
24204	24220	0.06105	214.99449	13.12541361
24207	2028	2.92490	622.04791	1819.427932
24207	24131	0.32303	690.33569	222.9991379
24207	24369	0.81162	106.24834	86.23327771
24208	24118	0.37323	0.52583	0.196255531
24208	24296	0.45961	0.53573	0.246226865
24216	24177	0.61009	94.50794	57.65834911
24216	24217	0.07584	95.64478	7.253700115
24217	2000	0.70958	12.74757	9.045420721
24217	24216	0.07584	94.50794	7.16748217
24217	24302	0.50198	88.84544	44.59863397

24219	24188	0.07785	226.41788	17.62663196
24219	24270	0.25151	223.69115	56.26056114
24220	24204	0.06105	211.34846	12.90282348
24220	24236	0.08290	214.99449	17.82304322
24228	272	0.43269	0.00000	0
24228	24231	0.11879	65.09879	7.733085264
24228	24233	0.13287	66.78551	8.873790714
24231	24179	0.14026	947.35864	132.8765228
24231	24228	0.11879	66.78551	7.933450733
24231	24277	0.25360	1007.21265	255.429128
24232	24237	0.00672	5845.87109	39.28425372
24233	24191	0.09798	132.02104	12.9354215
24233	24228	0.13287	65.09879	8.649676227
24233	24297	0.43650	66.28131	28.93179182
24234	273	0.24536	1.25704	0.308427334
24234	279	0.14239	1.26821	0.180580422
24235	24182	0.14043	5832.98145	819.125585
24235	24237	0.01218	159.06004	1.937351287
24236	24220	0.08290	211.34846	17.52078733
24236	24255	0.13496	214.99449	29.01565637
24237	24235	0.01218	763.34430	9.297533574
24237	24243	0.01960	5223.64063	102.3833563
24237	24244	0.05303	943.16876	50.01623934
24239	24162	0.31316	0.00000	0
24239	24252	0.06593	0.00000	0
24242	24235	0.01970	5228.69727	103.0053362
24243	24258	0.08853	5223.64063	462.448905
24244	24237	0.05303	925.22211	49.06452849
24244	24249	0.20667	943.16876	194.9246876
24245	24200	0.09406	1179.16772	110.9125157
24245	24265	0.13094	1245.80090	163.1251698
24248	24155	0.31303	107.46737	33.64051083
24248	24249	0.25172	914.17010	230.1148976
24248	24252	0.07567	902.16968	68.26717969
24249	818	0.34989	10.86332	3.800967035
24249	24244	0.20667	925.22211	191.2156535
24249	24248	0.25172	932.30542	234.6799203
24251	280	0.05647	54.49591	3.077384038
24251	24173	0.25741	50.18428	12.91793551
24251	24298	0.39022	2.86233	1.116938413
24252	823	0.18384	867.47461	159.4765323
24252	24239	0.06593	0.00000	0
24252	24248	0.07567	886.50061	67.08150116
24252	24267	0.25164	36.72297	9.240968171
24254	24242	0.05431	5228.69727	283.9705487
24255	24236	0.13496	211.34846	28.52358816
24255	24296	0.50567	214.99449	108.7162638
24258	24275	0.13598	5223.64063	710.3106529
24259	2044	0.37508	0.00000	0
24259	2047	0.08840	0.00000	0
24259	23377	0.24596	180.00894	44.27499888
24259	24170	0.24596	181.85579	44.72925011
24265	805	0.09918	105.51387	10.46486563
24265	24245	0.13094	1179.16772	154.4002213

24265	24293	0.22739	1154.45374	262.5112359
24267	819	0.52079	38.19025	19.8891003
24267	24190	0.34910	1.44997	0.506184527
24267	24252	0.25164	36.14784	9.096242458
24270	24219	0.25151	226.41788	56.946361
24270	24307	0.25265	223.69115	56.51556905
24273	780	0.22200	1898.99207	421.5762395
24273	24148	0.49826	1896.35327	944.8769803
24275	24254	0.16965	5228.69727	887.0484919
24275	24300	0.21500	5223.64063	1123.082735
24277	24231	0.25360	998.64758	253.2570263
24277	24291	0.12037	1007.21265	121.2381867
24284	24114	0.83100	2302.10352	1913.048025
24284	24286	0.03052	2304.15967	70.32295313
24286	24284	0.03052	2302.10352	70.26019943
24286	24330	0.29547	2304.15967	680.8100577
24291	24277	0.12037	998.64758	120.2072092
24291	24312	0.12540	1007.21265	126.3044663
24293	24265	0.22739	1090.25195	247.9123909
24293	24298	0.05655	1154.45374	65.284359
24296	24208	0.45961	0.52583	0.241676726
24296	24255	0.50567	211.34846	106.8725758
24296	24334	0.31233	215.53023	67.31655674
24297	272	0.12655	66.28131	8.387899781
24297	24233	0.43650	65.23552	28.47530448
24297	24311	0.06118	0.00000	0
24298	24251	0.39022	2.91434	1.137233755
24298	24293	0.05655	1090.25195	61.65374777
24298	24321	0.09410	1157.22021	108.8944218
24300	24275	0.21500	5228.69727	1124.169913
24300	24323	0.09467	5223.64063	494.5220584
24302	24217	0.50198	87.99900	44.17373802
24302	24426	0.50161	88.84544	44.56576116
24307	24270	0.25265	226.41788	57.20447738
24307	24316	0.03517	223.69115	7.867217746
24311	24297	0.06118	0.00000	0
24311	24344	0.16746	0.00000	0
24312	272	0.14093	60.57461	8.536779787
24312	273	0.35000	148.14256	51.849896
24312	24291	0.12540	998.64758	125.2304065
24312	24322	0.04087	839.79742	34.32252056
24313	2045	0.48173	0.00000	0
24313	2046	0.71250	0.00000	0
24313	23918	0.64569	0.00000	0
24313	24570	1.29139	0.00000	0
24316	1989	1.20671	170.46729	205.7045835
24316	2000	0.49956	54.35253	27.15234989
24316	24307	0.03517	226.41788	7.96311684
24320	273	0.30300	3.31340	1.0039602
24320	274	0.21219	3.32479	0.70548719
24321	24298	0.09410	1093.07043	102.8579275
24321	24332	0.05991	1157.22021	69.32906278
24322	24312	0.04087	833.42285	34.06199188
24322	24337	0.08229	839.79742	69.10692969

24323	24300	0.09467	5228.69727	495.0007706
24323	24335	0.04839	5223.64063	252.7719701
24327	1958	1.54358	1.04829	1.618119478
24327	24053	1.12374	602.39398	676.9342111
24327	24475	0.57609	602.67419	347.1945741
24330	24286	0.29547	2302.10352	680.2025271
24330	24385	0.31464	2304.15967	724.9807986
24332	24321	0.05991	1093.07043	65.48584946
24332	24339	0.02296	1157.22021	26.56977602
24334	24296	0.31233	211.87430	66.17470012
24334	24373	0.31937	215.53023	68.83388956
24335	24323	0.04839	5228.69727	253.0166609
24335	24455	0.51385	5223.64063	2684.167738
24337	24322	0.08229	833.42285	68.58236633
24337	24348	0.06326	839.79742	53.12558479
24339	24332	0.02296	1093.07043	25.09689707
24339	24367	0.12933	1157.22021	149.6632898
24344	24311	0.16746	0.00000	0
24344	24365	0.08509	0.00000	0
24348	24337	0.06326	833.42285	52.72232949
24348	24364	0.06431	839.79742	54.00737208
24364	274	0.24986	575.59131	143.8172447
24364	24348	0.06431	833.42285	53.59742348
24364	24441	0.24303	273.22849	66.40271992
24365	24344	0.08509	0.00000	0
24365	24388	0.08708	0.00000	0
24367	274	0.24705	544.84766	134.6046144
24367	24339	0.12933	1093.07043	141.3667987
24367	24438	0.24074	761.61322	183.3507666
24369	24207	0.81162	104.06080	84.4578265
24369	24416	0.18553	106.24834	19.71225452
24373	24334	0.31937	211.87430	67.66629519
24373	24418	0.22762	215.53023	49.05899095
24385	24330	0.31464	2302.10352	724.3338515
24385	24401	0.06419	2304.15967	147.9040092
24388	24365	0.08708	0.00000	0
24388	24408	0.11683	0.00000	0
24396	24144	1.32049	183.08850	241.7665334
24396	24449	0.14449	185.02943	26.73490234
24401	24385	0.06419	2302.10352	147.7720249
24401	24445	0.15180	2304.15967	349.7714379
24408	24388	0.11683	0.00000	0
24408	24441	0.18407	0.00000	0
24416	24369	0.18553	104.06080	19.30640022
24416	24418	0.33717	18.26892	6.159731756
24416	24501	0.26512	87.97942	23.32510383
24418	24373	0.22762	211.87430	48.22682817
24418	24416	0.33717	17.84162	6.015659015
24418	24501	0.43204	197.68860	85.40938274
24422	24166	1.17072	882.83850	1033.556689
24422	24678	1.01939	906.02600	923.5938441
24426	24302	0.50161	87.99900	44.14117839
24426	30074	1.36648	88.84544	121.4055169
24438	24367	0.24074	699.59473	168.4204353

24438	24444	0.24962	62.15996	15.51636922
24438	24480	0.15900	822.53375	130.7828663
24441	1678	0.69623	212.30791	147.8151362
24441	24364	0.24303	271.10883	65.88757895
24441	24408	0.18407	0.00000	0
24441	24444	0.24685	60.92057	15.0382427
24444	274	0.24465	0.00000	0
24444	24438	0.24962	60.92057	15.20699268
24444	24441	0.24685	62.15996	15.34418613
24445	24401	0.15180	2302.10352	349.4593143
24445	24467	0.14134	2304.15967	325.6699278
24449	24396	0.14449	183.08850	26.45445737
24449	24458	0.06588	185.02943	12.18973885
24455	819	0.57526	4.27563	2.459598914
24455	1679	0.45480	56.74584	25.80800803
24455	24335	0.51385	5228.69727	2686.766092
24455	24464	0.02977	5171.19141	153.9463683
24458	24449	0.06588	183.08850	12.06187038
24458	24465	0.02624	185.02943	4.855172243
24464	24455	0.02977	5176.85889	154.1150892
24464	24630	0.70137	5171.19141	3626.918519
24465	24458	0.02624	183.08850	4.80424224
24465	24521	0.18744	185.02943	34.68191636
24467	24445	0.14134	2302.10352	325.3793115
24467	24659	0.89684	2304.15967	2066.462558
24475	24327	0.57609	603.44226	347.6370516
24475	24523	0.13800	602.67419	83.16903822
24480	24438	0.15900	761.75464	121.1189878
24480	24581	0.31894	822.53375	262.3389142
24501	24416	0.26512	86.21918	22.858429
24501	24418	0.43204	193.60538	83.64526838
24501	24628	1.12666	285.66800	321.8507089
24521	1831	5.01448	61.77824	309.7857489
24521	2050	1.24970	0.00000	0
24521	24465	0.18744	183.08850	34.31810844
24521	24691	1.08921	156.71977	170.7007407
24523	24475	0.13800	603.44226	83.27503188
24523	24572	0.39869	546.28070	217.7966523
24523	24584	0.19613	56.39344	11.06044539
24570	2044	0.45642	0.00000	0
24570	2045	0.69015	0.00000	0
24570	2051	0.60870	0.00000	0
24570	24313	1.29139	0.00000	0
24570	24756	0.64569	0.00000	0
24572	24523	0.39869	547.41449	218.248683
24572	24573	0.33991	546.28070	185.6862727
24573	24572	0.33991	547.41449	186.0716593
24573	24576	1.58521	546.28070	865.9696284
24576	24573	1.58521	547.41449	867.7669237
24576	24577	0.17702	546.28070	96.70260951
24577	1958	1.50711	57.67404	86.92112242
24577	24576	0.17702	547.41449	96.90331302
24577	24592	0.05188	605.65717	31.42149398
24581	275	0.18438	298.47778	55.03333308

24581	1678	0.67084	27.29152	18.30824328
24581	24480	0.31894	761.75464	242.9540249
24581	24620	0.21741	593.40472	129.0121202
24584	24523	0.19613	56.02781	10.98873438
24584	24689	0.62260	56.39344	35.11055574
24592	24577	0.05188	605.08850	31.39199138
24592	24619	0.18945	605.65717	114.7417509
24619	24592	0.18945	605.08850	114.6340163
24619	24650	0.14827	605.65717	89.8007886
24620	24581	0.21741	540.47961	117.505672
24620	24627	0.03415	593.40472	20.26477119
24627	24620	0.03415	540.47961	18.45737868
24627	24646	0.07905	593.40472	46.90864312
24628	24501	1.12666	279.82455	315.2671275
24628	24676	0.56510	285.66800	161.4309868
24630	24464	0.70137	5176.85889	3630.89352
24630	24634	0.02448	5171.19141	126.5907657
24634	1679	0.33865	10.36745	3.510936943
24634	1680	0.11842	73.96684	8.759153193
24634	24630	0.02448	5176.85889	126.7295056
24634	30049	0.71576	5130.45166	3672.17208
24643	24651	0.08504	2237.28760	190.2589375
24643	24755	1.65251	2244.25513	3708.654045
24646	24627	0.07905	540.47961	42.72491317
24646	24658	0.12360	593.40472	73.34482339
24650	24619	0.14827	605.08850	89.7164719
24650	24767	0.77047	605.65717	466.6406798
24651	24643	0.08504	2244.25513	190.8514563
24651	24668	0.37375	2237.28760	836.1862405
24658	24646	0.12360	540.47961	66.8032798
24658	24664	0.03087	593.40472	18.31840371
24659	1831	2.80873	468.40784	1315.631152
24659	24467	0.89684	2302.10352	2064.618521
24659	24667	0.06013	2244.25513	134.947061
24664	24658	0.03087	540.47961	16.68460556
24664	24666	0.02347	593.40472	13.92720878
24666	24664	0.02347	540.47961	12.68505645
24666	24680	0.08064	593.40472	47.85215662
24667	24659	0.06013	2237.28760	134.5281034
24667	24668	0.18088	2244.25513	405.9408679
24668	24651	0.37375	2244.25513	838.7903548
24668	24667	0.18088	2237.28760	404.6805811
24676	24628	0.56510	279.82455	158.1288532
24676	24732	0.84419	285.66800	241.1580689
24678	24422	1.01939	882.83850	899.9567385
24678	24850	1.19781	906.02600	1085.247003
24680	24666	0.08064	540.47961	43.58427575
24680	24684	0.05315	593.40472	31.53946087
24684	24680	0.05315	540.47961	28.72649127
24684	24701	0.24080	593.40472	142.8918566
24689	24584	0.62260	56.02781	34.88291451
24689	24705	0.13926	56.39344	7.853350454
24691	24521	1.08921	154.27371	168.0364677
24691	24716	0.23215	156.71977	36.38249461

24701	24684	0.24080	540.47961	130.1474901
24701	24722	0.13431	593.40472	79.70018794
24705	1917	0.39850	56.39344	22.47278584
24705	24689	0.13926	56.02781	7.802432821
24707	2028	1.53660	0.21428	0.329262648
24707	2029	2.12058	0.21428	0.454397882
24716	24691	0.23215	154.27371	35.81464178
24716	24802	0.59873	156.71977	93.83282789
24722	24701	0.13431	540.47961	72.59181642
24722	24738	0.14456	593.40472	85.78258632
24732	24676	0.84419	279.82455	236.2250869
24732	24760	0.24188	285.66800	69.09737584
24738	24722	0.14456	540.47961	78.13173242
24738	24749	0.05263	593.40472	31.23089041
24739	24746	0.07354	724.84650	53.30521161
24739	24752	0.10479	667.85895	69.98493937
24745	24747	0.25789	2021.98438	521.4495518
24745	24757	0.05673	2052.85571	116.4585044
24746	24739	0.07354	667.85895	49.11434718
24746	30054	0.01585	724.84650	11.48881703
24747	24745	0.25789	2052.85571	529.4109591
24747	30050	0.21126	2021.98438	427.1644201
24749	24738	0.05263	540.47961	28.44544187
24749	24750	0.03654	593.40472	21.68300847
24750	276	0.71403	485.79398	346.8714755
24750	24749	0.03654	540.47961	19.74912495
24750	24751	0.05792	724.84650	41.98310928
24751	24750	0.05792	667.85895	38.68239038
24751	24752	0.04964	724.84650	35.98138026
24752	24739	0.10479	724.84650	75.95666474
24752	24751	0.04964	667.85895	33.15251828
24755	24643	1.65251	2237.28760	3697.140132
24755	24821	0.47286	2244.25513	1061.218481
24756	24570	0.64569	0.00000	0
24756	24803	0.25828	0.00000	0
24757	24745	0.05673	2021.98438	114.7071739
24757	24977	2.02709	2052.85571	4161.323281
24760	24732	0.24188	279.82455	67.68396215
24760	24782	0.54234	285.66800	154.9291831
24767	24650	0.77047	605.08850	466.2025366
24767	24832	0.43025	605.65717	260.5839974
24782	24760	0.54234	279.82455	151.7600464
24782	24805	0.25403	285.66800	72.56824204
24802	24716	0.59873	154.27371	92.36829839
24802	24804	0.00863	156.71977	1.352491615
24803	2044	0.55517	0.00000	0
24803	24093	0.38742	0.00000	0
24803	24756	0.25828	0.00000	0
24804	24802	0.00863	154.27371	1.331382117
24804	24836	0.24564	156.71977	38.4966443
24805	24782	0.25403	279.82455	71.08383044
24805	24813	0.17709	285.66800	50.58894612
24813	24805	0.17709	279.82455	49.55412956
24813	24828	0.11577	285.66800	33.07178436

24821	24755	0.47286	2237.28760	1057.923815
24821	24856	0.44299	2244.25513	994.18258
24828	24813	0.11577	279.82455	32.39528815
24828	24833	0.06077	285.66800	17.36004436
24832	24767	0.43025	605.08850	260.3393271
24832	24860	0.24393	605.65717	147.7379535
24833	24828	0.06077	279.82455	17.0049379
24833	24838	0.09721	285.66800	27.76978628
24836	24804	0.24564	154.27371	37.89579412
24836	24895	0.49962	156.71977	78.30033149
24838	24833	0.09721	279.82455	27.20174451
24838	24849	0.16373	285.66800	46.77242164
24844	23458	0.00438	0.00000	0
24849	24838	0.16373	279.82455	45.81567357
24849	24853	0.11573	285.66800	33.06035764
24850	24678	1.19781	882.83850	1057.472784
24850	24866	0.12190	906.02600	110.4445694
24853	24849	0.11573	279.82455	32.38409517
24853	24855	0.03401	285.66800	9.71556868
24855	24853	0.03401	279.82455	9.516832946
24855	24857	0.15380	285.66800	43.9357384
24856	24821	0.44299	2237.28760	991.0960339
24856	24865	0.09208	2244.25513	206.6510124
24857	24855	0.15380	279.82455	43.03701579
24857	24858	0.01171	285.66800	3.34517228
24858	24857	0.01171	279.82455	3.276745481
24858	24861	0.06349	285.66800	18.13706132
24860	24832	0.24393	605.08850	147.5992378
24860	24886	0.17594	605.65717	106.5593225
24861	24858	0.06349	279.82455	17.76606068
24861	24872	0.64852	285.66800	185.2614114
24865	24856	0.09208	2237.28760	206.0094422
24865	24869	0.05249	2244.25513	117.8009518
24866	24850	0.12190	882.83850	107.6180132
24866	24876	0.09411	906.02600	85.26610686
24869	24865	0.05249	2237.28760	117.4352261
24869	24878	0.11493	2244.25513	257.9322421
24872	24861	0.64852	279.82455	181.4718172
24872	24887	0.15448	285.66800	44.12999264
24873	24882	0.36234	0.00000	0
24873	24909	0.45723	0.00000	0
24874	276	0.30207	110.02841	33.23628181
24874	1963	1.01832	131.65540	134.0673269
24874	25083	2.33312	3445.79517	8039.453627
24874	30053	0.97883	3412.74634	3340.4985
24876	24866	0.09411	882.83850	83.08393124
24876	24900	0.13773	906.02600	124.786961
24878	24869	0.11493	2237.28760	257.1314639
24878	24879	0.01560	2244.25513	35.01038003
24879	24878	0.01560	2237.28760	34.90168656
24879	24904	0.12355	2244.25513	277.2777213
24882	24873	0.36234	0.00000	0
24882	24980	1.63747	0.00000	0
24886	1917	2.71660	14.78502	40.16498533

24886	1959	1.58974	352.31317	560.0863389
24886	24860	0.17594	605.08850	106.4592707
24886	24955	0.47676	654.63232	312.1025049
24887	24872	0.15448	279.82455	43.22729648
24887	24908	0.15979	285.66800	45.64688972
24895	24836	0.49962	154.27371	77.07823099
24895	24897	0.00998	156.71977	1.564063305
24897	24895	0.00998	154.27371	1.539651626
24897	24917	0.20725	156.71977	32.48017233
24900	24876	0.13773	882.83850	121.5933466
24900	24908	0.03338	9.95856	0.332416733
24900	24913	0.05547	896.06744	49.7048609
24904	24879	0.12355	2237.28760	276.416883
24904	24915	0.06830	2244.25513	153.2826254
24908	24887	0.15979	279.82455	44.71316484
24908	24900	0.03338	10.39426	0.346960399
24908	24913	0.03221	275.27374	8.866567165
24909	952	1.38737	785.70258	1090.060188
24909	24873	0.45723	0.00000	0
24909	24919	0.18031	774.87927	139.7184812
24913	24900	0.05547	872.44427	48.39448366
24913	24908	0.03221	269.86600	8.69238386
24913	24916	0.03180	711.24768	22.61767622
24913	25340	4.51550	785.41309	3546.532808
24915	24904	0.06830	2237.28760	152.8067431
24915	24925	0.28159	1557.56921	438.5959138
24915	24965	0.36437	1102.41589	401.6872778
24916	24913	0.03180	686.99164	21.84633415
24916	24941	0.18426	711.24768	131.0544975
24917	24897	0.20725	154.27371	31.9732264
24917	24924	0.17605	156.71977	27.59051551
24919	24909	0.18031	785.70258	141.6700322
24919	24935	0.25515	774.87927	197.7104457
24924	24917	0.17605	154.27371	27.15988665
24924	24928	0.02943	156.71977	4.612262831
24925	24915	0.28159	1564.26697	440.4819361
24925	24933	0.12850	1557.56921	200.1476435
24928	24924	0.02943	154.27371	4.540275285
24928	24947	0.23832	156.71977	37.34945559
24933	954	0.35366	975.29016	344.921118
24933	24925	0.12850	1564.26697	201.0083056
24933	24937	0.04689	1719.78198	80.64057704
24935	24919	0.25515	785.70258	200.4720133
24935	24986	0.67518	774.87927	523.1829855
24937	24933	0.04689	1697.87244	79.61323871
24937	24952	0.20432	1719.78198	351.3858542
24941	24916	0.18426	686.99164	126.5850796
24941	24963	0.14297	711.24768	101.6870808
24947	24928	0.23832	154.27371	36.76651057
24947	24962	0.12439	156.71977	19.49437219
24952	24937	0.20432	1697.87244	346.9092969
24952	24994	0.30719	1719.78198	528.2998264
24955	24886	0.47676	644.16852	307.1137836
24955	24967	0.01796	654.63232	11.75719647

24962	2052	0.78850	0.00000	0
24962	24947	0.12439	154.27371	19.19010679
24962	24968	0.03082	156.71977	4.830103311
24963	24941	0.14297	686.99164	98.21919477
24963	24998	0.18970	711.24768	134.9236849
24965	24915	0.36437	1088.75061	396.7080598
24965	24995	0.14051	1102.41589	154.9004567
24967	24955	0.01796	644.16852	11.56926662
24967	25095	0.84603	654.63232	553.8385817
24968	24962	0.03082	154.27371	4.754715742
24968	25025	0.78502	156.71977	123.0281538
24973	24426	4.22356	87.99900	371.6690564
24973	24975	0.04621	53.70647	2.481775979
24973	24978	0.01738	27.93391	0.485491356
24974	2032	0.54739	24.63427	13.48455306
24974	24977	1.49895	818.64526	1227.108312
24974	24982	0.58087	822.61877	477.8345649
24975	24973	0.04621	58.59671	2.707753969
24975	24978	0.04962	764.02209	37.91077611
24975	24982	0.17679	796.19629	140.7595421
24977	1963	1.01797	45.01585	45.82478482
24977	24757	2.02709	2021.98438	4098.744317
24977	24974	1.49895	837.63910	1255.579129
24977	25204	1.86426	1444.47498	2692.876926
24978	24973	0.01738	29.40230	0.511011974
24978	24975	0.04962	742.48981	36.84234437
24978	25118	1.11860	791.95599	885.8819704
24980	24882	1.63747	0.00000	0
24982	24974	0.58087	796.19629	462.486539
24982	24975	0.17679	822.61877	145.4307723
24986	24935	0.67518	785.70258	530.490668
24986	24987	0.02205	774.87927	17.0860879
24987	951	0.46380	136.87511	63.48267602
24987	24986	0.02205	785.70258	17.32474189
24987	24992	0.03869	638.00415	24.68438056
24992	24987	0.03869	644.95007	24.95311821
24992	25020	0.30940	638.00415	197.398484
24994	24952	0.30719	1697.87244	521.5694348
24994	25002	0.15626	1719.78198	268.7331322
24995	24965	0.14051	1088.75061	152.9803482
24995	25055	0.88088	1102.41589	971.0961092
24998	24963	0.18970	686.99164	130.3223141
24998	25000	0.02263	711.24768	16.095535
25000	24998	0.02263	686.99164	15.54662081
25000	25024	0.19293	711.24768	137.2210149
25002	951	1.22448	563.54327	690.0474632
25002	955	1.82793	495.66730	906.0451277
25002	24994	0.15626	1697.87244	265.3095475
25002	25015	0.08581	1342.95117	115.2386399
25004	25008	0.07735	638.00415	49.349621
25004	25020	0.73151	644.95007	471.7874257
25008	25004	0.07735	644.95007	49.88688791
25008	25018	0.19720	638.00415	125.8144184
25015	25002	0.08581	1331.36487	114.2444195

25015	25018	0.10824	1342.95117	145.3610346
25018	25008	0.19720	644.95007	127.1841538
25018	25015	0.10824	1331.36487	144.1069335
25018	25027	0.28811	698.00104	201.1010796
25020	24992	0.30940	644.95007	199.5475517
25020	25004	0.73151	638.00415	466.7064158
25023	23734	0.00327	0.00000	0
25024	25000	0.19293	686.99164	132.5412971
25024	25122	0.79129	711.24768	562.8031767
25025	24968	0.78502	154.27371	121.1079478
25025	25031	0.14721	156.71977	23.07071734
25027	25018	0.28811	693.36072	199.764157
25027	25030	0.15291	698.00104	106.731339
25030	25027	0.15291	693.36072	106.0217877
25030	25034	0.08162	698.00104	56.97084488
25031	25025	0.14721	154.27371	22.71063285
25031	25039	0.28075	156.71977	43.99907543
25034	25030	0.08162	693.36072	56.59210197
25034	25099	0.58546	698.00104	408.6516889
25039	25031	0.28075	154.27371	43.31234408
25039	25045	0.13597	156.71977	21.30918713
25045	25039	0.13597	154.27371	20.97659635
25045	25094	0.54282	156.71977	85.07062555
25055	24995	0.88088	1088.75061	959.0586373
25055	25109	0.42377	1102.41589	467.1707817
25083	1962	1.99649	494.98267	988.2279508
25083	24874	2.33312	3423.76733	7988.060033
25083	25112	0.36608	3226.53540	1181.170079
25094	25045	0.54282	154.27371	83.74285526
25094	25302	2.79879	156.71977	438.6257251
25095	24967	0.84603	644.16852	544.985893
25095	25149	0.77075	654.63232	504.5578606
25099	25034	0.58546	693.36072	405.9349671
25099	25101	0.03788	698.00104	26.4402794
25101	25099	0.03788	693.36072	26.26450407
25101	25104	0.08108	698.00104	56.59392432
25104	25101	0.08108	693.36072	56.21768718
25104	25107	0.05831	698.00104	40.70044064
25107	25104	0.05831	693.36072	40.42986358
25107	25127	0.25470	698.00104	177.7808649
25109	25055	0.42377	1088.75061	461.379846
25109	25124	0.27056	1102.41589	298.2696432
25112	25083	0.36608	3201.66846	1172.06679
25112	25169	0.83999	3226.53540	2710.257471
25118	24978	1.11860	771.89215	863.438559
25118	25205	1.07733	791.95599	853.1979467
25122	25024	0.79129	686.99164	543.6096148
25122	25137	0.26875	711.24768	191.147814
25124	955	0.77199	659.80151	509.3601677
25124	25109	0.27056	1088.75061	294.572365
25124	25154	0.57310	724.95087	415.4693436
25127	25107	0.25470	693.36072	176.5989754
25127	25129	0.00783	698.00104	5.465348143
25129	25127	0.00783	693.36072	5.429014438

25129	25133	0.05732	698.00104	40.00941961
25133	25129	0.05732	693.36072	39.74343647
25133	25139	0.13001	698.00104	90.74711521
25137	25122	0.26875	686.99164	184.6290033
25137	25138	0.01496	711.24768	10.64026529
25138	25137	0.01496	686.99164	10.27739493
25138	25141	0.09154	711.24768	65.10761263
25139	25133	0.13001	693.36072	90.14382721
25139	25140	0.04223	698.00104	29.47658392
25140	25139	0.04223	693.36072	29.28062321
25140	25144	0.12638	698.00104	88.21337144
25141	25138	0.09154	686.99164	62.88721473
25141	25159	0.18103	711.24768	128.7571675
25144	25140	0.12638	693.36072	87.62692779
25144	25151	0.06315	698.00104	44.07876568
25149	25095	0.77075	644.16852	496.4928868
25149	25155	0.04133	654.63232	27.05595379
25151	25144	0.06315	693.36072	43.78572947
25151	25156	0.02738	698.00104	19.11126848
25154	25124	0.57310	710.58600	407.2368366
25154	25238	1.17317	724.95087	850.4906122
25155	1960	0.59732	155.13010	92.66231133
25155	25149	0.04133	644.16852	26.62348493
25155	25157	0.02560	719.44482	18.41778739
25156	25151	0.02738	693.36072	18.98421651
25156	25170	0.11887	698.00104	82.97138362
25157	25155	0.02560	712.56812	18.24174387
25157	25165	0.07920	719.44482	56.98002974
25159	25141	0.18103	686.99164	124.3660966
25159	25162	0.03537	711.24768	25.15683044
25162	25159	0.03537	686.99164	24.29889431
25162	25182	0.13264	711.24768	94.33989228
25165	25157	0.07920	712.56812	56.4353951
25165	25219	0.27928	719.44482	200.9265493
25169	904	3.55119	2108.06812	7486.150427
25169	1961	0.74425	128.87758	95.91713892
25169	25112	0.83999	3201.66846	2689.36949
25169	25282	0.87298	1999.49304	1745.517434
25170	25156	0.11887	693.36072	82.41978879
25170	25188	0.10382	698.00104	72.46646797
25182	25162	0.13264	686.99164	91.12257113
25182	25187	0.02316	711.24768	16.47249627
25187	25182	0.02316	686.99164	15.91072638
25187	25221	0.17538	711.24768	124.7386181
25188	25170	0.10382	693.36072	71.98470995
25188	25224	0.18564	698.00104	129.5769131
25204	24977	1.86426	1429.73071	2665.389773
25204	25462	1.50831	1444.47498	2178.716057
25205	25118	1.07733	771.89215	831.58257
25205	25449	1.78040	791.95599	1409.998445
25219	25165	0.27928	712.56812	199.0060246
25219	25234	0.08786	719.44482	63.21042189
25221	25187	0.17538	686.99164	120.4845938
25221	25254	0.21384	711.24768	152.0932039

25224	25188	0.18564	693.36072	128.7154841
25224	25258	0.24561	698.00104	171.4360354
25234	25219	0.08786	712.56812	62.60623502
25234	25319	0.52104	719.44482	374.859529
25238	25154	1.17317	710.58600	833.6381776
25238	25295	0.63822	724.95087	462.6781443
25254	25221	0.21384	686.99164	146.9062923
25254	25358	0.60446	711.24768	429.9207727
25258	25224	0.24561	693.36072	170.2963264
25258	25269	0.12227	698.00104	85.34458716
25269	25258	0.12227	693.36072	84.77721523
25269	25276	0.03356	698.00104	23.4249149
25276	25269	0.03356	693.36072	23.26918576
25276	25277	0.02319	698.00104	16.18664412
25277	952	1.50287	225.15317	338.3759446
25277	25276	0.02319	693.36072	16.0790351
25277	25283	0.22925	924.07556	211.8443221
25282	25169	0.87298	1977.89819	1726.665562
25282	25284	0.01916	1999.49304	38.31028665
25283	25277	0.22925	918.51385	210.5693001
25283	25287	0.03559	924.07556	32.88784918
25284	25282	0.01916	1977.89819	37.89652932
25284	25306	0.14317	1999.49304	286.2674185
25287	25283	0.03559	918.51385	32.68990792
25287	25323	0.26931	924.07556	248.8627891
25295	25238	0.63822	710.58600	453.5101969
25295	25342	0.26388	724.95087	191.3000356
25301	25302	0.03934	154.27371	6.069127751
25301	25367	0.51597	156.71977	80.86269973
25302	25094	2.79879	154.27371	431.7797168
25302	25301	0.03934	156.71977	6.165355752
25306	25284	0.14317	1977.89819	283.1756839
25306	25315	0.09069	1999.49304	181.3340238
25315	25306	0.09069	1977.89819	179.3755869
25315	25322	0.03809	1999.49304	76.16068989
25319	25234	0.52104	712.56812	371.2764932
25319	25328	0.07779	719.44482	55.96561255
25322	25315	0.03809	1977.89819	75.33814206
25322	25332	0.08601	1999.49304	171.9763964
25323	25287	0.26931	918.51385	247.3649649
25323	25330	0.06236	924.07556	57.62535192
25328	25319	0.07779	712.56812	55.43067405
25328	25338	0.03416	719.44482	24.57623505
25330	25323	0.06236	918.51385	57.27852369
25330	25346	0.07613	924.07556	70.34987238
25332	25322	0.08601	1977.89819	170.1190233
25332	25440	0.38414	1999.49304	768.0852564
25338	25328	0.03416	712.56812	24.34132698
25338	25344	0.03358	719.44482	24.15895706
25340	2030	2.00000	341.84720	683.6944
25340	24913	4.51550	780.63818	3524.971702
25340	25371	0.11808	476.23770	56.23414762
25342	25295	0.26388	710.58600	187.5094337
25342	25364	0.06052	724.95087	43.87402665

25344	25338	0.03358	712.56812	23.92803747
25344	25361	0.05037	719.44482	36.23843558
25346	25330	0.07613	918.51385	69.9264594
25346	25423	0.34958	924.07556	323.0383343
25358	25254	0.60446	686.99164	415.2589667
25358	25398	0.16054	711.24768	114.1837025
25361	25344	0.05037	712.56812	35.8920562
25361	25394	0.14266	719.44482	102.635998
25364	25342	0.06052	710.58600	43.00466472
25364	25391	0.14864	724.95087	107.7566973
25367	25301	0.51597	154.27371	79.60060615
25367	25419	0.36934	156.71977	57.88287985
25371	25340	0.11808	458.78024	54.17277074
25371	25628	1.09369	476.23770	520.8564101
25391	25364	0.14864	710.58600	105.621503
25391	25407	0.05984	724.95087	43.38106006
25394	901	2.38538	1403.92249	3348.888629
25394	25361	0.14266	712.56812	101.654968
25394	25446	0.31252	1499.01013	468.4706458
25398	25358	0.16054	686.99164	110.2896379
25398	25401	0.01462	711.24768	10.39844108
25401	25398	0.01462	686.99164	10.04381778
25401	25405	0.01444	711.24768	10.2704165
25405	25401	0.01444	686.99164	9.920159282
25405	25451	0.12762	711.24768	90.76942892
25407	25391	0.05984	710.58600	42.52146624
25407	25506	0.35369	724.95087	256.4078732
25419	25367	0.36934	154.27371	56.97945205
25419	25422	0.30939	156.71977	48.48752964
25422	25419	0.30939	154.27371	47.73074314
25422	25441	0.11036	156.71977	17.29559382
25423	25346	0.34958	918.51385	321.0940717
25423	25467	0.36365	410.56204	149.3008858
25423	25591	1.05437	688.54462	725.980791
25440	902	0.48590	691.50812	336.0037955
25440	25332	0.38414	1977.89819	759.7898107
25440	25445	0.08212	1511.49463	124.123939
25440	25448	0.00822	717.65417	5.899117277
25441	25422	0.11036	154.27371	17.02564664
25441	25475	0.21229	156.71977	33.27003997
25444	25445	0.00827	1499.01013	12.39681378
25444	25446	0.03310	1511.49463	50.03047225
25445	25440	0.08212	1499.01013	123.0987119
25445	25444	0.00827	1511.49463	12.50006059
25446	25394	0.31252	1511.49463	472.3723018
25446	25444	0.03310	1499.01013	49.6172353
25448	25440	0.00822	697.79712	5.735892326
25448	25472	0.10629	717.65417	76.27946173
25449	2033	1.63902	16.57665	27.16946088
25449	2034	1.30290	29.65525	38.63782523
25449	25205	1.78040	771.89215	1374.276784
25449	25512	0.26296	773.59467	203.4244544
25451	25405	0.12762	686.99164	87.6738731
25451	25485	0.12414	711.24768	88.294287

25462	1962	2.13422	106.91610	228.1824789
25462	2033	3.90132	59.91623	233.7523864
25462	25204	1.50831	1429.73071	2156.477127
25462	25465	0.00899	1495.38623	13.44352221
25465	25462	0.00899	1477.55798	13.28324624
25465	25486	0.08781	1495.38623	131.3098649
25467	25423	0.36365	402.65247	146.4245707
25467	25524	0.37000	410.56204	151.9079548
25472	25448	0.10629	697.79712	74.16885588
25472	25602	0.51293	717.65417	368.1063534
25475	25441	0.21229	154.27371	32.7507659
25475	25668	1.52396	156.71977	238.8346607
25485	25451	0.12414	686.99164	85.28314219
25485	25491	0.03258	711.24768	23.17244941
25486	25465	0.08781	1477.55798	129.7443662
25486	25873	2.25626	1495.38623	3373.980135
25491	25485	0.03258	686.99164	22.38218763
25491	25536	0.19317	711.24768	137.3917143
25506	25407	0.35369	710.58600	251.3271623
25506	25635	0.81494	724.95087	590.791462
25512	25449	0.26296	753.16718	198.0528417
25512	25513	0.01524	773.59467	11.78958277
25513	25512	0.01524	753.16718	11.47826782
25513	25606	0.56476	773.59467	436.8953258
25524	25467	0.37000	402.65247	148.9814139
25524	25529	0.03450	410.56204	14.16439038
25529	953	0.74457	410.56204	305.6921781
25529	25524	0.03450	402.65247	13.89151022
25536	25491	0.19317	686.99164	132.7061751
25536	25568	0.10944	711.24768	77.8389461
25568	25536	0.10944	686.99164	75.18436508
25568	25573	0.03274	711.24768	23.28624904
25573	25568	0.03274	686.99164	22.49210629
25573	25590	0.07866	711.24768	55.94674251
25590	25573	0.07866	686.99164	54.0387624
25590	25631	0.13905	711.24768	98.8989899
25591	25423	1.05437	690.89252	728.4563463
25591	25636	0.19485	688.54462	134.1629192
25602	25472	0.51293	697.79712	357.9210768
25602	25654	0.21893	717.65417	157.1160274
25606	25513	0.56476	753.16718	425.3586966
25606	26207	5.02153	773.59467	3884.628843
25628	25371	1.09369	458.78024	501.7633607
25628	25699	0.47023	476.23770	223.9412537
25631	25590	0.13905	686.99164	95.52618754
25631	25648	0.10021	711.24768	71.27413001
25635	25506	0.81494	710.58600	579.0849548
25635	25788	0.86170	724.95087	624.6901647
25636	25591	0.19485	690.89252	134.6204075
25636	25682	0.27092	688.54462	186.5405085
25648	25631	0.10021	686.99164	68.84343224
25648	25838	1.37912	711.24768	980.8959004
25654	25602	0.21893	697.79712	152.7687235
25654	25718	0.24319	717.65417	174.5263176

25668	25475	1.52396	154.27371	235.1069631
25668	25805	0.64668	156.71977	101.3475409
25682	25636	0.27092	690.89252	187.1766015
25682	25691	0.02674	688.54462	18.41168314
25691	25682	0.02674	690.89252	18.47446598
25691	25717	0.10162	688.54462	69.96990428
25699	25628	0.47023	458.78024	215.7322323
25699	25795	0.66848	476.23770	318.3553777
25717	25691	0.10162	690.89252	70.20849788
25717	25725	0.07396	688.54462	50.9247601
25718	25654	0.24319	697.79712	169.6972816
25718	25750	0.12535	717.65417	89.95795021
25725	25717	0.07396	690.89252	51.09841078
25725	25726	0.08556	688.54462	58.91187769
25726	25725	0.08556	690.89252	59.11276401
25726	25735	0.19755	688.54462	136.0219897
25733	25735	0.03517	690.89252	24.29868993
25733	25736	0.03796	688.54462	26.13715378
25735	25726	0.19755	690.89252	136.4858173
25735	25733	0.03517	688.54462	24.21611429
25736	25733	0.03796	690.89252	26.22628006
25736	25743	0.04716	688.54462	32.47176428
25743	25736	0.04716	690.89252	32.58249124
25743	25748	0.18318	688.54462	126.1276035
25748	2040	1.66333	688.54462	1145.276923
25748	25743	0.18318	690.89252	126.5576918
25748	25804	0.37074	0.00000	0
25750	25718	0.12535	697.79712	87.46886899
25750	25822	0.43706	717.65417	313.6579315
25788	956	1.49664	724.95087	1084.99047
25788	25635	0.86170	710.58600	612.3119562
25795	25699	0.66848	458.78024	306.6854148
25795	25826	0.31211	476.23770	148.6385485
25796	25804	0.12539	0.00000	0
25796	25828	0.30115	0.00000	0
25804	25748	0.37074	0.00000	0
25804	25796	0.12539	0.00000	0
25805	25668	0.64668	154.27371	99.76572278
25805	25819	0.10228	156.71977	16.02929808
25819	25805	0.10228	154.27371	15.77911506
25819	25842	0.12117	156.71977	18.98973453
25822	25750	0.43706	697.79712	304.9792093
25822	25879	0.24707	717.65417	177.3108158
25826	25795	0.31211	458.78024	143.1899007
25826	25851	0.53804	476.23770	256.2349321
25828	25796	0.30115	0.00000	0
25838	25648	1.37912	686.99164	947.4439106
25838	26056	1.19570	711.24768	850.438851
25842	25819	0.12117	154.27371	18.69334544
25842	25852	0.04595	156.71977	7.201273432
25851	25826	0.53804	458.78024	246.8421203
25851	25963	0.57631	476.23770	274.4605489
25852	25842	0.04595	154.27371	7.088876975
25852	25855	0.01313	156.71977	2.05773058

25855	25852	0.01313	154.27371	2.025613812
25855	25858	0.01922	156.71977	3.012153979
25858	25855	0.01922	154.27371	2.965140706
25858	25878	0.09239	156.71977	14.47933955
25873	25486	2.25626	1477.55798	3333.754968
25873	25923	0.37177	1495.38623	555.9397387
25877	25880	0.27407	511.64548	140.2266767
25877	25885	0.26383	525.25824	138.5788815
25878	25858	0.09239	154.27371	14.25334807
25878	25940	0.32181	156.71977	50.43398918
25879	25822	0.24707	697.79712	172.4047344
25879	25936	0.31361	717.65417	225.0635243
25880	25877	0.27407	525.25824	143.9575258
25880	25884	0.08963	511.64548	45.85878437
25884	25880	0.08963	525.25824	47.07889605
25884	25910	0.37752	511.64548	193.1564016
25885	25877	0.26383	511.64548	134.987427
25885	25886	0.02466	525.25824	12.9528682
25886	25885	0.02466	511.64548	12.61717754
25886	25896	0.05928	525.25824	31.13730847
25887	62	15.00000	412.44983	6186.74745
25887	25888	0.00912	396.72543	3.618135922
25888	25887	0.00912	412.44983	3.76154245
25888	25963	2.19192	396.72543	869.5904045
25896	25886	0.05928	511.64548	30.33034405
25896	25907	0.12195	525.25824	64.05524237
25907	25896	0.12195	511.64548	62.39516629
25907	25914	0.10112	525.25824	53.11411323
25910	25884	0.37752	525.25824	198.2954908
25910	25932	0.10355	511.64548	52.98088945
25914	25907	0.10112	511.64548	51.73759094
25914	25916	0.00734	525.25824	3.855395482
25916	25914	0.00734	511.64548	3.755477823
25916	25917	0.01291	525.25824	6.781083878
25917	25916	0.01291	511.64548	6.605343147
25917	25918	0.01379	525.25824	7.24331113
25918	25917	0.01379	511.64548	7.055591169
25918	25927	0.02348	525.25824	12.33306348
25923	25873	0.37177	1477.55798	549.3117302
25923	25938	0.10653	1495.38623	159.3034951
25927	25918	0.02348	511.64548	12.01343587
25927	25943	0.11974	525.25824	62.89442166
25932	25910	0.10355	525.25824	54.39049075
25932	25941	0.06960	511.64548	35.61052541
25936	903	0.54573	295.20883	161.1043148
25936	25879	0.31361	697.79712	218.8361548
25936	25955	0.26617	525.25824	139.8079857
25938	25923	0.10653	1477.55798	157.4042516
25938	26050	0.62415	1495.38623	933.3453155
25940	25878	0.32181	154.27371	49.64682262
25940	25964	0.18732	156.71977	29.35674732
25941	25932	0.06960	525.25824	36.5579735
25941	25955	0.12114	511.64548	61.98073345
25943	901	1.78310	272.07434	485.1357557

25943	25927	0.11974	511.64548	61.26442978
25943	25950	0.03839	754.11383	28.95042993
25950	25943	0.03839	740.11200	28.41289968
25950	25961	0.06839	754.11383	51.57384483
25955	25936	0.26617	511.64548	136.1846774
25955	25941	0.12114	525.25824	63.62978319
25961	25950	0.06839	740.11200	50.61625968
25961	25973	0.08362	754.11383	63.05899846
25963	2031	1.56221	66.20596	103.4276128
25963	25851	0.57631	458.78024	264.3996401
25963	25888	2.19192	412.44983	904.0570314
25964	25940	0.18732	154.27371	28.89855136
25964	25977	0.08201	156.71977	12.85258834
25973	25961	0.08362	740.11200	61.88816544
25973	26000	0.10518	754.11383	79.31769264
25977	25964	0.08201	154.27371	12.65198696
25977	25983	0.01618	156.71977	2.535725879
25983	1865	4.83764	317.20071	1534.502843
25983	25977	0.01618	154.27371	2.496148628
25983	25994	0.05165	317.30228	16.38866276
25994	25983	0.05165	321.19174	16.58955337
25994	26012	0.09322	317.30228	29.57891854
26000	25973	0.10518	740.11200	77.84498016
26000	26007	0.06967	754.11383	52.53911054
26007	26000	0.06967	740.11200	51.56360304
26007	26016	0.10575	754.11383	79.74753752
26012	25994	0.09322	321.19174	29.941494
26012	26069	0.81436	317.30228	258.3982847
26016	26007	0.10575	740.11200	78.266844
26016	26030	0.11472	754.11383	86.51193858
26030	26016	0.11472	740.11200	84.90564864
26030	26039	0.06804	754.11383	51.30990499
26039	26030	0.06804	740.11200	50.35722048
26039	26042	0.06793	754.11383	51.22695247
26042	26039	0.06793	740.11200	50.27580816
26042	26053	0.04391	754.11383	33.11313828
26050	25938	0.62415	1477.55798	922.2178132
26050	26109	0.42898	1495.38623	641.4907849
26053	26042	0.04391	740.11200	32.49831792
26053	26057	0.02034	754.11383	15.3386753
26056	25838	1.19570	686.99164	821.4359039
26056	26061	0.08080	711.24768	57.46881254
26057	26053	0.02034	740.11200	15.05387808
26057	26071	0.10074	754.11383	75.96942723
26061	26056	0.08080	686.99164	55.50892451
26061	26073	0.10393	711.24768	73.91997138
26069	26012	0.81436	321.19174	261.5657054
26069	26077	0.13490	317.30228	42.80407757
26071	26057	0.10074	740.11200	74.55888288
26071	26074	0.08354	754.11383	62.99866936
26073	26061	0.10393	686.99164	71.39904115
26073	26102	0.40558	711.24768	288.4678341
26074	26071	0.08354	740.11200	61.82895648
26074	26078	0.14274	383.82068	54.78656386

26074	26083	0.05697	619.20679	35.27621083
26077	26069	0.13490	321.19174	43.32876573
26077	26079	0.04149	317.30228	13.1648716
26078	26074	0.14274	378.24219	53.9902902
26078	26108	0.54993	383.82068	211.0745066
26079	26077	0.04149	321.19174	13.32624529
26079	26093	0.26038	317.30228	82.61916767
26083	26074	0.05697	610.78345	34.79633315
26083	26098	0.08894	619.20679	55.0722519
26093	26079	0.26038	321.19174	83.63190526
26093	26133	0.84994	317.30228	269.6878999
26098	26083	0.08894	610.78345	54.32308004
26098	26100	0.01946	619.20679	12.04976413
26100	26098	0.01946	610.78345	11.88584594
26100	26118	0.09509	619.20679	58.88037366
26102	26073	0.40558	686.99164	278.6300694
26102	26103	0.01309	711.24768	9.310232131
26103	26102	0.01309	686.99164	8.992720568
26103	26147	0.46748	711.24768	332.4940654
26108	1918	1.45725	73.02150	106.4105809
26108	26078	0.54993	378.24219	208.0067275
26108	26110	0.03580	321.19174	11.49866429
26109	26050	0.42898	1477.55798	633.8428223
26109	26151	0.25400	1495.38623	379.8281024
26110	26108	0.03580	317.30228	11.35942162
26110	26113	0.19694	321.19174	63.25550128
26112	26113	0.27670	317.30228	87.79754088
26112	26116	0.39872	321.19174	128.0655706
26113	26110	0.19694	317.30228	62.48951102
26113	26112	0.27670	321.19174	88.87375446
26114	26116	0.33592	317.30228	106.5881819
26114	26122	0.20992	321.19174	67.42457006
26116	26112	0.39872	317.30228	126.5147651
26116	26114	0.33592	321.19174	107.8947293
26118	26100	0.09509	610.78345	58.07939826
26118	26124	0.04326	619.20679	26.78688574
26122	26114	0.20992	317.30228	66.60809462
26122	26126	0.03131	321.19174	10.05651338
26124	26118	0.04326	610.78345	26.42249205
26124	26128	0.01739	619.20679	10.76800608
26126	26122	0.03131	317.30228	9.934734387
26126	26146	0.18813	321.19174	60.42580205
26128	26124	0.01739	610.78345	10.6215242
26128	26148	0.11503	619.20679	71.22735705
26133	26093	0.84994	321.19174	272.9937075
26133	26161	0.41649	317.30228	132.1532266
26146	26126	0.18813	317.30228	59.69407794
26146	26154	0.18115	321.19174	58.1838837
26147	26103	0.46748	686.99164	321.1548519
26147	26153	0.07002	711.24768	49.80156255
26148	26128	0.11503	610.78345	70.25842025
26148	26181	0.25949	619.20679	160.6779699
26151	26109	0.25400	1477.55798	375.2997269
26151	26177	0.19438	1495.38623	290.6731754

26153	2035	2.59088	30.05089	77.85824988
26153	26147	0.07002	686.99164	48.10315463
26153	26158	0.02486	694.72162	17.27077947
26154	26146	0.18115	317.30228	57.47930802
26154	26167	0.33786	321.19174	108.5178413
26155	26159	0.10458	321.19174	33.59023217
26155	26166	0.27402	317.30228	86.94717077
26158	26153	0.02486	670.96619	16.68021948
26158	26164	0.02829	694.72162	19.65367463
26159	26155	0.10458	317.30228	33.18347244
26159	26160	0.03290	321.19174	10.56720825
26160	26159	0.03290	317.30228	10.43924501
26160	26161	0.01731	321.19174	5.559829019
26161	26133	0.41649	321.19174	133.7731478
26161	26160	0.01731	317.30228	5.492502467
26164	26158	0.02829	670.96619	18.98163352
26164	26179	0.21506	694.72162	149.4068316
26166	26155	0.27402	321.19174	88.01296059
26166	26167	0.08647	317.30228	27.43712815
26167	26154	0.33786	317.30228	107.2037483
26167	26166	0.08647	321.19174	27.77344976
26177	2038	4.69520	631.90173	2966.905003
26177	2039	5.86867	1158.37061	6798.094848
26177	26151	0.19438	1477.55798	287.2077202
26179	26164	0.21506	670.96619	144.2979888
26179	26184	0.07882	694.72162	54.75795809
26181	26148	0.25949	610.78345	158.4921974
26181	26183	0.02278	619.20679	14.10553068
26183	26181	0.02278	610.78345	13.91364699
26183	26192	0.12780	619.20679	79.13462776
26184	26179	0.07882	670.96619	52.8855551
26184	26185	0.01443	694.72162	10.02483298
26185	26184	0.01443	670.96619	9.682042122
26185	26187	0.00889	694.72162	6.176075202
26187	26185	0.00889	670.96619	5.964889429
26187	26189	0.05677	694.72162	39.43934637
26189	26187	0.05677	670.96619	38.09075061
26189	26210	0.19840	694.72162	137.8327694
26192	26183	0.12780	610.78345	78.05812491
26192	26196	0.01017	0.00000	0
26192	26222	0.26681	619.20679	165.2105636
26196	26192	0.01017	0.00000	0
26207	25606	5.02153	753.16718	3782.051589
26207	26367	1.80390	773.59467	1395.487425
26210	26189	0.19840	670.96619	133.1196921
26210	26212	0.01898	694.72162	13.18581635
26212	26210	0.01898	670.96619	12.73493829
26212	26234	0.23018	694.72162	159.9110225
26222	26192	0.26681	610.78345	162.9631323
26222	26228	0.07240	619.20679	44.8305716
26228	26222	0.07240	610.78345	44.22072178
26228	26236	0.06787	619.20679	42.02556484
26234	26212	0.23018	670.96619	154.4429976
26234	26235	0.02298	694.72162	15.96470283

26235	26234	0.02298	670.96619	15.41880305
26235	26240	0.07008	694.72162	48.68609113
26236	26228	0.06787	610.78345	41.45387275
26236	26256	0.20834	619.20679	129.0055426
26240	26235	0.07008	670.96619	47.0213106
26240	26243	0.02233	694.72162	15.51313377
26243	26240	0.02233	670.96619	14.98267502
26243	26276	0.34725	694.72162	241.2420825
26256	26236	0.20834	610.78345	127.250624
26256	26301	0.33868	619.20679	209.7129556
26276	26243	0.34725	670.96619	232.9930095
26276	26289	0.12717	694.72162	88.34774842
26289	26276	0.12717	670.96619	85.32677038
26289	26292	0.02053	694.72162	14.26263486
26292	26289	0.02053	670.96619	13.77493588
26292	26319	0.16942	694.72162	117.6997369
26301	26256	0.33868	610.78345	206.8601388
26301	26308	0.04085	619.20679	25.29459737
26308	26301	0.04085	610.78345	24.95050393
26308	26350	0.19004	619.20679	117.6740584
26319	26292	0.16942	670.96619	113.6750919
26319	26321	0.01334	694.72162	9.267586411
26321	26319	0.01334	670.96619	8.950688975
26321	26380	0.48883	694.72162	339.6007695
26342	22655	0.00702	3795.29907	26.64299947
26350	26308	0.19004	610.78345	116.0732868
26350	26394	0.68887	619.20679	426.5529814
26367	26207	1.80390	753.16718	1358.638276
26367	26423	0.58670	773.59467	453.8679929
26380	26321	0.48883	670.96619	327.9884027
26380	26382	0.00939	694.72162	6.523436012
26382	26380	0.00939	670.96619	6.300372524
26382	26403	0.25294	694.72162	175.7228866
26394	28	15.00000	164.19969	2462.99535
26394	1919	2.88098	48.57598	139.9464269
26394	2039	4.33198	600.79761	2602.643231
26394	26350	0.68887	610.78345	420.7503952
26403	26382	0.25294	670.96619	169.7141881
26403	26427	0.32838	694.72162	228.1326856
26423	26367	0.58670	753.16718	441.8831845
26423	26514	1.37373	773.59467	1062.710206
26427	26403	0.32838	670.96619	220.3318775
26427	26455	0.32573	694.72162	226.2916733
26455	26427	0.32573	670.96619	218.5538171
26455	26485	0.26128	694.72162	181.5168649
26485	26455	0.26128	670.96619	175.3100461
26485	26525	0.55339	694.72162	384.4519973
26514	26423	1.37373	753.16718	1034.64835
26514	26526	0.14388	773.59467	111.3048011
26523	2031	2.66824	25.36533	67.68078812
26523	26525	0.03312	25.82179	0.855217685
26525	26485	0.55339	670.96619	371.3059799
26525	26523	0.03312	25.36533	0.84009973
26525	26533	0.13419	720.00928	96.61804528

26526	26514	0.14388	753.16718	108.3656939
26526	26568	0.63109	773.59467	488.2078603
26533	26525	0.13419	695.79730	93.36903969
26533	26541	0.14085	720.00928	101.4133071
26540	26628	0.01481	0.00000	0
26541	26533	0.14085	695.79730	98.00304971
26541	26544	0.02209	720.00928	15.905005
26544	26541	0.02209	695.79730	15.37016236
26544	26555	0.22418	720.00928	161.4116804
26555	26544	0.22418	695.79730	155.9838387
26555	26556	0.01156	720.00928	8.323307277
26556	26555	0.01156	695.79730	8.043416788
26556	26562	0.08278	720.00928	59.6023682
26558	2035	1.12562	0.00000	0
26562	26556	0.08278	695.79730	57.59810049
26562	26585	0.44003	720.00928	316.8256835
26568	26526	0.63109	753.16718	475.3162756
26568	26638	1.22852	773.59467	950.376524
26585	26562	0.44003	695.79730	306.1716859
26585	26588	0.02578	720.00928	18.56183924
26588	26585	0.02578	695.79730	17.93765439
26588	26593	0.24531	720.00928	176.6254765
26593	26588	0.24531	695.79730	170.6860357
26593	26596	0.13322	720.00928	95.91963628
26596	26593	0.13322	695.79730	92.69411631
26596	26597	0.02961	720.00928	21.31947478
26597	26596	0.02961	695.79730	20.60255805
26597	26599	0.07169	720.00928	51.61746528
26599	26597	0.07169	695.79730	49.88170844
26599	26602	0.22578	720.00928	162.5636952
26602	26599	0.22578	695.79730	157.0971144
26602	26603	0.04012	720.00928	28.88677231
26603	26602	0.04012	695.79730	27.91538768
26603	26621	0.33527	720.00928	241.3975113
26621	26603	0.33527	695.79730	233.2799608
26621	26622	0.09228	720.00928	66.44245636
26622	26621	0.09228	695.79730	64.20817484
26622	26625	0.05650	720.00928	40.68052432
26625	26622	0.05650	695.79730	39.31254745
26625	26626	0.02920	720.00928	21.02427098
26626	26625	0.02920	695.79730	20.31728116
26626	26632	0.07466	720.00928	53.75589284
26632	26626	0.07466	695.79730	51.94822642
26632	26634	0.01890	720.00928	13.60817539
26634	26632	0.01890	695.79730	13.15056897
26634	26658	0.33723	720.00928	242.8087295
26638	2037	2.88593	116.69484	336.7731396
26638	26568	1.22852	753.16718	925.280944
26638	26710	2.66315	753.68384	2007.173118
26658	26634	0.33723	695.79730	234.6437235
26658	26659	0.03513	720.00928	25.29392601
26659	26658	0.03513	695.79730	24.44335915
26659	26660	0.00964	720.00928	6.940889459
26660	26659	0.00964	695.79730	6.707485972

26660	26661	0.03069	0.00000	0
26660	26668	0.53994	720.00928	388.7618106
26661	26660	0.03069	0.00000	0
26661	26683	0.69851	0.00000	0
26668	26660	0.53994	695.79730	375.6887942
26668	26670	0.06745	720.00928	48.56462594
26670	26668	0.06745	695.79730	46.93152789
26670	26681	0.29580	720.00928	212.978745
26681	26670	0.29580	695.79730	205.8168413
26681	26685	0.15762	720.00928	113.4878627
26683	26661	0.69851	0.00000	0
26685	26681	0.15762	695.79730	109.6715704
26685	26686	0.02390	720.00928	17.20822179
26686	26685	0.02390	695.79730	16.62955547
26686	26695	0.08052	720.00928	57.97514723
26695	26686	0.08052	695.79730	56.0255986
26695	26704	0.28842	720.00928	207.6650765
26704	26695	0.28842	695.79730	200.6818573
26704	26705	0.08662	720.00928	62.36720383
26705	26704	0.08662	695.79730	60.26996213
26705	26707	0.05398	1442.95593	77.8907611
26705	26710	0.46815	735.41254	344.2833806
26707	26705	0.05398	1400.47266	75.59751419
26707	26718	0.30716	1442.95593	443.2183435
26710	26638	2.66315	735.41254	1958.513906
26710	26705	0.46815	753.68384	352.8370897
26713	13791	0.05018	2840.40283	142.531414
26713	30135	0.00361	2156.98804	7.786726824
26718	2036	2.05361	1442.95593	2963.268727
26718	26707	0.30716	1400.47266	430.1691822
29906	1970	0.52957	324.46408	171.8264428
29906	17127	0.23291	3202.08789	745.7982905
29906	17643	0.76297	2747.65991	2096.382082
29907	1780	0.73301	15.39370	11.28373604
29907	10026	0.64764	1451.02869	939.7442208
29907	10030	0.34936	1442.06750	503.8007018
29908	1687	0.24763	176.58801	43.72848892
29908	4422	0.25236	1496.57947	377.676795
29910	16580	0.33933	429.21207	145.6445317
29910	16611	0.35076	0.00000	0
29910	16714	0.11873	583.97614	69.3354871
29911	15205	0.13800	699.26379	96.49840302
29911	15460	0.07594	648.66296	49.25946518
29915	13918	0.00320	2247.33276	7.191464832
29915	14186	0.12738	1424.68945	181.4769421
29916	13907	0.06724	348.31500	23.4207006
29916	30132	0.00363	543.54272	1.973060074
29917	29927	0.00928	4331.37012	40.19511471
29918	14211	0.11586	3197.37842	370.4482637
29918	29924	0.02221	4219.07568	93.70567085
29919	4701	0.01313	252.00471	3.308821842
29919	30122	0.01034	262.39374	2.713151272
29920	13913	0.05501	225.77165	12.41969847
29920	29928	0.01591	218.74593	3.480247746

29921	29922	0.00549	4337.15430	23.81097711
29922	13845	0.01312	2200.91260	28.87597331
29922	13862	0.00906	2136.24170	19.3543498
29923	29918	0.02260	3197.37842	72.26075229
29923	29930	0.00765	112.29465	0.859054073
29924	29925	0.00781	4331.37012	33.82800064
29925	29917	0.00759	4331.37012	32.87509921
29926	13839	0.01643	2086.56445	34.28225391
29926	29921	0.01200	2244.80566	26.93766792
29927	29926	0.00611	4331.37012	26.46467143
29928	29923	0.00865	3309.67310	28.62867232
29929	29920	0.01398	225.77165	3.156287667
29929	29931	0.00659	3090.92700	20.36920893
29930	29924	0.00706	112.29465	0.792800229
29931	29928	0.00690	3090.92700	21.3273963
29932	16238	0.12211	969.68243	118.4079215
29932	29933	0.01439	961.61267	13.83760632
29933	16152	0.10686	496.88565	53.09720056
29933	29932	0.01439	969.68243	13.95373017
29933	29934	0.00651	704.21777	4.584457683
29934	1290	0.58248	316.39975	184.2965264
29934	16341	0.07096	665.79352	47.24470818
29934	29933	0.00651	1209.17310	7.871716881
29935	1376	0.27309	0.00000	0
29935	15863	0.26285	4024.27319	1057.780208
29936	1327	0.34051	101.59567	34.59434159
29936	15869	0.02204	7791.38867	171.7222063
29937	1289	0.22058	718.46661	158.4793648
29937	15836	0.11811	6732.68213	795.1970864
29938	11398	0.07765	19722.18750	1531.427859
29939	1369	0.08988	547.08514	49.17201238
29939	11365	0.06558	18506.76953	1213.673946
29940	11353	0.05983	19289.43750	1154.087046
29941	11487	0.04062	14322.64453	581.7858208
29943	1013	0.47109	117.05616	55.14398641
29943	11502	0.24991	11978.85352	2993.635283
29944	11468	0.14324	14862.12207	2128.850365
29945	1446	0.22448	99.86094	22.41678381
29945	11440	0.11006	17501.59766	1926.225838
29946	1337	0.24750	0.00000	0
29946	7214	0.08946	6474.52344	579.2108669
29948	7218	0.05855	3397.52026	198.9248112
29949	7203	0.03585	7232.02490	259.2680927
29950	6728	0.02729	1837.12756	50.13521111
29951	1261	0.14511	159.34395	23.12240058
29951	5812	0.25004	1751.22314	437.8758339
29952	1259	0.28405	0.00000	0
29952	5494	0.25836	960.13794	248.0612382
29953	1257	0.32635	146.10248	47.68054435
29953	5061	0.25607	899.44574	230.3210706
29954	1042	0.10593	1459.69092	154.6250592
29954	11466	0.13867	9515.51855	1319.516957
29955	7182	0.10208	1077.17542	109.9580669
29956	7369	0.09816	3949.66895	387.6995041

29957	11812	0.03632	8311.43945	301.8714808
29958	14239	0.08282	3151.52759	261.009515
29959	1242	0.10666	132.16145	14.09634026
29959	14238	0.04858	2784.64209	135.2779127
29960	29962	0.09657	3151.52759	304.3430194
29961	4701	0.01368	3542.34399	48.45926578
29961	30123	0.01155	3596.19995	41.53610942
29962	14146	0.00918	23.08641	0.211933244
29962	14154	0.08241	3128.44116	257.814836
29963	30115	0.19881	3129.30273	622.1366758
29964	4701	0.01263	456.45154	5.76498295
29964	13258	0.01175	481.63058	5.659159315
29965	14148	0.00899	22.81839	0.205137326
29965	29963	0.01160	3129.30273	36.29991167
29966	23270	0.03738	3463.32666	129.4591506
29966	23277	0.04614	1354.44177	62.49394327
29967	29976	0.00666	191.86737	1.277836684
29968	29982	0.00771	4441.67188	34.24529019
29969	29978	0.00797	219.52953	1.749650354
29970	29980	0.00923	4713.07666	43.50169757
29971	29975	0.00780	5162.10547	40.26442267
29972	29977	0.00871	1715.32397	14.94047178
29973	29979	0.00830	4713.07666	39.11853628
29974	29981	0.00744	4713.07666	35.06529035
29975	29968	0.00708	4441.67188	31.44703691
29975	29983	0.01202	720.43365	8.659612473
29976	29971	0.00657	5162.10547	33.91503294
29977	29967	0.00992	191.86737	1.90332431
29977	29985	0.01660	1523.45667	25.28938072
29978	29972	0.01008	1715.32397	17.29046562
29979	29969	0.00692	219.52953	1.519144348
29979	29984	0.01047	4493.54736	47.04744086
29980	29973	0.00744	4713.07666	35.06529035
29981	29970	0.00748	4713.07666	35.25381342
29982	29974	0.01019	4713.07666	48.02625117
29983	17273	0.03260	720.43365	23.48613699
29983	29982	0.01450	271.40494	3.93537163
29984	29978	0.01332	1495.79443	19.92398181
29984	30008	0.00926	4493.54736	41.61024855
29985	17299	0.03159	1523.45667	48.12599621
29985	29976	0.01081	4970.23828	53.72827581
29990	30007	0.00712	847.82172	6.036490646
29992	30017	0.00446	452.51749	2.018228005
29994	30005	0.00832	4547.07373	37.83165343
29995	30000	0.00624	2343.61621	14.62416515
29996	30002	0.01133	5341.36914	60.51771236
29997	30004	0.00772	4547.07373	35.1034092
29998	30006	0.01216	4547.07373	55.29241656
29999	29995	0.00699	2343.61621	16.38187731
30000	29990	0.00661	847.82172	5.604101569
30000	30008	0.01079	1495.79443	16.1396219
30001	29996	0.01103	5341.36914	58.91530161
30002	30010	0.00540	5341.36914	28.84339336
30003	29997	0.00750	4547.07373	34.10305298

30004	29994	0.00760	4547.07373	34.55776035
30005	29998	0.00974	4547.07373	44.28849813
30006	30016	0.00260	4547.07373	11.8223917
30007	30001	0.00488	5341.36914	26.0658814
30008	29984	0.00926	1495.79443	13.85105642
30008	30007	0.01294	4493.54736	58.14650284
30010	17353	0.00474	470.47470	2.230050078
30010	30012	0.01128	4870.89453	54.9436903
30011	30003	0.00312	4547.07373	14.18687004
30012	17405	0.15047	4870.89453	732.9234999
30012	30011	0.01050	4076.59888	42.80428824
30014	17302	0.15863	4094.55615	649.5194421
30014	30017	0.00914	1891.09875	17.28464258
30016	29992	0.00462	452.51749	2.090630804
30016	30014	0.01005	4094.55615	41.15028931
30017	29999	0.00262	2343.61621	6.14027447
30018	19969	0.04617	2251.56812	103.9549001
30018	30032	0.02410	2277.53809	54.88866797
30019	20082	0.05337	1663.46289	88.77901444
30019	30026	0.01672	1595.10071	26.67008387
30021	5827	0.18240	3560.61035	649.4553278
30021	5832	0.25857	4042.95264	1045.386264
30022	19991	0.07007	799.52747	56.02288982
30022	30029	0.01417	841.59375	11.92538344
30023	17242	0.09584	973.83887	93.3327173
30023	17301	0.03342	990.07184	33.08820089
30024	531	0.07437	67.78321	5.041037328
30024	30034	0.01801	68.10894	1.226642009
30026	30027	0.00295	2331.52710	6.878004945
30027	30022	0.01523	799.52747	12.17680337
30027	30028	0.00428	1531.99963	6.556958416
30028	30029	0.00412	1531.99963	6.311838476
30029	30030	0.00433	2373.59326	10.27765882
30030	30018	0.02269	2251.56812	51.08808064
30030	30031	0.00405	122.02538	0.494202789
30031	30032	0.00447	122.02538	0.545453449
30032	30024	0.01996	67.78321	1.352952872
30032	30033	0.00396	2331.78027	9.233849869
30033	30034	0.00465	2331.78027	10.84277826
30034	30035	0.00359	2399.88940	8.615602946
30035	30019	0.01773	1663.46289	29.49319704
30035	30036	0.00335	736.42639	2.467028407
30036	30026	0.00400	736.42639	2.94570556
30037	30038	0.01138	5651.58203	64.3150035
30038	30039	0.01086	5651.58203	61.37618085
30039	30040	0.00991	514.43945	5.09809495
30039	30049	0.03647	5137.14258	187.3515899
30040	30041	0.01083	5644.89111	61.13417072
30041	30042	0.01136	5644.89111	64.12596301
30042	30043	0.00765	3592.03516	27.47906897
30042	30050	0.02768	2052.85571	56.82304605
30043	30044	0.00842	5614.01953	47.27004444
30044	30045	0.00972	5614.01953	54.56826983
30045	30046	0.01040	2181.84790	22.69121816

30045	30053	0.02034	3432.17163	69.81037095
30046	30047	0.00876	5594.59424	49.00864554
30047	30048	0.01071	5594.59424	59.91810431
30048	30037	0.00793	4926.73535	39.06901133
30048	30054	0.01827	667.85895	12.20178302
30049	24634	0.71576	5137.14258	3676.961173
30049	30040	0.03535	5130.45166	181.3614662
30050	24747	0.21126	2052.85571	433.6862973
30050	30043	0.02762	2021.98438	55.84720858
30051	1879	0.54472	329.84323	179.6722042
30051	1899	0.50818	188.13753	95.60773
30051	14646	0.44944	9022.04297	4054.866992
30051	15875	0.55293	8946.88281	4946.999912
30052	1449	0.14050	31.54158	4.43159199
30052	1450	0.24080	75.28390	18.12836312
30052	13903	0.22597	1714.06189	387.3265653
30052	13954	0.22825	1810.24927	413.1893959
30053	24874	0.97883	3432.17163	3359.512557
30053	30046	0.01914	3412.74634	65.31996495
30054	24746	0.01585	667.85895	10.58556436
30054	30037	0.01665	724.84650	12.06869423
30059	10836	0.23251	1155.94604	268.7690138
30059	11476	0.05860	1208.31201	70.80708379
30061	8878	0.43775	36961.22266	16179.77522
30063	30061	0.16966	36961.22266	6270.841036
30067	9299	0.59256	35169.37109	20839.96253
30068	30067	0.17636	35169.37109	6202.470285
30069	8338	0.26893	5.20452	1.399651564
30069	8913	0.04984	0.00000	0
30069	8934	0.19671	39.54742	7.779372988
30070	8039	0.12005	264.17770	31.71453289
30070	8208	0.48771	227.05713	110.7380329
30071	9075	0.07743	4889.26904	378.5761018
30071	30072	0.04227	4650.18018	196.5631162
30072	30071	0.04227	4889.26904	206.6694023
30072	30073	0.03081	4650.18018	143.2720513
30073	9387	0.03407	4650.18018	158.4316387
30073	30072	0.03081	4889.26904	150.6383791
30074	2032	1.38164	7.20505	9.954785282
30074	24973	2.85708	81.64038	233.2530969
30075	738	0.13295	972.60229	129.3074745
30075	22576	0.09931	5066.50098	503.1542123
30076	771	0.14297	843.34406	120.5729003
30076	23318	0.02777	1892.33313	52.55009102
30076	23354	0.02821	983.48474	27.74410452
30077	1882	0.51112	128.62659	65.74362268
30077	1885	0.51814	78.26779	40.55367271
30077	19159	0.33702	2139.46411	721.0421944
30077	30192	0.34814	2298.95142	800.3569474
30078	14819	0.04878	15.91450	0.77630931
30081	24085	0.02060	5832.98145	120.1594179
30082	30099	0.01299	5845.87109	75.93786546
30084	30096	0.01448	5832.98145	84.4615714
30085	24086	0.02146	5845.87109	125.4523936

30096	24041	0.06378	5832.98145	372.0275569
30097	30085	0.01381	5845.87109	80.73147975
30098	24076	0.45952	0.00000	0
30099	24168	0.29227	5845.87109	1708.572743
30100	30081	0.01266	5832.98145	73.84554516
30101	23632	0.02290	5612.54395	128.5272565
30101	23633	0.01642	3829.13013	62.87431673
30102	30109	0.02154	7954.93799	171.3493643
30103	23631	0.03008	7978.19629	239.9841444
30104	12429	0.01807	2525.80273	45.64125533
30104	23631	0.02386	2589.59155	61.78765438
30105	30107	0.02178	7323.47949	159.5053833
30106	23632	0.02789	5453.01807	152.084674
30107	23719	0.16142	7323.47949	1182.156059
30108	30106	0.02097	5453.01807	114.3497889
30109	23417	0.27007	7954.93799	2148.390103
30110	30103	0.02137	7978.19629	170.4940547
30115	13568	0.18914	3129.30273	591.8763184
30116	13294	0.00427	1131.50830	4.831540441
30116	13332	0.06826	498.69693	34.04105244
30116	13667	0.20655	2778.87305	573.9762285
30117	30116	0.03426	3220.90723	110.3482817
30118	13166	0.02772	4242.94873	117.6145388
30119	13166	0.00474	1468.23804	6.95944831
30119	30117	0.03256	3220.90723	104.8727394
30121	1499	0.13500	2.12093	0.28632555
30121	4418	0.14538	2.12093	0.308340803
30122	4870	0.18015	262.39374	47.27023226
30122	29919	0.01034	252.00471	2.605728701
30123	4719	0.22408	3596.19995	805.8364848
30123	29961	0.01155	3542.34399	40.91407308
30124	1436	0.10295	332.66144	34.24749525
30124	1437	0.23731	145.65538	34.56547823
30124	13954	0.25928	1817.24036	471.1740805
30124	13974	0.15702	2218.05127	348.2784104
30125	4410	0.08725	491.45663	42.87959097
30125	4521	0.16772	464.78949	77.95449326
30126	12808	0.13172	4458.11328	587.2226812
30126	13055	0.07794	478.20856	37.27157517
30126	30127	0.00855	3272.12720	27.97668756
30127	13046	0.09970	3285.18359	327.5328039
30127	13556	0.25283	7816.88623	1976.343346
30127	30126	0.00855	567.26300	4.85009865
30129	13975	0.01131	7601.85938	85.97702959
30130	13557	0.23217	8741.98926	2029.627646
30131	1415	0.29177	40.97454	11.95514154
30131	30126	0.12166	7203.03662	876.3214352
30132	13894	0.00912	543.54272	4.957109606
30132	29916	0.00363	348.31500	1.26438345
30133	13918	0.02638	1368.44568	36.09959704
30133	13933	0.22329	1702.90210	380.2410099
30135	13894	0.00761	2156.98804	16.41467898
30135	26713	0.00361	2840.40283	10.25385422
30149	30182	0.07416	3659.90527	271.4185748

30150	10655	0.02020	3306.86084	66.79858897
30163	9050	0.13346	6138.80713	819.2851996
30163	30173	0.00653	6569.28564	42.89743523
30163	30185	0.18473	3049.14282	563.2681531
30164	8490	0.08106	113.67477	9.214476856
30164	30174	0.00692	896.23395	6.201938934
30164	30190	0.13159	1783.07703	234.6351064
30165	8092	0.13567	178.21037	24.1778009
30165	30176	0.00638	510.89508	3.25951061
30165	30188	0.27068	1867.25562	505.4287512
30166	8474	0.09090	602.47974	54.76540837
30166	30174	0.00606	306.13232	1.855161859
30166	30187	0.12260	3058.04175	374.9159186
30167	8093	0.06640	0.00000	0
30167	30176	0.00643	321.35873	2.066336634
30167	30191	0.11740	2479.05591	291.0411638
30168	6915	0.13653	3959.33008	540.5673358
30168	30171	0.01808	4429.96484	80.09376431
30169	7237	0.14335	22.52747	3.229312825
30169	30172	0.03591	18.99777	0.682209921
30171	30169	0.03596	22.52747	0.810087821
30171	30172	0.00699	5120.98779	35.79570465
30172	7247	0.01257	2869.78467	36.0731933
30172	30179	0.11145	2270.20117	253.0139204
30173	9046	0.00688	6569.28564	45.1966852
30173	30163	0.00653	7068.25146	46.15568203
30174	30164	0.00692	306.13232	2.118435654
30174	30166	0.00606	896.23395	5.431177737
30176	30165	0.00638	321.35873	2.050268697
30176	30167	0.00643	510.89508	3.285055364
30178	7247	0.11179	1976.45728	220.9481593
30179	30189	0.11389	2270.20117	258.5532113
30180	10061	0.02388	3769.77930	90.02232968
30180	10064	0.00370	4825.90479	17.85584772
30180	30184	0.31045	2493.81079	774.2035598
30181	10064	0.00370	3301.72900	12.2163973
30181	10068	0.03354	3964.98218	132.9855023
30181	30183	0.15876	3548.68530	563.3892782
30182	1410	0.26403	205.15895	54.16811757
30182	30180	0.15763	3454.74634	544.5716656
30183	1427	0.12617	597.84796	75.43047711
30183	30150	0.07270	3306.86084	240.4087831
30184	1409	0.24992	0.00000	0
30184	9046	0.18509	3078.49121	569.7979381
30185	1426	0.23349	687.67523	160.5652895
30185	30181	0.31128	2361.46753	735.0776127
30186	1408	0.23774	0.00000	0
30186	30164	0.11965	2162.85474	258.7855696
30187	1479	0.25173	577.92139	145.4801515
30187	30163	0.13194	2492.60498	328.8743011
30188	1406	0.24490	505.38818	123.7695653
30188	30178	0.11316	1976.45728	223.6559058
30189	1424	0.24577	601.60535	147.8565469
30189	30167	0.26994	2289.51953	618.0329019

30190	1407	0.22116	184.80321	40.87107792	
30190	30165	0.11740	1727.01343	202.7513767	
30191	1425	0.25025	326.74423	81.76774356	
30191	30166	0.12961	2152.31177	278.9611285	
30192	19157	0.31733	2298.95142	729.5262541	
30192	30077	0.34814	2297.45581	799.8362657	
30194	796	0.27918	66.58387	18.58888483	
30194	21825	0.07045	2475.02490	174.3655042	
30196	9191	0.53601	701.98315	376.2699882	
30196	9663	0.21083	581.41821	122.5804012	
30198	1331	0.19979	296.32086	59.20194462	
30198	4866	0.33511	7.43914	2.492930205	
30198	4881	0.12520	351.38672	43.99361734	
30199	6096	0.24809	4104.65918	1018.324896	
30199	6667	0.18983	4454.48096	845.5941206	
30200	1147	0.49705	231.23375	114.9347354	
30200	1150	0.33214	142.56787	47.35249234	
30200	9086	0.50707	803.95557	407.6617509	
30200	11464	0.49202	575.10107	282.9612285	
30201	1855	0.62410	33.69656	21.0300231	
30201	1856	0.52230	91.43185	47.75485526	
30201	18150	0.51911	1265.73376	657.0550522	
30201	18155	0.48545	1364.55981	662.4255598	
30202	1949	0.45682	7.43281	3.395456264	
30202	21468	0.08914	1615.17993	143.977139	
30202	21776	0.22187	1340.93262	297.5127204	
30203	1839	1.36557	3.07956	4.205354749	
30203	2043	0.30627	0.00000	0	
30203	23157	0.56030	0.00000	0	
30203	23918	1.12059	3.17364	3.556349248	
30204	19909	0.88570	64.42592	57.06203734	
30204	20984	0.88570	64.23775	56.89537518	
30205	21570	0.72968	7139.03662	5209.212241	
30205	21573	0.72968	6994.09912	5103.454246	
30206	13146	0.25075	625.47418	156.8376506	
30206	21629	0.25075	322.47028	80.85942271	
30207	4154	0.11703	411.51822	48.15997729	
30207	4237	0.07575	444.01501	33.63413701	
30208	3952	0.08034	1915.71179	153.9082852	
30209	3948	0.01479	4203.13623	62.16438484	
30209	3957	0.05607	4150.92627	232.742436	
30210	8375	0.12158	0.00000	0	
30213	18526	0.00726	1109.77136	8.056940074	
30213	19711	0.05247	1866.27551	97.92347601	
30214	18070	0.00639	501.72620	3.206030418	
30214	19835	0.05637	1390.86072	78.40281879	
				13,674,303	Project

Appendix O. Lighting Analysis

East Side Regional Park

Visalia, CA

GLARE IMPACT

Summary

Map indicates the maximum candela an observer would see when facing the brightest light source from any direction.

A well-designed lighting system controls light to provide maximum useful on-field illumination with minimal destructive off-site glare.

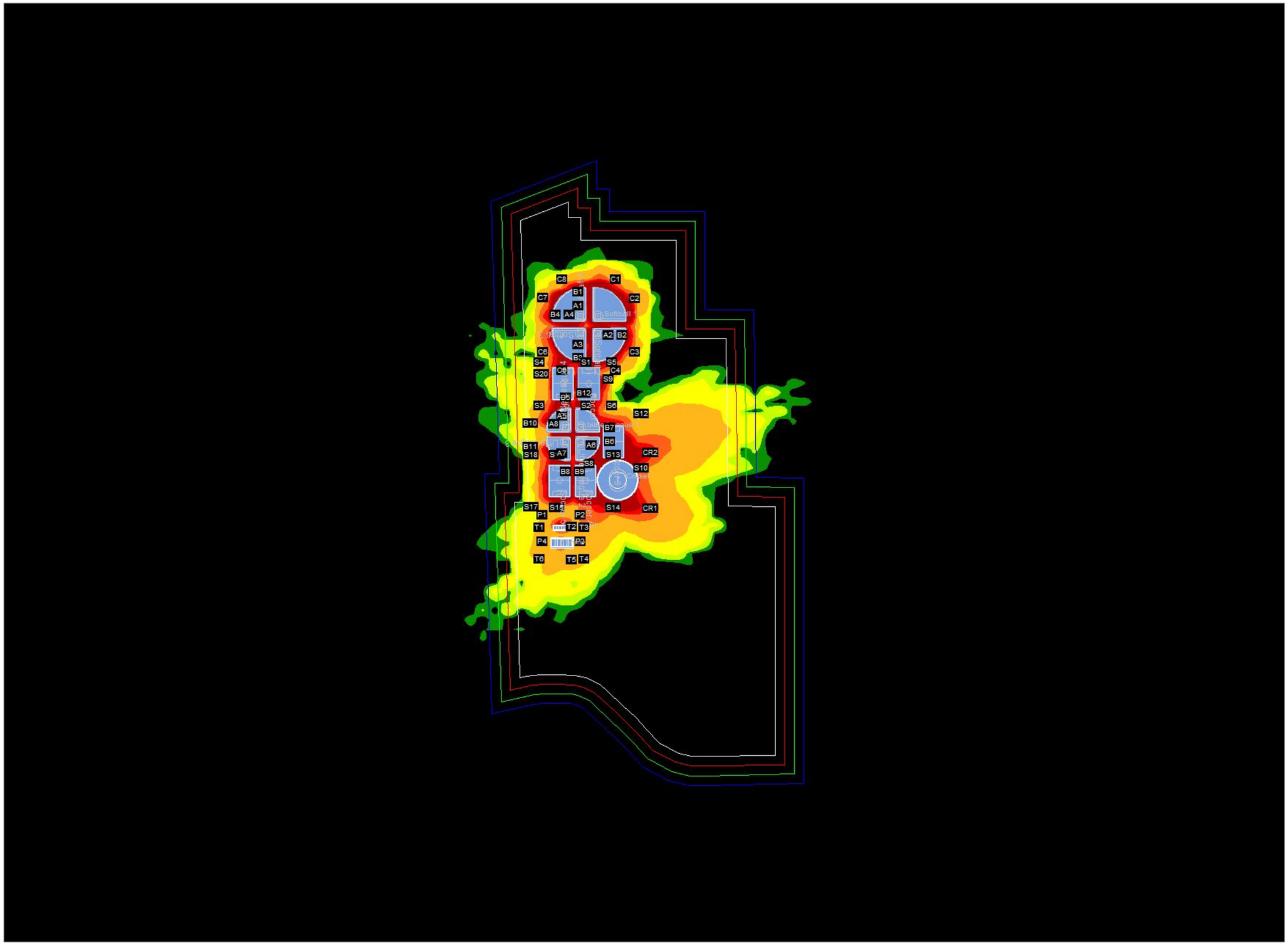
GLARE

Candela Levels

High Glare: 150,000 or more candela
Should only occur on or very near the lit area where the light source is in direct view. Care must be taken to minimize high glare zones.

Significant Glare: 25,000 to 75,000 candela
Equivalent to high beam headlights of a car.

Minimal to No Glare: 500 or less candela
Equivalent to 100W incandescent light bulb.



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ENVIRONMENTAL GLARE IMPACT

East Side Regional Park

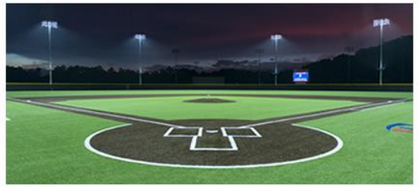
Visalia, CA

Lighting System

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
A1	70'	70'	3	TLC-LED-1200	3.51 kW	A
		70'	3	TLC-LED-1200	3.51 kW	D
A2	70'	70'	3	TLC-LED-1200	3.51 kW	A
		70'	3	TLC-LED-1200	3.51 kW	B
A3	70'	70'	3	TLC-LED-1200	3.51 kW	B
		70'	3	TLC-LED-1200	3.51 kW	C
A4	70'	70'	3	TLC-LED-1200	3.51 kW	C
		70'	3	TLC-LED-1200	3.51 kW	D
A5	60'	60'	2	TLC-LED-1200	2.34 kW	J
		16'	1	TLC-BT-575	0.58 kW	J
		60'	2	TLC-LED-1200	2.34 kW	M
		16'	1	TLC-BT-575	0.58 kW	M
A6	60'	60'	2	TLC-LED-1200	2.34 kW	J
		16'	1	TLC-BT-575	0.58 kW	J
		60'	2	TLC-LED-1200	2.34 kW	K
		16'	1	TLC-BT-575	0.58 kW	K
A7	60'	60'	2	TLC-LED-1200	2.34 kW	K
		16'	1	TLC-BT-575	0.58 kW	K
		60'	2	TLC-LED-1200	2.34 kW	L
		16'	1	TLC-BT-575	0.58 kW	L
A8	60'	60'	2	TLC-LED-1200	2.34 kW	L
		16'	1	TLC-BT-575	0.58 kW	L
		60'	2	TLC-LED-1200	2.34 kW	M
		16'	1	TLC-BT-575	0.58 kW	M
B1	80'	80'	6	TLC-LED-1500	8.58 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
		16'	1	TLC-BT-575	0.58 kW	D
		80'	6	TLC-LED-1500	8.58 kW	D
B2	80'	80'	6	TLC-LED-1500	8.58 kW	A
		16'	1	TLC-BT-575	0.58 kW	A
		80'	6	TLC-LED-1500	8.58 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
B3	80'	80'	6	TLC-LED-1500	8.58 kW	B
		16'	1	TLC-BT-575	0.58 kW	B
		80'	6	TLC-LED-1500	8.58 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
B4	80'	80'	6	TLC-LED-1500	8.58 kW	C
		16'	1	TLC-BT-575	0.58 kW	C
		80'	6	TLC-LED-1500	8.58 kW	D
		16'	1	TLC-BT-575	0.58 kW	D
B5	70'	70'	4	TLC-LED-1200	4.74 kW	J
		16'	1	TLC-BT-575	0.58 kW	J
B6	70'	70'	5	TLC-LED-1500	7.15 kW	G
		16'	1	TLC-BT-575	0.58 kW	J
		70'	4	TLC-LED-1200	4.74 kW	J
B7-B8	70'	70'	4	TLC-LED-1200	4.74 kW	K
		16'	1	TLC-BT-575	0.58 kW	K
B9-B10	70'	70'	4	TLC-LED-1200	4.74 kW	L
		16'	1	TLC-BT-575	0.58 kW	L
B11-B12	70'	70'	4	TLC-LED-1200	4.74 kW	M
		16'	1	TLC-BT-575	0.58 kW	M
C1-C2	70'	70'	5	TLC-LED-1500	7.15 kW	A
		16'	2	TLC-BT-575	1.15 kW	A
C3-C4	70'	70'	5	TLC-LED-1500	7.15 kW	B
		16'	2	TLC-BT-575	1.15 kW	B

From Hometown to Professional



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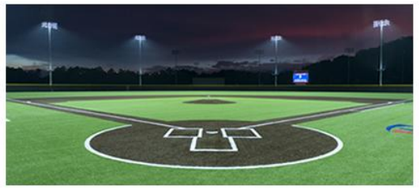
East Side Regional Park

Visalia, CA

Pole / Fixture Summary

Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Circuit
C5-C6	70'	70'	5	TLC-LED-1500	7.15 kW	C
		16'	2	TLC-BT-575	1.15 kW	C
C7-C8	70'	70'	5	TLC-LED-1500	7.15 kW	D
		16'	2	TLC-BT-575	1.15 kW	D
CR1-CR2	70'	70'	5	TLC-LED-1500	7.15 kW	N
P1-P4	40'	40'	1	TLC-LED-400	0.40 kW	O
		40'	1	TLC-LED-600	0.58 kW	O
S1-S2	70'	70'	5	TLC-LED-1500	7.15 kW	E
		70'	5	TLC-LED-1500	7.15 kW	F
S3-S4	70'	70'	5	TLC-LED-1500	7.15 kW	E
S5-S6	70'	70'	5	TLC-LED-1500	7.15 kW	F
S8, S10, S12	70'	70'	5	TLC-LED-1500	7.15 kW	G
S13-S14	70'	70'	5	TLC-LED-1500	7.15 kW	H
		70'	5	TLC-LED-1500	7.15 kW	N
S15-S16	70'	70'	5	TLC-LED-1500	7.15 kW	I
		70'	5	TLC-LED-1500	7.15 kW	H
S17-S18	70'	70'	5	TLC-LED-1500	7.15 kW	I
T1-T6	50'	50'	2	TLC-LED-900	1.78 kW	P
55			***340***		***419.76 kW***	

From Hometown to Professional



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East Side Regional Park

Visalia, CA

Circuit Summary

Circuit	Description	Load	Fixture Qty
A	Softball 1	41.93 kW	34
B	Softball 2	41.93 kW	34
C	Softball 3	41.93 kW	34
D	Softball 4	41.93 kW	34
E	Soccer 1	28.6 kW	20
F	Soccer 2	28.6 kW	20
G	Soccer 3	28.6 kW	20
H	Soccer 4	28.6 kW	20
I	Soccer 5	28.6 kW	20
J	LL 1	16.46 kW	16
K	LL 2	16.46 kW	16
L	LL 3	16.46 kW	16
M	LL 4	16.46 kW	16
N	Cricket	28.6 kW	20
O	Pickleball	3.92 kW	8
P	Tennis	10.68 kW	12

Fixture Type Summary

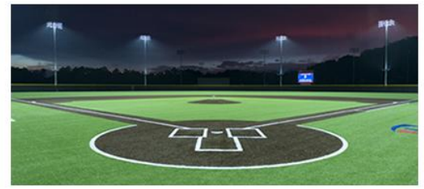
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1200	LED 5700K - 75 CRI	1230W	132,300	>81,000	>81,000	>81,000	8
TLC-LED-1500	LED 5700K - 75 CRI	1430W	160,000	>81,000	>81,000	>81,000	208
TLC-BT-575	LED 5700K - 75 CRI	575W	52,000	>81,000	>81,000	>81,000	40
TLC-LED-1200	LED 5700K - 75 CRI	1170W	136,000	>81,000	>81,000	>81,000	64
TLC-LED-400	LED 5700K - 75 CRI	400W	46,500	>81,000	>81,000	>81,000	4
TLC-LED-600	LED 5700K - 75 CRI	580W	65,600	>81,000	>81,000	>81,000	4
TLC-LED-900	LED 5700K - 75 CRI	890W	89,600	>81,000	>81,000	>81,000	12

Light Level Summary

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
100' Spill	Horizontal	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
100' Spill	Max Candela (by Fixture)	28.1	0	284	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
100' Spill	Max Vertical Illuminance Metric	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
200' Spill	Horizontal	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
200' Spill	Max Candela (by Fixture)	15.1	0	207	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
200' Spill	Max Vertical Illuminance Metric	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
300' Spill	Horizontal	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
300' Spill	Max Candela (by Fixture)	6.88	0	176	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
300' Spill	Max Vertical Illuminance Metric	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340

From Hometown to Professional



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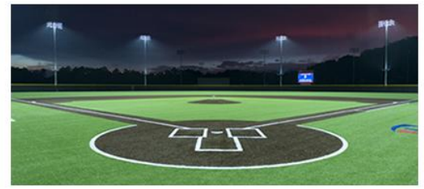
East Side Regional Park

Visalia, CA

Calculation Grid Summary

Grid Name	Calculation Metric	Illumination					Circuits	Fixture Qty
		Ave	Min	Max	Max/Min	Ave/Min		
Cricket	Horizontal Illuminance	20.1	12	34	2.96	1.68	N,G,H,I,J, K,L,M	144
Little League 1 (Infield)	Horizontal Illuminance	37.8	24	46	1.92	1.58	J	16
Little League 1 (Outfield)	Horizontal Illuminance	20.1	13	27	2.10	1.54	J	16
Little League 2 (Infield)	Horizontal Illuminance	36.8	24	45	1.84	1.53	K	16
Little League 2 (Outfield)	Horizontal Illuminance	20.4	13	29	2.22	1.57	K	16
Little League 3 (Infield)	Horizontal Illuminance	36.4	23	44	1.93	1.58	L	16
Little League 3 (Outfield)	Horizontal Illuminance	20.3	13	27	2.11	1.56	L	16
Little League 4 (Infield)	Horizontal Illuminance	36.6	23	45	1.92	1.59	M	16
Little League 4 (Outfield)	Horizontal Illuminance	20.4	14	28	2.04	1.46	M	16
Pickleball	Horizontal Illuminance	35.5	24	51	2.15	1.48	O	8
Property Spill	Horizontal	0	0	0	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
Property Spill	Max Candela (by Fixture)	47.6	0	464	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
Property Spill	Max Vertical Illuminance Metric	0	0	0.01	0.00		A,B,C,D,E, F,G,H,I,J, K,L,M,N,O, P	340
Soccer 1	Horizontal Illuminance	32.9	21	39	1.86	1.56	E	20
Soccer 2	Horizontal Illuminance	32.3	20	39	1.91	1.61	F	20
Soccer 3	Horizontal Illuminance	32	25	45	1.79	1.28	G	20
Soccer 4	Horizontal Illuminance	33	22	43	1.96	1.50	H	20
Soccer 5	Horizontal Illuminance	33.7	24	47	1.98	1.41	I	20
Softball 1 (Infield)	Horizontal Illuminance	53.1	41	65	1.59	1.29	A	34
Softball 1 (Outfield)	Horizontal Illuminance	30.8	21	45	2.14	1.47	A	34
Softball 2 (Infield)	Horizontal Illuminance	53.3	39	63	1.60	1.37	B	34
Softball 2 (Outfield)	Horizontal Illuminance	30.1	20	44	2.22	1.51	B	34
Softball 3 (Infield)	Horizontal Illuminance	53.5	39	63	1.60	1.37	C	34
Softball 3 (Outfield)	Horizontal Illuminance	30.7	19	43	2.20	1.61	C	34
Softball 4 (Infield)	Horizontal Illuminance	54.1	41	63	1.54	1.32	D	34
Softball 4 (Outfield)	Horizontal Illuminance	30.6	21	47	2.23	1.46	D	34
Tennis	Horizontal Illuminance	36	24	42	1.78	1.50	P	12

From Hometown to Professional



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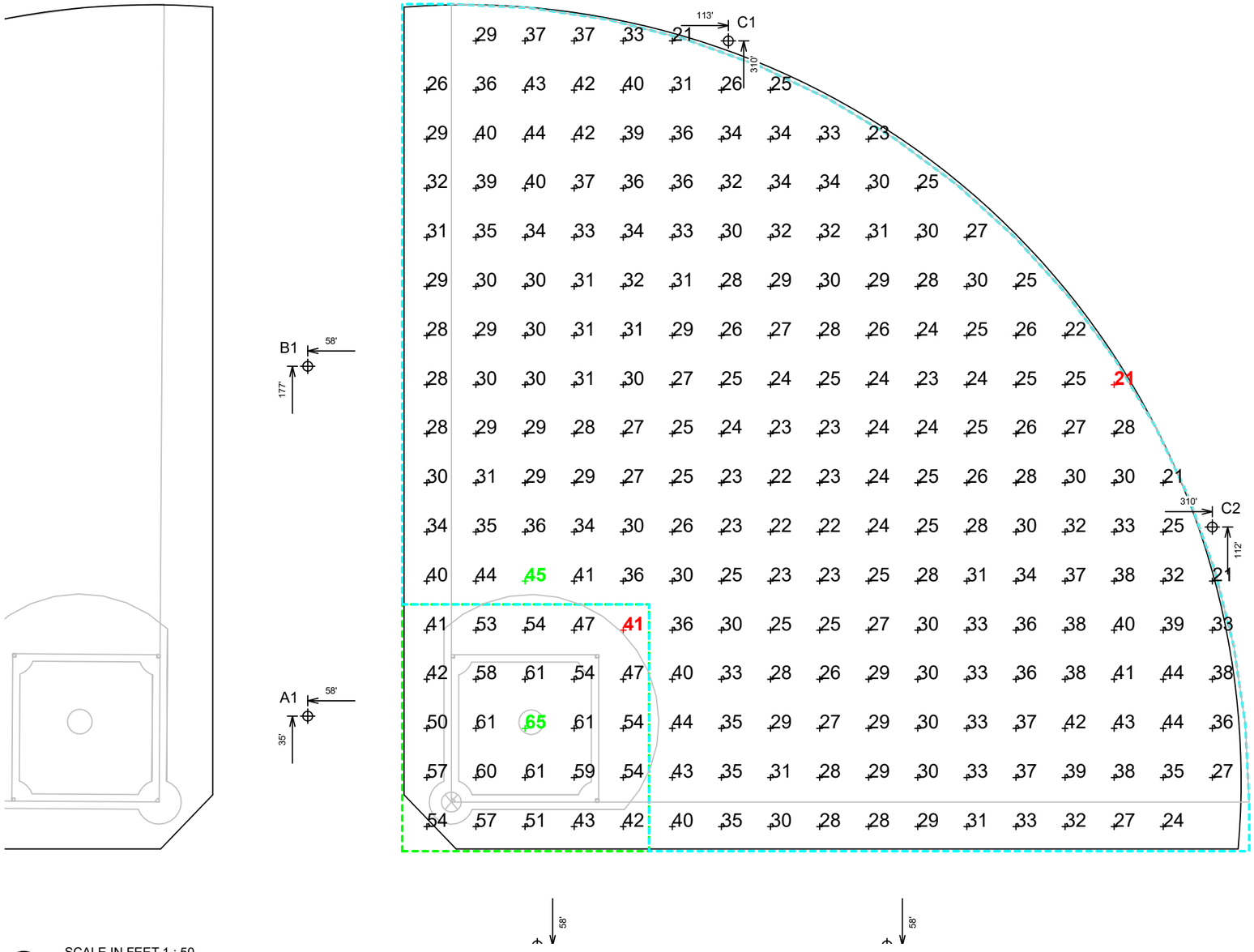
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	70'	-	70'	TLC-LED-1200	3/3*	3	3
2	B1-B2	80'	-	15.5'	TLC-BT-575	1/1*	1	1
				80'	TLC-LED-1500	6/6*	6	6
2	C1-C2	70'	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	5	5	0
6	TOTALS					54	34	20

* This structure utilizes a back-to-back mounting configuration



SCALE IN FEET 1 : 50

0' 50' 100'

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Softball 1**
Size:	325'/325'/325' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**50**	**30**
Scan Average:	53.08	30.82
Maximum:	65	45
Minimum:	41	21
Avg / Min:	1.29	1.47
Guaranteed Max / Min:	**2**	**2.5**
Max / Min:	1.59	2.14
UG (adjacent pts):	1.37	1.56
CU:	0.70	
No. of Points:	25	211

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 / 52,000 / 136,000 lumens
No. of Luminaires:	**34**
Total Load:	41.93 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-1200	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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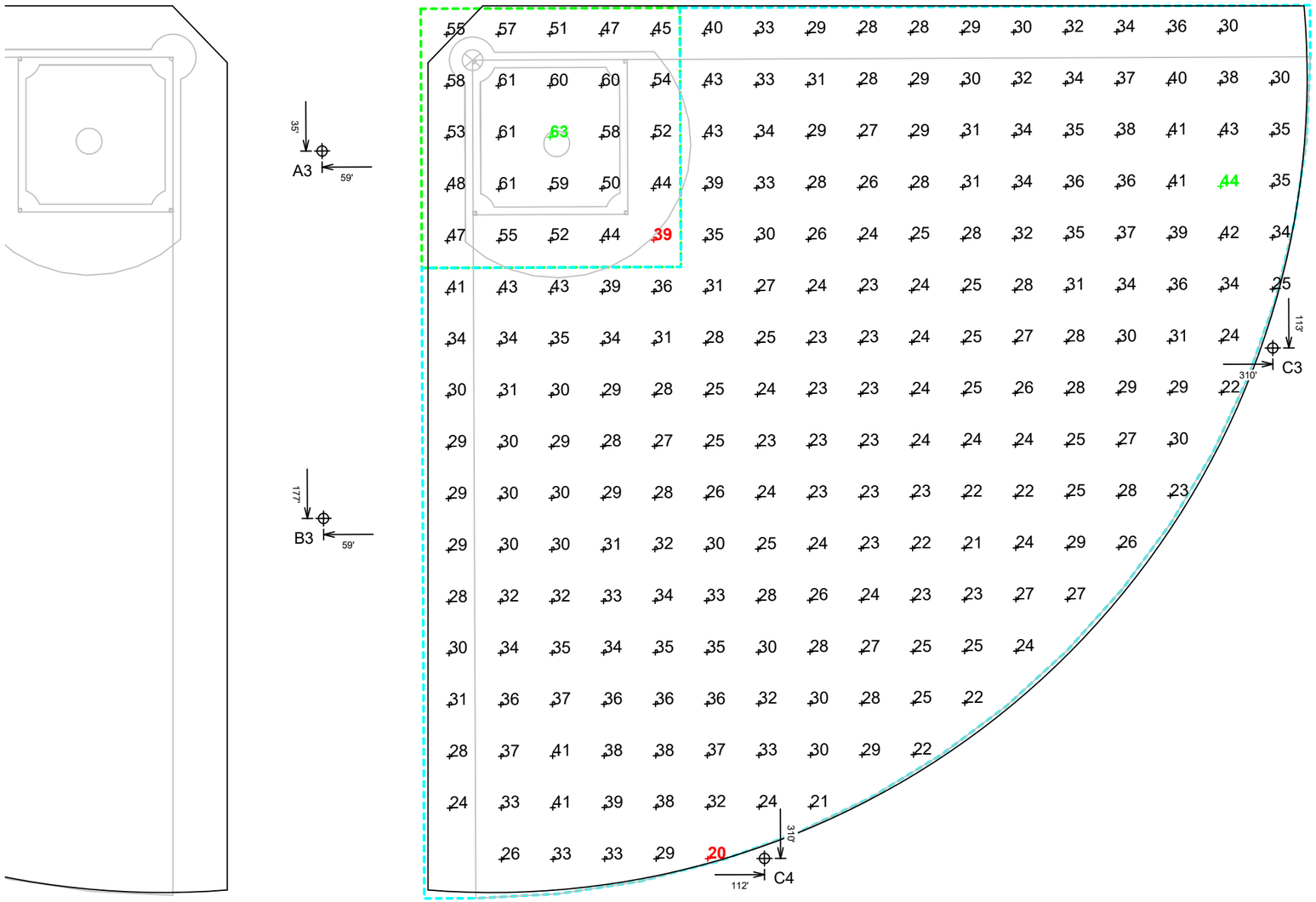
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A2	70'	-	70'	TLC-LED-1200	3/3*	3	3
1	A3	70'	-	70'	TLC-LED-1200	3/3*	3	3
1	B2	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	1 6	1 6
1	B3	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	1 6	1 6
2	C3-C4	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 5	2 5	0 0
6	TOTALS					54	34	20

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Softball 2**
Size:	325'/325'/325' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Scan Average:	**53.27**	**30.14**
Maximum:	63	44
Minimum:	39	20
Avg / Min:	1.36	1.52
Max / Min:	**1.60**	**2.22**
UG (adjacent pts):	1.28	1.59
CU:	0.69	
No. of Points:	25	211

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 / 52,000 / 136,000 lumens
No. of Luminaires:	**34**
Total Load:	41.93 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-1200	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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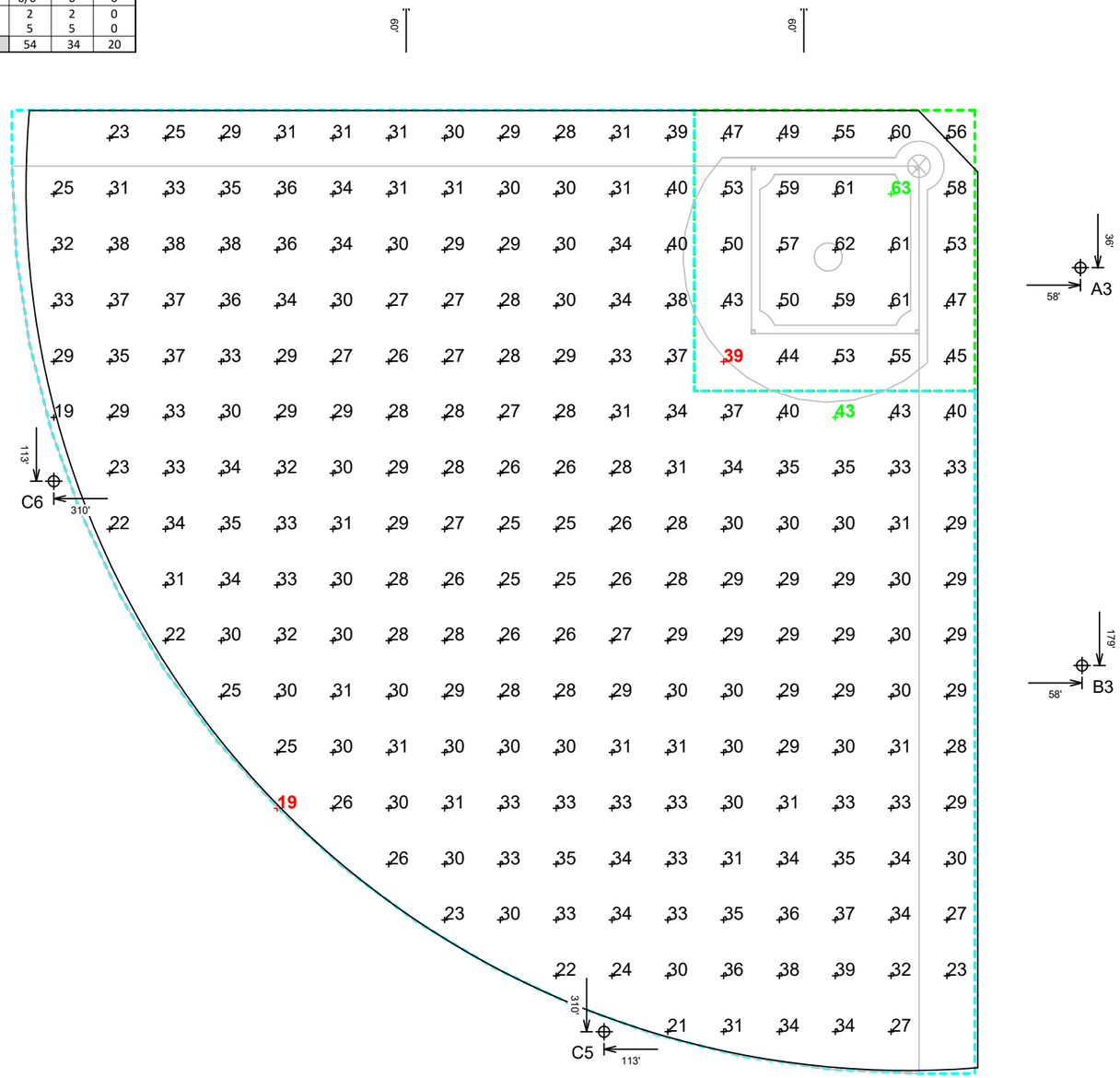
East Side Regional Park

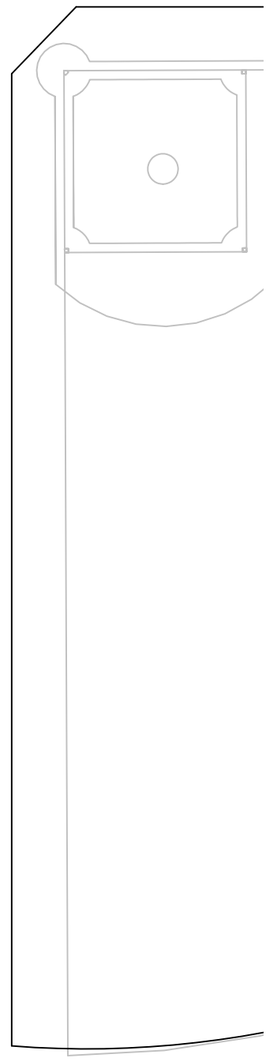
Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A3	70'	-	70'	TLC-LED-1200	3/3*	3	3
1	A4	70'	-	70'	TLC-LED-1200	3/3*	3	3
1	B3	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	1 6	1 6
1	B4	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	1 6	1 6
2	C5-C6	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 5	2 5	0 0
6	TOTALS					54	34	20

* This structure utilizes a back-to-back mounting configuration





GRID SUMMARY

Name:	**Softball 3**
Size:	325'/325'/325' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Scan Average:	**53.52**	**30.65**
Maximum:	63	43
Minimum:	39	19
Avg / Min:	1.37	1.58
Max / Min:	**1.60**	**2.20**
UG (adjacent pts):	1.29	1.55
CU:	0.71	
No. of Points:	25	212

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 / 52,000 / 136,000 lumens
No. of Luminaires:	**34**
Total Load:	41.93 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-1200	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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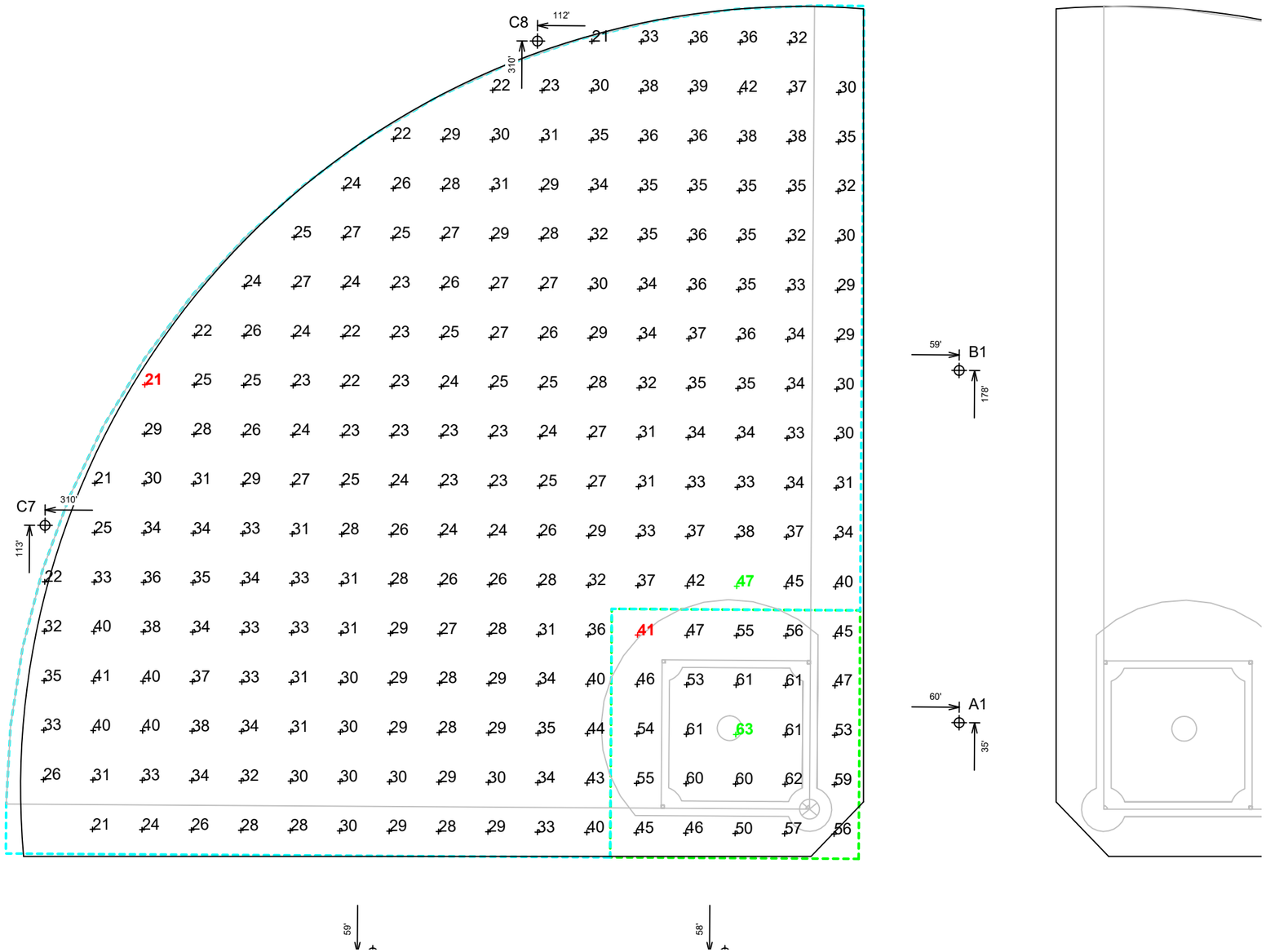
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1, A4	70'	-	70'	TLC-LED-1200	3/3*	3	3
2	B1, B4	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	1 6	1 6
2	C7-C8	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 5	2 5	0 0
6	TOTALS					54	34	20

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Softball 4**
Size:	325'/325'/325' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Scan Average:	**54.13**	**30.64**
Maximum:	63	47
Minimum:	41	21
Avg / Min:	1.32	1.47
Max / Min:	**1.54**	**2.23**
UG (adjacent pts):	1.32	1.55
CU:	0.70	
No. of Points:	25	211

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 / 52,000 / 136,000 lumens
No. of Luminaires:	**34**
Total Load:	41.93 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-1200	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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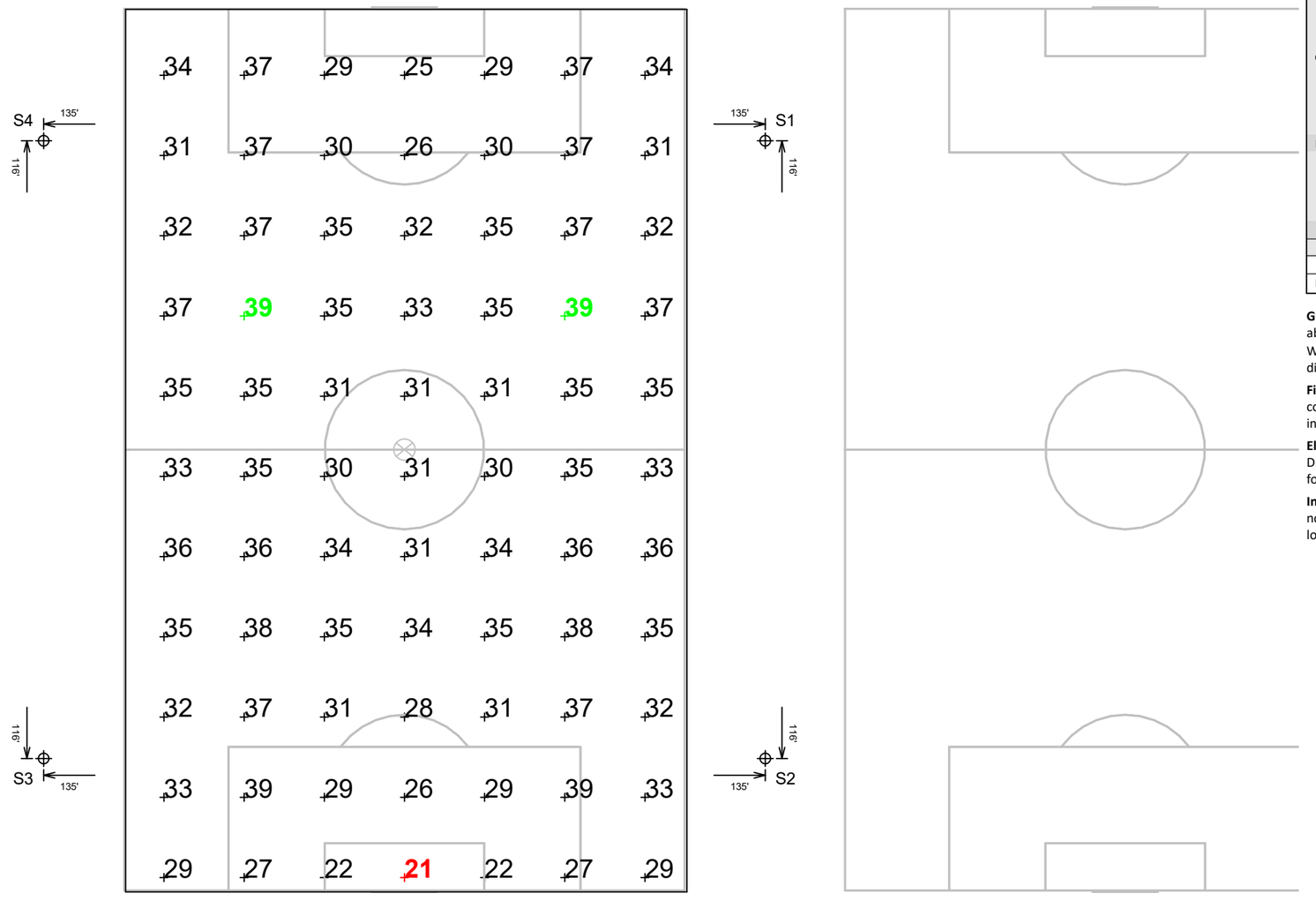
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-1500	5/5*	5	5
2	S3-S4	70'	-	70'	TLC-LED-1500	5	5	0
4	TOTALS					30	20	10

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Soccer 1**
Size:	330' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	32.86
Maximum:	39
Minimum:	21
Avg / Min:	1.58
Guaranteed Max / Min:	**2.5**
Max / Min:	1.86
UG (adjacent pts):	1.43
CU:	0.73
No. of Points:	77

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**20**
Total Load:	28.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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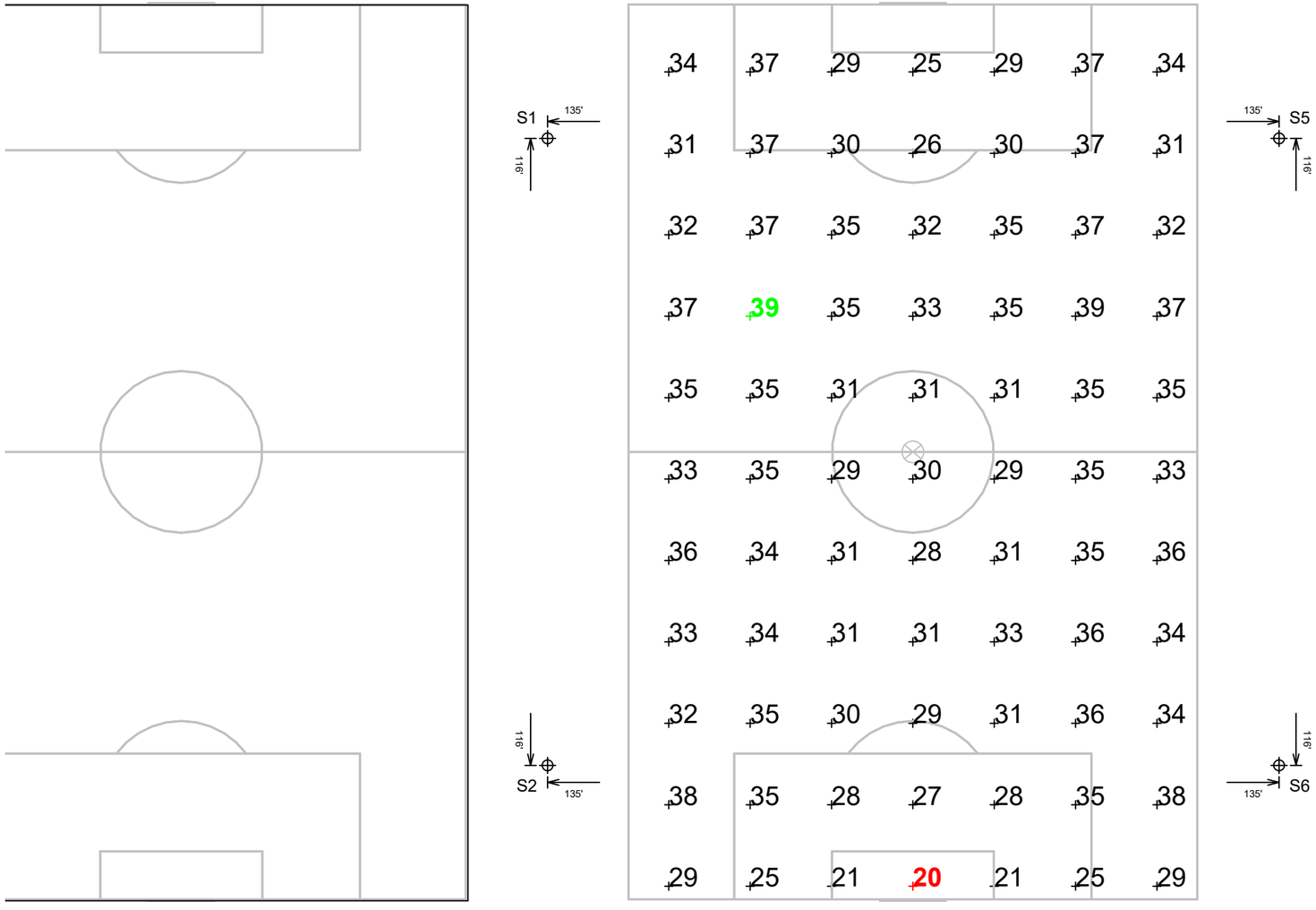
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S1-S2	70'	-	70'	TLC-LED-1500	5/5*	5	5
2	S5-S6	70'	-	70'	TLC-LED-1500	5	5	0
4	TOTALS					30	20	10

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Soccer 2**
Size:	330' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	32.28
Maximum:	39
Minimum:	20
Avg / Min:	1.59
Guaranteed Max / Min:	**2.5**
Max / Min:	1.91
UG (adjacent pts):	1.41
CU:	0.72
No. of Points:	77

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**20**
Total Load:	28.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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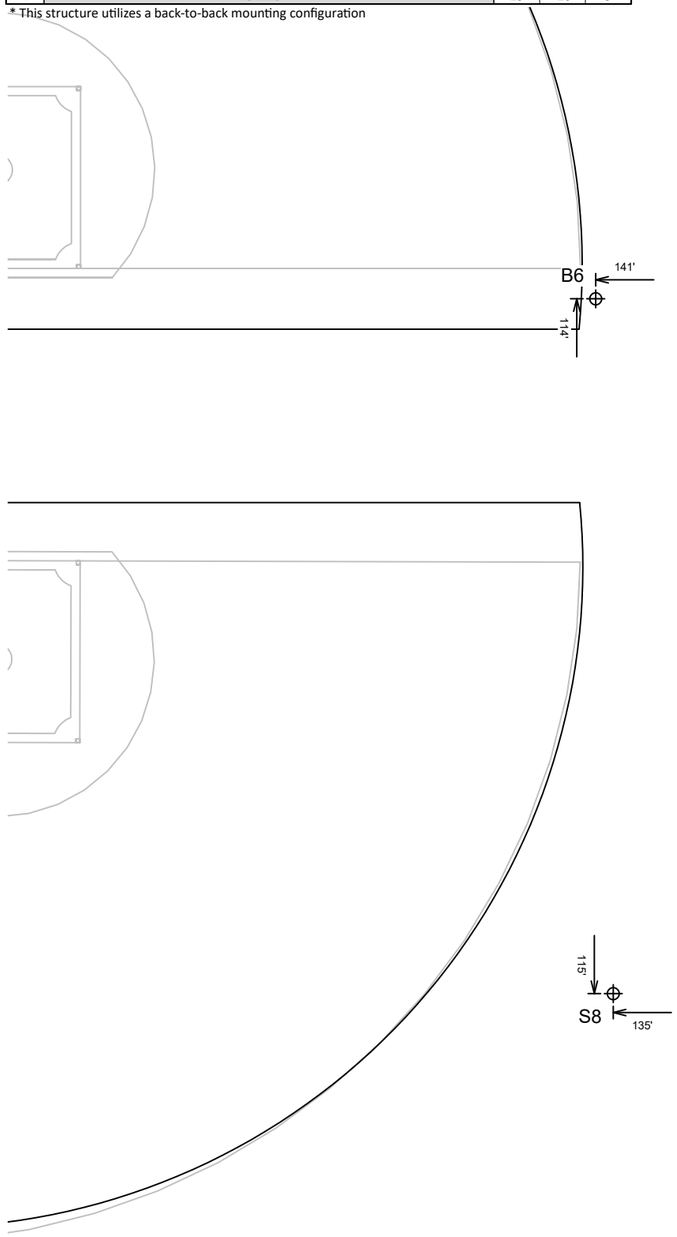
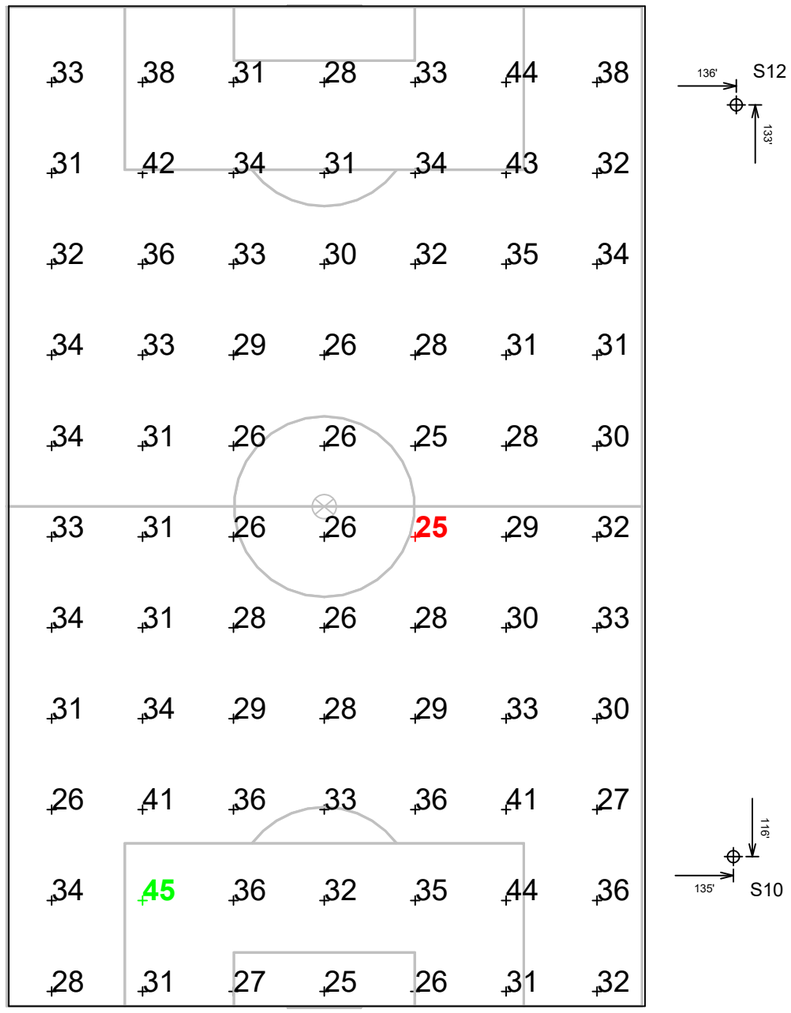
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	B6	70'	-	70'	TLC-LED-1500	5*	5	0
				15.5'	TLC-BT-575	1	0	1
				70'	TLC-LED-1200	4	0	4
3	S12 S8, S10	70'	-	70'	TLC-LED-1500	5	5	0
4	TOTALS					25	20	5

* This structure utilizes a back-to-back mounting configuration





SCALE IN FEET 1 : 50

0' 50' 100'

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Soccer 3**
Size:	330' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	31.99
Maximum:	45
Minimum:	25
Avg / Min:	1.27
Max / Min:	**1.79**
UG (adjacent pts):	1.55
CU:	0.71
No. of Points:	77

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**20**
Total Load:	28.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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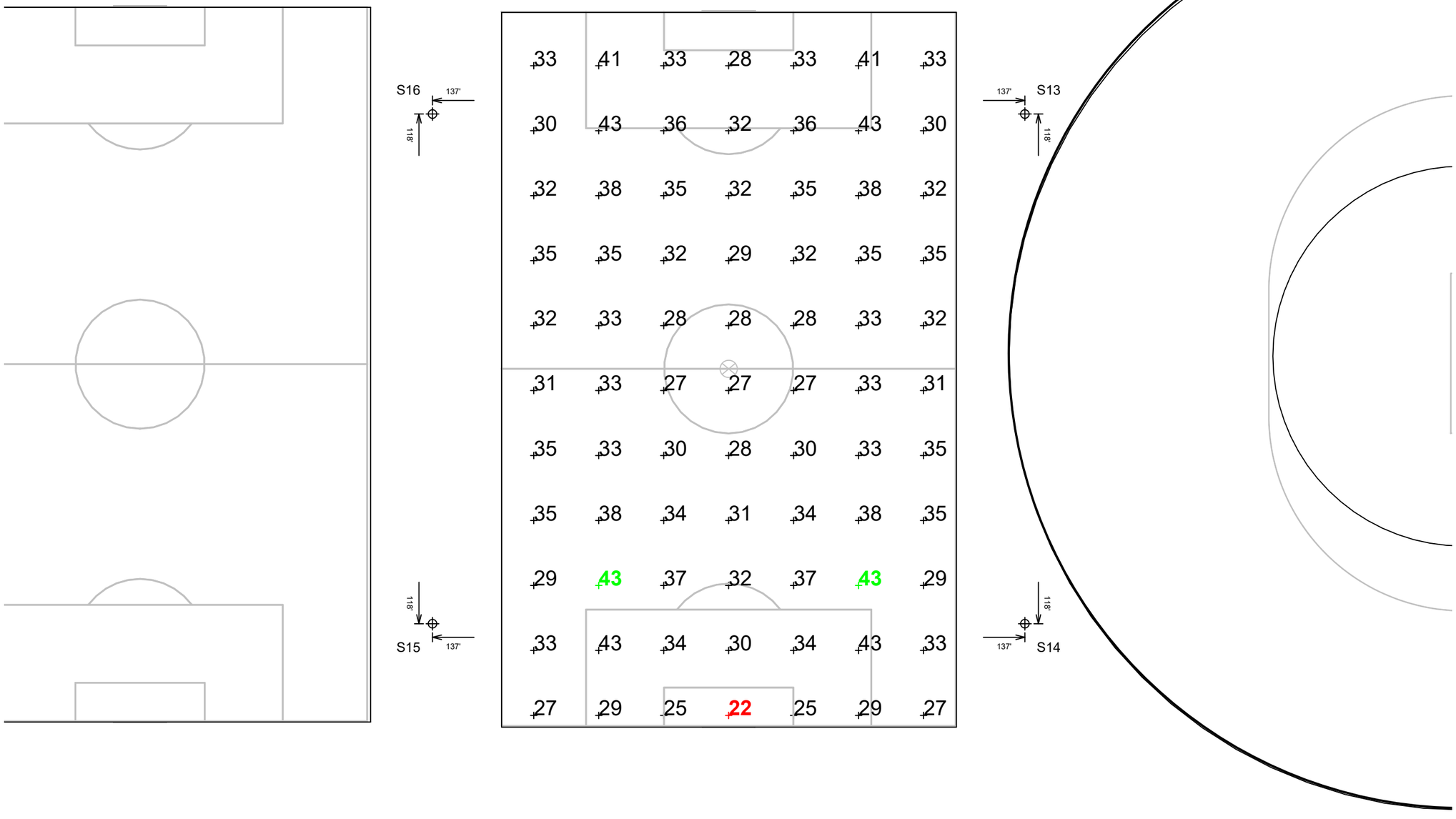
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S13-S14	70'	-	70'	TLC-LED-1500	5/5*	5	5
2	S15-S16	70'	-	70'	TLC-LED-1500	5/5*	5	5
4	TOTALS					40	20	20

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Soccer 4**
Size:	330' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	33.00
Maximum:	43
Minimum:	22
Avg / Min:	1.49
Guaranteed Max / Min:	**2.5**
Max / Min:	1.96
UG (adjacent pts):	1.49
CU:	0.73
No. of Points:	77

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**20**
Total Load:	28.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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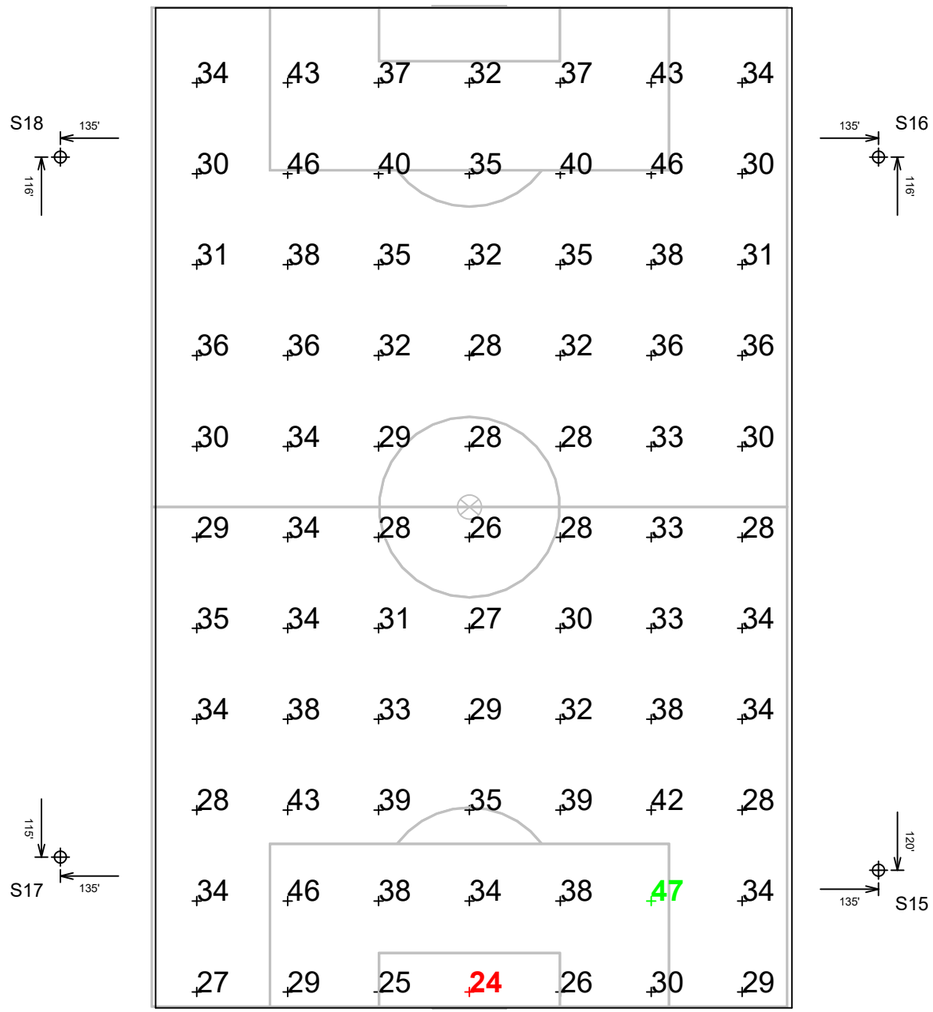
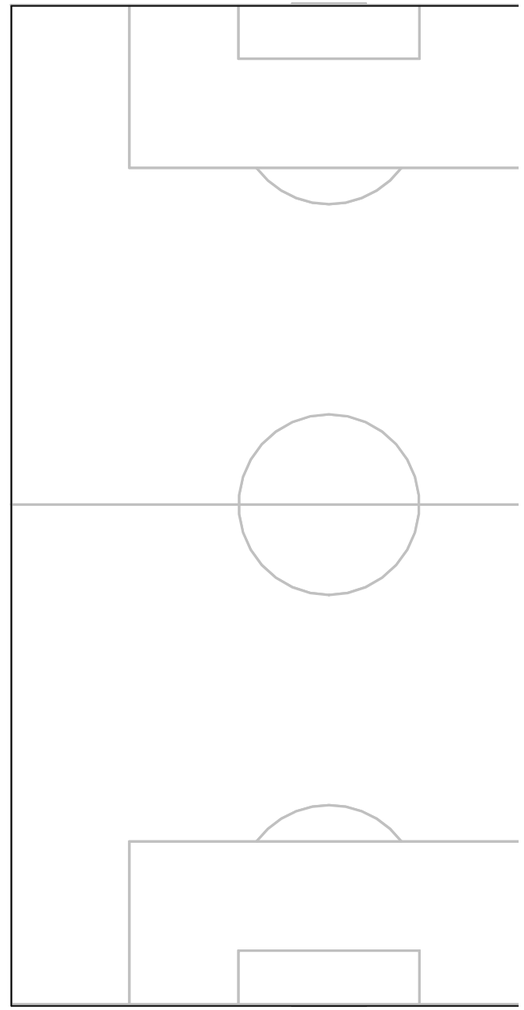
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	S15-S16	70'	-	70'	TLC-LED-1500	5/5*	5	5
2	S17-S18	70'	-	70'	TLC-LED-1500	5	5	0
4	TOTALS					30	20	10

* This structure utilizes a back-to-back mounting configuration





SCALE IN FEET 1 : 50

0' 50' 100'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Soccer 5**
Size:	330' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	33.72
Maximum:	47
Minimum:	24
Avg / Min:	1.43
Guaranteed Max / Min:	**2.5**
Max / Min:	1.98
UG (adjacent pts):	1.60
CU:	0.75
No. of Points:	77

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	160,000 lumens
No. of Luminaires:	**20**
Total Load:	28.6 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1500	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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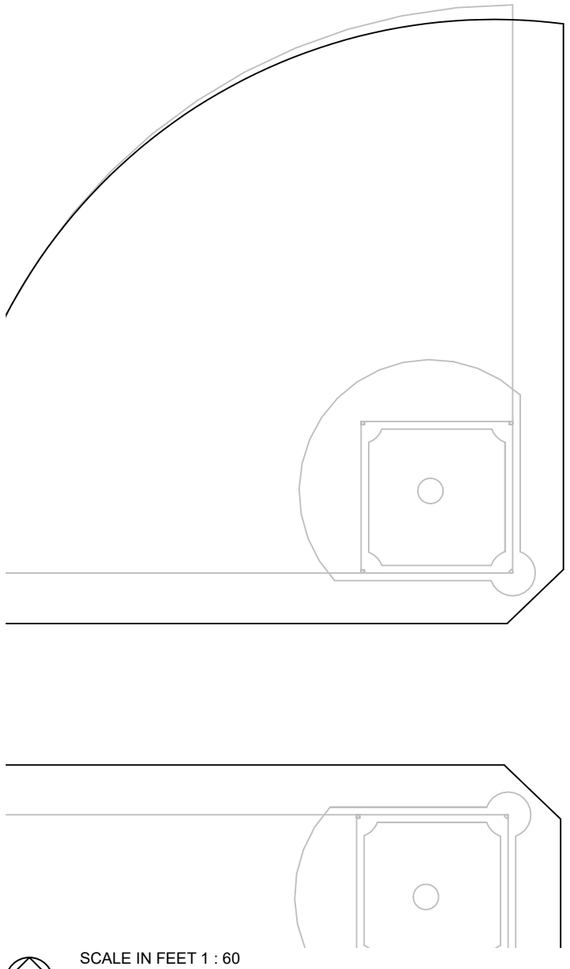
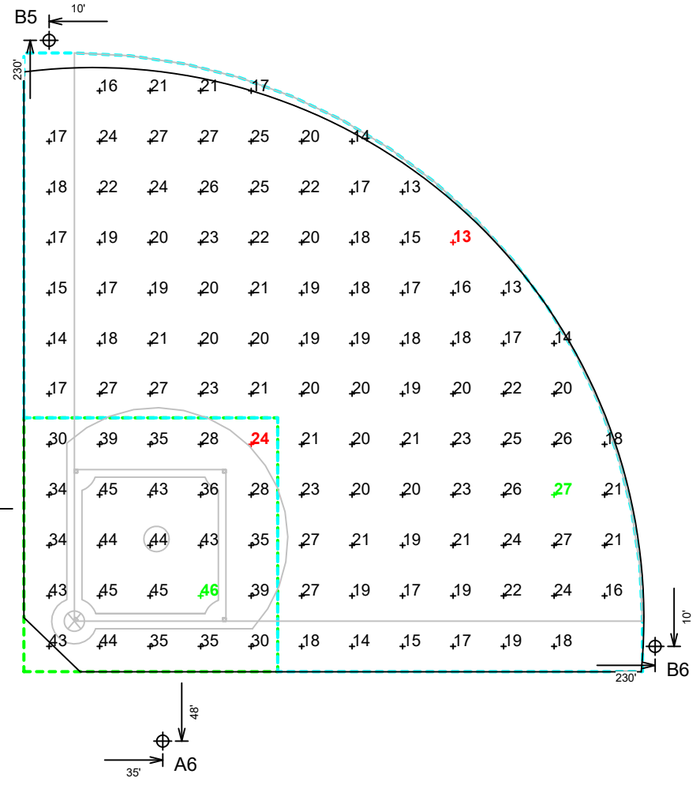
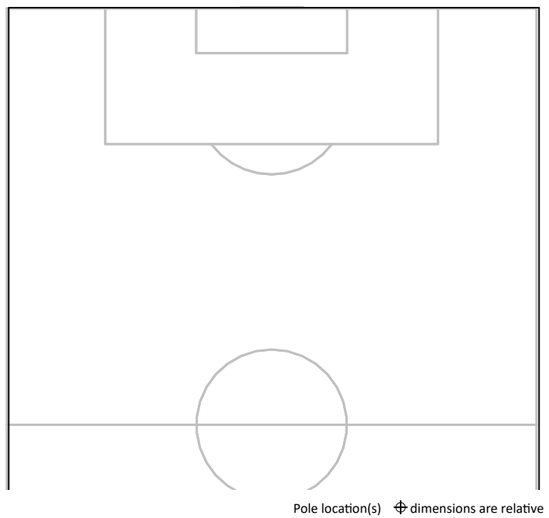
EQUIPMENT LIST FOR AREAS SHOWN

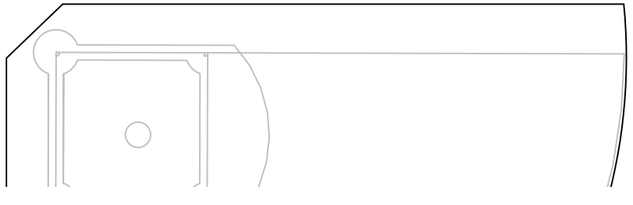
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A5-A6	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
1	B5	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B6	70'	-	70'	TLC-LED-1500	5*	0	5
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
4	TOTALS					27	16	11

* This structure utilizes a back-to-back mounting configuration









SCALE IN FEET 1 : 60

0' 60' 120'

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Little League 1**
Size:	225'/225'/225' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**30**	**20**
Scan Average:	37.82	20.08
Maximum:	46	27
Minimum:	24	13
Avg / Min:	1.59	1.57
Guaranteed Max / Min:	**2.5**	**3**
Max / Min:	1.92	2.10
UG (adjacent pts):	1.32	1.54
CU:	0.64	
No. of Points:	25	94

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 52,000 lumens
No. of Luminaires:	**16**
Total Load:	16.46 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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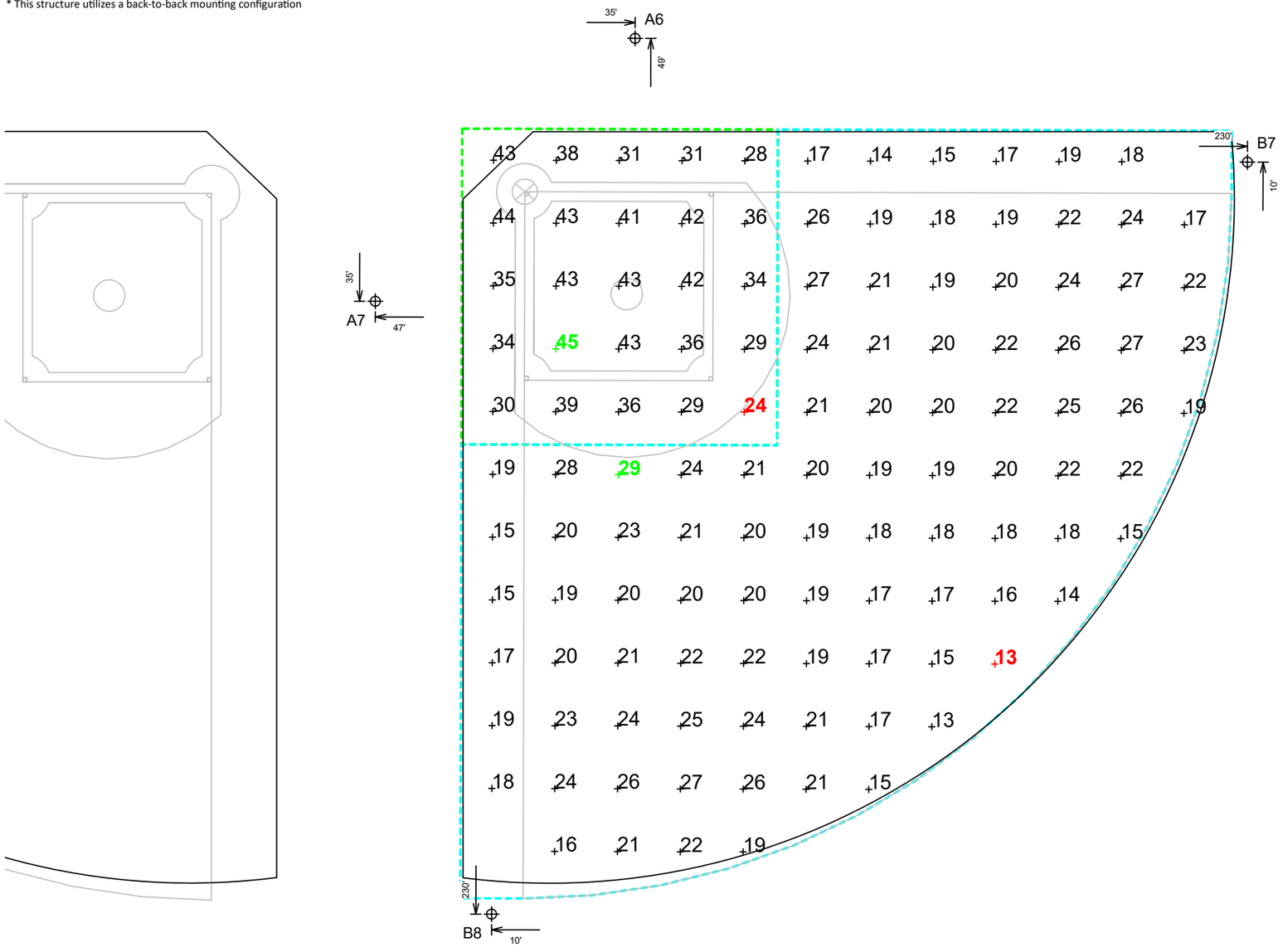
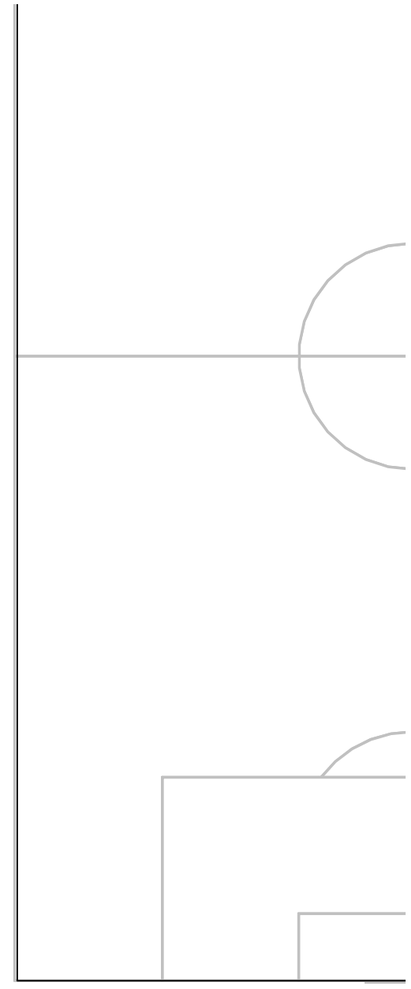
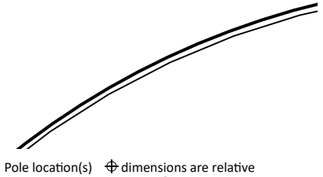
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A6	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
1	A7	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
2	B7-B8	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
4	TOTALS					22	16	6

* This structure utilizes a back-to-back mounting configuration







Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Little League 2**
Size:	225'/225'/225' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**30**	**20**
Scan Average:	36.75	20.38
Maximum:	45	29
Minimum:	24	13
Avg / Min:	1.50	1.58
Guaranteed Max / Min:	**2.5**	**3**
Max / Min:	1.84	2.22
UG (adjacent pts):	1.32	1.53
CU:	0.64	
No. of Points:	25	94

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 52,000 lumens
No. of Luminaires:	**16**
Total Load:	16.46 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 40

0' 40' 80'

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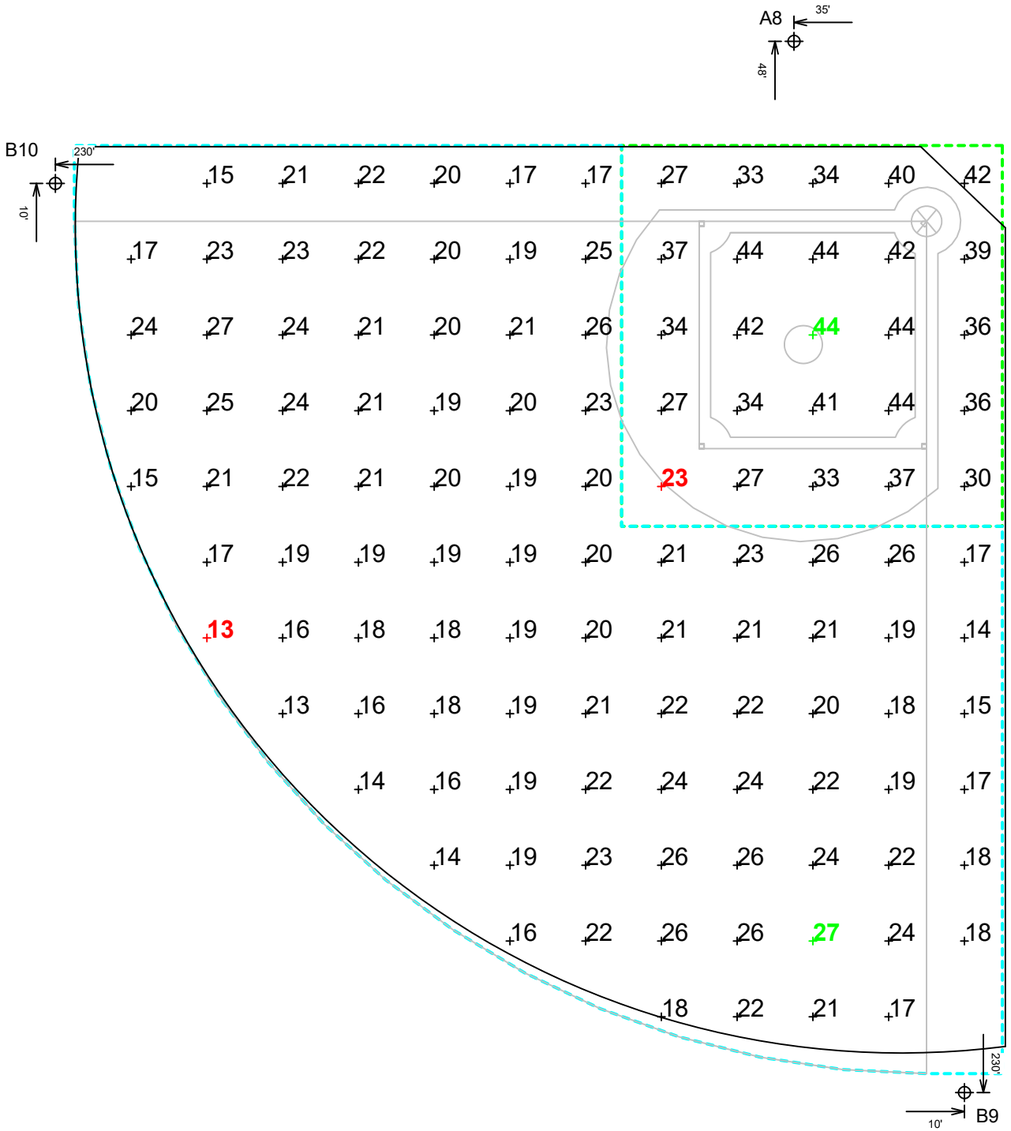
East Side Regional Park

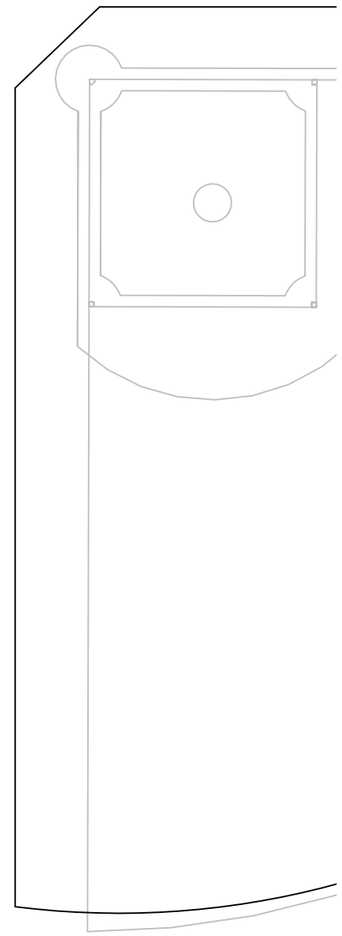
Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
1	A7	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
1	A8	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
2	B9-B10	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
4	TOTALS					22	16	6

* This structure utilizes a back-to-back mounting configuration





GRID SUMMARY

Name:	**Little League 3**
Size:	225'/225'/225' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**30**	**20**
Scan Average:	36.39	20.32
Maximum:	44	27
Minimum:	23	13
Avg / Min:	1.58	1.59
Guaranteed Max / Min:	**2.5**	**3**
Max / Min:	1.93	2.11
UG (adjacent pts):	1.35	1.54
CU:	0.64	
No. of Points:	25	94

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 52,000 lumens
No. of Luminaires:	**16**
Total Load:	16.46 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 40

0' 40' 80'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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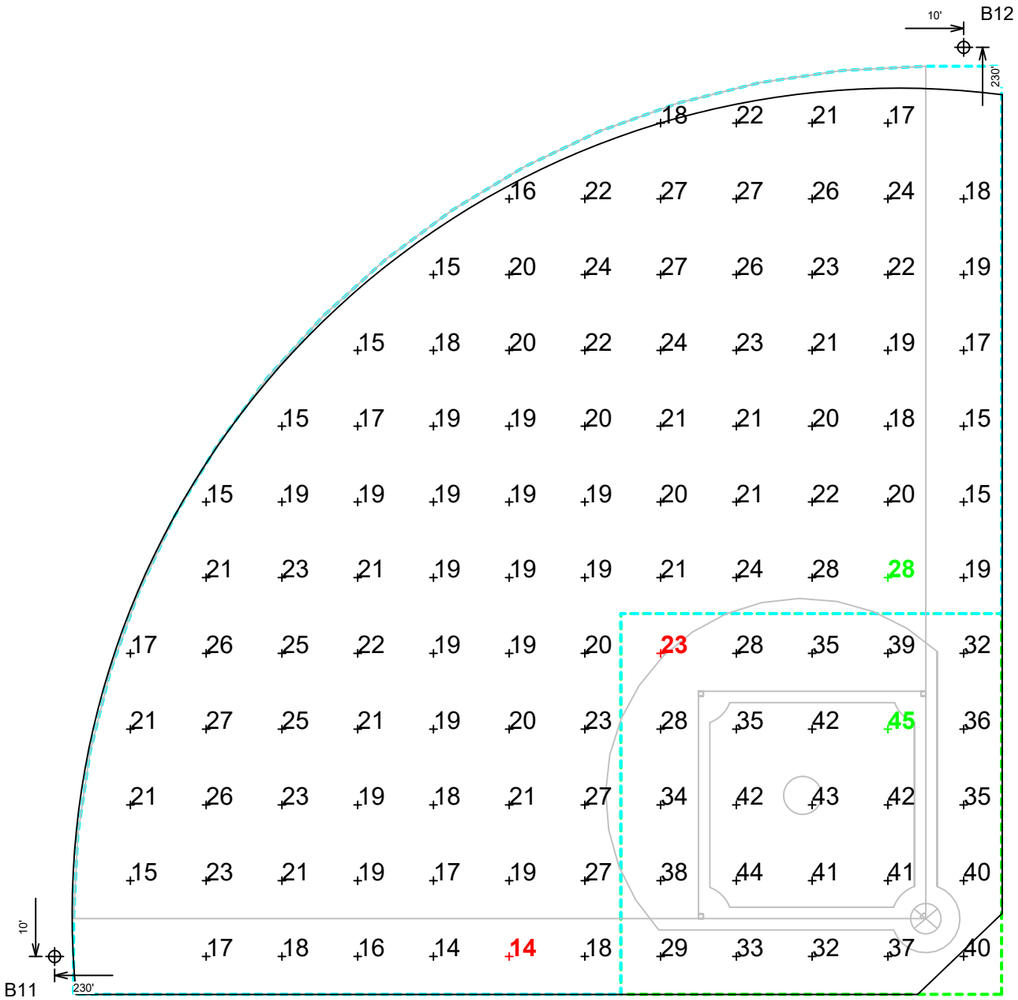
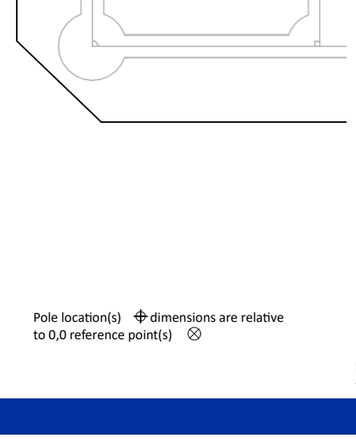
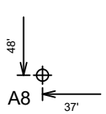
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A5, A8	60'	-	15.5'	TLC-BT-575	1/1*	1	1
				60'	TLC-LED-1200	2/2*	2	2
2	B11-B12	70'	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
4	TOTALS					22	16	6

* This structure utilizes a back-to-back mounting configuration







East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Little League 4**
Size:	225'/225'/225' - basepath 60'
Spacing:	20.0' x 20.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Infield	Outfield
Guaranteed Average:	**30**	**20**
Scan Average:	36.61	20.42
Maximum:	45	28
Minimum:	23	14
Avg / Min:	1.57	1.48
Guaranteed Max / Min:	**2.5**	**3**
Max / Min:	1.92	2.04
UG (adjacent pts):	1.33	1.53
CU:	0.64	
No. of Points:	25	94

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 52,000 lumens
No. of Luminaires:	**16**
Total Load:	16.46 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 40

0' 40' 80'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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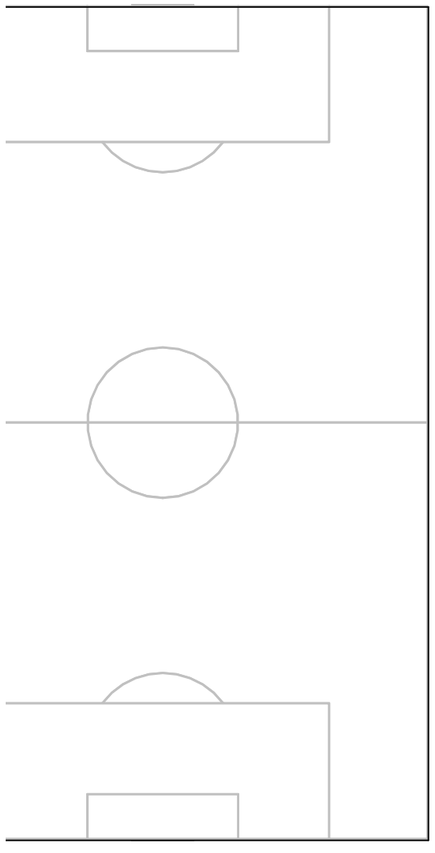
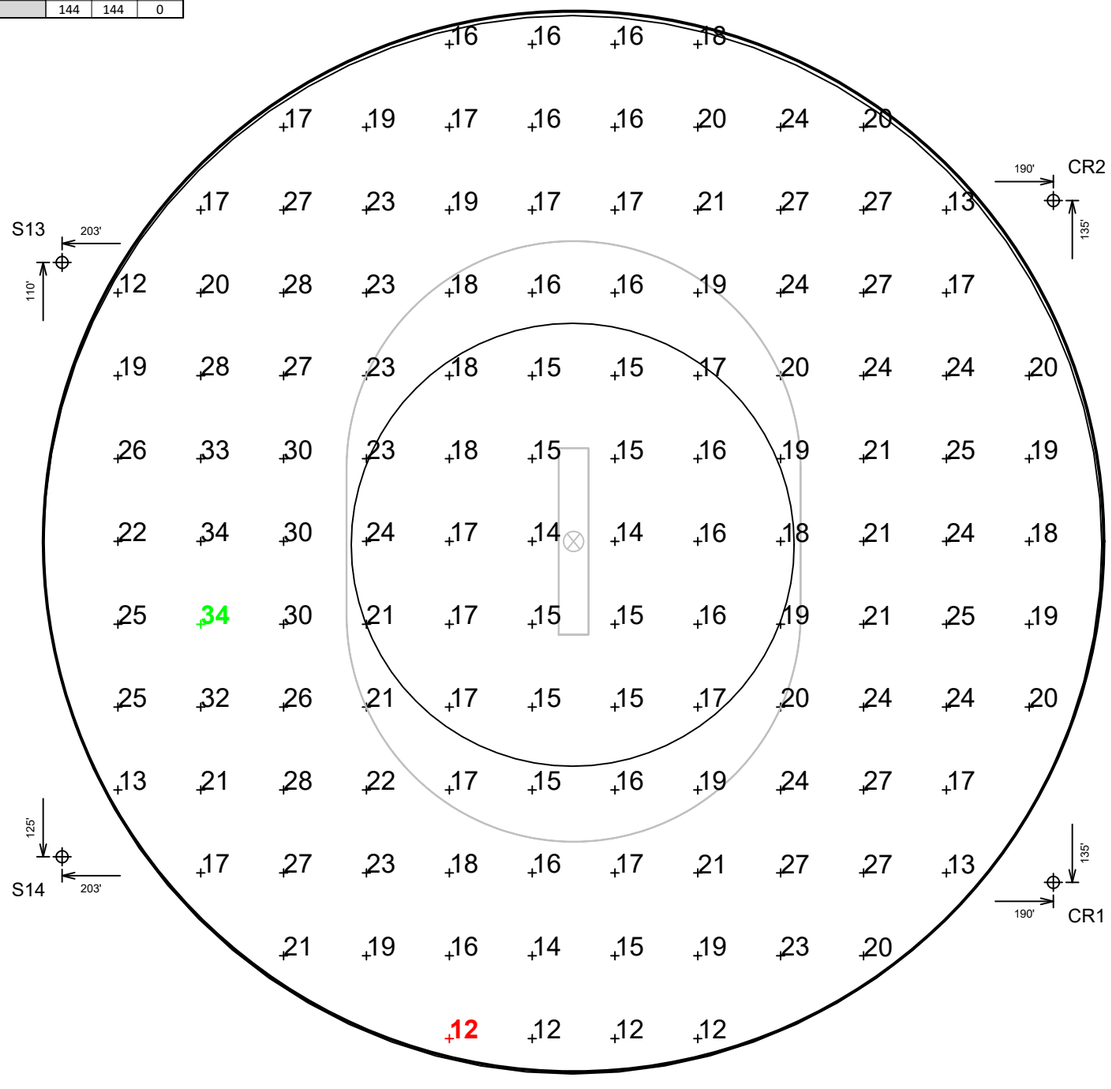
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	A5-A8	60'	-	15.5' 60'	TLC-BT-575 TLC-LED-1200	1/1* 2/2*	2 4	0 0
7	B5, B7-B12	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1200	1 4	1 4	0 0
1	B6	70'	-	70' 15.5' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	5* 1 4	5 1 4	0 0 0
7	CR1, CR2 S12 S17-S18 S8, S10	70'	-	70'	TLC-LED-1500	5	5	0
4	S13-S16	70'	-	70'	TLC-LED-1500	5/5*	10	0
23	TOTALS					144	144	0

* This structure utilizes a back-to-back mounting configuration





East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Cricket**
Size:	420' x 420'
Spacing:	32.8' x 32.8'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**20.10**
Maximum:	34
Minimum:	12
Avg / Min:	1.73
Max / Min:	**2.96**
UG (adjacent pts):	2.10
CU:	0.14
No. of Points:	126

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 lumens
No. of Luminaires:	**144**
Total Load:	180.24 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 60

0' 60' 120'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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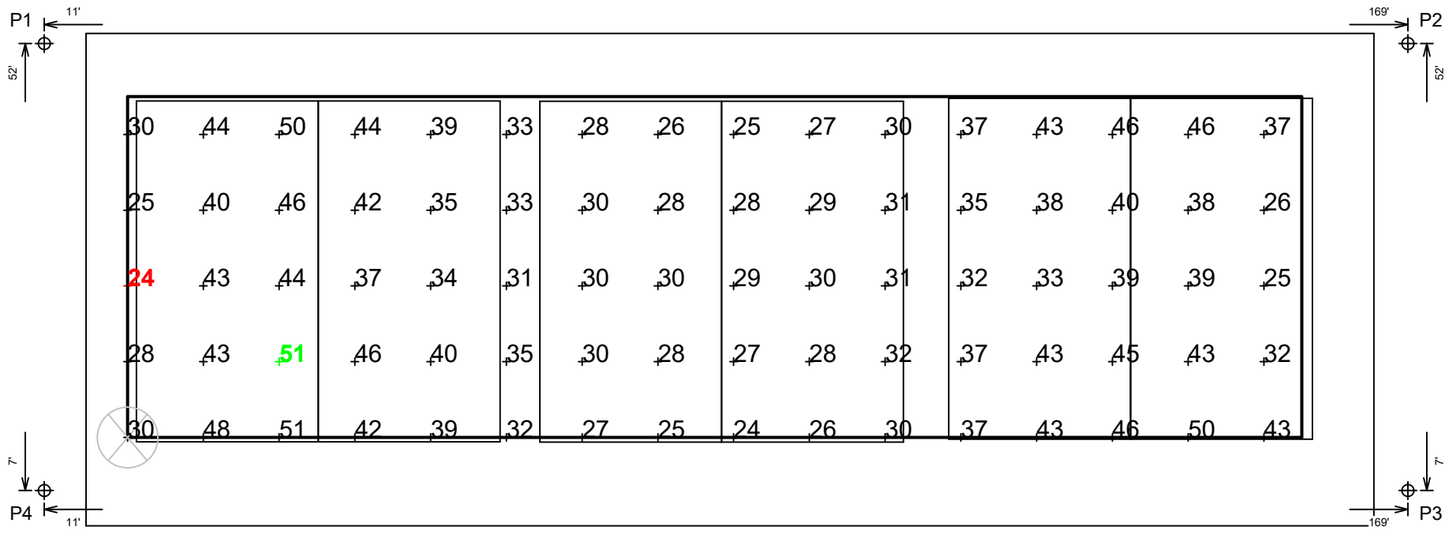
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
4	P1-P4	40'	-	40'	TLC-LED-600	1	1	0
				40'	TLC-LED-400	1	1	0
4	TOTALS					8	8	0



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Pickleball**
Size:	155' x 45'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Guaranteed Average:	**30**
Scan Average:	35.48
Maximum:	51
Minimum:	24
Avg / Min:	1.51
Guaranteed Max / Min:	**2.5**
Max / Min:	2.15
UG (adjacent pts):	1.82
CU:	0.60
No. of Points:	80

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	46,500 / 65,600 lumens
No. of Luminaires:	**8**
Total Load:	3.92 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

SCALE IN FEET 1 : 20

0' 20' 40'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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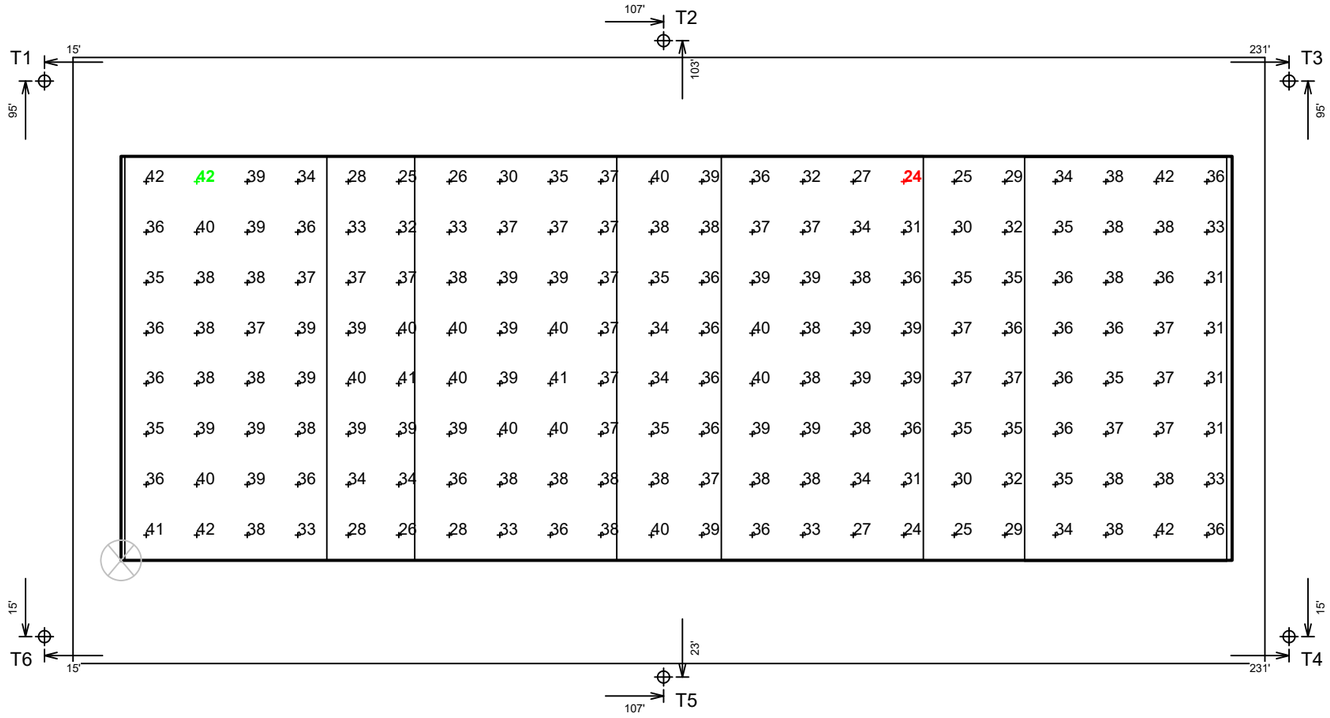
East Side Regional Park

Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
6	T1-T6	50'	-	50'	TLC-LED-900	2	2	0
6	TOTALS					12	12	0



SCALE IN FEET 1 : 30

0' 30' 60'

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

GRID SUMMARY

Name:	**Tennis**
Size:	220' x 80'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAINTAINED HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**36.02**
Maximum:	42
Minimum:	24
Avg / Min:	1.52
Max / Min:	**1.78**
UG (adjacent pts):	1.30
CU:	0.60
No. of Points:	176

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	89,600 lumens
No. of Luminaires:	**12**
Total Load:	10.68 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

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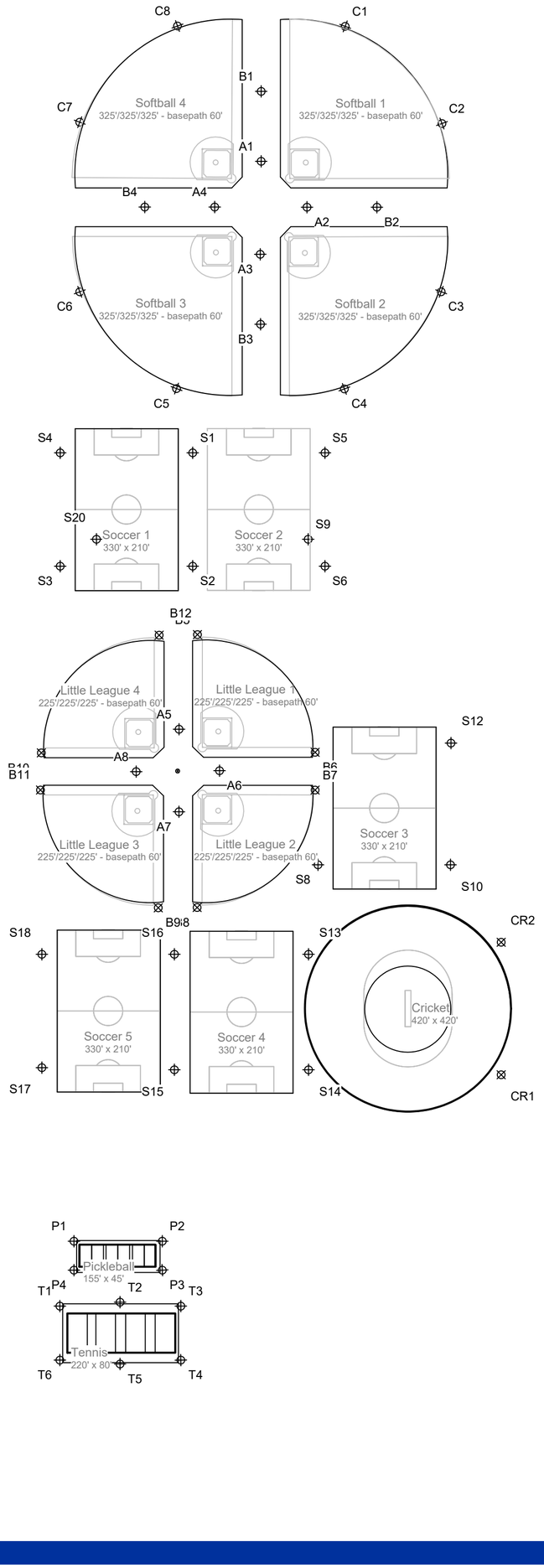

East Side Regional Park

Visalia, CA

EQUIPMENT LAYOUT

INCLUDES:

- Cricket
- Little League 1
- Little League 2
- Little League 3
- Little League 4
- Pickleball
- Soccer 1
- Soccer 2
- Soccer 3
- Soccer 4
- Soccer 5
- Softball 1
- Softball 2
- Softball 3
- Softball 4
- Tennis

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires		
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE
4	A1-A4	70'	-	70'	TLC-LED-1200	3/3*
4	A5-A8	60'	-	15.5' 60'	TLC-BT-575 TLC-LED-1200	1/1* 2/2*
4	B1-B4	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*
7	B5 B7-B12	70'	-	70' 15.5'	TLC-LED-1200 TLC-BT-575	4 1
1	B6	70'	-	70' 15.5' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	5* 1 4
9	CR1, CR2 S10, S12 S17-S18 S3-S4, S8	70'	-	70'	TLC-LED-1500	5
8	C1-C8	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 5
4	P1-P4	40'	-	40' 40'	TLC-LED-600 TLC-LED-400	1 1
6	S1-S2 S13-S16	70'	-	70'	TLC-LED-1500	5/5*
2	S5-S6	70'	-	70'	TLC-LED-1500	5
2	S9, S20	70'	-			
6	T1-T6	50'	-	50'	TLC-LED-900	2
57	TOTALS					340

* This structure utilizes a back-to-back mounting configuration

SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1200	-	-	-	-	-	4.0	-
TLC-LED-1500	8.5	8.1	7.4	6.4	5.1	4.7	3.7
TLC-BT-575	3.4	3.2	2.9	2.5	2.0	1.8	1.5
TLC-LED-400-A	2.3	2.2	2.0	1.7	1.4	1.3	1.0
TLC-LED-600-A	3.4	3.2	3.0	2.6	2.0	1.9	1.5
TLC-LED-900-A	5.3	5.0	4.6	4.0	3.2	2.9	2.3

SCALE IN FEET 1 : 200

0' 200' 400'

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Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

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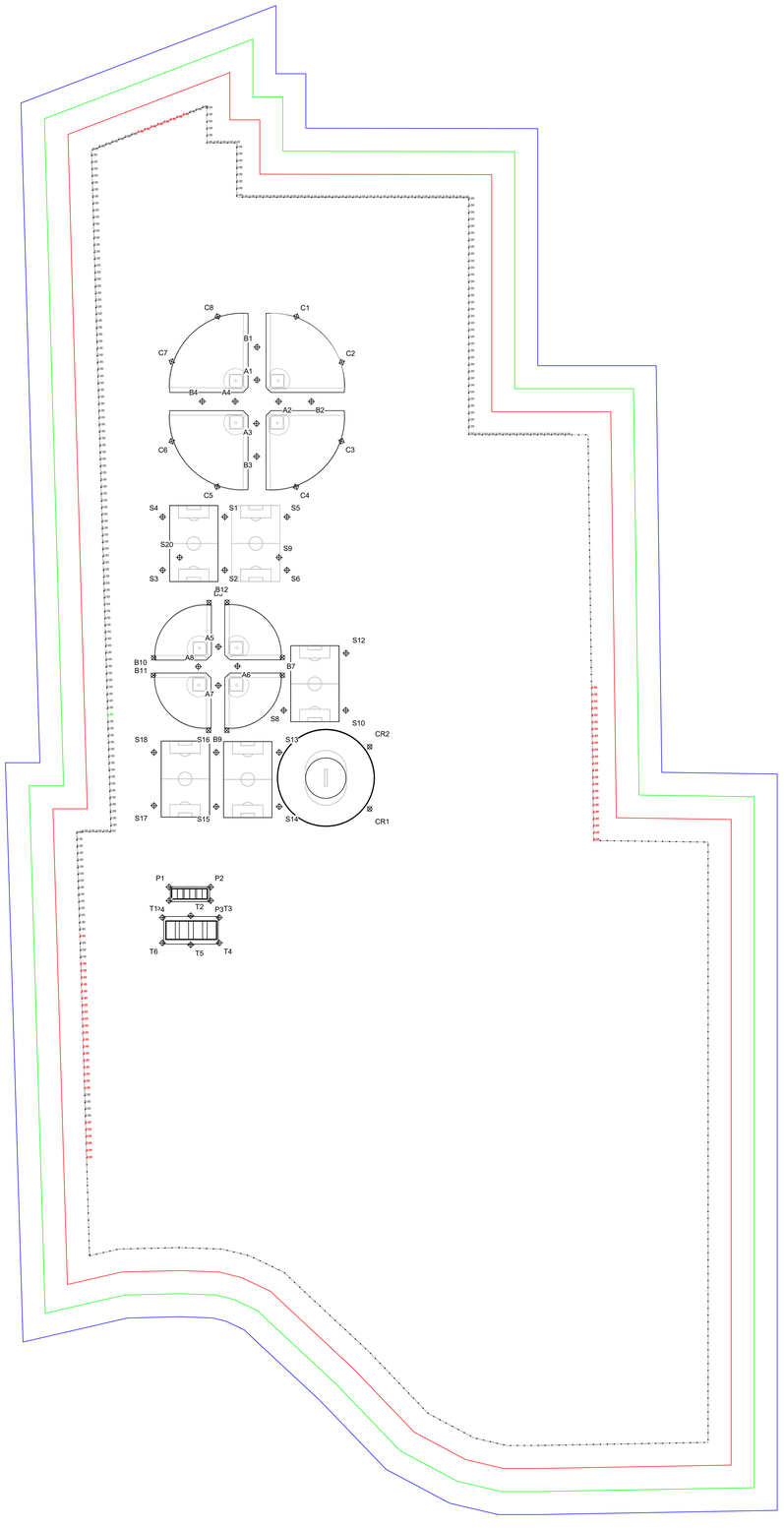
EQUIPMENT LIST FOR AREAS SHOWN

Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	TIGE ORIO	OTHER ORIEN
4	A1-A4	70'	-	70'	TLC-LED-1200	1/1*	4	0
4	A5-A8	60'	-	15.5' 70'	TLC-BT-575 TLC-LED-1200	1/1* 1/1*	2 2	0 0
4	B1-B4	80'	-	15.5' 80'	TLC-BT-575 TLC-LED-1500	1/1* 6/6*	2 13	0 0
2	B5, B7-B12	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1200	1 4	1 4	0 0
1	B6	70'	-	70' 15.5' 70'	TLC-LED-1500 TLC-BT-575 TLC-LED-1200	1* 1 4	1 1 4	0 0 0
9	CR1, CR2 S10, S12 S17-S18 S5-S6, S8<| 70'	-	70'	TLC-LED-1500	5	5	0
8	C1-C8	70'	-	15.5' 70'	TLC-BT-575 TLC-LED-1500	2 5	2 5	0 0
4	P1-P4	40'	-	40' 40'	TLC-LED-400 TLC-LED-400	1 1	1 1	0 0
6	S1-S2 S13-S16	70'	-	70'	TLC-LED-1500	5/5*	10	0
2	S5-S6	70'	-	70'	TLC-LED-1500	5	5	0
6	T1-T6	50'	-	50'	TLC-LED-900	2	2	0
51			TOTALS			340	340	0

* This structure utilizes a back-to-back mounting configuration



East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0001**
Maximum:	0.00
Minimum:	0.00
No. of Points:	548

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.

SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN · By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊗

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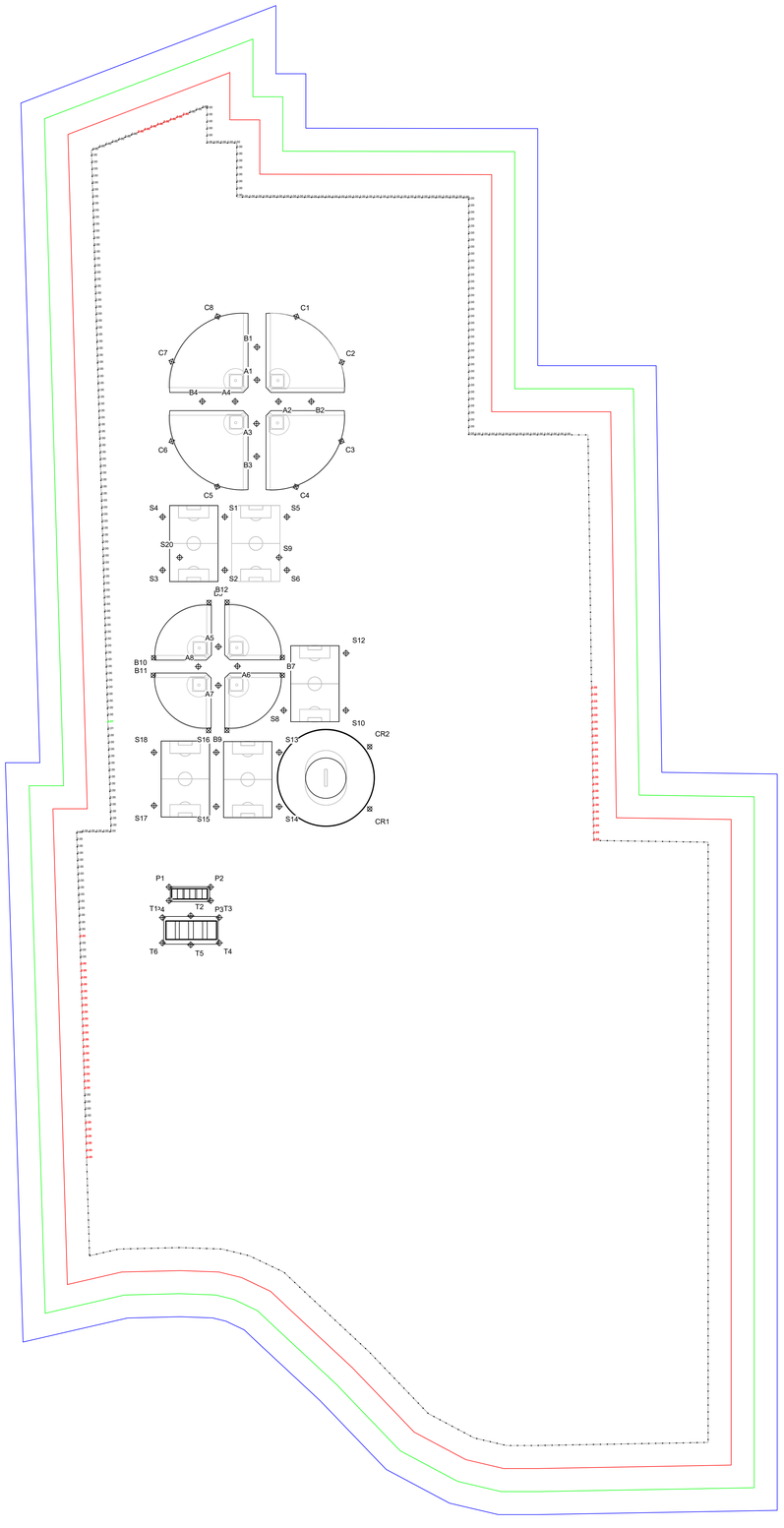
East Side Regional Park

Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole QTY	Pole LOCATION	Pole AIM	Pole GRADE ELEVATION	Pole MOUNTING HEIGHT	Luminaires LUMINAIRE TYPE	Luminaires QTY/ POLE	Luminaires TIGE GRID	Luminaires OTHER GRIDS
4	A1-A4	70°	-	70'	TLC-LED-1200	3/3*	6	0
4	A5-A8	60°	-	15.5'	TLC-BT-575	1/1*	2	0
				70'	TLC-LED-1200	3/3*	6	0
4	B1-B4	80°	-	15.5'	TLC-BT-575	1/1*	2	0
				80'	TLC-LED-1500	6/6*	13	0
7	B5, B7-B12	70°	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B6	70°	-	70'	TLC-LED-1500	5*	5	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
9	CR1, CR2 S10, S12 S17-S18 S5-S6, S8	70°	-	70'	TLC-LED-1500	5	5	0
8	C1-C8	70°	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	5	5	0
4	P1-P4	40°	-	40'	TLC-LED-600	1	1	0
				40'	TLC-LED-400	1	1	0
6	S1-S2 S13-S16	70°	-	70'	TLC-LED-1500	5/5*	10	0
2	S5-S6	70°	-	70'	TLC-LED-1500	5	5	0
6	T1-T6	50°	-	50'	TLC-LED-900	2	2	0
55	TOTALS					340	340	0

* This structure utilizes a back-to-back mounting configuration



GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0005**
Maximum:	0.01
Minimum:	0.00
No. of Points:	548

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,000
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.

SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN · By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊗

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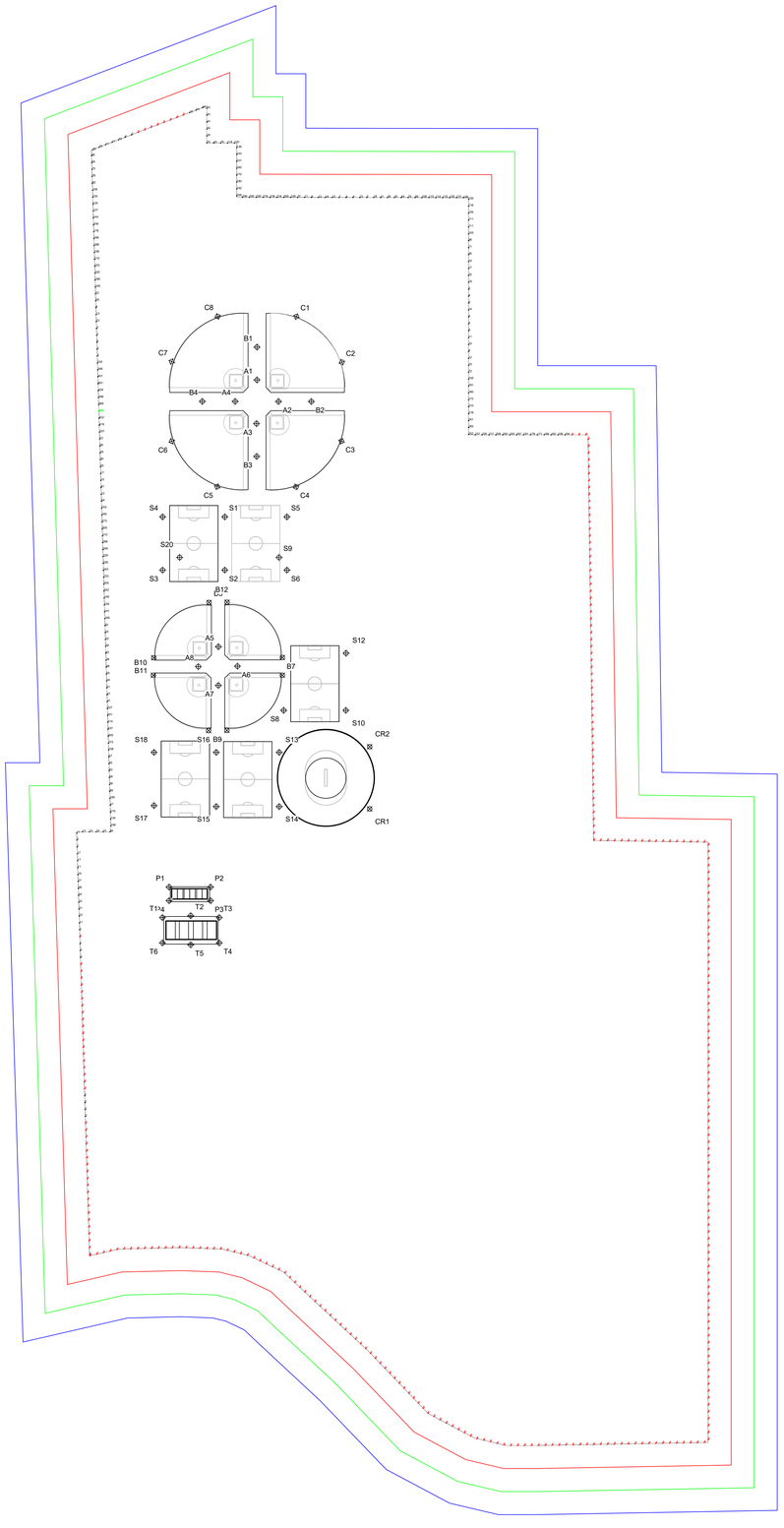
East Side Regional Park

Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole QTY	Pole LOCATION	Pole AIM	Pole GRADE ELEVATION	Pole MOUNTING HEIGHT	Luminaires LUMINAIRE TYPE	Luminaires QTY / POLE	Luminaires TIGE GRID	Luminaires OTHER GRIDS
4	A1-A4	70°	-	70'	TLC-LED-1200	3/3*	6	0
4	A5-A8	60°	-	15.5'	TLC-BT-575	1/1*	2	0
				70'	TLC-LED-1200	3/3*	6	0
4	B1-B4	80°	-	15.5'	TLC-BT-575	1/1*	2	0
				80'	TLC-LED-1500	6/6*	13	0
2	B5, B7-B12	70°	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B6	70°	-	70'	TLC-LED-1500	5*	5	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
9	CR1, CR2 S10, S12 S17-S18 S5-S6, S8 S13	70°	-	70'	TLC-LED-1500	5	5	0
8	C1-C8	70°	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	5	5	0
2	P1-P4	40°	-	40'	TLC-LED-600	1	1	0
				40'	TLC-LED-400	1	1	0
6	S1-S2 S13-S16	70°	-	70'	TLC-LED-1500	5/5*	10	0
2	S5-S6	70°	-	70'	TLC-LED-1500	5	5	0
6	T1-T6	50°	-	50'	TLC-LED-900	2	2	0
51			TOTALS			340	340	0

* This structure utilizes a back-to-back mounting configuration



GRID SUMMARY

Name:	**Property Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	**47.0199**
Maximum:	463.82
Minimum:	0.00
No. of Points:	548

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Current Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.

SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN · By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊗

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**100' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0000**
Maximum:	0.00
Minimum:	0.00
No. of Points:	576

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,300 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

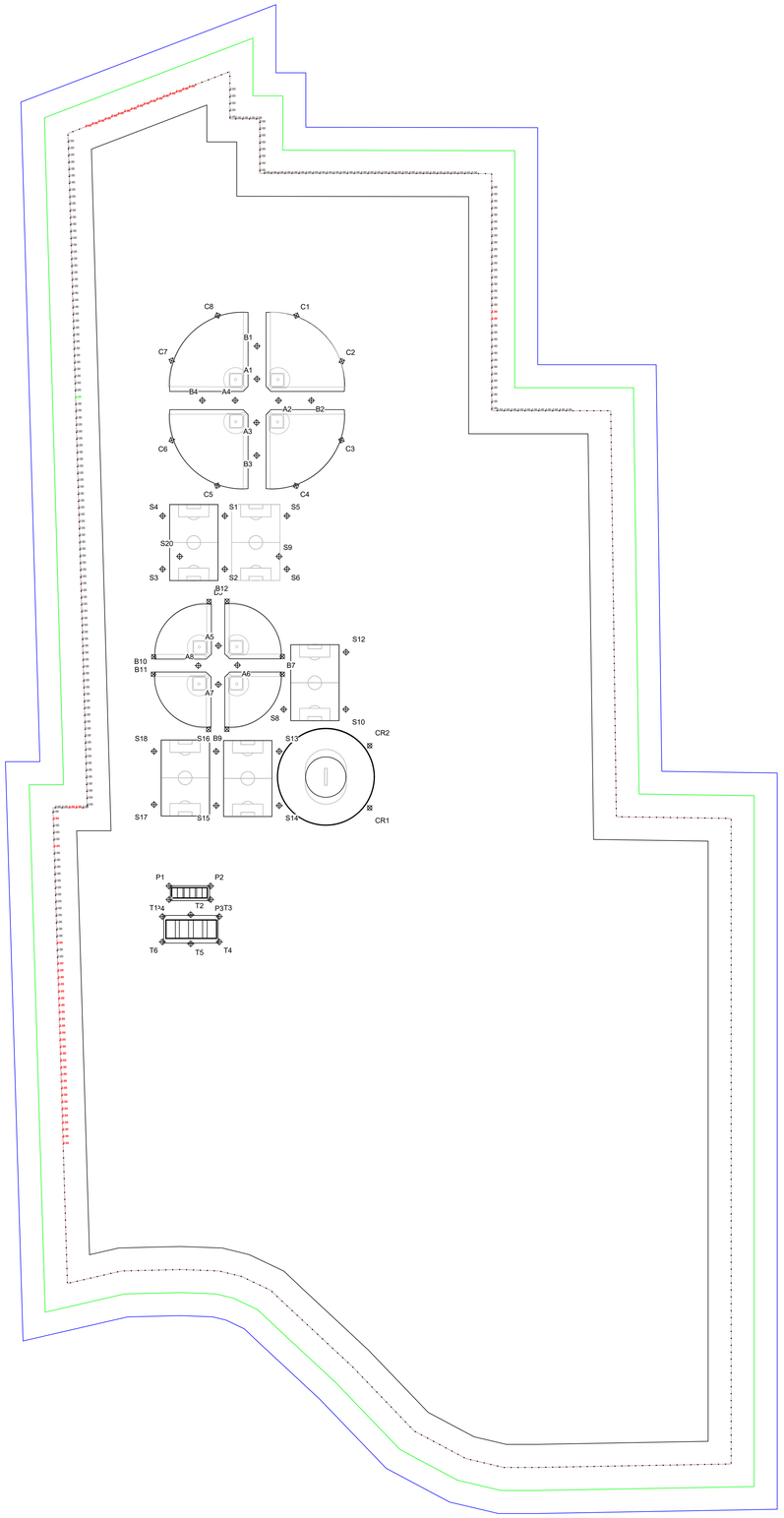
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250 500

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊙

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**100' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0002**
Maximum:	0.00
Minimum:	0.00
No. of Points:	576

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,000
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

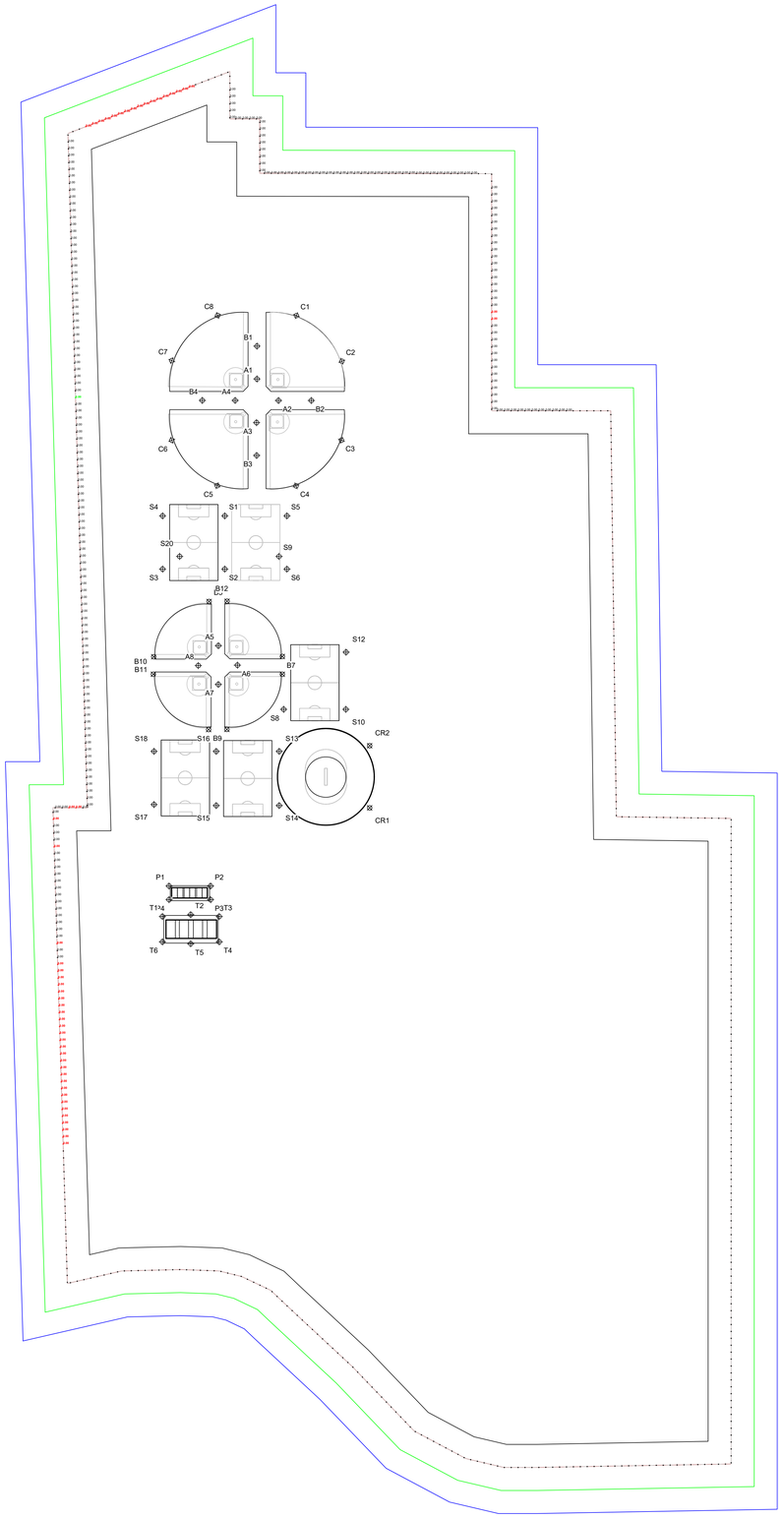
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250 500

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊙

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**100' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	**28.0789**
Maximum:	284.06
Minimum:	0.00
No. of Points:	576

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,400 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

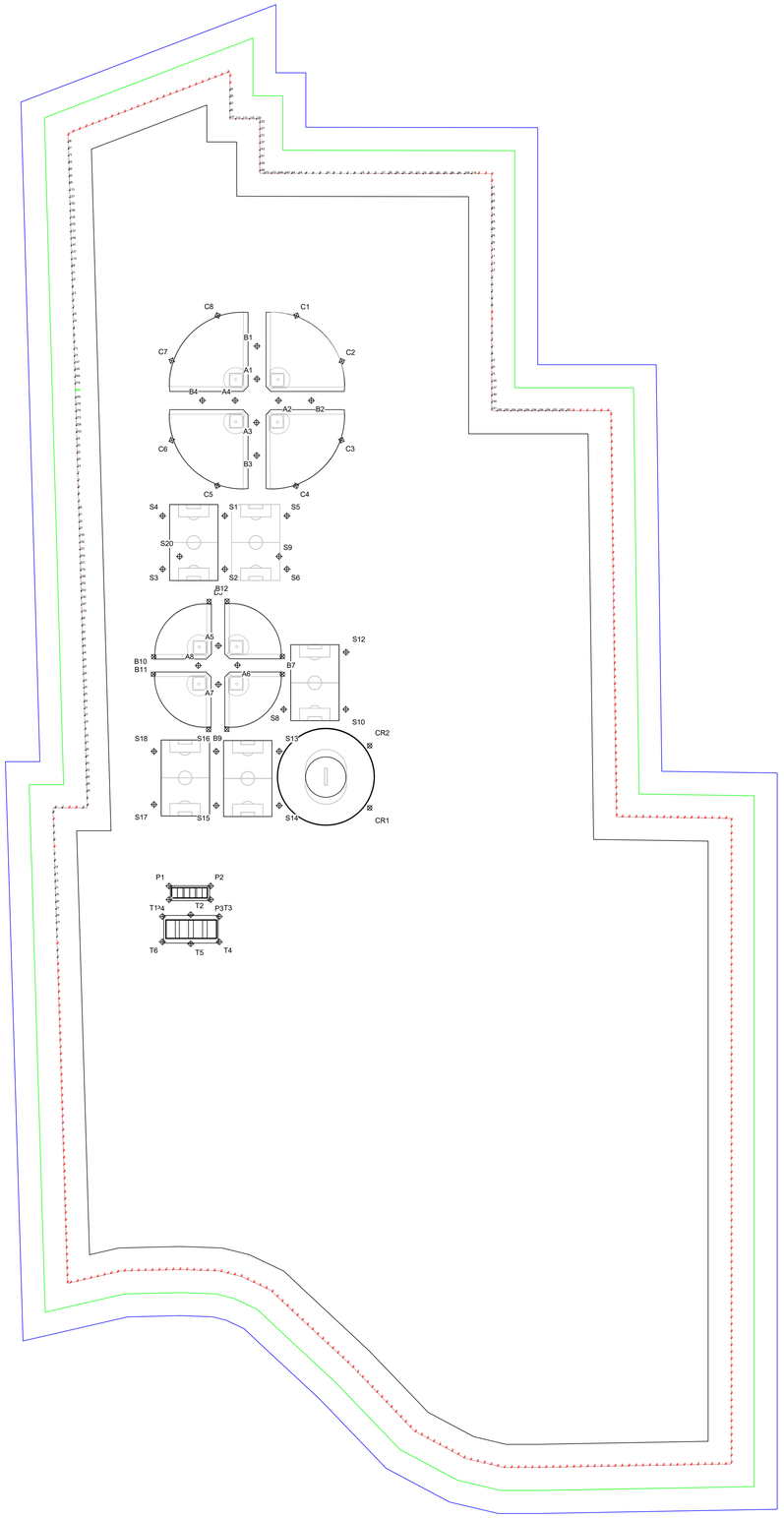
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250 500

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✣ dimensions are relative to 0,0 reference point(s) ⊙

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**200' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0001**
Maximum:	0.00
Minimum:	0.00
No. of Points:	604

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,000
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

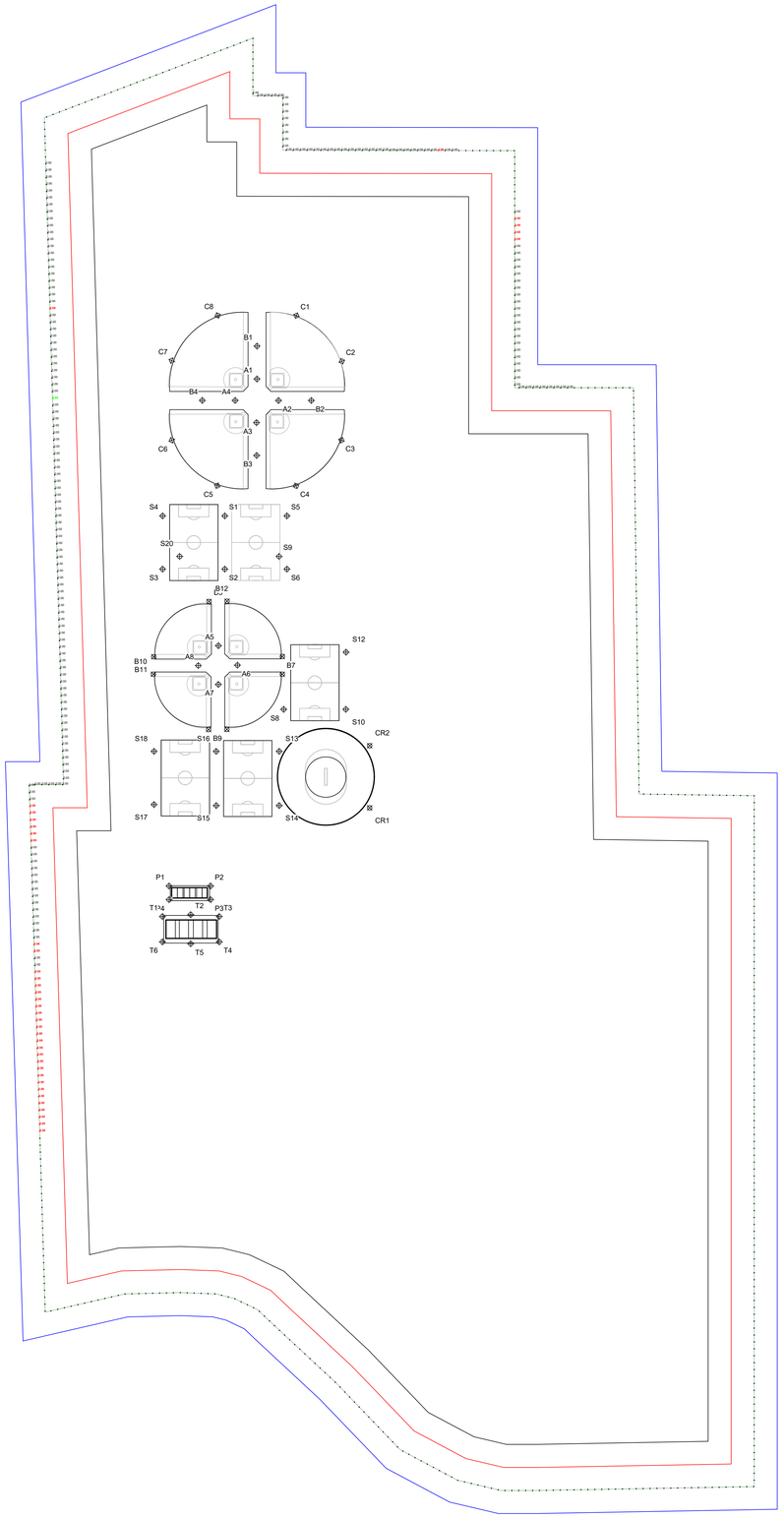
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✚ dimensions are relative to 0,0 reference point(s) ⊗

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East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**200' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0000**
Maximum:	0.00
Minimum:	0.00
No. of Points:	604

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,400 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

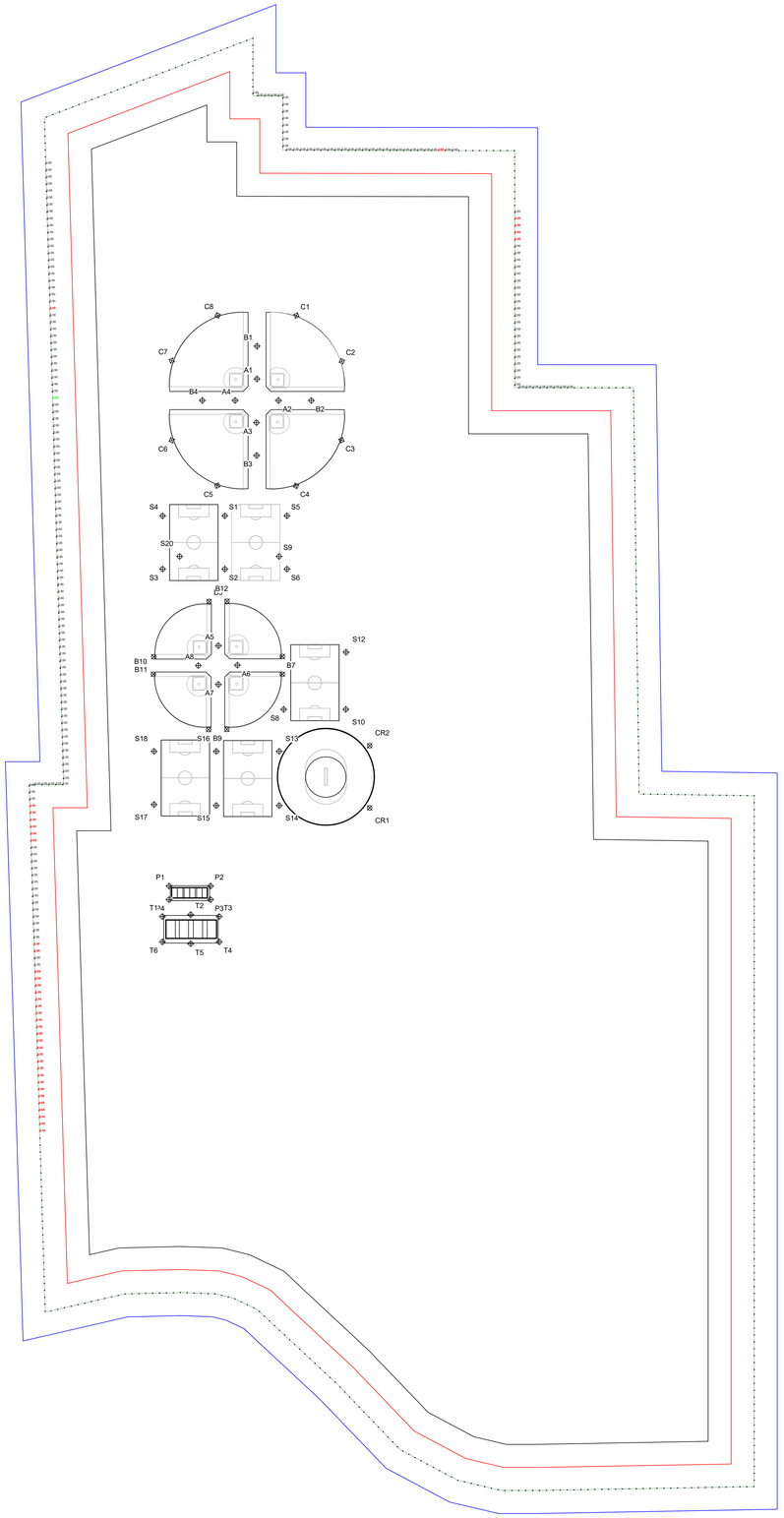
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✚ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**200' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA [PER FIXTURE]

Entire Grid

Scan Average:	**15.0603**
Maximum:	207.16
Minimum:	0.00
No. of Points:	604

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

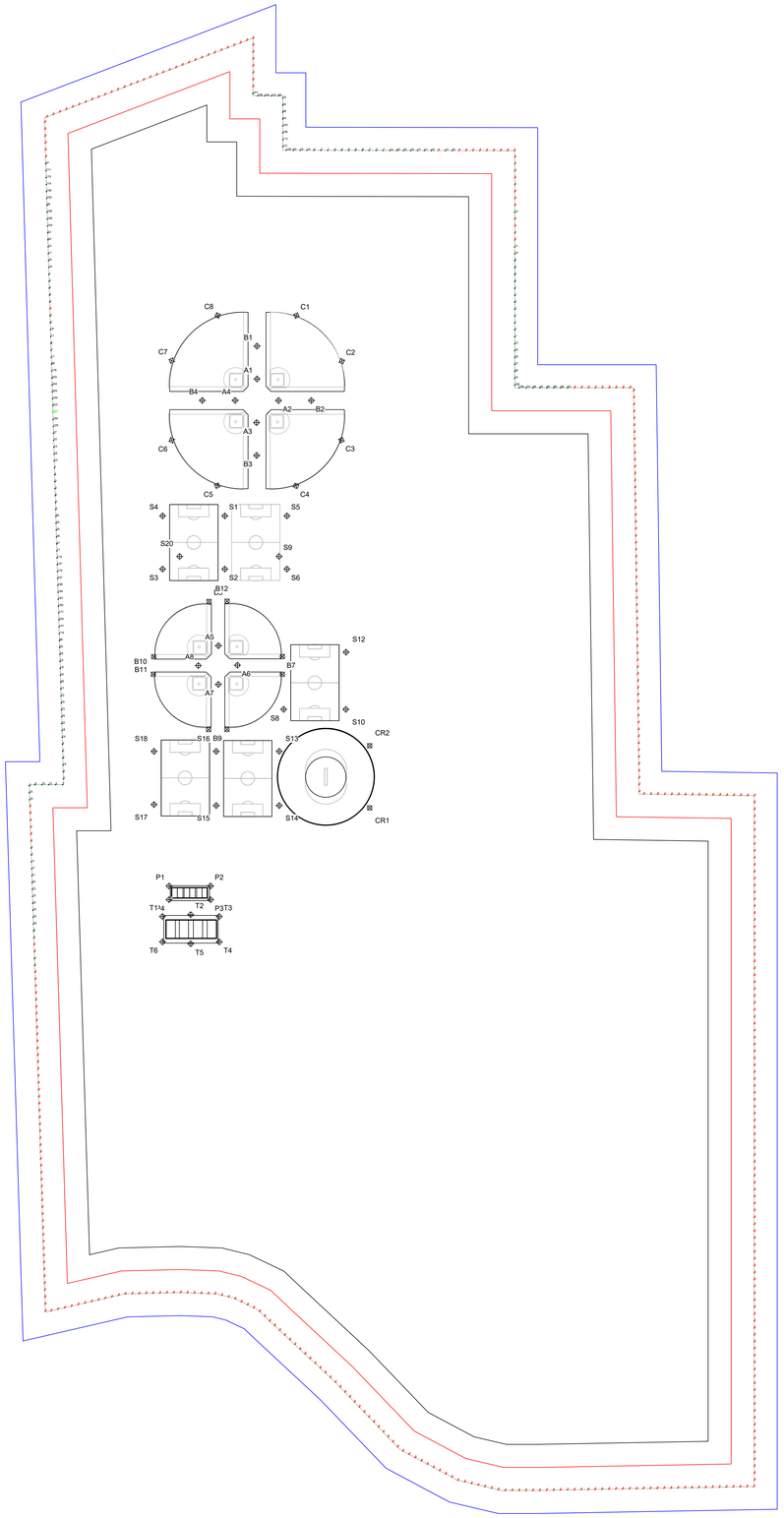
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250' 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✚ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**300' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

HORIZONTAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0000**
Maximum:	0.00
Minimum:	0.00
No. of Points:	633

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

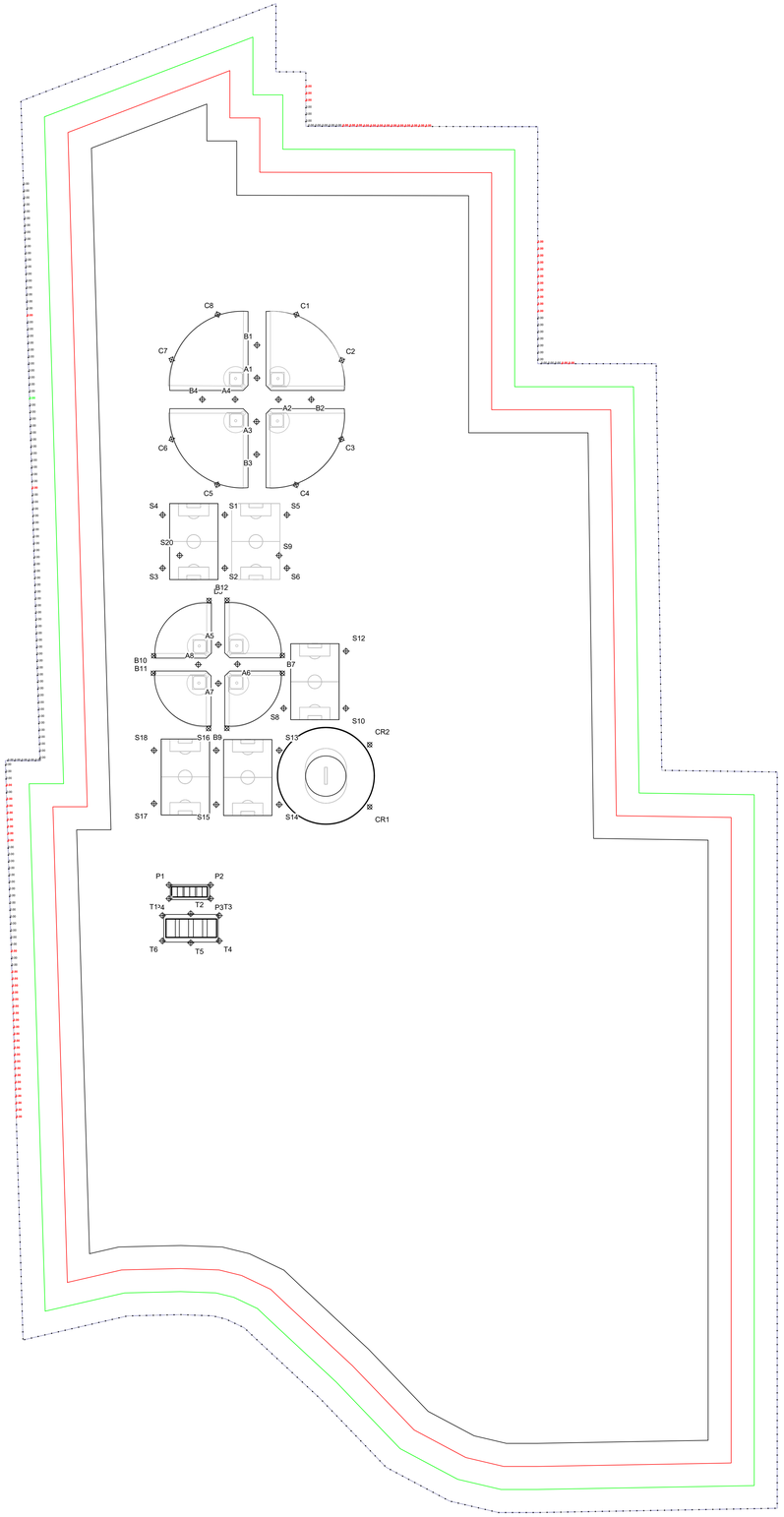
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✚ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

East Side Regional Park

Visalia, CA

GRID SUMMARY

Name:	**300' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

MAX VERTICAL FOOTCANDLES

	Entire Grid
Scan Average:	**0.0001**
Maximum:	0.00
Minimum:	0.00
No. of Points:	633

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

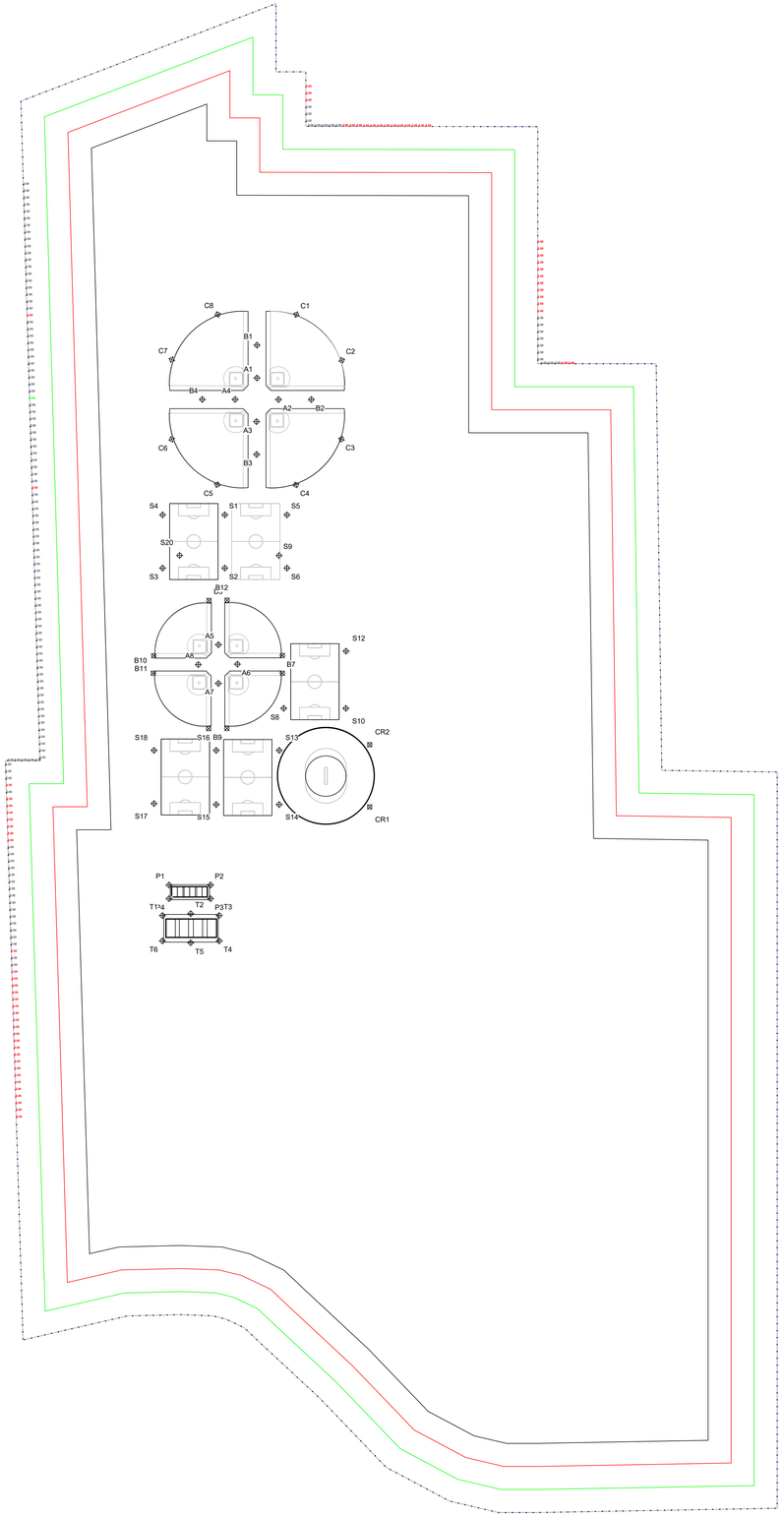
Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.



SCALE IN FEET 1 : 250

0 250 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #202326B • 11-Nov-19

Pole location(s): ✚ dimensions are relative to 0,0 reference point(s) ⊗

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ILLUMINATION SUMMARY

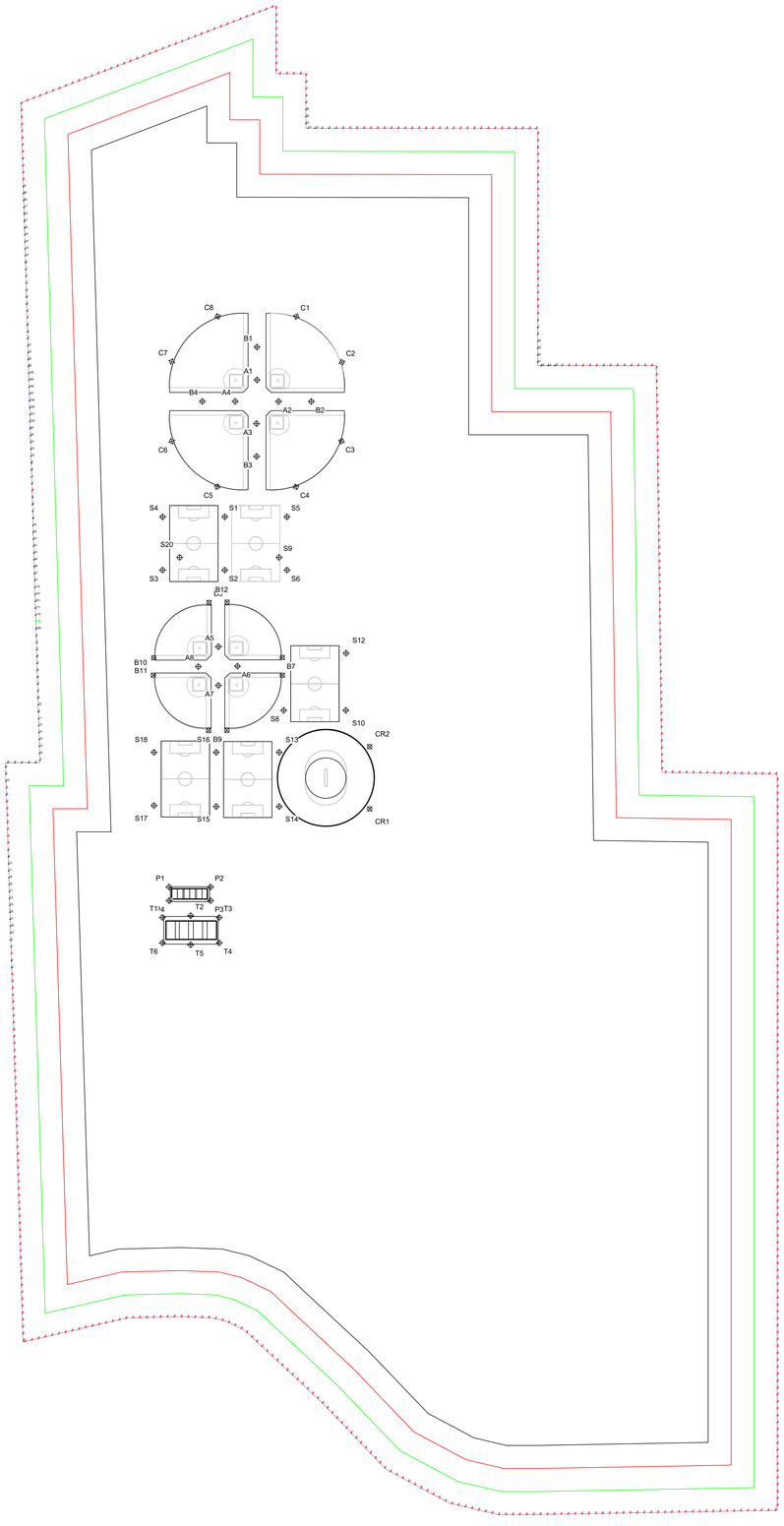
East Side Regional Park

Visalia, CA

EQUIPMENT LIST FOR AREAS SHOWN

Pole					Luminaires			
QTY	LOCATION	AIM	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	TILE GRID	OTHER GRIDS
4	A1-A4	70°	-	70'	TLC-LED-1200	3/3*	6	0
4	A5-A8	60°	-	15.5'	TLC-BT-575	1/1*	2	0
				70'	TLC-LED-1200	3/3*	6	0
4	B1-B4	80°	-	15.5'	TLC-BT-575	1/1*	2	0
				80'	TLC-LED-1500	6/6*	13	0
7	B5, B7-B12	70°	-	15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
1	B6	70°	-	70'	TLC-LED-1500	5*	5	0
				15.5'	TLC-BT-575	1	1	0
				70'	TLC-LED-1200	4	4	0
9	CR1, CR2 S10, S12 S17-S18 S3-S6, S8	70°	-	70'	TLC-LED-1500	5	5	0
8	C1-C8	70°	-	15.5'	TLC-BT-575	2	2	0
				70'	TLC-LED-1500	5	5	0
4	P1-P4	40°	-	40'	TLC-LED-600	1	1	0
				40'	TLC-LED-400	1	1	0
6	S1-S2 S13-S16	70°	-	70'	TLC-LED-1500	5/5*	10	0
2	S5-S6	70°	-	70'	TLC-LED-1500	5	5	0
6	T1-T6	50°	-	50'	TLC-LED-900	2	2	0
55	TOTALS					340	340	0

* This structure utilizes a back-to-back mounting configuration



GRID SUMMARY

Name:	**300' Spill**
Spacing:	30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY

CANDELA (PER FIXTURE)

	Entire Grid
Scan Average:	**6.8810**
Maximum:	175.84
Minimum:	0.00
No. of Points:	633

LUMINAIRE INFORMATION

Color / CRI:	5700K - 75 CRI
Luminaire Output:	132,300 / 136,000 / 160,000 / 52,000 / 46,500 / 65,
No. of Luminaires:	**340**
Total Load:	419.76 kW

Lumen Maintenance

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1200	>81,000	>81,000	>81,000
TLC-LED-1500	>81,000	>81,000	>81,000
TLC-BT-575	>81,000	>81,000	>81,000
TLC-LED-400	>81,000	>81,000	>81,000
TLC-LED-600	>81,000	>81,000	>81,000
TLC-LED-900	>81,000	>81,000	>81,000

Reported per TM-21-11. See luminaire datasheet for details.

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the **"Musco Control System Summary"** for electrical sizing.

Installation Requirements: Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet [1m] of design locations.

SCALE IN FEET 1 : 250

0' 250' 500'

ENGINEERED DESIGN By: Kelsy Butterbaugh • File #2023268 • 11-Nov-19

Pole location(s) ✣ dimensions are relative to 0,0 reference point(s) ⊙

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Appendix P. Alternative Assessment

May 21, 2020

Dawn E. Marple
Principle Planner
Provost & Pritchard Consulting Group
130 North Garden Street
Visalia, CA 93291

Re: East Side Regional Park Alternative 2 Assessment

Dear Ms. Marple:

VRPA Technologies, Inc. (VRPA) prepared the following Air Quality, Noise, and Traffic qualitative assessment of Alternative 2 for the proposed City of Visalia East Side Regional Park and Groundwater Recharge Project (Project). Alternative 2 is identical to the Project, but with the removal of the sports lighting. Accordingly, the following recreational activity fields would not be lighted:

- Four (4) fenced Adult Softball Fields
- Four (4) fenced Youth Baseball Fields
- Five (5) full-size Soccer Fields
- Tennis Courts
- Pickleball Courts
- Full Basketball Court
- Amphitheater
- Outdoor swimming pools

Park hours would be limited to 7am to 6pm. Consequently, the above fields would not be available for rent for activities after 6pm.

Air Quality

Alternative 2 would be developed in a similar manner to the proposed Project as discussed in the Air Quality & Greenhouse Gas Impact Assessment. As noted above, the only difference between the proposed Project and Alternative 2 is the removal of lighting for the ball fields and courts. Section 3.0 of the Air Quality & Greenhouse Gas Impact Assessment provides an analysis of short-term and long-term impacts associated with the Project that would also be anticipated for the development of Alternative 2.

Short-Term Impacts

The annual emissions from the construction phase of Phase 1, 2, and 3 of Alternative 2 will be less than the applicable SJVAPCD emission thresholds for criteria pollutants, as noted in Tables 1, 2, 3 and 4 which are consistent with mobile source emissions tables included in the Air Quality & Greenhouse Gas Impact Assessment. The construction emissions are therefore considered less than significant.

4630 W. Jennifer, Suite 105, Fresno, CA 93722 · Phone (559) 271-1200 · Fax (559) 271-1269
www.vrpatechnologies.com

Long-Term Impacts

Long-Term emissions from Alternative 2 are generated primarily by mobile source (vehicle) emissions from the project site and area sources such as lawn maintenance equipment. Emissions from long-term operations generally represent a project's most substantial air quality impact. Tables 5, 6, and 7 summarize operational impacts by pollutant for Alternative 2 and are consistent with mobile source emissions tables included in the Air Quality & Greenhouse Gas Impact Assessment. Results show that Alternative 2 operational emissions will not exceed applicable emission thresholds. Long-term emissions for Alternative 2 are considered less than significant. Therefore, no mitigation is needed.

Table 1

Phase 1 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	5.52	6.82	0.86	0.01	1.37	0.77
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 2

Phase 2 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	3.89	6.87	0.64	0.01	1.20	0.72
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 3

Phase 2 Tower Street Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Tower Street Construction Emissions Per Year	2.31	2.89	0.28	0.00	1.42	0.39
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: Road Construction Emissions Model

Table 4

Phase 3 Project Construction Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$
Construction Emissions Per Year	4.31	7.44	1.71	0.01	2.79	1.47
SJVAPCD Level of Significance	100	10	10	27	15	15
Does the Project Exceed Standard?	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 5

Phase 1 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 1 Operational Emissions Per Year	0.02	0.01	0.04	0.00	0.03	0.00	172.84
Emissions from Walnut/Pecan Orchard	-4.82	-0.35			-2.72	-0.46	
NET Phase 1 Project Emissions	**0.00**	**0.00**	**0.04**	**0.00**	**0.00**	**0.00**	**172.84**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 6

Phase 2 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 2 Operational Emissions Per Year	4.42	3.42	0.83	0.01	0.77	0.22	1296.05
Emissions from Walnut/Pecan Orchard	-8.71	-0.63			-4.98	-0.83	
NET Phase 1 Project Emissions	**0.00**	**2.79**	**0.83**	**0.01**	**0.00**	**0.00**	**1296.05**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Table 7
Phase 3 Project Operational Emissions (tons/year)

Summary Report	CO	NO_X	ROG	SO_X	PM_{10}	$PM_{2.5}$	CO2e
Phase 3 Operational Emissions Per Year	6.06	5.56	0.99	0.02	1.60	0.45	2552.30
Emissions from Walnut/Pecan Orchard	-13.5	-0.98			-6.53	-1.16	
NET Full Buildout Project Emissions	**0.00**	**4.58**	**0.99**	**0.02**	**0.00**	**0.00**	**2552.30**
SJVAPCD Level of Significance	100	10	10	27	15	15	None
Does the Project Exceed Standard?	No	No	No	No	No	No	No

Source: CalEEMod 2016.3.1

Greenhouse Gas Emissions

As shown in Table 8, Alternative 2 would generate 2,490.70 Metric Tons of Carbon Dioxide Equivalent per year (MTCO2eq./year) using an operational year of 2005, which includes area, energy, mobile, waste, and water sources. "Business as usual" (BAU) is referenced in CARB's AB 32 Scoping Plan as emissions projected to occur in 2020 if the average baseline emissions during the 2002-2004 period grew to 2020 levels, without control or Best Performance Standards (BPS) offsets. As a result, an estimate of the operational emissions for Alternative 2 in 2005 were compared to operational emissions in 2020 in order to determine if Alternative 2 meets the 29% emission reduction. The SJVAPCD has reviewed relevant scientific information related to GHG emissions and has determined that they are not able to determine a specific quantitative level of GHG emissions increase, above which a project would have a significant impact on the environment, and below which would have an insignificant impact. As a result, the SJVAPCD has determined that projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG. Results of the analysis show that the GHG emissions for Alternative 2 in the year 2020 is 2,187.47 MTCO2eq./year. This represents an achievement of 13% GHG emission reduction on the basis of BAU, which does not meet the 29% GHG emission reduction target. However, Alternative 2 incorporates various BPS including recreational multi-use trails with fitness equipment that encourage biking, jogging, and walking and provide neighboring residential neighborhoods with direct access to its facilities. The nearest facility similar to the site is located approximately 5 miles northwest of the neighboring residences. The types of facilities incorporated into Alternative 2 coincide with the pedestrian infrastructure-based mitigation measures included in the SJVAPCD's Mitigation Measures document available at http://www.valleyair.org/transportation/Mitigation-Measures.pdf. Those measures include providing pedestrian enhancing infrastructure that includes sidewalks and pedestrian paths and direct pedestrian connections.

On December 5, 2008, the South Coast Air Quality Management District (SCAQMD) Governing Board adopted the staff proposal for an interim GHG significance threshold for projects where the SCAQMD is lead agency. The SCAQMD guidance identifies a threshold of 7,000 MTCO2eq./year for GHG emissions. Though the site is not within the SCAQMD jurisdiction, the SCAQMD GHG threshold provides some perspective on the GHG emissions generated by Alternative 2. Table 9 shows the yearly GHG emissions generated by Alternative 2 for each Phase, which are approximately 98% (Phase 1), 81% (Phase 2), and

64% (Phase 3) less than the threshold identified by the SCAQMD.

Based on the assessment above, Alternative 2 will not generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Therefore, no mitigation is needed.

Table 8

2005/2020 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Operational Emissions Per Year (2005)	2,490.70 MT/yr
Operational Emissions Per Year (2020)	2,187.47 MT/yr
SJVAPCD Level of Significance	29% Reduction Compared to BAU
Does the Project Meet the Standard?	No

Source: CalEEMod 2016.3.1

Table 9

Phase 1, 2 and 3 Operational Greenhouse Gas Emissions

Summary Report	CO_2e
Phase 1 Operational Emissions Per Year	172.84 MT/yr
Phase 2 Operational Emissions Per Year	1,296.05 MT/yr
Phase 3 Operational Emissions Per Year	2,552.30 MT/yr

Source: CalEEMod 2016.3.1

TRAFFIC

Alternative 2 would be developed in a similar manner to the proposed Project as discussed in the Traffic Impact Study (TIS). As noted above, the only difference between the proposed Project and Alternative 2 is the removal of lighting for the ball fields and courts. Section 3.0 of the TIS provides an analysis of traffic impacts associated with the Project that would also be anticipated for the development of Alternative 2.

Intersections

Results of the analysis show that Alternative 2 will cause or contribute to an unacceptable LOS at 2 of the 25 study intersections (Lovers Lane and Mineral King Avenue and SR 198 WB Ramps and Mineral King Avenue) when comparing the Existing and Existing Plus Project scenarios. Results of the analysis also shows that Alternative 2 will cause or contribute to an unacceptable LOS at 10 of the 25 study intersections when comparing the Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios. Alternative 2 will cause or contribute to an unacceptable LOS at 8 of the 27 study intersections when comparing the Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios. Tables 10 and 11 show intersections that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 scenarios.

Intersection level of service analysis was also provided for study intersections at the Project driveways along Tower Street during a special event in the TIS prepared for the Project as discussed in Section 3.1.3. Removal of lighting at the ball fields/courts and amphitheater would eliminate the need for analysis/improvements resulting from evening events.

Intersection level of service analysis conducted for study intersections at the Project driveways along Tower Street during the Saturday peak hour show that the Project driveways will meet acceptable levels of service for Alternative 2.

Segments

Results of the analysis show that all of the study roadway segments will meet acceptable levels of service for the Existing Plus Project (Full Build Out) and Near-Term Opening Year 2018 scenarios. It should be noted that the Near-Term Opening Year 2018 scenario evaluated Year 2018 conditions Plus Phase 2 of the Project. Results of the analysis also show that Alternative 2 will contribute to an unacceptable LOS at 1 of the 32 study roadway segments (Road 156 south of Noble Avenue) when evaluating all Cumulative Year 2040 scenarios. Tables 12, 13, 14, and 15 show roadway segments that are expected to fall short of desirable operating conditions for the Cumulative Year 2040 scenarios.

Merge/Diverge Analysis

Results of the analysis indicate that Alternative 2 will contribute to an unacceptable LOS at 2 of the 14 merge/diverge points along SR-198 (EB Off Ramp to Lovers Lane and WB On Ramp from Lovers Lane) when evaluating the Cumulative Year 2040 With Tower Street Interchange scenarios.

Table 10

Cumulative Year 2040 Intersection Operations

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
				DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
1. Lovers Lane / Houston Avenue (SR 216)	Signalized	C	AM	44.1	D	44.9	D	41.8	D	42.4	D
			PM	34.7	C	34.4	C	32.3	C	33.3	C
2. Lovers Lane / Mineral King Avenue	Signalized	C	AM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
3. Lovers Lane / SR 198 EB Ramps	Signalized	C	AM	33.0	C	**35.3**	**D**	21.1	C	25.7	C
			PM	**>80.0**	**F**	**>80.0**	**F**	**68.2**	**E**	**72.4**	**E**
4. Lovers Lane / Noble Avenue	Signalized	D	AM	48.3	D	49.9	D	41.6	D	42.0	D
			PM	47.2	D	54.9	D	43.5	D	44.3	D
5. SR 198 WB Ramps / Mineral King Avenue	One-Way Stop Sign	C	AM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
			PM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
6. McAuliff Street / Houston Avenue (SR 216)	Signalized	C	AM	29.5	C	29.7	C	25.9	C	26.1	C
			PM	30.9	C	31.5	C	30.8	C	30.9	C
7. McAuliff Street / Mill Creek Parkway	One-Way Stop Sign	D	AM	26.8	D	26.8	D	15.3	C	15.3	C
			PM	31.5	D	32.0	D	16.4	C	16.5	C
8. McAuliff Street / Murray Avenue	One-Way Stop Sign	D	AM	13.4	B	13.4	B	14.8	B	14.9	B
			PM	20.8	C	20.8	C	26.2	D	26.9	C
9. McAuliff Street / Mineral King Avenue	All-Way Stop Sign	D	AM	29.7	D	33.3	D	10.2	B	10.2	B
			PM	**37.7**	**E**	**38.7**	**E**	10.1	B	10.2	B
10. Mineral King Avenue (North) / Mineral King Avenue	One-Way Stop Sign	D	AM	17.1	C	17.9	C	--	A	--	A
			PM	19.6	C	24.5	C	--	A	--	A
11. Road 152 / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	11.7	B	11.8	B	13.4	B	13.4	B
			PM	11.3	B	11.5	B	14.2	B	14.2	B
12. Road 152 / Mineral King Avenue	One-Way Stop Sign	D	AM	**>50.0**	**F +**	**>50.0**	**F +**	**49.9**	**E +**	**>50.0**	**F +**
			PM	21.7	C	28.0	D	33.5	D	**38.9**	**E +**
13. Noble Avenue / SR 198 EB Ramps	One-Way Stop Sign	C	AM	**29.6**	**D**	**29.9**	**D**	19.5	C	19.5	C
			PM	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**	**>50.0**	**F**
14. SR 198 WB On-Ramp / Mineral King Avenue	Uncontrolled	C	AM	--	A	--	A	--	A	--	A
			PM	--	A	--	A	--	A	--	A
15. Road 156 / Mineral King Avenue	Signalized	D	AM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
16. Road 156 / Noble Avenue	Signalized	D	AM	51.3	D	52.1	D	44.4	D	44.4	D
			PM	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**	**>80.0**	**F**
17. SR 198 WB Off-Ramp / Mineral King Avenue	One-Way Stop Sign	C	AM	**70.5**	**E**	**>50.0**	**F**	23.5	C	23.8	C
			PM	**30.0**	**D**	**33.8**	**D**	20.4	C	21.1	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

+ Does not meet peak hour signal warrants.

Table 11

Cumulative Year 2040 Tower Street Intersection Operations

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE	
			DELAY	LOS	DELAY	LOS	DELAY	LOS	DELAY	LOS
18. Tower Street / Houston Avenue (SR 216)	C	AM	14.3	B	14.6	B	22.0	C	22.8	C
		PM	13.4	B	14.4	B	**>50.0**	**F**	**>50.0**	**F**
19. Tower Street / McKinley Avenue-Project Driveway #2	D	AM	8.5	A	8.7	A	8.9	A	8.9	A
		PM	8.5	A	8.8	A	9.4	A	9.5	A
20. Tower Street / Douglas Avenue	D	AM	8.6	A	8.6	A	8.9	A	8.9	A
		PM	8.5	A	8.5	A	9.4	A	9.5	A
21. Tower Street / Race Avenue	D	AM	8.6	A	8.6	A	8.9	A	8.9	A
		PM	8.5	A	8.5	A	9.4	A	9.4	A
22. Tower Street / Murray Avenue	D	AM	8.5	A	8.6	A	9.3	A	9.4	A
		PM	8.4	A	8.5	A	10.1	B	10.1	B
23. Tower Street / Villoy Avenue-Project Driveway #1	D	AM	8.6	A	8.8	A	9.5	A	9.6	A
		PM	8.5	A	9.5	A	10.2	B	11.2	B
24. Tower Street / Mineral King Avenue	D	AM	24.9	C	28.5	D	12.4	B	12.8	B
		PM	24.6	C	**42.7**	**E**	20.6	C	25.6	D
25. Road 152 / Project Driveway #3	D	AM	--	A	8.7	A	--	A	8.9	A
		PM	--	A	8.7	A	--	A	8.7	A
26. Tower Street / SR 198 WB Ramps	C	AM					6.4	A	6.3	A
		PM					10.9	B	10.1	B
27. Tower Street / SR 198 EB Ramps	C	AM					10.1	B	10.5	B
		PM					11.5	B	12.7	B

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized and all-way stop controlled intersections, delay results show the average for the entire intersection. For one-way and two-way stop controlled intersections, delay results show the delay for the worst movement.

Table 12

Cumulative Year 2040 Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040 PLUS PROJECT		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	11,500	0.29	C	11,800	0.30	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	6,600	0.37	C	7,100	0.40	C
East of Road 152	2 Lanes Undivided	C	17,700	4,000	0.23	C	4,100	0.23	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	17,100	0.48	C	17,200	0.48	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	24,500	0.68	C	24,600	0.69	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,800	0.64	C	23,400	0.65	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	11,700	0.33	C	11,800	0.33	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	11,900	0.35	C	11,900	0.35	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	12,000	0.35	C	12,000	0.35	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	800	0.05	C	900	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	3,400	0.21	C	3,700	0.23	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	8,300	0.52	C	8,400	0.53	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	12,100	0.76	C	13,400	0.84	C
McAuliff Street to Road 152	2 Lanes Undivided	D	15,930	9,400	0.59	C	9,500	0.60	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	8,500	0.53	C	8,900	0.56	C
East of Road 156	2 Lanes Undivided	D	15,930	7,000	0.44	C	7,000	0.44	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**17,100**	**1.07**	**F**	**17,200**	**1.08**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Mineral King Avenue (North)									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	700	0.04	C	700	0.04	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	1,300	0.09	C	1,400	0.10	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,300	0.46	C	7,300	0.46	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	8,000	0.50	C	8,100	0.51	C
West of Road 156	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,000	0.25	C
East of Road 156	2 Lanes Undivided	D	15,930	4,700	0.30	C	4,900	0.31	C
SR 198									
Lovers Lane to Road 156	4 Lanes Divided	C	79,900	49,600	0.62	C	49,600	0.62	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 13

Cumulative Year 2040 Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	1,500	0.04	C	2,100	0.06	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	1,500	0.04	C	3,000	0.08	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	1,700	0.05	C	3,200	0.09	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 14

Cumulative Year 2040 With Tower Street Interchange Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Houston Avenue (SR 216)									
West of Lovers Lane	2 Lanes Undivided	D	17,700	7,800	0.44	C	7,900	0.45	C
Lovers Lane to McAuliff Street	4 Lanes Divided	C	39,800	10,300	0.26	C	10,600	0.27	C
McAuliff Street to Road 152	2 Lanes Undivided	C	17,700	8,200	0.46	C	8,700	0.49	C
East of Road 152	2 Lanes Undivided	C	17,700	6,800	0.38	C	6,900	0.39	C
Lovers Lane									
North of Houston Avenue (SR 216)	4 Lanes Undivided	D	33,830	7,400	0.22	C	7,500	0.22	C
Houston Avenue (SR 216) to Mill Creek Parkway	4 Lanes Divided	C	35,820	16,200	0.45	C	16,300	0.46	C
Mill Creek Parkway to Mineral King Avenue	4 Lanes Divided	C	35,820	23,500	0.66	C	23,600	0.66	C
South of Noble Avenue	4 Lanes Divided	D	35,820	22,900	0.64	C	23,100	0.64	C
McAuliff Street									
North of Houston Avenue (SR 216)	4 Lanes Divided	D	35,820	12,000	0.34	C	12,100	0.34	C
Houston Avenue (SR 216) to Murray Avenue	4 Lanes Undivided	D	33,830	7,200	0.21	C	7,200	0.21	C
Murray Avenue to Mineral King Avenue	4 Lanes Undivided	D	33,830	7,800	0.23	C	7,800	0.23	C
Road 152									
South of Houston Avenue (SR 216)	2 Lanes Undivided	D	15,930	900	0.06	C	1,000	0.06	C
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	4,000	0.25	C	4,300	0.27	C
Mineral King Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	9,200	0.58	C	9,300	0.58	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	10,000	0.63	C	10,300	0.65	C
McAuliff Street to Tower Street	2 Lanes Undivided	D	15,930	2,300	0.14	C	2,300	0.14	C
Tower Street to Road 152	2 Lanes Undivided	D	15,930	8,600	0.54	C	8,600	0.54	C
Road 152 to Road 156	2 Lanes Undivided	D	15,930	9,800	0.62	C	10,100	0.63	C
East of Road 156	2 Lanes Undivided	D	15,930	5,300	0.33	C	5,300	0.33	C
Road 156									
North of Mineral King Avenue	2 Lanes Undivided	D	15,930	400	0.03	C	400	0.03	C
South of Noble Avenue	2 Lanes Undivided	D	15,930	**16,000**	**1.00**	**F**	**16,100**	**1.01**	**F**
Mill Creek Parkway									
Lovers Lane to McAuliff Street	2 Lanes Divided	D	16,815	2,800	0.17	C	2,900	0.17	C
Murray Avenue									
East of McAuliff Street	2 Lanes Undivided	D	14,040	3,500	0.25	C	3,600	0.26	C
Noble Avenue									
West of Lovers Lane	2 Lanes Undivided	D	15,930	7,200	0.45	C	7,200	0.45	C
Lovers Lane to McAuliff Street	2 Lanes Undivided	D	15,930	6,800	0.43	C	6,900	0.43	C
West of Road 156	2 Lanes Undivided	D	15,930	3,200	0.20	C	3,200	0.20	C
East of Road 156	2 Lanes Undivided	D	15,930	4,600	0.29	C	4,800	0.30	C
SR 198									
Tower Street to Road 156	4 Lanes Divided	C	79,900	52,200	0.65	C	52,400	0.66	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 15
Cumulative Year 2040 With Tower Street Interchange
Tower Street Segment Operations

STREET SEGMENT	SEGMENT DESCRIPTION	TARGET LOS	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT WITH TOWER STREET INTERCHANGE			CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		
				VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS
Tower Street									
Houston Avenue (SR 216) to Race Avenue	4 Lanes Undivided	D	35,820	6,200	0.17	C	6,800	0.19	C
Race Avenue to Villoy Avenue	4 Lanes Divided	D	35,820	8,800	0.25	C	10,400	0.29	C
Villoy Avenue to Mineral King Avenue	4 Lanes Divided	D	35,820	11,800	0.33	C	13,200	0.37	C
South of SR 198 EB Ramps	4 Lanes Divided	D	35,820	5,700	0.16	C	6,200	0.17	C

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

MITIGATION

This section describes potential improvements to mitigate the traffic impacts from Alternative 2, which come from Section 4 of the TIS prepared for the Project. Described below are potential improvements at study area intersections and segments for various scenarios that would, in most cases, result in acceptable levels of service.

✓ Existing Plus Project Mitigation Measures

INTERSECTIONS

MM TR-1. Lovers Lane at Mineral King Avenue

- Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
- Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-1.

MM TR-2. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
- Widen the eastbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

- Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-2.

✓ Near-Term (Year 2018) Mitigation Measures

INTERSECTIONS

MM TR-3. Lovers Lane at Mineral King Avenue

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-1

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-3.

MM TR-4. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Near-Term Opening Year 2018 Without Project and Near-Term Opening Year 2018 Plus Project scenarios:
  - Implementation of MM TR-2

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-4.

✓ Cumulative Year 2040 Mitigation Measures

INTERSECTIONS

MM TR-5. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 1 left turn lane, 2 through lanes, and 1 right turn lane (adding 1 right turn lane)
  - Widen the southbound approach to 2 left turn lanes and 2 through lanes with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane (adding 1 right turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-5.

MM TR-6. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 through lanes and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 2 left turn lanes and 1 right turn lane (adding 1 left turn lane)

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-6.

MM TR-7. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the northbound approach to 1 left turn lane and 1 right turn lanes (adding 1 right turn lane)
  - Widen the eastbound approach to 1 through lane and 1 right turn lane with overlap phasing (adding 1 right turn lane)
  - Widen the westbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-7.

MM TR-8. McAuliff Street and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 1 through and 1 right turn lane (adding 1 right turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-8.

MM TR-9. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the southbound approach to 1 left turn and 1 right turn lane (adding 1 right turn lane)
  - Widen the eastbound approach to 1 left turn lane and 1 through lane (adding 1 left turn lane)
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-9.

MM TR-10. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Install Traffic Signal
  - Widen the westbound approach to 1 through lane and 1 right turn lane (adding 1 right turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-10.

MM TR-11. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-11.

MM TR-12. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the northbound approach to 2 left turn lanes and 1 through lane with a shared right (adding 1 left turn lane)
  - Widen the eastbound approach to 1 left turn lane, 1 through lane, and 1 right turn lane with overlap phasing (adding 1 right turn lane)

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-12.

MM TR-13. SR 198 WB Off Ramp and Mineral King Avenue (between Road 156 and Road 158)

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the westbound approach to 2 through lanes (adding 1 through lane)

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-13.

ROADWAY SEGMENTS

MM TR-14. Road 156

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios: *South of Noble Avenue*
  - Widen the segment from 2 to 4 travel lanes (adding 1 travel lane in each direction)

The impact associated with Alternative 2 *is considered less than significant with incorporation of MM TR-14.*

SR 198 RAMP JUNCTIONS

MM TR-15. SR 198 EB Off Ramp to Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the eastbound movement (adding 1 travel lane)

The impact associated with Alternative 2 *is considered less than significant with incorporation of MM TR-15.*

MM TR-16. SR 198 WB On Ramp from Lovers Lane

- Cumulative Year 2040 Without Project and Cumulative Year 2040 Plus Project scenarios:
  - Widen the SR 198 mainline from 2 to 3 travel lanes in the westbound movement (adding 1 travel lane)

The impact associated with Alternative 2 *is considered less than significant with incorporation of MM TR-16.*

QUEUING

MM TR-17. Lovers Lane and Houston Avenue (SR 216)

- In the southbound left-turn lane, lengthen the storage pocket from 225 feet to 300 feet.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-17.

MM TR-18. Lovers Lane and Mineral King Avenue

- In the northbound left-turn lane, lengthen the storage pocket from 100 feet to 325 feet.
- In the southbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the westbound left-turn lane, lengthen the storage pocket from 150 feet to 325 feet.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-18.

MM TR-19. Lovers Lane and SR 198 EB Ramps

- In the eastbound left-turn lane, lengthen the storage pocket from 225 feet to 375 feet.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-19.

MM TR-20. Lovers Lane and Noble Avenue

- In the eastbound left-turn lane, lengthen the storage pocket from 125 feet to 275 feet.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-20.

MM TR-21. McAuliff Street and Houston Avenue (SR 216)

- In the northbound left-turn lane, lengthen the storage pocket from 150 feet to 300 feet.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-21.

MM TR-22. McAuliff Street and Mineral King Avenue

- In the southbound right-turn lane, lengthen the storage pocket from 250 feet to 300 feet.
- In the eastbound left-turn lane, lengthen the storage pocket from 200 feet to 275 feet.
- In the westbound right-turn lane, provide 300-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-22.

MM TR-23. Road 152 and Mineral King Avenue

- In the southbound right-turn lane, provide 125-foot storage pocket.
- In the eastbound left-turn lane, provide 100-foot storage pocket.
- In the westbound right-turn lane, provide 125-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-23.

MM TR-24. SR 198 EB Ramps and Noble Avenue

- In the westbound right-turn lane, provide 125-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-24.

MM TR-25. Road 156 and Noble Avenue

- In the northbound left-turn lane, lengthen the storage pocket from 175 feet to 225 feet.
- In the eastbound right-turn lane, provide 150-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-25.

MM TR-26. Tower Street and Houston Avenue (SR 216)

- In the northbound left-turn lane, provide 200-foot storage pocket.
- In the northbound right-turn lane, provide 100-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-26.

MM TR-27. Tower Street and McKinley Avenue-Project Driveway #2

- In the southbound left-turn lane, provide 100-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-27.

MM TR-28. Tower Street and Race Avenue

- In the northbound left-turn lane, provide 100-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-28.

MM TR-29. Tower Street and Murray Avenue

- In the northbound left-turn lane, provide 250-foot storage pocket.
- In the southbound right-turn lane, provide 100-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-29.

MM TR-30. Tower Street and Villoy Avenue-Project Driveway #1

- In the northbound left-turn lane, provide 150-foot storage pocket.
- In the southbound left-turn lane, provide 100-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-30.

MM TR-31. Tower Street and Villoy Avenue-Project Driveway #1

- In the southbound left-turn lane, provide 250-foot storage pocket.
- In the eastbound left-turn lane, provide 175-foot storage pocket.

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-31.

✓ Cumulative Year 2040 With Tower Street Interchange Mitigation Measures

INTERSECTIONS

MM TR-32. Lovers Lane at Mineral King Avenue
- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-5

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-32.

MM TR-33. Lovers Lane at SR 198 EB Ramps
- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-6

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-33.

MM TR-34. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)
- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-7

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-34.

MM TR-35. Road 152 and Mineral King Avenue
- Cumulative Year 2040 Without Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-9

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-35.

MM TR-36. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)
- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-10

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-36.

MM TR-37. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-11

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-11.

MM TR-38. Road 156 and Noble Avenue

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Implementation of MM TR-12

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-38.

MM TR-39. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Without Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange scenarios:
  - Install Traffic Signal

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-39.

✓ Cumulative Year 2040 Plus Project With Tower Street Interchange Alternatives 1 and 2 Mitigation Measures

INTERSECTIONS

MM TR-40. Lovers Lane at Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-5

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-44.

MM TR-41. Lovers Lane at SR 198 EB Ramps

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:

- Implementation of MM TR-6

The impact associated with Alternative 2 is considered significant and unavoidable despite the improvements identified for MM TR-41.

MM TR-42. SR 198 WB Ramps at Mineral King Avenue (between Lovers Lane and McAuliff Street)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-7

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-46.

McAuliff Street and Murray Avenue

No improvements are recommended to achieve acceptable levels of service.

The impact associated with Alternative 2 is considered significant and unavoidable.

MM TR-43. Road 152 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenario:
  - Implementation of MM TR-9

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-47.

MM TR-44. Noble Avenue and SR 198 EB Ramps (between Road 152 and Road 156)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-10

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-48.

MM TR-45. Road 156 and Mineral King Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-11

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-49.

MM TR-46. Road 156 and Noble Avenue

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-12

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-50.

MM TR-47. Tower Street at Houston Avenue (SR 216)

- Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 2 scenarios:
  - Implementation of MM TR-39

The impact associated with Alternative 2 is considered less than significant with incorporation of MM TR-51.

POST-MITIGATION LEVEL OF SERVICE

The level of service resulting from the potential improvements identified above is shown in Table 16 for study area intersections, Table 17 for study segments, and Tables 18 and 19 for freeway facilities.

Table 16
Cumulative Year 2040 Intersection Operations with Mitigation

INTERSECTION	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 WITHOUT PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT		LEVEL OF SIGNIFICANCE WITH MITIGATION
			DELAY	LOS	DELAY	LOS	
Lovers Lane / Mineral King Avenue	D	AM	61.1	E	67.1	E	Less than significant
		PM	44.8	D	51.9	D	
Lovers Lane / SR 198 EB Ramps	C	AM	29.8	C	30.3	C	Significant and unavoiable
		PM	**41.5**	**D***	**47.3**	**D***	
SR 198 WB Ramps / Mineral King Avenue	D	AM	36.6	D	47.1	D	Less than significant
		PM	30.7	C	40.4	D	
McAuliff Street / Mineral King Avenue	D	AM	21.0	C	22.9	C	Less than significant
		PM	23.8	C	27.1	D	
Road 152 / Mineral King Avenue	D	AM	**36.7**	**E***	**38.4**	**E***	Significant and unavoiable
		PM	23.1	C	25.7	D	
Noble Avenue / SR 198 EB Ramps	C	AM	16.9	B	17.2	B	Less than significant
		PM	20.0	B	20.1	C	
Road 156 / Mineral King Avenue	D	AM	42.8	D	42.9	D	Less than significant
		PM	41.0	D	41.3	D	
Road 156 / Noble Avenue	D	AM	48.6	D	49.3	D	Less than significant
		PM	50.3	D	51.5	D	
SR 198 WB Off-Ramp / Mineral King Avenue	C	AM	**27.8**	**D***	**28.5**	**D***	Significant and unavoiable
		PM	20.6	C	22.1	C	

DELAY is measured in seconds
LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
* With all reasonable improvements considered, the intersection does not meet the target LOS.

Table 17

Cumulative Year 2040 Segment Operations with Mitigation

STREET SEGMENT	SEGMENT DESCRIPTION	CAPACITY[1]	CUMULATIVE YEAR 2040 WITHOUT PROJECT			CUMULATIVE YEAR 2040 PLUS PROJECT			LEVEL OF SIGNIFICANCE WITH MITIGATION
			VOLUME	V/C[2]	LOS	VOLUME	V/C[2]	LOS	
Road 156									
South of Noble Avenue	4 Lanes Undivided	33,830	17,100	0.51	C	17,200	0.51	C	Less than significant

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
1: Modified HCM-Based LOS Tables (Florida Tables)
2: Volume to Capacity Ratio

Table 18

Cumulative Year 2040 Without Project Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour	
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]
Eastbound												
SR-198 EB Off Ramp to Lovers Lane	Diverge	3377	952	4299	1407	2	1	C	B	17.9	C	23.7
Westbound												
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1219	2523	686	2	1	C	C	25.2	B	19.4

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

Table 19

Cumulative Year 2040 Plus Project Merge/Diverge Operations with Mitigation

SR 198		AM Peak Hour (veh/hr)		PM Peak Hour (veh/hr)		Number of Lanes		Target LOS	AM Peak Hour		PM Peak Hour		Level Of Significance With Mitigation
Location	Facility	Freeway	Ramp	Freeway	Ramp	Freeway	Ramp		LOS [1]	Density [2]	LOS [1]	Density [2]	
Eastbound													
SR-198 EB Off Ramp to Lovers Lane	Diverge	3389	964	4345	1453	2	1	C	B	18.0	C	24.1	Less than significant
Westbound													
SR-198 WB On Ramp from Lovers Lane	Merge	2776	1225	2523	715	2	1	C	C	25.3	B	19.7	Less than significant

(1) LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded
(2) Density is expressed in passenger cars/mile per lane

NOISE

Construction Noise Impacts

Alternative 2 would be developed in a similar manner to the proposed Project as discussed in the Noise Study Report (NSR). The only difference between the proposed Project and Alternative 2 is the removal of lighting for the ball fields and courts. Section 3.0 of the NSR provides an analysis of short-term impacts associated with the Project that would also be anticipated for the development of Alternative 2.

- Phase 1 Construction

During construction of Phase 1 of Alternative 2, noise from construction activities will add mobile noise sources that impact the abutting sensitive residential land uses. Activities involved in orchard demolition and recharge basin construction would generate maximum noise levels ranging from 77 to 85 dBA at a distance of 50 feet. Construction activities will be temporary in nature and are required to occur during specified daytime working hours per the City of Visalia Noise Ordinance. Single-family residences located adjacent to Road 152, south of Packwood Creek, may be subject to short-term noise reaching 80 dBA Lmax generated by construction activities. Construction of Phase 1 of Alternative 2 will, more likely than not, impact the other neighboring residences directly east of the Project site. Mitigation Measure 1, as shown below, is recommended to attenuate noise exposure from construction of Phase 1 of Alternative 2.

  - ***MM Noise 1 -*** *Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

- Phase 2 and 3 Construction

During construction of Phases 2 and 3 of Alternative 2, noise from construction activities will add to the noise environment in the immediate area similar to Phase 1. Activities involved in construction would generate maximum noise levels ranging from 77 to 85 dBA at a distance of 50 feet. Construction activities will be temporary in nature and are expected to occur during normal daytime working hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residences if nighttime operations occurred, or if unusually noisy equipment was used. It is not anticipated that any portion of the construction phase will take place during nighttime hours.

The Tower Street alignment (roadway centerline) is located approximately 205 feet to the east of single-family residential homes between Houston Avenue (SR-216) to the north and Mineral King Avenue to the south. Based on information provided in Table 6 of the NSR prepared for the Project, the residences to the west of the Project site may be subject to short-term noise reaching 74 dBA Lmax generated by construction activities. The lone single-family residence located off Houston Avenue (SR-216) at the far northeast corner of the site adjacent to Receiver 9 may be subject to short-term noise reaching 85 dBA. Construction of Phases 2 and 3 of Alternative 2 will, more likely than not, impact the neighboring residences adjacent to the Project site. Mitigation Measure 1, as shown below, is recommended to attenuate noise exposure from construction of Phases 2 and 3 of Alternative 2.

  - ***MM Noise 1 -*** *Compliance with Section 8.36 of the City's Municipal Code and City Noise Ordinance.*

Traffic Noise Impacts

Alternative 2 would be developed in a similar manner to the proposed Project as discussed in the Noise Study Report (NSR). The only difference between the proposed Project and Alternative 2 is the removal of lighting for the ball fields and courts. Section 4.0 of the NSR provides an analysis of long-term impacts associated with the Project that would also be anticipated for the development of Alternative 2.

- Phase 1 Operations

Phase 1 of Alternative 2 would include development of the groundwater recharge basins and storm-water layoff facilities. It is anticipated that Phase 1 will generate very few trips on a daily basis. It was assumed that there would be one trip in and one trip out in the AM and PM peak hours, resulting in four total trips per day. This represents a worst-case assumption that two maintenance workers would visit the site on a typical day and that they would make their trips in either the AM or PM peak hours. As a result, traffic resulting from Phase 1 will not increase traffic noise significantly enough to impact neighboring residences.

- Phase 2 and 3 Operations

As shown in the NSR prepared for the Project, noise impacts from Phase 2 of the Project was analyzed considering Near-Term Opening Year 2018 conditions. Noise impacts from Phase 3 of the Project was analyzed considering Existing Plus Project Conditions and Cumulative Year 2040 Conditions as a result of the City of Visalia General Plan. Traffic noise impacts related to the development of Alternative 2 would be identical to the impacts associated with the Project as proposed.

Tables 20, 21, 22, and 23 below (NSR Tables 13, 14, 15, and 16), show the predicted noise levels at the modeled receivers evaluated in the study area for the Cumulative Year 2040 With and Without Project conditions. Results of the analysis show that noise at sensitive receptors will not exceed the City of Visalia's Transportation Noise Source criteria for the Cumulative Year 2040 Plus Project scenarios. There will be minimal changes in the traffic noise exposure levels with the Project at various setbacks of 60, 65, 70, 75, and 80 Leq(h) dBA for the major streets and roads within the study area. Implementation of the Project will not result in significant adverse impacts from traffic noise levels within the Project study area. As a result, Implementation of Alternative 2 will not result in significant adverse impacts from traffic noise levels within the study area.

Table 20
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	52.0	55.0	3.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	57.0	58.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	59.0	60.0	1.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	60.0	60.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	56.0	57.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	59.0	60.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area)	80	76.0	76.0	0.0	65.0	None
8	Residential area located along Murray Avenue, west of Arroyo Street	100	52.0	53.0	1.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	57.0	57.0	0.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

Table 21
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	62.0	0.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	63.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	60.0	0.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	56.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	60.0	0.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Table 22
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange
With Alternative Roadway Configuration at Mineral King Avenue Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 1 Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	63.0	1.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	64.0	1.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	61.0	1.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	55.0	-1.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	61.0	1.0	65.0	None

Source: VRPA Technologies, 2017

a: Distance from Tower Street for Plus Project scenario

b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Table 23
East Side Regional Park & Groundwater Recharge
Cumulative Year 2040 With Tower Street Interchange
With Alternative Roadway Configuration at Project Driveway Noise Levels

Receiver ID No.	Location	Distance from Noise Source-Roadway Centerline (feet)	Cumulative Year 2040 Without Project With Tower Street Interchange Noise Level Leq(h) dBA	Cumulative Year 2040 Plus Project With Tower Street Interchange Alternative 2 Noise Level Leq(h) dBA	Noise Increase (+) or Decrease (-)	City of Visalia's Transportation Noise Source Criterion	Impact
1	Residential area located along Arroyo Street, south of Murray Avenue	185 [a]	58.0	59.0	1.0	65.0	None
2	Residential area located Race Avenue, east of Comstock Street	185 [a]	63.0	64.0	1.0	65.0	None
3	Residential Area along Houston Avenue (SR 216), east of Comstock Street	50	62.0	62.0	0.0	65.0	None
4	Residence located north of Houston Avenue (SR 216), west of Road 152	95	63.0	63.0	0.0	65.0	None
5	Residence located along Road 152, south of Houston Avenue (SR 216)	195	57.0	58.0	1.0	65.0	None
6	Residence located along Road 152, north of Mineral King Avenue (Agricultural area)	75	60.0	60.0	0.0	65.0	None
7	Residence located along Mineral King Avenue, west of Road 152 (Agricultural Area) [b]	--	--	--	--	--	--
8	Residential area located along Murray Avenue, west of Arroyo Street	100	56.0	56.0	0.0	65.0	None
9	Residence located along Houston Avenue (SR 216), west of Road 152 (Agricultural Area)	100	60.0	60.0	0.0	65.0	None

Source: VRPA Technologies, 2017
a: Distance from Tower Street for Plus Project scenario
b: Residence reflected by Receiver 7 would be demolished with Interchange at Tower Street

Stationary Noise Impacts

As noted above, Alternative 2 would be developed in a similar manner to the proposed Project as discussed in the Noise Study Report (NSR). Section 4.0 of the NSR provides an analysis of stationary noise impacts associated with the Project that would also be anticipated for the development of Alternative 2 since the layout of the site will identical to the Project as proposed.

- Phase 1 Operations

Phase 1 of Alternative 2 would include development of the groundwater recharge-basins and storm-water layoff facilities. Considering the very limited on-site operational activity associated with the Recharge and Storm-water Layoff Basins, it is not anticipated that the operations of Phase 1 would result in any significant adverse impacts to nearby sensitive noise receptors.

- Phase 2 Operations

As noted in Section 4.2 of the NSR prepared for the Project, Phase 2 on-site operations will impact

sensitive receptors directly to the west of the Project site and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent and maximum sound level. Noise levels on-site are anticipated to peak during games while spectators are present. Noise is generated from cheering spectators and players, as well as referee whistles. Results of the analysis shows that the sensitive receptors directly to the west of the Project site will be impacted by the ball fields in a worst-case scenario that assumes games are being played on all 13 ball fields at the same time. In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the following recommended mitigation measures:

- ***MM Noise 2*** – Use of softball, baseball, and soccer fields shall be limited to the hours of 7:00am – 10:00pm. It should be noted that **Alternative 2** eliminates lighting for the ball fields and courts. As a result, use of softball, baseball, and soccer fields shall be permitted from 7:00am – until dusk or 6:00pm, whichever occurs sooner.
- ***MM Noise 3*** – Construction of the specified portion of an 8-foot sound wall along the residential boundary of homes directly to the west of Project site (see Figure 54 for approximate location). The sound wall material should consist of concrete block (8in. x 8in. x 16in.), dense concrete (4in. thick), or light concrete (4in. to 6in. thick).

Mitigation Measures MM Noise 2 and MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design.

An alternative to the recommended 8-foot sound wall along the residential boundary of homes directly to the west of the Project site is an 8-foot earth berm (2:1 slope). The earth berm would be located along the western boundary of the Project site as depicted in Figure 55. This mitigation alternative would alleviate noise impacts from the Project in relation to the residential homes directly west of the Project.

- Phase 3 Operations

As noted in Section 4.2 of the NSR prepared for the Project, Phase 3 on-site operations will impact sensitive receivers directly to the west of the Project and exceed the City of Visalia's Stationary Noise Source criteria for the hourly equivalent sound level. The stage for the amphitheater is located approximately 1,000 feet from the nearest sensitive receptor adjacent to the Project. Noise levels from an amplified event could reach levels of 85 – 90 dBA at 100 feet from speaker equipment, which would generate hourly noise levels of approximately 65 dBA at sensitive receivers directly west of the amphitheater.

In order to reduce potential on-site noise impacts to sensitive receivers to less than significant, the Project should comply with the ***MM Noise 3*** as noted above. The following mitigation measure can be implemented in lieu of an 8-foot sound wall

- ***MM Noise 4*** – Reorient the amphitheater to the northeast.

Mitigation Measure MM Noise 3 will reduce the Project's impacts to sensitive receivers to the west of the

Project. Assuming that the height of the sound source and receiver are the same, the 8-foot sound wall would reduce noise levels at sensitive receivers by approximately 20 dBA's considering data provided in Caltrans' Technical Noise Supplement and FHWA Noise Barrier Design. Mitigation Measure MN Noise 4 will eliminate the Project's impacts to sensitive receivers to the west of the Project.

If you have any questions or require further information, please contact me at (559) 271-1200 extension 2.

Sincerely,

Mr. Jason Ellard
Transportation Engineer

Appendix Q. Early Approval MNDs

2018 ISMND

State of California - Department of Fish and Wildlife

2018 ENVIRONMENTAL FILING FEE CASH RECEIPT

DFW 753.5a (Rev. 01/03/18) Previously DFG 753.5a

Print | StartOver | Finalize&Email

RECEIPT NUMBER:
54 — 06062018 — 150

STATE CLEARINGHOUSE NUMBER *(If applicable)*
SCH2018041014

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEAD AGENCY EMAIL	DATE
CITY OF VISALIA	PAUL.SCHEIBEL@VISALIA.CITY	06062018

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
Tulare	ESRPARK

PROJECT TITLE
EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
CITY OF VISALIA	DOUG.DAMKO@VISALIA.CITY	(559) 731-4369

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
315 E ACEQUIA AVE	VISALIA	CA	93292

PROJECT APPLICANT *(Check appropriate box)*

☑ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,168.00	$	0.00
☑ Mitigated/Negative Declaration (MND)(ND)	$2,280.75	$	2,280.75
☐ Certified Regulatory Program document (CRP)	$1,077.00	$	0.00

☐ Exempt from fee
- ☐ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$	0.00
☑ County documentary handling fee		$	58.00
☐ Other		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other **TOTAL RECEIVED** $ 2,338.75

SIGNATURE		AGENCY OF FILING PRINTED NAME AND TITLE
EMILY X BEAUCHAMP	Digitally signed by EMILY BEAUCHAMP Date: 2018.06.06 14:31:48 -07'00'	TULARE COUNTY CLERK, DEPUTY

ORIGINAL - PROJECT APPLICANT | COPY - CDFW/ASB | COPY - LEAD AGENCY | COPY - COUNTY CLERK | DFW 753.5a (Rev. 20151215)

State of California - Department of Fish and Wildlife

2018 ENVIRONMENTAL FILING FEE CASH RECEIPT

DFW 753.5a (Rev. 01/03/18) Previously DFG 753.5a

Print | StartOver | Finalize&Email

RECEIPT NUMBER:
54 — 06062018 — 150

STATE CLEARINGHOUSE NUMBER *(If applicable)*
SCH2018041014

SEE INSTRUCTIONS ON REVERSE. TYPE OR PRINT CLEARLY.

LEAD AGENCY	LEAD AGENCY EMAIL	DATE
CITY OF VISALIA	PAUL.SCHEIBEL@VISALIA.CITY	06062018

COUNTY/STATE AGENCY OF FILING	DOCUMENT NUMBER
Tulare	ESRPARK

PROJECT TITLE
EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT

PROJECT APPLICANT NAME	PROJECT APPLICANT EMAIL	PHONE NUMBER
CITY OF VISALIA	DOUG.DAMKO@VISALIA.CITY	(559) 731-4369

PROJECT APPLICANT ADDRESS	CITY	STATE	ZIP CODE
315 E ACEQUIA AVE	VISALIA	CA	93292

PROJECT APPLICANT *(Check appropriate box)*

☑ Local Public Agency ☐ School District ☐ Other Special District ☐ State Agency ☐ Private Entity

CHECK APPLICABLE FEES:

☐ Environmental Impact Report (EIR)	$3,168.00	$	0.00
☑ Mitigated/Negative Declaration (MND)(ND)	$2,280.75	$	2,280.75
☐ Certified Regulatory Program document (CRP)	$1,077.00	$	0.00

☐ Exempt from fee
- ☐ Notice of Exemption (attach)
- ☐ CDFW No Effect Determination (attach)

☐ Fee previously paid (attach previously issued cash receipt copy)

☐ Water Right Application or Petition Fee (State Water Resources Control Board only)	$850.00	$	0.00
☑ County documentary handling fee		$	58.00
☐ Other		$	

PAYMENT METHOD:

☐ Cash ☐ Credit ☑ Check ☐ Other **TOTAL RECEIVED** $ 2,338.75

SIGNATURE	AGENCY OF FILING PRINTED NAME AND TITLE
EMILY X BEAUCHAMP Digitally signed by EMILY BEAUCHAMP Date: 2018.06.06 14:31:48 -07'00'	TULARE COUNTY CLERK, DEPUTY

ORIGINAL - PROJECT APPLICANT | COPY - CDFW/ASB | COPY - LEAD AGENCY | COPY - COUNTY CLERK | DFW 753.5a (Rev. 20151215)

FILED
TULARE COUNTY

JUN 06 2018

ROLAND P. HILL
ASSESSOR/CLERK RECORDER
BY:

Notice of Determination **Environmental Document No. 2018-05**

To: ☒ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

☒ County Clerk
County of Tulare
County Civic Center, Rm 105
Visalia, CA 93291

From: City of Visalia – Lead Agency
315 E. Acequia Avenue
Visalia, CA 93291
Attn: Paul Scheibel
Phone: (559) 713-4369
Email: paul.scheibel@visalia.city

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Project Title: East Side Regional Park and Groundwater Recharge Project

SCH2018041014	City of Visalia/City of Visalia	(559) 713-4369
State Clearinghouse Number	Lead Agency/Approving Agency	Area Code/Telephone/Extension

Project Location: The project is located on the north side The project site of Hwy 198, and west of Road 152, City of Visalia, County of Tulare (APNs 103-500-001, -002, -003 and 103-510-002, -003, -004, -005, -006, -007, -008, -009).

Project Description: The project for this 81.46-acre site will consist of developing a multi-purpose facility that will provide identifiable outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat consistent with the master plan. The existing pecan orchard will be removed. An existing irrigation ditch (Oakes Ditch) and two interim recharge basins will be substantially modified.

Name and Address of Project Applicant: City of Visalia, 315 E. Acequia Ave., Visalia, CA 93292; Applicant: Doug Damko, Engineering Division, Phone: (559) 713-4268; Email: doug.damko@visalia.city

This is to advise that the ☐ City Council ☐ Planning Commission The Environmental Coordinator has approved the above described MND on June 5, 2018 and has made the following determinations regarding the above described project:

1. The project ☐will ☒will not have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures (☒were ☐were not) made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan (☒was ☐was not) adopted for this project.
5. A Statement of Overriding Considerations (☐was ☒was not) adopted for this project.
6. Findings (☒were ☐were not) made pursuant to the provisions of CEQA.

This certifies that the final environmental document with comments, responses, and record of project approval is available to the General Public at the City of Visalia Planning Dept. located at 315 E. Acequia Ave., Visalia.

Paul Scheibel, AICP
City of Visalia Environmental Coordinator

June 5, 2018
Date

Date received for filing at OPR:

Revised 2005
Governor's Office of Planning and Research

City of Visalia

315 E. Acequia Ave., Visalia, CA 93291

Planning Division

Tel: (559) 713-4359; Fax: (559) 713-4814

May 18, 2018

California Department of Fish and Wildlife
Attn: Renee Robison, Environmental Scientist
1234 East Shaw Ave.
Fresno, CA 93710

Subject: **East Side Regional Park and Groundwater Recharge Project, Mitigated Negative Declaration (MND) SCH No. 2018041014**

Dear Ms. Robison:

Thank you for your May 3rd letter that provides the Department's comments in review of the Initial Study for the above-referenced project. This letter is acknowledge your comments and concerns generally, and to concur with the mitigation measures that you recommend be added to the MND. This letter also is provided pursuant to CEQA Guidelines section 15073.5 C.

Specific mitigation measures will be added to the adopted MND, as follows:

Comment 1- Swainson's hawk.

Add Mitigation Measures, as follows:

Mitigation Measure	**Responsible Party**	**Timeline**
Biological Resources Mitigation Measure 4.1: Focused SWHA Surveys- A qualified wildlife biologist shall conduct surveys for nesting raptors following the survey methodology developed by the SWHA Technical Advisory Committee (SWHA TAC 2000) prior to ground disturbing activities. If ground disturbing activities are to commence between February 1st and September 15th, a pre-construction survey for active nests shall also be conducted no more than 10 days prior to the commencement of ground disturbing activities.	City	Prior to ground disturbing activities
Biological Resources Mitigation Measure 4.2: SWHA Take Authorization- If construction activities occur between February 1st and September 15th, an incidental Take Permit for SWHA.	City	Prior to ground disturbing activities

Comment 2- Lake and Streambed Alteration.

Add Mitigation Measure, as follows:

Mitigation Measure	**Responsible Party**	**Timeline**
Lake and Streambed Alteration Mitigation Measure 4.3: Notification of Streambed Alteration- Prior to initiating any activities that would affect Oakes Ditch, Mill Creek, or Packwood Creek, the City shall secure a Lake and Streambed Alteration Agreement from the CDFW, and comply with all terms of the Agreement	City	Prior to initiating any activities that would affect Oakes Ditch, Mill Creek, or Packwood Creek.

Please note, recommended Mitigation Measure No. 2 has not been included in the new Mitigation Measures. Instead, if SWHA nest is found on the project site, the City will comply with Mitigation Measure 3 (shown as MM 4.2, above). The City's determination in this regard was made that a ½ mile radius would effectively eliminate the project from actual development within a reasonable timeframe.

With regard to other considerations noted in the letter, the City concurs with CDFW concerns, and agrees that specific mitigation measures are not given the scope and nature of the project, and the lack of evidence of listed or threatened species currently found on the project site. Further, local policies, development standards (such as minimum 50-foot setbacks from tops of creek banks, and the Oak Tree Preservation Ordinance), and standard grading/construction standards (such as SWIPP) adequately mitigates potential adverse impacts to biological resources.

Please do not hesitate to contact me at (559) 713-4369 should you have any further questions or concerns in this regard.

Sincerely,

Paul Scheibel, AICP
Environmental Coordinator

cc:
Paul Bernal, City Planner
Doug Damko, Project Manager

City of Visalia

315 E. Acequia Ave., Visalia, CA 93291

Planning Division

Tel: (559) 713-4359; Fax: (559) 713-4814

May 18, 2018

California Department of Transportation
Attn: David Deel, Associate Transportation Planner
1352 W. Olive Ave.
P.O. Box 12616
Fresno, CA 93778-2616

Subject: **East Side Regional Park and Groundwater Recharge Project, Mitigated Negative Declaration (MND) SCH No. 2018041014**

Dear Mr. Deel:

Thank you for your May 14th letter that provides the Department's comments in review of the Initial Study for the above-referenced project. This letter is acknowledge and concur with your comments and concerns. This letter also is provided pursuant to CEQA Guidelines section 15073.5 C.

The City understands that no specific mitigation measures are proposed by Caltrans. As such, Caltrans comments are advisory in nature, for which the City concurs. Commensurately, please be advised that design geometry for the affected portion of Mineral King Ave. has not been finalized at this time.

Please do not hesitate to contact me at (559) 713-4369 should you have any further questions or concerns in this regard.

Sincerely,

Paul Scheibel, AICP
Environmental Coordinator

cc:
Paul Bernal, City Planner
Doug Damko, Project Manager

DEPARTMENT OF TRANSPORTATION
DISTRICT 6
1352 WEST OLIVE AVENUE
P.O. BOX 12616
FRESNO, CA 93778-2616
PHONE (559) 488-7396
FAX (559) 488-4088
TTY 711
www.dot.ca.gov

Making Conservation a California way of life.

May 14, 2018

6-TUL-198-12.97-
2135-IGR/CEQA
MND
EASTSIDE REGIONAL PARK
SCH # 2018041014

Mr. Paul Scheibel
Principal Planner
City of Visalia
315 E. Acequia Avenue
Visalia, CA 93291

Dear Mr. Scheibel:

Thank you for the opportunity to review Draft Mitigated Negative Declaration for the East Side Regional Park and Groundwater Recharge project. The project proposes to develop 81.46 acres (southern portion) of the total 288 acres master planned area for the East Side Regional Park and Ground Water Recharge Project. The project would consist of a multi-purpose facility that will provide outdoor recreational facilities consisting of a 2.3-mile trail system, a 10-station Para-course fitness circuit and an 18-hole disc-golf course with 54-acres for an integrated groundwater recharge system. The project is situated north of SR 198, bounded by the future alignment of Tower Road (Road 148) on the west side and Road 152 on the east side.

The mission of Caltrans is to provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability. To ensure a safe and efficient transportation system, we encourage early consultation and coordination with local jurisdictions and project proponents on all development projects that utilize the multimodal transportation network. Caltrans provides the *following comments* consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. Based on the site map provided, Caltrans suggests parking along Mineral King Avenue be prohibited to preserve the roadway capacity and maintain smooth flow of traffic.

2. The site map shows that one of the vehicle entry points is located on Mineral King Avenue. Caltrans has no objection to the proposed entry point at this location. If the entry point is gated or has a toll/fee booth, it is requested that the gate or booth be setback at least 200 feet away from the street to minimize or prevent queueing on Mineral King Avenue. Additionally, it is recommended an eastbound left-turn channelization be installed at this entry point to provide continuous traffic flow in the eastbound direction.

3. Please be advised that there is a preliminary plan to construct a new interchange at Road 148 (Tower Road) in the future. Any additional access points along Mineral King Avenue may be impacted by the location of the future on & off ramps.

4. Caltrans request review of the northern portion of the master plan site for the regional park and recharge basins when development is proposed in the future.

5. Alternative transportation policies should be applied to the development. An assessment of multi-modal facilities should be conducted. This assessment should be used to develop an integrated multi-modal transportation system to serve and help alleviate traffic congestion caused by the project and related development in this area of the City. The assessment should include the following:

    a. Pedestrian walkways should link this proposal to an internal project area walkway, transit facilities, as well as other walkways in the surrounding area.

    b. The project should consider bicycles as an alternative mode of transportation and offer internal amenities to encourage bicycle use which should include parking, security, and lockers. Internal bicycle paths should be coordinated with local and regional pathways to further encourage the use of bicycles for commuter and recreational purposes.

    c. If transit is not available within ¼-mile of the site, transit should be extended to provide services for this development.

If you have any other questions, please call me at (559) 488-7396.

Sincerely,

DAVID DEEL
Associate Transportation Planner
Transportation Planning - North

CITY OF VISALIA
315 E. ACEQUIA STREET
VISALIA, CA 93291

NOTICE OF A PROPOSED MITIGATED NEGATIVE DECLARATION

Project Title: East Side Regional Park and Groundwater Recharge Project

Project Description: The project for this 81.46-acre site will consist of developing a multi-purpose facility that will provide identifiable outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat consistent with the master plan. The existing pecan orchard will be removed. An existing irrigation ditch (Oakes Ditch) and two interim recharge basins will be substantially modified.

Project Location: The project site is located on the north side of Hwy 198, and west of Road 152 (APNs 103-500-001, -002, -003 and 103-510-002, -003, -004, -005, -006, -007, -008, -009).

Contact Person: Paul Scheibel, AICP, Principal Planner Phone: (559) 713-4369

Pursuant to City Ordinance No. 2388, the Environmental Coordinator of the City of Visalia has reviewed the proposed project described herein and has found that the project will not result in any significant effect upon the environment because of the reasons listed below:

Copies of the initial study and other documents relating to the subject project may be examined by interested parties at the Planning Division in City Hall East, at 315 East Acequia Avenue, Visalia, CA.

Comments on this proposed Mitigated Negative Declaration will be accepted from March 30, 2018 to May 2, 2018.

Date: 3-30-18

Signed: _____

Paul Scheibel, AICP
Environmental Coordinator
City of Visalia

MITIGATED NEGATIVE DECLARATION

Project Title: East Side Regional Park and Groundwater Recharge Project

Project Description: The project for this 81.46-acre site will consist of developing a multi-purpose facility that will provide identifiable outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat consistent with the master plan. The existing pecan orchard will be removed. An existing irrigation ditch (Oakes Ditch) and two interim recharge basins will be substantially modified. The project proponents are requesting to annex and subdivide 15.2 acres. The project site is located in the County of Tulare:

Project Location: The project site is located on the north side of Hwy 198, and west of Road 152 (APNs 103-500-001, -002, -003 and 103-510-002, -003, -004, -005, -006, -007, -008, -009).

Project Facts: Refer to Initial Study for project facts, plans and policies, and discussion of environmental effects.

Attachments:

Initial Study	(X)
Environmental Checklist	(X)
Maps	(X)

DECLARATION OF NO SIGNIFICANT EFFECT:

This project will not have a significant effect on the environment for the following reasons:

(a) The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

(b) The project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

(c) The project does not have environmental effects which are individually limited but cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

(d) The environmental effects of the project will not cause substantial adverse effects on human beings, either directly or indirectly.

This Mitigated Negative Declaration has been prepared by the City of Visalia Planning Division in accordance with the California Environmental Quality Act of 1970, as amended. A copy may be obtained from the City of Visalia Planning Division Staff during normal business hours.

APPROVED
Paul Scheibel, AICP
Environmental Coordinator

By: _____

Date Approved: 3-30-18

Review Period: 30 days

INITIAL STUDY

I. GENERAL

A. Project Name and Description: East Side Regional Park and Groundwater Recharge Project

The project proposed for this grant application encompasses an 81.46-acre site that comprises the southern portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project for this 81.46-acre site will consist of developing a multi-purpose facility that will provide identifiable outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat consistent with the master plan. The existing pecan orchard will be removed. An existing irrigation ditch (Oakes Ditch) and two interim recharge basins will be substantially modified.

The flat site will be completely regraded to provide a variety of terrain relief with gently rolling hills and low areas that will provide a unique trail system to serve the Visalia area. All dirt grading will be balanced within the site with equal amounts of cuts and fills. The trail system will consist of two large loops with one or two pedestrian bridges over Packwood Creek with trail access via a small parking lot along the Mineral King Avenue street frontage. The trail system will also have an extension linking it to the Class I Greenway Trail project that is adjacent to the east and is currently funded for construction. The trail will also function as a parcourse circuit with the inclusion of fitness stations spaced at regular intervals. The variety of terrain relief will also create an attractive 18-hole disc golf course layout that will crisscross throughout the project site.

The low areas where dirt was cut from within the two large trail loops will be utilized for both intermittent groundwater recharge and recreational purposes when dry. These two low areas together cover approximately 54 acres and they comprise two of five recharge areas identified in the master plan. Surface area wise, they provide approximately half of the planned recharge area identified in the master plan. The delivery of water for groundwater recharge will come through three sources: Packwood Creek, Oakes Ditch and Oakes Basin. This will be accomplished using an existing check structure and turnout gate in Packwood Creek that will be modified along with new turnout gates and pipelines to be connected to these three sources. Class V shallow injection wells will be evenly spaced throughout the recharge areas to enhance groundwater recharge rates.

The two small islands within the recharge areas plus all the trail system area will be planted with riparian valley oak forest habitat covering approximately 20.5 acres. Existing mature valley oaks along Oakes Ditch and Packwood will be protected in-place and incorporated into the newly planted riparian valley oak forest habitat.

Additional details of this project are as follows:

- 60-acres of pecan orchards will be removed including the abandonment of an agricultural well. An existing irrigation line will be rerouted to allow the pecan orchard to the north to continue in agricultural operation.
- The existing irrigation ditch (Oakes Ditch) channel will be backfilled and abandoned throughout the majority of the site. The ditch channel will terminate at the northeast corner of the site with a new turnout and pipeline that will deliver ditch water into the north basin.
- Two existing interim recharge basins covering 14 acres will be eliminated and the area regraded for the trail system and ground water recharge areas.
- The trail system will consist primarily of a 10-foot wide, stabilized decomposed granite surface and the total length is estimated at 12,400 feet (2.3 miles). Cross-connector trails using a defined dirt pathway going across the middle each of the large trail loops and also crossing over the small islands will provide greater variety and looping for pedestrians and will add to the total trail length by 2,700 feet (0.5 miles). The pedestrian bridge(s) over Packwood Creek will be

premanufactured and free-span the channel from top of bank to top of bank.

- The parcourse circuit is estimated to have ten (10) fitness stations spaced at 1,200 foot intervals average.
- The 18-hole disc golf course will have concrete pad tee boxes, catch baskets, benches and signage.
- The two groundwater recharge areas covering approximately 54 acres will have an estimated water depth of 4-6 feet that will provide an estimated storage capacity of 200-240 acre-feet. Groundwater recharge will only occur on a periodic basis when the City has made arrangements to receive surface water through Packwood Creek, Oakes Ditch and/or Oakes Basin.
- The existing check structure along with the north and south banks of Packwood Creek will be raised approximately 2.5 feet to provide the necessary water surface elevation in the channel to allow creek water to fill the two recharge areas. This bank raising will include a small section of the south bank located east of the project site. Dirt drives will be retained on the top of the banks to allow channel maintenance.
- A new turnout gate will be installed in Packwood Creek for delivering creek water to the north recharge area. The existing turnout will be retained for the south recharge area. Both turnouts will have new 36-inch pipelines that deliver the water into their respective recharge areas.
- A new pipeline that will delivery water into the north recharge area from the Oakes Basin will be tied into to the Oakes Basin discharge pipeline that is currently funded for construction and will be at the northeast corner of the site.
- The Class V shallow injection wells will be installed at a ratio 1 well per 4.5 acres of water surface throughout both recharge areas. This ratio equates to approximately 12 wells.
- All stormwater runoff from the project site will be retained on-site in drainage swales to be located adjacent to the trail and street frontages.
- The planting of 20.5-acres of riparian valley oak forest habitat that will include Valley Oak (Quercus lobata), other California native trees and understory shrubs, 6-inches of mulch for ground cover and an irrigation system.

B. Identification of the Environmental Setting:

The project site is located on the north side of Hwy 198, and west of Road 152 (APNs 103-500-001, -002, -003 and 103-510-002, -003, -004, -005, -006, -007, -008, -009). The project site currently contains 60 acres of pecan orchard vacant and two interim recharge basins.
The surrounding uses, Zoning, and General Plan are as follows:

	General Plan	Zoning	Existing uses
North:	Parks and Recreation	Agriculture	Commercial farming, orchards and row crops
South:	Agriculture	Tulare County AE-20	HWY 198, highway commercial businesses beyond
East:	Agriculture	County, AE-20	Mix of a weekly swap meet and commercial farming
West:	Parks and Recreation	Quasi-Public	Recharge basin and orchard

Fire and police protection services, street maintenance of public streets, refuse collection, and wastewater treatment are being provided by the City of Visalia.

C. Plans and Policies: The General Plan Land Use Diagram, adopted October 14, 2014, designates the site as Parks and Recreation. The Zoning Map, adopted in May 2017, designates the site as Quasi-Public. The proposed project is consistent with the Land Use Element of the General Plan. Recreational facilities, parks, and recharge basins are considered compatible uses in the Quasi-Public Zone District where potential impacts are negligible and are actually supportive of surrounding agricultural uses.

II. ENVIRONMENTAL IMPACTS

No significant adverse environmental impacts have been identified for this project for which mitigations measures applied to the project will not reduce the potential impact to a level of non-significance. The City of Visalia Land Use Element and Zoning Ordinance contain policies and regulations that are designed to mitigate potential impacts to a level of non-significance.

III. MITIGATION MEASURES

There is one mitigation measure for this project. Otherwise, the City of Visalia Zoning Ordinance contains guidelines, criteria, and requirements for the mitigation of potential impacts related to light/glare, visibility screening, noise, and traffic/parking to eliminate and/or reduce potential impacts to a level of non-significance. The anticipated impacts resulting from the creation of a landscaped recharge basin are found to be less than those of an urban development and use.

The mitigation measure to be applied to this project are as follows:

Mitigation Measure	Responsible Party	Timeline
Cultural Resources Mitigation Measure 5.1: A qualified Native American Tribal Observer from the Santa Rosa Rancherias shall be commissioned and shall be present during rough grading and excavation of the project site. Further, In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.	City	Mitigation Measure 5.1 shall be included as an advisory condition in all grading permits issued for the project; and shall be enforced and carried out as part of the project development.
Tribal Cultural Resources Mitigation Measure 18.1: A qualified Native American Tribal Observer from the Santa Rosa Rancherias shall be commissioned and shall be present during rough grading and excavation of the project site. Further, in the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.	City	Mitigation Measure 18.1 shall be included as an advisory condition in all grading permits issued for the project; and shall be enforced and carried out as part of the project development.

IV. PROJECT COMPATIBILITY WITH EXISTING ZONES AND PLANS

The project is compatible with the General Plan as the project relates to surrounding properties.

V. SUPPORTING DOCUMENTATION

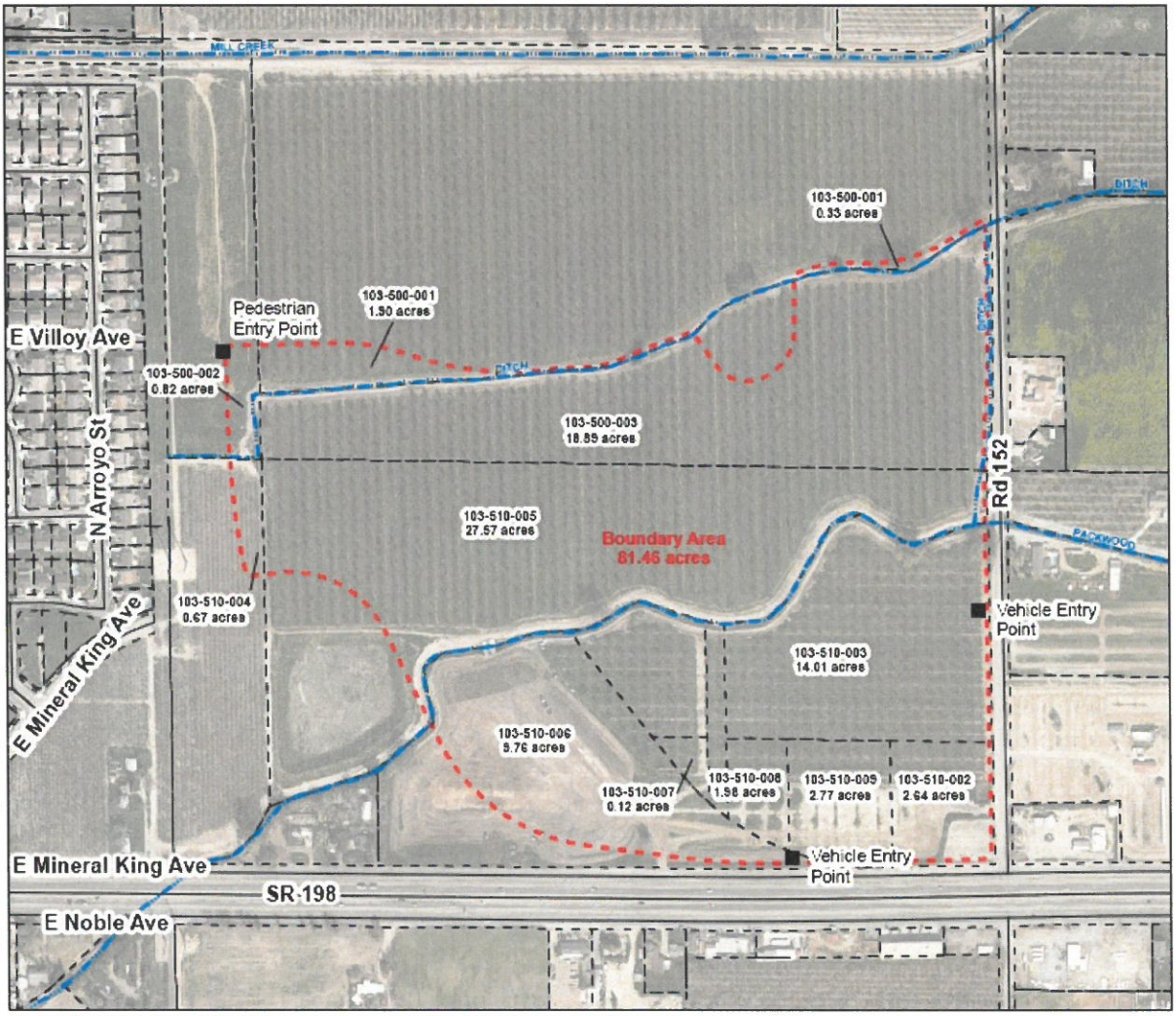
The following documents are hereby incorporated into this Negative Declaration and Initial Study by reference:

- Visalia General Plan Update. Dyett & Bhatia, October 2014.
- Visalia City Council Resolution No. 2014-38 (Certifying the Visalia General Plan Update), passed and adopted October 14, 2014.
- Visalia General Plan Update Final Environmental Impact Report (SCH No. 2010041078). Dyett & Bhatia, June 2014.
- Visalia General Plan Update Draft Environmental Impact Report (SCH No. 2010041078). Dyett & Bhatia, March 2014.
- Visalia City Council Resolution No. 2014-37 (Certifying the EIR for the Visalia General Plan Update), passed and adopted October 14, 2014.
- Visalia Municipal Code, including Title 17 (Zoning Ordinance).
- California Environmental Quality Act Guidelines.
- City of Visalia, California, Climate Action Plan, Draft Final. Strategic Energy Innovations, December 2013.
- Visalia City Council Resolution No. 2014-36 (Certifying the Visalia Climate Action Plan), passed and adopted October 14, 2014.
- City of Visalia Storm Water Master Plan. Boyle Engineering Corporation, September 1994.
- City of Visalia Sanitary Sewer Master Plan. City of Visalia, 1994.
- Phase I Environmental Assessment Report, BSK Associates, December 14, 2011
- Cultural Resource Inventory for the Eastside Regional Park and Groundwater Recharge Project, Applied EarthWorks, Inc., November, 2016
- Architectural Evaluations for the Eastside Regional Park and Groundwater Recharge Project, Applied EarthWorks, Inc., April 2017
- Site Survey for Cultural Resources Significance, Applied Earthworks, January 8–9, 2015 and January 13–16, 2015
- Site Survey for Biological Resources, Live Oak Associates, December 29 and 30, 2014

VI. NAME OF PERSON WHO PREPARED INITIAL STUDY

3-30-18

Paul Scheibel, AICP
Environmental Coordinator



N

0 250 500 Feet

1 inch = 500 feet

Map prepared on January 29, 2018

Boundary of land to be protected
81.46 acres

Parcel boundary - value indicates
area within 6(f)(3) boundary

Entry point

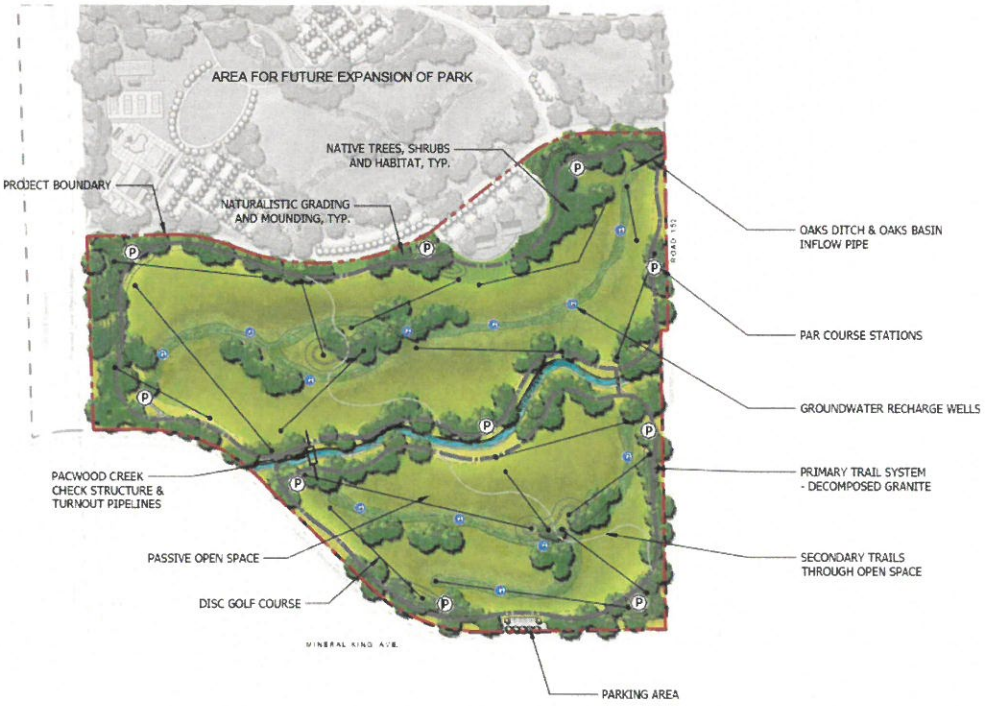
This map is not binding until it is signed by NPS when the final GRANT payment is approved by NPS. If there was a previous LWCF PROJECT(S) completed at the same PARK SITE, then the GRANTEE, OGALS, and NPS will review the Section 6(f)(3) BOUNDARY MAPS associated with the previous PROJECT(S) for consistency with Section 6(f)(3) BOUNDARY MAP for the new LWCF PROJECT.

_____ _____
City of Visalia Authorized Representative Date

_____ _____
CA Dept of Parks and Recreation Date

_____ _____
National Park Service Date

VICINITY MAP NTS



PROJECT ELEMENTS:

- TOTAL PROJECT AREA - 81.46 ACRES
- NATIVE PLANT HABITAT - 20.5 ACRES
- PARKING LOT
- PRIMARY TRAIL - 2.3 MILES
- SECONDARY TRAILS - 0.6 MILES
- 1 - PEDESTRIAN BRIDGE
- 10 - STATION PAR COURSE
- 18 - HOLE DISC GOLF COURSE
- 12 - GROUND WATER RECHARGE WELLS
- STORMWATER CHECK STRUCTURE
- 6 - INTERPRETIVE SIGNS
- 10 - BENCHES

PLANT PALETTE

BOTANICAL NAME	COMMON NAME
TREES:	
QUERCUS LOBATA	VALLEY OAK
QUERCUS DOUGLASII	BLUE OAK
QUERCUS ENGELMANNII	MESA OAK
QUERCUS WISLIZENII	INTERIOR LIVE OAK
CERCIS OCCIDENTALIS	WESTERN RED BUD
HETEROMELES ARBUTIFOLIA	TOYON
SHRUBS AND GROUNDCOVER:	
ARCTOSTAPHYLOS SPP	MANZANITA
ARTEMESIA SPP	WORMWOOD
BACCHARIS SPP.	BUCKWHEAT
CAREX SPP	SEDGE
CEANOTHUS SPP.	WILD LILAC
ERIOGONUM SPP	CALIFORNIA BUCKWHEAT
MAHONIA SPP	OREGON GRAPE
MUHLENBERGIA SPP	DEER GRASS
PENSTEMON SPP	BEARDTONGUE
RHAMNUS SPP	COFFEEBERRY
SALVIA SPP	SAGE

0 400 800 1200 1600 feet
1" = 400'

Urban Tree Foundation
1512 W. Mineral King Ave. Visalia, Ca 93291
559-713-0631
www.urbantree.org

City of Visalia
East Side Regional Park

SCHEMATIC PLAN

Date: 02.01.2018
Scale: 1" = 400'
Project # P_1500

S-1

INITIAL STUDY
ENVIRONMENTAL CHECKLIST

Name of Proposal	East Side Groundwater Recharge Project		
NAME OF PROPONENT:	City of Visalia	NAME OF AGENT:	Doug Damko
Address of Proponent:	315 E. Acequia Ave.	Address of Agent:	315 E. Acequia Ave.
	Visalia, CA 93291		Visalia, CA 93291
Telephone Number:	(559) 713-4268	Telephone Number:	(559) 713-4268
Date of Review	March 30, 2018	Lead Agency:	City of Visalia

The following checklist is used to determine if the proposed project could potentially have a significant effect on the environment. Explanations and information regarding each question follow the checklist.

1 = No Impact 2 = Less Than Significant Impact
3 = Less Than Significant Impact with Mitigation Incorporated 4 = Potentially Significant Impact

I. AESTHETICS

Would the project:

1 a) Have a substantial adverse effect on a scenic vista?

1 b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

1 c) Substantially degrade the existing visual character or quality of the site and its surroundings?

2 d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

II. AGRICULTURAL RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

2 a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?

2 b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

1 c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

1 d) Result in the loss of forest land or conversion of forest land to non-forest use?

1 e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use?

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

2 a) Conflict with or obstruct implementation of the applicable air quality plan?

2 b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

2 c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

2 d) Expose sensitive receptors to substantial pollutant concentrations?

1 e) Create objectionable odors affecting a substantial number of people?

IV. BIOLOGICAL RESOURCES

Would the project:

2 a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2 b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2 c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

2 d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

1 e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

1 f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

V. CULTURAL RESOURCES

Would the project:

3 a) Cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5?

2 b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5?

2 c) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?

2 d) Disturb any human remains, including those interred outside of formal cemeteries?

VI. GEOLOGY AND SOILS

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

1 i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

1 ii) Strong seismic ground shaking?

1 iii) Seismic-related ground failure, including liquefaction?

1 iv) Landslides?

1 b) Result in substantial soil erosion or loss of topsoil?

1 c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

1 d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

1 e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

VII. GREENHOUSE GAS EMISSIONS

Would the project:

2 a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

2 b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

VIII. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

2 a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

1 b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

1 c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

2 d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

1 e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

1 f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

1 g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

1 h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

IX. HYDROLOGY AND WATER QUALITY

Would the project:

2 a) Violate any water quality standards of waste discharge requirements?

1 b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

2 c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

2 d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

2 e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

2 f) Otherwise substantially degrade water quality?

1 g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

1 h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

2 i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

1 j) Inundation by seiche, tsunami, or mudflow?

X. LAND USE AND PLANNING

Would the project:

1 a) Physically divide an established community?

1 b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

1 c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

XI. MINERAL RESOURCES

Would the project:

1 a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

1 b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

XII. NOISE

Would the project:

2 a) Cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

2 b) Cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

1 c) Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

1 d) Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

1 e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

1 f) For a project within the vicinity of a private airstrip, would the project expose people residing or working the in the project area to excessive noise levels?

XIII. POPULATION AND HOUSING

Would the project:

2 a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

1 b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

1 c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

XIV. PUBLIC SERVICES

Would the project:

2 a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

1 i) Fire protection?

1 ii) Police protection?

1 iii) Schools?

2 iv) Parks?

2 v) Other public facilities?

XV. RECREATION

Would the project:

1 a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

2 b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

XVI. TRANSPORTATION / TRAFFIC

Would the project:

1 a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

1 b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

1 c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

1 d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

1 e) Result in inadequate emergency access?

1 f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

XVII. UTILITIES AND SERVICE SYSTEMS

Would the project:

1 a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

1 b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

2 c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

1 d) Have sufficient water supplies available to service the project from existing entitlements and resources, or are new or expanded entitlements needed?

1 e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

1 f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

1 g) Comply with federal, state, and local statutes and regulations related to solid waste?

XVIII TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

2 a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

3 b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

XIX. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

2 a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

3 b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

2 c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino,*(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors,* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2009

DISCUSSION OF ENVIRONMENTAL EVALUATION

I. AESTHETICS

a. This project will not adversely affect the view of any scenic vistas. The Sierra Nevada mountain range may be considered a scenic vista, but views of the range will not be adversely impacted or significantly by the project. Staff believes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

b. There are no scenic resources on the site.

c. The City has development standards related to landscaping and other amenities that will ensure that the visual character of the area is not degraded upon any future development. The proposed project in itself will improve the visual character and quality of the site.

d. The project will facilitate a recreation space and walking path around a recharge basin and future recreation space. There will not be new sources of significant light glare created by the project.

II. AGRICULTURAL RESOURCES

a. The project is located on property that is identified as Farmland of Local Importance on maps prepared by the California Resources, and will involve the conversion of the property to non-agricultural use.

The Visalia General Plan Update Environmental Impact Report (EIR) has already considered the environmental impacts of the conversion of properties within the Planning Area, which includes the subject property, into non-agriculture uses. Overall, the General Plan results in the conversion of over 14,000 acres of Important Farmland to urban uses, which is considered significant and unavoidable. Aside from preventing development altogether the conversion of Important Farmland to urban uses cannot be directly mitigated, through the use of agricultural conservation easements or by other means. However, the General Plan contains multiple polices that together work to limit conversion only to the extent needed to accommodate long-term growth. The General Plan policies identified under Impact 3.5-1 of the EIR serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area. These policies include the implementation of a three-tier growth boundary system that assists in protecting open space around the City fringe and maintaining compact development within the City limits.

Because there is still a significant impact to loss of agricultural resources after conversion of properties within the General Plan Planning Area to non-agricultural uses, a Statement of Overriding Considerations was previously adopted with the Visalia General Plan Update EIR.

b. The project site is zoned Quasi-Public which is consistent with the land use designation of Recreation for this property. The project is predominately bordered by agricultural uses or non-producing vacant land on one or more sides. There are no Williamson Act contracts on any areas within the subject property.

c. There is no forest land or timberland currently located on the site, nor does the site conflict with a zoning for forest land, timberland, or timberland zoned Timberland Production.

d. There is no timberland currently located on the site.

e. The project will involve changes that would promote or result in the conversion of farmland to non-agriculture use. The subject property is currently designated for agriculture land use. Properties that are vacant may develop in a way that is consistent with their zoning and land use designated at any time. The adopted Visalia General Plan's implementation of a three-tier growth boundary system further assists in protecting open space around the City fringe to ensure that premature conversion of farmland to non-agricultural uses does not occur. The recharge basin will result in conversion of farmland (although not farm use) of local importance to a non-agricultural use. However, the 32-acre parcel has not been actively farmed and/or has not been in active agricultural production for the past 10 years. The City's General Plan designates this property for agricultural use by designating the site for Agriculture. A recharge basin is considered to be a compatible use with agriculture.

III. AIR QUALITY

a. The project site is located in an area that is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The project in itself does not disrupt implementation of the San Joaquin Regional Air Quality Management Plan, and will therefore be a less than significant impact.

b. Future development of the site under the Visalia General Plan will result in emissions that will exceed thresholds established by the SJVAPCD for PM10 and PM2.5. The development of this property may contribute to a net increase of criteria pollutants and will therefore contribute to exceeding the thresholds. Also the project could result in short-term air quality impacts related to dust generation and exhaust due to construction and grading activities. This site was evaluated in the Visalia General Plan Update EIR for conversion into urban development. Development under the General Plan will result in increases of construction and operation-related criteria pollutant impacts, which are considered significant and unavoidable. General Plan policies identified under Impacts 3.3-1 and 3.3-2 serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area.

Development of this site is required to adhere to requirements administered by the SJVAPCD to reduce emissions to a level of compliance consistent with the District's grading regulations. Compliance with the

SJVAPCD's rules and regulations will reduce potential impacts associated with air quality standard violations to a less than significant level.

In addition, development of the project site may be subject to the SJVAPCD Indirect Source Review (Rule 9510) procedures that became effective on March 1, 2006. The Applicant will be required to obtain permits demonstrating compliance with Rule 9510, or payment of mitigation fees to the SJVAPCD, when warranted.

c. Tulare County is designated non-attainment for certain federal ozone and state ozone levels. Development of the project site will result in a net increase of criteria pollutants. This site was evaluated in the Visalia General Plan Update EIR for conversion into urban development. Development under the General Plan will result in increases of construction and operation-related criteria pollutant impacts, which are considered significant and unavoidable. General Plan policies identified under Impacts 3.3-1, 3.3-2, and 3.3-3 serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area.

Development of the project site may be required to adhere to requirements administered by the SJVAPCD to reduce emissions to a level of compliance consistent with the District's grading regulations. Compliance with the SJVAPCD's rules and regulations will reduce potential impacts associated with air quality standard violations to a less than significant level.

In addition, development of the project site may be subject to the SJVAPCD Indirect Source Review (Rule 9510) procedures that became effective on March 1, 2006. The Applicant would be required to obtain permits demonstrating compliance with Rule 9510, or payment of mitigation fees to the SJVAPCD, when warranted.

d. Residences located near the proposed project may be exposed to pollutant concentrations due to future construction activities. The use of construction equipment will be temporary and is subject to SJVAPCD rules and regulations. The impact is considered as less than significant.

e. The proposed project will not involve the generation of objectionable odors that would affect a substantial number of people.

IV. BIOLOGICAL RESOURCES

a. The site has no known species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The project would therefore not have a substantial adverse effect on a sensitive, candidate, or special species.

In addition, Live Oak Associates conducted an on-site visit to the site on December 29 and 30, 2014, to observe biological conditions and did not observe any evidence or symptoms that would suggest the presence of a sensitive, candidate, or special species.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain special-status species or their habitats may be directly or indirectly affected by future development within the General Plan Planning Area. This may be through the removal of or disturbance to habitat. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-1 of the EIR, that together work to reduce the potential for impacts on special-status species likely to occur in the Planning Area. With implementation of these polies, impacts on special-status species will be less than significant.

b. The project is located within or adjacent to an identified sensitive riparian habitat or other natural community (creek and irrigation ditch). The project will comply with the 50-foot setback requirement from the top of the hinge-point of Packwood Creek as identified in the Conversation Land Use Policy.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain sensitive natural communities may be directly or indirectly affected by future development within the General Plan Planning Area, particularly valley oak woodlands and valley oak riparian woodlands. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-2 of the EIR, that together work to reduce the potential for impacts on woodlands located within in the Planning Area. With implementation of these policies, impacts on woodlands will be less than significant.

c. The project is not located within or adjacent to federally protected wetlands as defined by Section 404 of the Clean Water Act.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain protected wetlands and other waters may be directly or indirectly affected by future development within the General Plan Planning Area. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-3 of the EIR, that together work to reduce the potential for impacts on wetlands and other waters located within in the Planning Area. With implementation of these policies, impacts on wetlands will be less than significant.

d. City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that the movement of wildlife species may be directly or indirectly affected by future development within the General Plan Planning. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-4 of the EIR, that together work to reduce the potential for impacts on wildlife movement corridors located within in the Planning Area. With implementation of these polies, impacts on wildlife movement corridors will be less than significant.

e. The City has a municipal ordinance in place to protect valley oak trees. All existing valley oak trees on the project site will be under the jurisdiction of this ordinance. Any oak trees to be removed from the site are subject to the jurisdiction of the municipal ordinance.

There are no Valley Oak trees onsite.

f. There are no local or regional habitat conservation plans for the area.

V. CULTURAL RESOURCES

a. A cultural resource inventory of the larger 288-acre site was conducted by Applied Earthworks, Inc. in November 2016, and a follow-up Evaluation in April 2017. Five cultural resources were identified on the 288-acre site, including one obsidian tool fragment, and four structures associated with Mill and Packwood Creeks ditches. One structure, Oakes Ditch (AE-3044-01), bisects the project site. It was likely constructed in the mid-1800's and has been in used, maintained, and re-routed regularly to the present time. Consequently it has been substantially altered and would not meet the qualifications for placement on the CRHR, nor the NRHP. Notwithstanding the lack of historic value in the structure itself, the backfilling of Oakes Ditch will still fall under Mitigation Measure 5-1 which directs that if some potentially historical or cultural resource is unearthed during development all work should cease until a qualified professional archaeologist and potentially a qualified Native American Tribal Observer can evaluate the finding and make necessary disposition recommendations.

b. There are no known archaeological resources located within the project area. If some archaeological resource is unearthed during development all work should cease until a qualified professional archaeologist can evaluate the finding and make necessary mitigation recommendations.

c. There are no known unique paleontological resources or geologic features located within the project area. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

d. There are no known human remains buried in the project vicinity. If human remains are unearthed during development all work should cease until the proper authorities are notified and a qualified professional archaeologist can evaluate the finding and make any necessary mitigation recommendations. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

VI. GEOLOGY AND SOILS

a. The State Geologist has not issued an Alquist-Priolo Earthquake Fault Map for Tulare County. The project area is not located on or near any known earthquake fault lines. Therefore, the project will not expose people or structures to potential substantial adverse impacts involving earthquakes.

b. Development of the site will require movement of topsoil. Existing City Engineering Division standards require that a grading and drainage plan be submitted for review to the City to ensure that off- and on-site improvements will be designed to meet City standards.

c. The project area is relatively flat and the underlying soil is not known to be unstable. Soils in the Visalia area have few limitations with regard to development. Due to low clay content and limited topographic relief, soils in the Visalia area have low expansion characteristics.

d. Due to low clay content, soils in the Visalia area have an expansion index of 0-20, which is defined as very low potential expansion.

e. The project does not involve the use of septic tanks or alternative waste water disposal systems since sanitary sewer lines would be used for the disposal of waste water at this location.

VII. GREENHOUSE GAS EMISSIONS

a. The project is expected to generate Greenhouse Gas (GHG) emissions in the short-term as a result of the construction of industrial development.

The City has prepared and adopted a Climate Action Plan (CAP), which includes a baseline GHG emissions inventories, reduction measures, and reduction targets consistent with local and State goals. The CAP was prepared concurrently with the proposed General Plan and its impacts are also evaluated in the Visalia General Plan Update EIR.

The Visalia General Plan and the CAP both include policies that aim to reduce the level of GHG emissions emitted in association with buildout conditions under the General Plan. Implementation of the General Plan and CAP policies will result in fewer emissions than would be associated with a continuation of baseline conditions. Thus, the impact to GHG emissions will be less than significant.

b. The State of California has enacted the Global Warming Solutions Act of 2006 (AB 32), which included provisions for reducing the GHG emission levels to 1990 "baseline" levels by 2020.

VIII. HAZARDS AND HAZARDOUS MATERIALS

a. No hazardous materials are anticipated with the project. The site's previous use as an overflow parking area necessitated conducting a Phase 1 Environmental Survey in December 2011. The survey revealed no significant levels of soil contamination.

b. Construction activities associated with the development of the project may include maintenance of on-site

construction equipment, which could lead to minor fuel and oil spills. The use and handling of any hazardous materials during construction activities would occur in accordance with applicable federal, state, regional, and local laws. Therefore, impacts are considered to be less than significant.

c. There are no schools located within one-half mile from the project site. There is no reasonably foreseeable condition or incident involving the project that could affect existing or proposed school sites or areas within one-half mile of school sites.

d. The project area does not include any sites listed as hazardous materials sites pursuant to Government Code Section 65692.5.

e. The City's adopted Airport Master Plan shows the project area is located outside of all Airport Zones. There are no restrictions for the proposed project related to Airport Zone requirements.

The project area is not located within 2 miles of a public airport.

f. The project area is not within the vicinity of any private airstrip.

g. The project will not interfere with the implementation of any adopted emergency response plan or evacuation plan.

h. There are no wild lands within or near the project area.

IX. HYDROLOGY AND WATER QUALITY

a. Development projects associated with buildout under the Visalia General Plan have the potential to result in short term impacts due to erosion and sedimentation during construction activities. However, long-term impacts through the addition of a recharge basin will positively impact groundwater resources in the City. Further, all requirements consistent with the requirements of the State Water Resources Control Board's (SWRCB's) General Construction Permit process will be adhered to. This may involve the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and/or the use of best management practices. The project will be required to meet municipal storm water requirements set by the SWRCB.

Furthermore, the Visalia General Plan contains multiple polices, identified under Impact 3.6-2 of the EIR, that together work to reduce the potential for impacts to water quality. With implementation of these policies and the existing City standards, impacts to water quality will be less than significant.

b. The project area overlies the southern portion of the San Joaquin unit of the Central Valley groundwater aquifer. Development of the site will result in an increase of impervious surfaces on the project site, which might affect the amount of precipitation that is recharged to the aquifer.

c. The project will not result in substantial erosion on- or off-site.

d. The project will not substantially alter the existing drainage pattern of the site or area, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

e. The project will not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

f. There are no reasonably foreseeable reasons why the project would result in the degradation of water quality.

g. The project area is not located within a flood zone.

h. The project area is not located within a flood zone.

i. The project would not expose people or structures to risks from failure of levee or dam. The project is located downstream from the Terminus Damn; in the case of dam failure, there will be 4 hours of warning to evacuate the site.

j. Seiche and tsunami impacts do not occur in the Visalia area. The site is relatively flat, which will contribute to the lack of impacts by mudflow occurrence.

X. LAND USE AND PLANNING

a. The project will not physically divide an established community. Recharge basins are considered compatible uses in Agriculture Zone Districts. The site is located along Ave. 152, which is a County road. Agriculture land use designations bound this area. The City's General Plan Land Use Map designates the site as Agriculture. Staff concludes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

b. The project does not conflict with any land use plan, policy or regulation of the City of Visalia. The recently adopted General Plan did not rezone or otherwise disrupt residential communities or commercial areas, and provides additional space to accommodate any potentially displaced residents or businesses.

The City's General Plan Land Use Map designates the site as Agriculture. Staff concludes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

c. The project does not conflict with any applicable habitat conservation plan or natural community conservation plan as the project site is vacant dirt lot with no significant natural habitat present.

XI. MINERAL RESOURCES

a. No mineral areas of regional or statewide importance exist within the Visalia area.

b. There are no mineral resource recovery sites delineated in the Visalia area.

XII. NOISE

a. The project will facilitate the development of a recharge basin. Such development will not result in noise generation.. There will be noise generated by construction activity. However, there are no residences or sensitive receptors within ¼ mile of the project site.

Furthermore, the Visalia General Plan contains multiple policies, identified under Impact N-P-3 through N-P-5, that work to reduce the potential for noise impacts to sensitive land uses. With implementation of Noise Impact Policies

and existing City Standards, noise impacts to new noise sensitive lands uses would be less than significant.

b. Ground-borne vibration or ground-borne noise levels may occur as part of construction activities associated with the development of the site. Construction activities will be temporary and will not expose persons to such vibration or noise levels for an extended period of time; thus the impacts will be less than significant. There are no existing uses near the project area that create ground-borne vibration or ground-borne noise levels.

c. Ambient noise levels will increase beyond current levels as a result of development of the project site, however these levels will be typical of noise levels associated with urban development and not in excess of standards established in the City of Visalia's General Plan or Noise Ordinance. Noise associated with the establishment of new urban uses was previously evaluated with the General Plan for the conversion of land to urban uses.

Furthermore, the Visalia General Plan contains multiple policies, identified under Impact N-P-3 through N-P-5, that work to reduce the potential for noise impacts to sensitive land uses. With implementation of Noise Impact Policies and existing City Standards, noise impacts to new noise sensitive lands uses would be less than significant.

d. Noise levels will increase during construction activities; however, there are no construction activities associated with this project.

e. The project area is not within 2 miles of a public airport. The project will not expose people residing or working in the project area to excessive noise levels.

f. There is no private airstrip near the project area.

XIII. POPULATION AND HOUSING

a. The project will not directly induce substantial population growth that is in excess of that planned in the General Plan. The addition of a recharge basin will assist in preserving available groundwater resources for planned City buildout.

b. Future development of the site will not displace any housing on the site.

c. Development of the site will not displace any people on the site.

XIV. PUBLIC SERVICES

a.

i. Current fire protection facilities are located at the Visalia Station 52 and can adequately serve the site without a need for alteration.

ii. Current police protection facilities can adequately serve the site without a need for alteration.

iii. The project will not generate new students for which existing schools in the area may accommodate.

iv. Other public facilities can adequately serve the site without a need for alteration.

XV. RECREATION

a. The project will not directly generate new residents.

b. The proposed project includes passive recreational facilities (a walking path). This recreational amenity will have a positive physical effect on the environment.

XVI. TRANSPORTATION AND TRAFFIC

a. Future development of the site and operation of the project site is not anticipated to conflict with applicable plans, ordinances, or policies establishing measures of effectiveness of the City's circulation system.

b. Development of the site will not result in increased traffic in the area, and will not cause a substantial increase in traffic on the city's existing circulation pattern. This site was evaluated in the Visalia General Plan Update Environmental Impact Report (EIR) for urban use.

c. The project will not result in nor require a need to change air traffic patterns.

d. There are no planned designs that are considered hazardous.

e. The project will not result in inadequate emergency access.

f. The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

XVII. UTILITIES AND SERVICE SYSTEMS

a. Development of the site will assist in the City's stormwater management system, consistent with the City Stormwater Master Plan. The proposed project will therefore not cause significant environmental impacts.

b. The project will not result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

c. The project site will enhance the existing City storm water drainage lines that handles on-site and street runoff by containing stormwater flows before they contribute to urban stormwater flows downstream. Usage of the recharge basin for stormwater management is consistent with the City Storm Drain Master Plan. These improvements will not cause significant environmental impacts.

d. California Water Service Company has determined that there are sufficient water supplies to support the site, and that service can be extended to the site.

e. The City has determined that there is adequate capacity existing to serve site within the City with projected wastewater treatment demands at the City wastewater treatment plant.

f. Current solid waste disposal facilities can adequately serve the site without a need for alteration.

g. The project will be able to meet the applicable regulations for solid waste. Removal of debris from construction will be subject to the City's waste disposal requirements.

XVIII. TRIBAL CULTURAL RESOURCES

The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section

21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. The site is not listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b. The site has been determined to not be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Further, the EIR (SCH 2010041078) for the 2014 General Plan update included a thorough review of sacred lands files through the California Native American Heritage Commission. The sacred lands file did not contain any known cultural resources information for the Visalia Planning Area.

Additionally, invitations for early consultation were sent on January 15, 2015 to the eight Native American tribes with a historic presence in the Visalia Planning Area. The representative of the Santa Rosa Rancheria Tachi Yokut Tribe responded to the early consultation letter pursuant to AB 52. The Tribal representative's recommendation was to ensure that a Tribal observer be on the project site during excavation activities. This has been made a mitigation measure. No subsequent information has been received. Therefore, the City, acting as the Lead Agency determined that this mitigation measure is adequate to mitigate potentialities as suggested by the Tribal representative.

Mitigation Measure 18.1 has been added to this MND and will be included as project conditions of approval. This measure requires that a qualified Tribal observer be present on-site during grading activities. The Measure also directs that if some potentially historical or cultural resource is unearthed during development all work should cease until a qualified professional archaeologist and potentially a qualified Native American Tribal Observer can evaluate the finding and make necessary disposition recommendations. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

XIX. MANDATORY FINDINGS OF SIGNIFICANCE

h. The project will not affect the habitat of a fish or wildlife species or a plant or animal community. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia's Genera Plan Update for conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

i. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia General Plan Update for the area's conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

j. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia General Plan Update for conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

DETERMINATION OF REQUIRED ENVIRONMENTAL DOCUMENT

On the basis of this initial evaluation:

___ I find that the proposed project **COULD NOT** have a significant effect on the environment. **A NEGATIVE DECLARATION WILL BE PREPARED.**

__X__ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on the attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION WILL BE PREPARED.**

___ I find the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

___ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

___ I find that as a result of the proposed project no new effects could occur, or new mitigation measures would be required that have not been addressed within the scope of the Program Environmental Impact Report (SCH No. 2010041078). The Environmental Impact Report prepared for the City of Visalia General Plan was certified by Resolution No. 2014-37 adopted on October 14, 2014. **THE PROGRAM ENVIRONMENTAL IMPACT REPORT WILL BE UTILIZED.**

March 30, 2018

Paul Scheibel, AICP
Environmental Coordinator

ASSESSOR/CLERK-RECORDER
COUNTY OF TULARE
County Civic Center – Room 103
Visalia, California 93291-4593

July 17, 2018

CITY OF VISALIA
315 E ACEQUIA AVENUE
VISALIA CA 93291

SUBJECT: Posting of Environmental Notices

NOTICE OF **DETERM**

RECEIPT # **54-06052018-150**

PROJECT TITLE: **EAST SIDE REGIONAL PARK AND GROUNDWATER RECHARGE PROJECT**

DATE POSTED: **6/06/2018**

DATE REMOVED: **7/14/2018**

IF YOU HAVE ANY CONCERNS REGARDING THE ENCLOSED DOCUMENT, PLEASE CONTACT OUR OFFICE (559) 636-5051.

by, _____
Deputy

Enc
Clerk Division
559-636-5051

FILED
TULARE COUNTY

JUN 06 2018

ROLAND P. HILL
ASSESSOR/CLERK-RECORDER
BY:

Notice of Determination **Environmental Document No. 2018-05**

To: ☒ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

☒ County Clerk
County of Tulare
County Civic Center, Rm 105
Visalia, CA 93291

From: City of Visalia – Lead Agency
315 E. Acequia Avenue
Visalia, CA 93291
Attn: Paul Scheibel
Phone: (559) 713-4369
Email: paul.scheibel@visalia.city

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Project Title: East Side Regional Park and Groundwater Recharge Project

SCH2018041014	City of Visalia/City of Visalia	(559) 713-4369
State Clearinghouse Number	Lead Agency/Approving Agency	Area Code/Telephone/Extension

Project Location: The project is located on the north side The project site of Hwy 198, and west of Road 152, City of Visalia, County of Tulare (APNs 103-500-001, -002, -003 and 103-510-002, -003, -004, -005, -006, -007, -008, -009).

Project Description: The project for this 81.46-acre site will consist of developing a multi-purpose facility that will provide identifiable outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat consistent with the master plan. The existing pecan orchard will be removed. An existing irrigation ditch (Oakes Ditch) and two interim recharge basins will be substantially modified.

Name and Address of Project Applicant: City of Visalia, 315 E. Acequia Ave., Visalia, CA 93292; Applicant: Doug Damko, Engineering Division, Phone: (559) 713-4268; Email: doug.damko@visalia.city

This is to advise that the ☐ City Council ☐ Planning Commission The Environmental Coordinator has approved the above described MND on June 5, 2018 and has made the following determinations regarding the above described project:

1. The project ☐will ☒will not have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures (☒were ☐were not) made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan (☒was ☐was not) adopted for this project.
5. A Statement of Overriding Considerations (☐was ☒was not) adopted for this project.
6. Findings (☒were ☐were not) made pursuant to the provisions of CEQA.

This certifies that the final environmental document with comments, responses, and record of project approval is available to the General Public at the City of Visalia Planning Dept. located at 315 E. Acequia Ave., Visalia.

Paul Scheibel, AICP
City of Visalia Environmental Coordinator

June 5, 2018
Date

Date received for filing at OPR:

Revised 2005
Governor's Office of Planning and Research

2019 ISMND

DEPARTMENT OF TRANSPORTATION
DISTRICT 6 OFFICE
1352 WEST OLIVE AVENUE
P.O. BOX 12616
FRESNO, CA 93778-2616
PHONE (559) 488-7396
FAX (559) 488-4088
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life

Governor's Office of Planning & Research

JAN 06 2020

STATE CLEARINGHOUSE

January 6, 2020

06-TUL-198-12.97
MND
DETENTION BASINS D & E
EASTSIDE REGIONAL PARK (8)
SCH # 2019129021

SENT VIA EMAIL

Mr. Paul Scheibel, Principal Planner
Community Development – Planning Division
City of Visalia
315 E. Acequia Avenue
Visalia, CA 93291

Dear Mr. Scheibel:

Thank you for the opportunity to review the Mitigated Negative Declaration (MND) to develop 2 (two) Detention basins (Basins: D and E) on approximately 25 acres within the Master Planned 288-acre Eastside Regional Park. The Eastside Regional Park project will provide outdoor recreational facilities consisting of a 2.3-mile trail system, a 10-station Para-course fitness circuit, an 18-hole disc-golf course and 54 acres for an integrated groundwater recharge system (which include Basins D and E). The project site is located north of SR 198 and south of SR 216, bounded by the future alignment of Tower Road (Road 148) on the west side and Road 152 on the east side.

Caltrans provides the *following comments* consistent with the State's smart mobility goals that support a vibrant economy and sustainable communities:

1. Caltrans anticipates based on the project description that construction of basins D and E would have a minimal impact to State Highway System (SR 198 and SR 216).

2. However, Caltrans would like to review all subsequent phases of the Eastside Regional Park in regards to other detention basins and the multipurpose recreation facilities.

If you have any other questions, please call me at (559) 488-7396.

Sincerely,

DAVID DEEL
Associate Transportation Planner
Transportation Planning – North

City of Visalia
Agenda Item Transmittal

Meeting Date: 7/20/2020

Agenda Item Number (Assigned by City Clerk): 9.

Agenda Item Wording: Adopt Resolution No. 2020-36 certifying Mitigated Negative Declaration No. 2019-73 prepared for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D and E Project (State Clearinghouse No. 2019129021) (Resolution No. 2020-36 required).

Deadline for Action: 7/20/2020

Submitting Department: Community Development

Contact Name and Phone Number:
Rebecca Keenan, Senior Civil Engineer, 713-4541, rebecca.keenan@visalia.city
Paul Bernal, City Planner, 713-4025, paul.bernal@visalia.city
Curtis Cannon, Community Development Director, 713-4449, curtis.cannon@visalia.city

Department Recommendation:
Staff recommends that the City Council adopt Resolution No. 2020-36 certifying Mitigated Negative Declaration No. 2019-73 prepared for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project (State Clearinghouse No. 2019129021).

Summary:
As directed by the Council at the June 28, 2019 City Council meeting, staff submitted an application to the Proposition 68 Green Infrastructure Program through the State of California Natural Resources Agency for a competitive grant to provide multi-benefit green infrastructure investments in, or benefitting, disadvantaged or severely disadvantaged communities. The City of Visalia requested $3M to fund the construction of Basins D and E of the East Side Regional Park. The program is not able to fund the requested amount; however they have extended a grant award of $1,907,244 for the construction of Basin D.

The proposed project for this grant application encompasses approximately 25 acres of land that comprises a portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west (see attached location map).

As part of the grant application process, staff prepared a Mitigated Negative Declaration that was circulated for comment, and submitted to the State Clearinghouse on December 6, 2019. During the 30 day comment period, staff received comment letters from the Department of Transportation and Department of Water Resources – Division of Dam Safety. The letter

received from the Department of Water Resources – Division of Dam Safety, required staff to provide a response letter to address the design and depth of the two basin's to clarify that this project does not meet the definition of a dam or a barrier, and therefore, is not subject to jurisdictional review by the California Division of Safety of Dams. The Division of Dam Safety provided a follow up letter dated June 23, 2020, and determined that the basin project is not subject to their jurisdictional review.

A copy of the Mitigated Negative Declaration No. 2019-73, and comment letters are attached to this staff report. No revisions were made or required to the Mitigated Negative Declaration in response to the comments.

To complete the environmental review process for the Green Infrastructure Grant, a Notice of Determination (NOD) needs to be filed with the Tulare County Clerk's Office. In order to file the NOD, the City Council is required to adopt the Mitigated Negative Declaration prepared for the grant application by adopting Resolution No. 2020-36. Upon adoption of the Mitigated Negative Declaration, staff will file the NOD with the Tulare Clerk's Office.

Fiscal Impact: None

Prior Council Action:
April 4, 2020: The Council authorized the City Manager to accept and execute a grant for $1,907,244 from the Proposition 68 Green Infrastructure Program through the State of California Natural Resources Agency to construct a groundwater recharge basin with habitat improvements, create a new CIP, and appropriate associated funds.

Attachments:

1. Resolution No. 2020-36 for Mitigated Negative Declaration No. 2019-73
2. Mitigated Negative Declaration No. 2019-73
3. Department of Transportation letter dated January 6, 2020
4. Department of Water Resources – Division of Dam Safety letter dated December 19, 2019, response by City of Visalia staff dated March 18, 2020, and Division of Dam Safety letter dated June 26, 2020
5. Location Map

Recommended Motion (and Alternative Motions if expected):
I move to approve Resolution No. 2020-36 certify Mitigated Negative Declaration No. 2019-73.

Copies of this report have been provided to:

Environmental Assessment Status

CEQA Review: An Initial Study was prepared for the Green Infrastructure Grant. Initial Study No. 2019-73 disclosed that environmental impacts are determined to be not significant with the incorporation of mitigation to address significant impacts to cultural resources. The mitigation measures require that In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties. With the mitigation incorporated into the project, staff concludes that Initial Study and Mitigated Negative Declaration No. 2019-73 adequately analyzes and addresses the proposed project.

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DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

June 26, 2020

Ms. Rebecca Keenan, Senior Civil Engineer
City of Visalia
315 E. Acequia
Visalia, California 93291

Basin D Dam, Proposed
Basin E Dam, Proposed
Tulare County

Dear Ms. Keenan:

This is in reply to your submittal dated May 5, 2020, transmitting conceptual drawings for the proposed Basins D and E, to be located at Eastside Regional Park. The submittal is in support of a jurisdictional determination the Division of Safety of Dams (DSOD) is performing for the proposed basins.

Pursuant to Division 3, Part 1, Chapter 1, Section 6003 of the CA Water Code, any barrier of height six feet or less, regardless of storage capacity, is not considered a dam and not under State jurisdiction with respect to dam safety. DSOD has completed its review of the submitted information and has determined that Basins D and E will not be under State jurisdiction based on their height.

It is good practice to meet or exceed minimum standards for dam safety regardless of jurisdictional status. We noted that the submitted drawings do not show a spillway for the proposed dams. It is recommended a spillway be provided to protect the dams from overtopping in a 100-year storm event or if inflows to the reservoirs cannot be controlled. Note that the standard total freeboard from the spillway invert to dam crest for off-stream reservoirs and dams is three feet.

No alteration increasing the height of any barrier to jurisdictional size may be made in the future without prior review and written approval from DSOD. As long as the height of the barriers are not increased, the proposed basins are not subject to State jurisdiction and no further action will be required by you or taken by DSOD.

If you have any questions or need additional information, you may contact Design Engineer Alex Pires-Sturm at (916) 565-7888 or Project Engineer Christopher Dorsey at (916) 565-7846.

Sincerely,

Sharon K. Tapia

Sharon K. Tapia, Chief
Division of Safety of Dams

cc: (See Attached List.)

DocuSign Envelope ID: 1D0C12C1-DAD8-4A66-893F-D68C1C03E659

cc: Mr. Erik Ekdahl, Deputy Director
Division of Water Rights
State Water Resources Control Board
1001 I Street, 14th Floor
Sacramento, California 95814

Mr. Reed Schenke, Director
Tulare County Resource Management Agency
Government Plaza (RMA Headquarters)
5961 South Mooney Boulevard
Visalia, California 93277

City of Visalia
315 E. Acequia, Visalia, CA 93291

Public Works
Engineering
FAX: (559) 713-4833

March 18, 2020

Mr. Rick Draeger, Regional Engineer
Southern Region, Field Engineering Branch
Division of Safety of Dams, Department of Water Resources
P.O. Box 942836
Sacramento, CA 94236-0001

RE: Notice of Completion and Environmental Document Transmittal for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project SCH2019129021, Tulare County

Dear Ms. Draeger,

The City of Visalia has reviewed your letter, dated December 19, 2019, requesting preliminary plans for the Basin D & E project, in order to make a jurisdictional determination. Please find attached a preliminary site layout of the proposed Basins, and the following additional information:

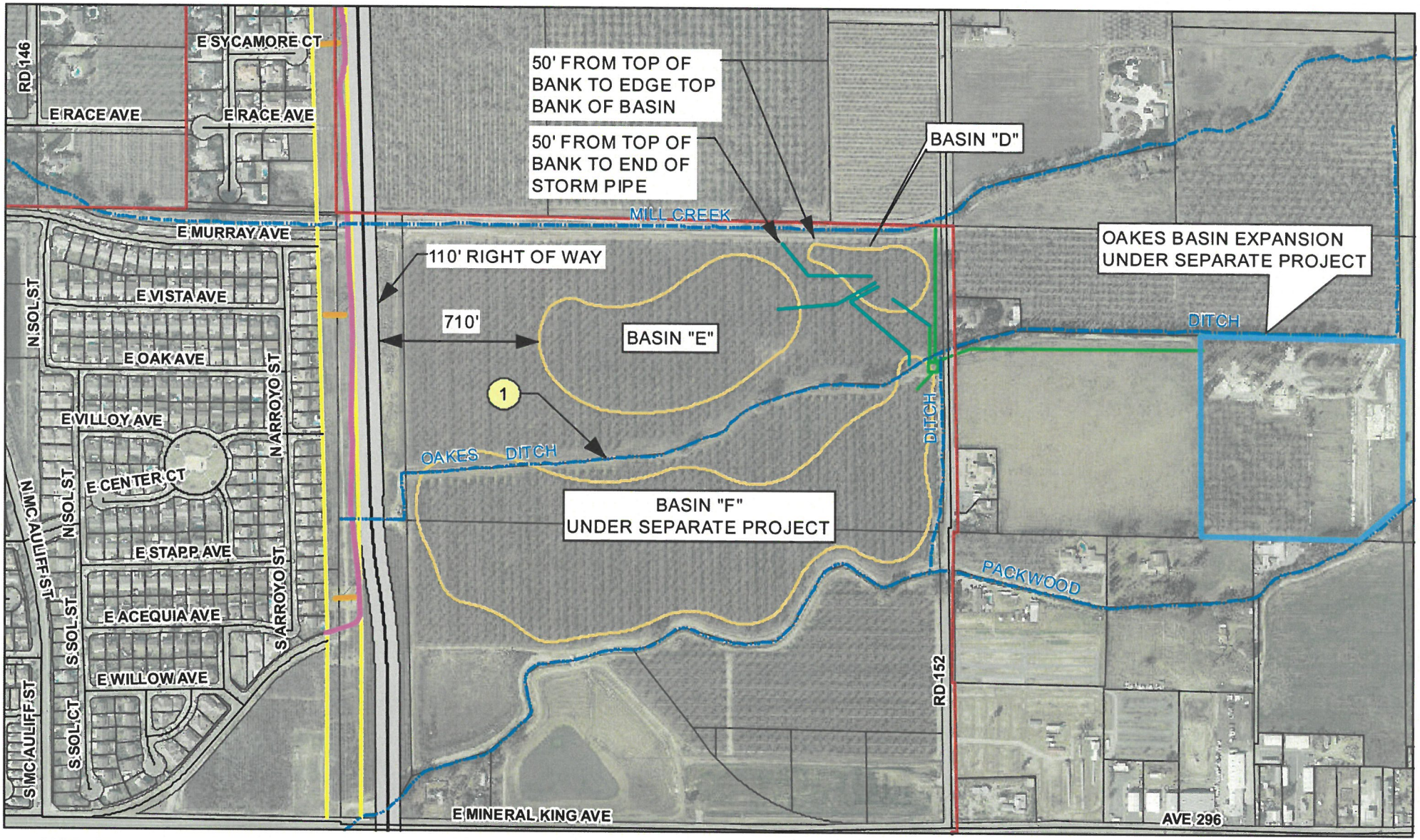
1. This project consists of two new shallow basins, intended to be used as recharge to the area's groundwater.
2. Basin 'E' is projected to be approximately 9.2 to 9.5 +/-acres (floor area), and will be between 6'-8' in depth, with 5:1 max side slopes
3. Basin 'D' is projected to be approximately 1+/- acre (floor area), and will be between 6'-8' in depth, with 5:1 max side slopes.
4. These basins will be constructed on an existing farm site, through an excavation process that will excavate the existing ground.
5. Excavation for the basins will not create a dam (barrier) across the existing Mill Creek. The Mill Creek wetted perimeter will not be altered with this project. The Mill Creek stream will remain unchanged.

Based on our understanding of Section 6002 and 6003, Division 3, of the California Water Code, the described project does not meet the definition of dam, and is not subject to jurisdiction by the California Division of Safety of Dams. The City of Visalia respectfully requests that you remove this project from further consideration for State jurisdiction under Section 6002 and 6003, Division 3, of the California Water Code.

Please contact me at (559) 713-4541 with any additional questions.

Sincerely,

Rebecca Keenan
Senior Civil Engineer



NOTES:

1. OAKES DITCH TO BE BACKFILLED PER SEPARATE PROJECT.

LEGEND

- CITY LIMITS
- STREETS
- WATERWAYS
- STORM PIPE PER SEPARATE PROJECT
- NEW STORM PIPE PER THIS PROJECT
- SCE ELECTRICAL LINES
- SCE TOWERS
- GREENWAY TRAIL
- FUTURE TOWER ROAD
- PARCELS

MND 2019-73
GREEN INFRASTRUCTURE GRANT
DETENTION BASINS D AND E

N

1 inch = 600 feet

DEPARTMENT OF WATER RESOURCES
1416 NINTH STREET, P.O. BOX 942836
SACRAMENTO, CA 94236-0001
(916) 653-5791

Governor's Office of Planning & Research
DEC 19 2019
STATE CLEARINGHOUSE

DEC 19 2019

Mr. Paul Scheibel, AICP Environmental Coordinator
City of Visalia
315 East Acequia Avenue
Visalia, California 93291

Notice of Completion and Environmental Document Transmittal for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project
SCH2019129021
Tulare County

Dear Mr. Scheibel:

The Division of Safety of Dams (DSOD) has reviewed the Mitigated Negative Declaration for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E for the above referenced project (Project), which describes developing two basins on a 25-acre site that will be used as a multi-purpose facility which will provide outdoor recreation benefits and groundwater recharge.

Due to insufficient information in the Project description, we could not make an accurate jurisdictional determination with regards to the described work, and it is unclear whether some or all the work will be subject to State jurisdiction for dam safety. Therefore, the City of Visalia needs to submit preliminary plans so that we can make a jurisdictional determination.

As defined in Sections 6002 and 6003, Division 3, of the California Water Code, dams 25 feet or higher with a storage capacity of more than 15 acre-feet, and dams higher than 6 feet with a storage capacity of 50 acre-feet or more are subject to State jurisdiction. The dam height is the vertical distance measured from the maximum possible water storage level to the downstream toe of the barrier.

If the dam is subject to State jurisdiction, a construction application, together with plans, specifications, and the appropriate filing fee must be filed with DSOD for this project. All dam safety related issues must be resolved prior to approval of the application, and the work must be performed under the direction of a Civil Engineer registered in California. Erik Malvick, DSOD's Design Engineering Branch Chief, is responsible for the application process and can be reached at (916) 565-7840.

If you have any questions or need additional information, you may contact, Area Engineer William F. Vogler at (916) 565-7828 or Regional Engineer Rick G. Draeger at (916) 565-7827.

Sincerely,

Rick G. Draeger, Regional Engineer
Southern Region
Field Engineering Branch
Division of Safety of Dams

cc: (See Attached List)

cc: Governor's Office of Planning and Research
State Clearinghouse
state.clearinghouse@opr.ca.gov

CITY OF VISALIA
315 E. ACEQUIA STREET
VISALIA, CA 93291

NOTICE OF A PROPOSED MITIGATED NEGATIVE DECLARATION

Project Title: Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project

Project Description: The proposed project for this grant application encompasses approximately 25 acres of land that comprises a portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project for this 25-acre site will consist of developing two basins that will be a part of the master planned, multi-purpose facility that will provide outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat.

Project Location: The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west (APN 103-500-001), in the City of Visalia, Tulare County.

Contact Person: Paul Scheibel, AICP, Principal Planner Phone: (559) 713-4369

Pursuant to City Ordinance No. 2388, the Environmental Coordinator of the City of Visalia has reviewed the proposed project described herein and has found that the project will not result in any significant effect upon the environment because mitigation measures have been established and will be applied to construction of the project to mitigate potentially significant impacts to a less than significant effect.

Copies of the initial study and other documents relating to the subject project may be examined by interested parties at the Planning Division in City Hall East, at 315 East Acequia Avenue, Visalia, CA.

Comments on this proposed Mitigated Negative Declaration will be accepted from December 10, 2019 to January 10, 2020.

Date: 12-4-19

Signed: Paul T Scheibel

Paul Scheibel, AICP
Environmental Coordinator
City of Visalia

Environmental Document No. 2019-73
City of Visalia Community Development

MITIGATED NEGATIVE DECLARATION

Project Title: Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project

Project Description: The proposed project for this grant application encompasses approximately 25 acres of land that comprises a portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project for this 25-acre site will consist of developing two basins that will be a part of the master planned, multi-purpose facility that will provide outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat.

Project Location: The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west (APN 103-500-001), in the City of Visalia, Tulare County.

Project Facts: Refer to Initial Study for project facts, plans and policies, and discussion of environmental effects.

Attachments:

Initial Study	(X)
Environmental Checklist	(X)
Maps	(X)

DECLARATION OF NO SIGNIFICANT EFFECT:

This project will not have a significant effect on the environment for the following reasons:

(a) The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

(b) The project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

(c) The project does not have environmental effects which are individually limited but cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

(d) The environmental effects of the project will not cause substantial adverse effects on human beings, either directly or indirectly.

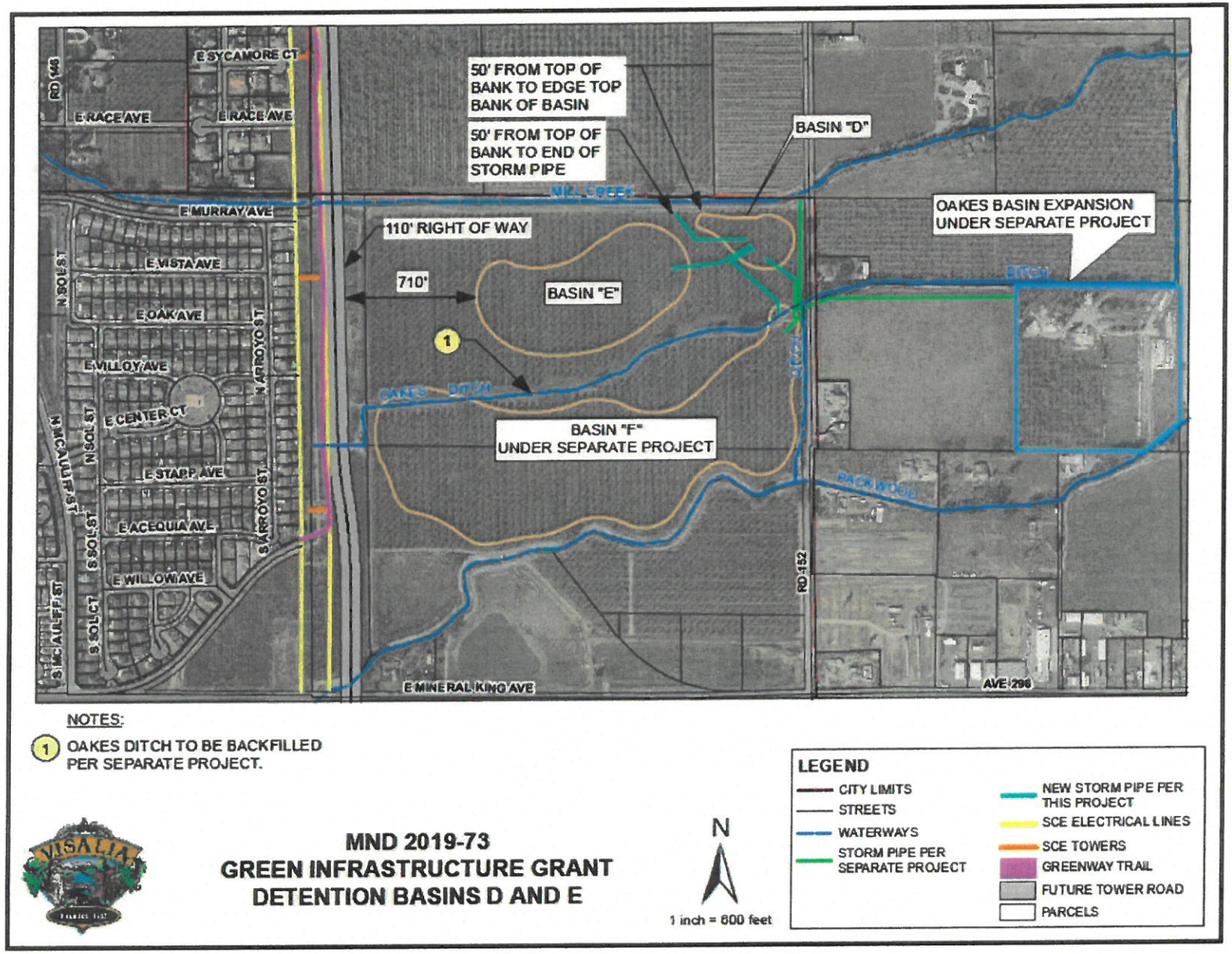
This Mitigated Negative Declaration has been prepared by the City of Visalia Planning Division in accordance with the California Environmental Quality Act of 1970, as amended. A copy may be obtained from the City of Visalia Planning Division Staff during normal business hours.

APPROVED
Paul Scheibel, AICP
Environmental Coordinator

By: _____

Date Approved: 12-4-19
Review Period: 30 days

PROJECT AREA
Mill Creek
Packwood
Hwy 198



NOTES:

(1) OAKES DITCH TO BE BACKFILLED PER SEPARATE PROJECT.

LEGEND

- CITY LIMITS
- STREETS
- WATERWAYS
- STORM PIPE PER SEPARATE PROJECT
- NEW STORM PIPE PER THIS PROJECT
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- FUTURE TOWER ROAD
- PARCELS

MND 2019-73
GREEN INFRASTRUCTURE GRANT
DETENTION BASINS D AND E

N

1 inch = 600 feet

Environmental Document No. 2019-73
City of Visalia Community Development

MITIGATED NEGATIVE DECLARATION

Project Title: Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project

Project Description: The proposed project for this grant application encompasses approximately 25 acres of land that comprises a portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project for this 25-acre site will consist of developing two basins that will be a part of the master planned, multi-purpose facility that will provide outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat.

Project Location: The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west (APN 103-500-001), in the City of Visalia, Tulare County.

Project Facts: Refer to Initial Study for project facts, plans and policies, and discussion of environmental effects.

Attachments:

Initial Study	(X)
Environmental Checklist	(X)
Maps	(X)

DECLARATION OF NO SIGNIFICANT EFFECT:

This project will not have a significant effect on the environment for the following reasons:

(a) The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

(b) The project does not have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

(c) The project does not have environmental effects which are individually limited but cumulatively considerable. Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

(d) The environmental effects of the project will not cause substantial adverse effects on human beings, either directly or indirectly.

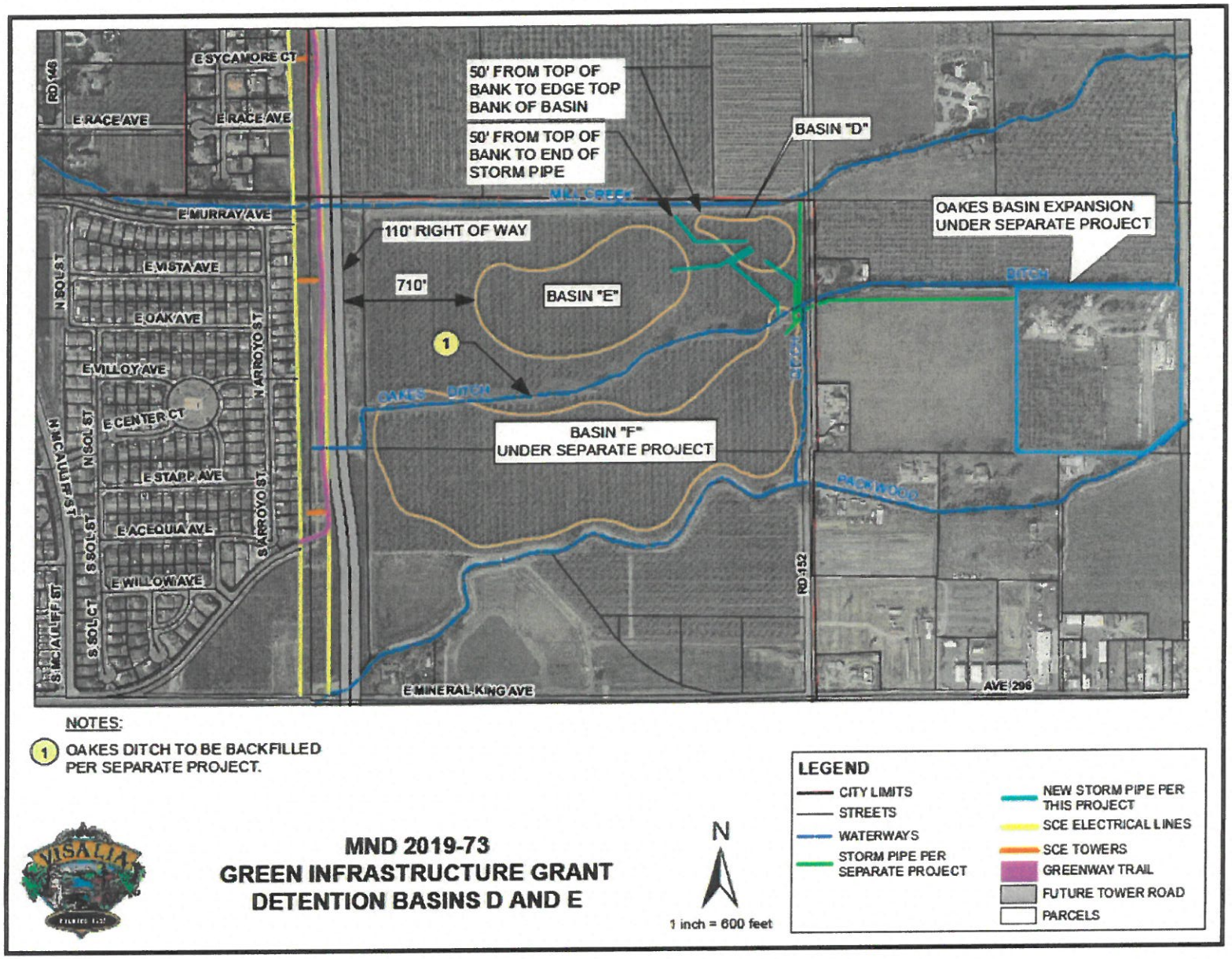
This Mitigated Negative Declaration has been prepared by the City of Visalia Planning Division in accordance with the California Environmental Quality Act of 1970, as amended. A copy may be obtained from the City of Visalia Planning Division Staff during normal business hours.

APPROVED
Paul Scheibel, AICP
Environmental Coordinator

By: _____

Date Approved: 12-4-19
Review Period: 30 days

PROJECT AREA
B Murray Ave
E Vista Ave
E Oak Ave
N Arroyo St
N Casablanca St
E Stapp Ave
S Arroyo St
S Casablanca St
Hwy 198
B Noble Ave
B Mineral King Ave
R1 142



NOTES:

1. OAKES DITCH TO BE BACKFILLED PER SEPARATE PROJECT.

MND 2019-73
GREEN INFRASTRUCTURE GRANT
DETENTION BASINS D AND E

N

1 inch = 600 feet

LEGEND

- CITY LIMITS
- STREETS
- WATERWAYS
- STORM PIPE PER SEPARATE PROJECT
- NEW STORM PIPE PER THIS PROJECT
- SCE ELECTRICAL LINES
- SCE TOWERS
- GREENWAY TRAIL
- FUTURE TOWER ROAD
- PARCELS

INITIAL STUDY

I. GENERAL

A. Project Name and Description: Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D & E Project

The proposed project for this grant application encompasses approximately 25 acres of land that comprises a portion of the larger 288-acre master planned area for the East Side Regional Park and Groundwater Recharge Project. The project for this 25-acre site will consist of developing two basins that will be a part of the master planned, multi-purpose facility that will provide outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat. The site is generally bounded by Mill Creek on the north, Road 152 on the east, Oakes Ditch on the south, and the future Tower Road alignment on the west.

The flat site will be completely re-graded to provide a variety of terrain relief with gently rolling hills and low areas that will provide a unique trail system. Two small islands will be created within the recharge areas to provide interest. Two loop trails will be constructed around the perimeter of the two new basins, with connections between each other, and with trails around the larger basin, which will be located south of the site. The larger basin located south of the site is being constructed separately from this proposed project. Through this connection, the trails surrounding the 25-acre site will become a part of the large, master planned trail system that will extend throughout the park, and will also have an extension linking it to the Class I Greenway Trail project which will extend north/south and will be located approximately 300 feet west of the East Side Regional Park.

The low areas where dirt is cut inside the two new loop trails will be utilized for both intermittent groundwater recharge and recreational purposes when dry. The delivery of water for groundwater recharge will come through two sources: Mill Creek and Oaks Ditch. This project will provide a stub for a future connection to the south bank of Mill Creek. New hydraulic structures, gates, and pipelines will be constructed to connect the two new basins to each other, to the larger basin to the south, and to Oakes Ditch. The larger basin to the south and Oakes Ditch will supply the recharge water during this phase. The connection to Mill Creek will be completed with a future phase to provide an additional source of recharge water. Class V shallow injection wells will be evenly spaced throughout the recharge areas to enhance groundwater recharge rates.

The two small islands within the recharge areas plus the trail system will be planted with riparian valley oak forest habitat. Existing mature valley oaks along Oakes Ditch and Mill Creek will be protected in place and incorporated into the newly planted riparian valley oak forest habitat.
Additional details of the project are as follows:

- The proposed project will develop approximately 25 acres of land for public open space and ground water recharge basins.
- The project will include development of 2 storm water basins totaling 15 acres.
- There will be 10 acres of native trees and shrubs planted, including Valley Oak (Quercus lobate), other California native trees and understory shrubs, 6-inches of mulch for ground cover, and an irrigation system.
- The trail system will consist primarily of a 10-foot wide, stabilized decomposed granite surface and the total length is estimated at just over 1 mile.
- Storm water will be captured on site through the use of basins and vegetated swales.
- The storm water will be recharged back into the ground through the use of approximately 60-foot deep Class V shallow injection wells, to be installed at an estimated ratio of 1 well per 4.5 acres of water surface.
- New pipelines, gates, and structures will be constructed to connect the two new basins to each other, to the larger basin to the south, and to the Oakes Ditch. There will also be a pipe stub

constructed for a future connection north, to Mill Creek.

B. Identification of the Environmental Setting:

The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west (APN 103-500-001), in the City of Visalia, Tulare County. The project site currently contains pecan orchards. The site has a General Plan Land Use designation of C (Conservation) (Mill Creek) and RP (Parks and Recreation) (balance of the site); the Zoning designation is Q-P (Quasi Public).

The surrounding uses, Zoning, and General Plan are as follows:

	General Plan	Zoning	Existing uses
North:	Conservation, Parks and Recreation	County AE-20Agriculture	Commercial farming, orchards and row crops
South:	Parks and Recreation	Quasi-Public	HWY 198, highway commercial businesses beyond
East:	Agriculture	County, AE-20	Mix of a weekly swap meet and commercial farming
West:	Parks and Recreation, Low Density Residential west of Tower Road.	Quasi-Public	Recharge basin and orchard

Fire and police protection services, street maintenance of public streets, refuse collection, and wastewater treatment are being provided by the City of Visalia.

C. Plans and Policies: The General Plan Land Use Diagram, adopted October 14, 2014, designates the site as Parks and Recreation. The Zoning Map, adopted in May 2017, designates the site as Quasi-Public. The proposed project is consistent with the Land Use Element of the General Plan. Recreational facilities, parks, and recharge basins are considered compatible uses in the Quasi-Public Zone District where potential impacts are negligible and are actually supportive of surrounding agricultural uses.

II. ENVIRONMENTAL IMPACTS

No significant adverse environmental impacts have been identified for this project for which mitigations measures applied to the project will not reduce the potential impact to a level of non-significance. The City of Visalia Land Use Element and Zoning Ordinance contain policies and regulations that are designed to mitigate potential impacts to a level of non-significance.

III. MITIGATION MEASURES

There is one mitigation measure for this project. Otherwise, the City of Visalia Zoning Ordinance contains guidelines, criteria, and requirements for the mitigation of potential impacts related to light/glare, visibility screening, noise, and traffic/parking to eliminate and/or reduce potential impacts to a level of non-significance. The anticipated impacts resulting from the creation of a landscaped recharge basin are found to be less than those of an urban development and use.

The mitigation measures to be applied to this project are as follows:

Mitigation Measure	Responsible Party	Timeline
Cultural Resources Mitigation Measure 5.1: A qualified Native American Tribal Observer from the Santa Rosa Rancherias shall be commissioned and shall be present during rough grading and excavation of the project site. Further, In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.	City	Mitigation Measure 5.1 shall be included as an advisory condition in all grading permits issued for the project; and shall be enforced and carried out as part of the project development.
Tribal Cultural Resources Mitigation Measure 19.1: A qualified Native American Tribal Observer from the Santa Rosa Rancherias shall be commissioned and shall be present during rough grading and excavation of the project site. Further, in the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.	City	Mitigation Measure 18.1 shall be included as an advisory condition in all grading permits issued for the project; and shall be enforced and carried out as part of the project development.

IV. PROJECT COMPATIBILITY WITH EXISTING ZONES AND PLANS

The project is compatible with the General Plan as the project relates to surrounding properties.

V. SUPPORTING DOCUMENTATION

The following documents are hereby incorporated into this Negative Declaration and Initial Study by reference:

- Visalia General Plan Update. Dyett & Bhatia, October 2014.
- Visalia City Council Resolution No. 2014-38 (Certifying the Visalia General Plan Update), passed and adopted October 14, 2014.
- Visalia General Plan Update Final Environmental Impact Report (SCH No. 2010041078). Dyett & Bhatia, June 2014.
- Visalia General Plan Update Draft Environmental Impact Report (SCH No. 2010041078). Dyett & Bhatia, March 2014.
- Visalia City Council Resolution No. 2014-37 (Certifying the EIR for the Visalia General Plan Update), passed and adopted October 14, 2014.
- Visalia Municipal Code, including Title 17 (Zoning Ordinance).
- California Environmental Quality Act Guidelines.
- City of Visalia, California, Climate Action Plan, Draft Final. Strategic Energy Innovations, December 2013.
- Visalia City Council Resolution No. 2014-36 (Certifying the Visalia Climate Action Plan), passed and adopted October 14, 2014.
- City of Visalia Storm Water Master Plan. Boyle Engineering Corporation, September 1994.
- City of Visalia Sanitary Sewer Master Plan. City of Visalia, 1994.
- Phase I Environmental Assessment Report, BSK Associates, December 14, 2011
-
- Cultural Resource Inventory for the Eastside Regional Park and Groundwater Recharge Project, Applied EarthWorks, Inc., November, 2016
- Architectural Evaluations for the Eastside Regional Park and Groundwater Recharge Project, Applied EarthWorks, Inc., April 2017

- Site Survey for Cultural Resources Significance, Applied Earthworks, January 8–9, 2015 and January 13–16, 2015
- Site Survey for Biological Resources, Live Oak Associates, December 29 and 30, 2014
- Mitigated Negative Declaration No. 2018-76 Department of Water Resources Recharge Basins Grant Funded Project, January 23, 2019
- Mitigated Negative Declaration No. 2018-05, Eastside Regional Groundwater Recharge Basins, March 30, 2018

VI. NAME OF PERSON WHO PREPARED INITIAL STUDY

12-4-19

Paul Scheibel, AICP
Environmental Coordinator

INITIAL STUDY
ENVIRONMENTAL CHECKLIST

Name of Proposal	East Side Groundwater Recharge Project		
NAME OF PROPONENT:	City of Visalia	NAME OF AGENT:	Rebecca Keenan
Address of Proponent:	315 E. Acequia Ave.	Address of Agent:	315 E. Acequia Ave.
	Visalia, CA 93291		Visalia, CA 93291
Telephone Number:	(559) 713-4833	Telephone Number:	(559) 713-4833
Date of Review	December 4, 2019	Lead Agency:	City of Visalia

The following checklist is used to determine if the proposed project could potentially have a significant effect on the environment. Explanations and information regarding each question follow the checklist.

1 = No Impact 2 = Less Than Significant Impact
3 = Less Than Significant Impact with Mitigation Incorporated 4 = Potentially Significant Impact

I. AESTHETICS

Would the project:

1 a) Have a substantial adverse effect on a scenic vista?

1 b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

1 c) Substantially degrade the existing visual character or quality of the site and its surroundings?

2 d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

II. AGRICULTURAL RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:

2 a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency to non-agricultural use?

2 b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

1 c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

1 d) Result in the loss of forest land or conversion of forest land to non-forest use?

1 e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to nonagricultural use?

III. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

2 a) Conflict with or obstruct implementation of the applicable air quality plan?

2 b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

2 c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

2 d) Expose sensitive receptors to substantial pollutant concentrations?

1 e) Create objectionable odors affecting a substantial number of people?

IV. BIOLOGICAL RESOURCES

Would the project:

2 a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2 b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

2 c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

2 d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

1 e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

1 f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

V. CULTURAL RESOURCES

Would the project:

3 a) Cause a substantial adverse change in the significance of a historical resource as defined in Public Resources Code Section 15064.5?

2 b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Public Resources Code Section 15064.5?

2 c) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?

2 d) Disturb any human remains, including those interred outside of formal cemeteries?

VI. ENERGY

Would the project:

2 a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

2 b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

VII. GEOLOGY AND SOILS

Would the project:

a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

1 i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

1 ii) Strong seismic ground shaking?

1 iii) Seismic-related ground failure, including liquefaction?

1 iv) Landslides?

1 b) Result in substantial soil erosion or loss of topsoil?

1 c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

1 d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

1 e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

2 a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

2 b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

2 a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

1 b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

1 c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

2 d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

1 e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

1 f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

1 g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

1 h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

X. HYDROLOGY AND WATER QUALITY

Would the project:

2 a) Violate any water quality standards of waste discharge requirements?

1 b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

2 c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?

2 d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

2 e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

2 f) Otherwise substantially degrade water quality?

1 g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

1 h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?

2 i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

1 j) Inundation by seiche, tsunami, or mudflow?

XI. LAND USE AND PLANNING

Would the project:

1 a) Physically divide an established community?

1 b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

1 c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

XII. MINERAL RESOURCES

Would the project:

1 a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

1 b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

XIII. NOISE

Would the project:

2 a) Cause exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

2 b) Cause exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

1 c) Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

1 d) Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

1 e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

1 f) For a project within the vicinity of a private airstrip, would the project expose people residing or working the in the project area to excessive noise levels?

XIV. POPULATION AND HOUSING

Would the project:

2 a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

1 b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

1 c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

XV. PUBLIC SERVICES

Would the project:

2 a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

1 i) Fire protection?

1 ii) Police protection?

1 iii) Schools?

2 iv) Parks?

2 v) Other public facilities?

XVI. RECREATION

Would the project:

1 a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

2 b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

XVII. TRANSPORTATION / TRAFFIC

Would the project:

1 a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

1 b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

1 c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

1 d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

1 e) Result in inadequate emergency access?

1 f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

XVIII. UTILITIES AND SERVICE SYSTEMS

Would the project:

1 a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

1 b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

2 c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

1 d) Have sufficient water supplies available to service the project from existing entitlements and resources, or are new or expanded entitlements needed?

1 e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

1 f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

1 g) Comply with federal, state, and local statutes and regulations related to solid waste?

XIX TRIBAL CULTURAL RESOURCES

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

2 a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

3 b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:

1 a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

1 b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

1 c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

1 d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

2 a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

3 b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

2 c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Note: Authority cited: Sections 21083 and 21083.05, Public Resources Code. Reference: Section 65088.4, Gov. Code; Sections 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21093, 21094, 21095, and 21151, Public Resources Code; *Sundstrom v. County of Mendocino,*(1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors,* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

Revised 2009

DISCUSSION OF ENVIRONMENTAL EVALUATION

I. AESTHETICS

a. This project will not adversely affect the view of any scenic vistas. The Sierra Nevada mountain range may be considered a scenic vista, but views of the range will not be adversely impacted or significantly by the project. Staff believes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

b. There are no scenic resources on the site.

c. The City has development standards related to landscaping and other amenities that will ensure that the visual character of the area is not degraded upon any future development. The proposed project in itself will improve the visual character and quality of the site.

d. The project will facilitate a recreation space and walking path around a recharge basin and future recreation space. There will not be new sources of significant light glare created by the project.

II. AGRICULTURAL RESOURCES

a. The project is located on property that is identified as Farmland of Local Importance on maps prepared by the California Resources, and will involve the conversion of the property to non-agricultural use.

The Visalia General Plan Update Environmental Impact Report (EIR) has already considered the environmental impacts of the conversion of properties within the Planning Area, which includes the subject property, into non-agriculture uses. Overall, the General Plan results in the conversion of over 14,000 acres of Important Farmland to urban uses, which is considered significant and unavoidable. Aside from preventing development altogether the conversion of Important Farmland to urban uses cannot be directly mitigated, through the use of agricultural conservation easements or by other means. However, the General Plan contains multiple polices that together work to limit conversion only to the extent needed to accommodate long-term growth. The General Plan policies identified under Impact 3.5-1 of the EIR serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area. These policies include the implementation of a three-tier growth boundary system that assists in protecting open space around the City fringe and maintaining compact development within the City limits.

Because there is still a significant impact to loss of agricultural resources after conversion of properties within the General Plan Planning Area to non-agricultural uses, a Statement of Overriding Considerations was previously adopted with the Visalia General Plan Update EIR.

b. The project site is zoned Quasi-Public which is consistent with the land use designation of Recreation for this property. The project is predominately bordered by agricultural uses or non-producing vacant land on one or more sides. There are no Williamson Act contracts on any areas within the subject property.

c. There is no forest land or timberland currently located on the site, nor does the site conflict with a zoning for forest land, timberland, or timberland zoned Timberland Production.

d. There is no timberland currently located on the site.

e. The project will involve changes that would promote or result in the conversion of farmland to non-agriculture use. The subject property is currently designated for agriculture land use. Properties that are vacant may develop in a way that is consistent with their zoning and land use designated at any time. The adopted Visalia General Plan's implementation of a three-tier growth boundary system further assists in protecting open space around the City fringe to ensure that premature conversion of farmland to non-agricultural uses does not occur. The recharge basin will result in conversion of farmland of local importance to a non-agricultural use. The 43-acres of pecan orchard will no longer be economically viable upon development of the detention basins. The City's General Plan designates this property for agricultural use by designating the site for Agriculture. A recharge basin is considered to be a compatible use with agriculture.

III. AIR QUALITY

a. The project site is located in an area that is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). The project in itself does not disrupt implementation of the San Joaquin Regional Air Quality Management Plan, and will therefore be a less than significant impact.

b. Future development of the site under the Visalia General Plan will result in emissions that will exceed thresholds established by the SJVAPCD for PM10 and PM2.5. The development of this property may contribute to a net increase of criteria pollutants and will therefore contribute to exceeding the thresholds. Also the project could result in short-term air quality impacts related to dust generation and exhaust due to construction and grading activities. This site was evaluated in the Visalia General Plan Update EIR for conversion into urban development. Development under the General Plan will result in increases of construction and operation-related criteria pollutant impacts, which are considered significant and unavoidable. General Plan policies identified under Impacts 3.3-1 and 3.3-2 serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area.

Development of this site is required to adhere to requirements administered by the SJVAPCD to reduce emissions to a level of compliance consistent with the District's grading regulations. Compliance with the SJVAPCD's rules and regulations will reduce potential

impacts associated with air quality standard violations to a less than significant level.

In addition, development of the project site may be subject to the SJVAPCD Indirect Source Review (Rule 9510) procedures that became effective on March 1, 2006. The Applicant will be required to obtain permits demonstrating compliance with Rule 9510, or payment of mitigation fees to the SJVAPCD, when warranted.

c. Tulare County is designated non-attainment for certain federal ozone and state ozone levels. Development of the project site will result in a net increase of criteria pollutants. This site was evaluated in the Visalia General Plan Update EIR for conversion into urban development. Development under the General Plan will result in increases of construction and operation-related criteria pollutant impacts, which are considered significant and unavoidable. General Plan policies identified under Impacts 3.3-1, 3.3-2, and 3.3-3 serve as the mitigation which assists in reducing the severity of the impact to the extent possible while still achieving the General Plan's goals of accommodating a certain amount of growth to occur within the Planning Area.

Development of the project site may be required to adhere to requirements administered by the SJVAPCD to reduce emissions to a level of compliance consistent with the District's grading regulations. Compliance with the SJVAPCD's rules and regulations will reduce potential impacts associated with air quality standard violations to a less than significant level.

In addition, development of the project site may be subject to the SJVAPCD Indirect Source Review (Rule 9510) procedures that became effective on March 1, 2006. The Applicant would be required to obtain permits demonstrating compliance with Rule 9510, or payment of mitigation fees to the SJVAPCD, when warranted.

d. Residences located near the proposed project may be exposed to pollutant concentrations due to future construction activities. The use of construction equipment will be temporary and is subject to SJVAPCD rules and regulations. The impact is considered as less than significant.

e. The proposed project will not involve the generation of objectionable odors that would affect a substantial number of people.

IV. BIOLOGICAL RESOURCES

a. The site has been in use as a pecan orchard, and no known species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. The project would therefore not have a substantial adverse effect on a sensitive, candidate, or special species.

In addition, Live Oak Associates conducted an on-site visit to the site adjacent to the south on December 29 and 30, 2014, to observe biological conditions and did not observe any evidence or symptoms that would suggest the presence of a sensitive, candidate, or special species.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain special-status species or their habitats may be directly or indirectly affected by future development within the General Plan Planning Area. This may be through the removal of or disturbance to habitat. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-1 of the EIR, that together work to reduce the potential for impacts on special-status species likely to occur in the Planning Area. With implementation of these polies, impacts on special-status species will be less than significant.

b. The project is located within or adjacent to an identified sensitive riparian habitat or other natural community (creek and irrigation ditch). The project will comply with the 50-foot setback requirement from the top of the hinge-point of Packwood Creek as identified in the Conversation Land Use Policy.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain sensitive natural communities may be directly or indirectly affected by future development within the General Plan Planning Area, particularly valley oak woodlands and valley oak riparian woodlands. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-2 of the EIR, that together work to reduce the potential for impacts on woodlands located within in the Planning Area. With implementation of these policies, impacts on woodlands will be less than significant.

c. The project is not located within or adjacent to federally protected wetlands as defined by Section 404 of the Clean Water Act.

City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that certain protected wetlands and other waters may be directly or indirectly affected by future development within the General Plan Planning Area. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-3 of the EIR, that together work to reduce the potential for impacts on wetlands and other waters located within in the Planning Area. With implementation of these policies, impacts on wetlands will be less than significant.

d. City-wide biological resources were evaluated in the Visalia General Plan Update Environmental Impact Report (EIR). The EIR concluded that the movement of wildlife species may be directly or indirectly affected by future development within the General Plan Planning. Such effects would be considered significant. However, the General Plan contains multiple polices, identified under Impact 3.8-4 of the EIR, that together work to reduce the potential for impacts on wildlife movement corridors located within in the Planning Area. With implementation of these polies, impacts on wildlife movement corridors will be less than significant.

e. The City has a municipal ordinance in place to protect valley oak trees. All existing valley oak trees on the project site will be under the jurisdiction of this ordinance. Any oak trees to be removed from the site are subject to the jurisdiction of the municipal ordinance.

There are no Valley Oak trees onsite.

f. There are no local or regional habitat conservation plans for the area.

V. CULTURAL RESOURCES

a. A cultural resource inventory of the larger 288-acre area was conducted by Applied Earthworks, Inc. in November 2016, and a follow-up Evaluation in April 2017. Five cultural resources were identified on the 288-acre site, including one obsidian tool fragment, and four structures associated with Mill and Packwood Creeks ditches. One structure, Oakes Ditch (AE-3044-01), bisects the project site. It was likely constructed in the mid-1800's and has been in used, maintained, and re-routed regularly to the present time. Consequently it has been substantially altered and would not meet the qualifications for placement on the CRHR, nor the NRHP. Notwithstanding the lack of historic value in the structure itself, the backfilling of Oakes Ditch will still fall under Mitigation Measure 5-1 which directs that if some potentially historical or cultural resource is unearthed during development all work should cease until a qualified professional archaeologist and potentially a qualified Native American Tribal Observer can evaluate the finding and make necessary disposition recommendations.

b. There are no known archaeological resources located within the project area. If some archaeological resource is unearthed during development all work should cease until a qualified professional archaeologist can evaluate the finding and make necessary mitigation recommendations.

c. There are no known unique paleontological resources or geologic features located within the project area. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and , if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

d. There are no known human remains buried in the project vicinity. If human remains are unearthed during development all work should cease until the proper authorities are notified and a qualified professional archaeologist can evaluate the finding and make any necessary mitigation recommendations. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

VI. ENERGY

a. No specific housing developments are approved as part of Housing Element adoption; therefore, the Housing Element, in itself, would not directly result in energy impacts. Housing projects undertaken in the course of implementing the goals, policies, and programs identified in the Housing Element will be subject to project-specific environmental review in accordance with Section 10562 et seq. of the CEGA Guidelines.

Polices identified under Impacts 3.4-1 and 3.4-2 of the EIR will reduce any potential impacts of projects to a less than significant level. With implementation of these policies and the existing City standards, impacts to energy will be less than significant.

b. The project will not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, based on the discussion above.

VII. GEOLOGY AND SOILS

a. The State Geologist has not issued an Alquist-Priolo Earthquake Fault Map for Tulare County. The project area is not located on or near any known earthquake fault lines. Therefore, the project will not expose people or structures to potential substantial adverse impacts involving earthquakes.

b. Development of the site will require movement of topsoil. Existing City Engineering Division standards require that a grading and drainage plan be submitted for review to the City to ensure that off- and on-site improvements will be designed to meet City standards.

c. The project area is relatively flat and the underlying soil is not known to be unstable. Soils in the Visalia area have few limitations with regard to development. Due to low clay content and limited topographic relief, soils in the Visalia area have low expansion characteristics.

d. Due to low clay content, soils in the Visalia area have an expansion index of 0-20, which is defined as very low potential expansion.

e. The project does not involve the use of septic tanks or alternative waste water disposal systems since sanitary sewer lines would be used for the disposal of waste water at this location.

VIII. GREENHOUSE GAS EMISSIONS

a. The project is expected to generate Greenhouse Gas (GHG) emissions in the short-term as a result of the construction of industrial development.

The City has prepared and adopted a Climate Action Plan (CAP), which includes a baseline GHG emissions inventories, reduction measures, and reduction targets consistent with local and State goals. The CAP was prepared concurrently with the proposed General Plan and its impacts are also evaluated in the Visalia General Plan Update EIR.

The Visalia General Plan and the CAP both include policies that aim to reduce the level of GHG emissions emitted in association with buildout conditions under the General Plan. Implementation of the General Plan and CAP policies will result in fewer emissions than would be

associated with a continuation of baseline conditions. Thus, the impact to GHG emissions will be less than significant.

b. The State of California has enacted the Global Warming Solutions Act of 2006 (AB 32), which included provisions for reducing the GHG emission levels to 1990 "baseline" levels by 2020.

IX. HAZARDS AND HAZARDOUS MATERIALS

a. No hazardous materials are anticipated with the project. The site's previous use as an overflow parking area necessitated conducting a Phase 1 Environmental Survey in December 2011. The survey revealed no significant levels of soil contamination.

b. Construction activities associated with the development of the project may include maintenance of on-site construction equipment, which could lead to minor fuel and oil spills. The use and handling of any hazardous materials during construction activities would occur in accordance with applicable federal, state, regional, and local laws. Therefore, impacts are considered to be less than significant.

c. There are no schools located within one-half mile from the project site. There is no reasonably foreseeable condition or incident involving the project that could affect existing or proposed school sites or areas within one-half mile of school sites.

d. The project area does not include any sites listed as hazardous materials sites pursuant to Government Code Section 65692.5.

e. The City's adopted Airport Master Plan shows the project area is located outside of all Airport Zones. There are no restrictions for the proposed project related to Airport Zone requirements.

The project area is not located within 2 miles of a public airport.

f. The project area is not within the vicinity of any private airstrip.

g. The project will not interfere with the implementation of any adopted emergency response plan or evacuation plan.

h. There are no wild lands within or near the project area.

X. HYDROLOGY AND WATER QUALITY

a. Development projects associated with buildout under the Visalia General Plan have the potential to result in short term impacts due to erosion and sedimentation during construction activities. However, long-term impacts through the addition of a recharge basin will positively impact groundwater resources in the City. Further, all requirements consistent with the requirements of the State Water Resources Control Board's (SWRCB's) General Construction Permit process will be adhered to. This may involve the preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and/or the use of best management practices. The project will be required to meet municipal storm water requirements set by the SWRCB.

Furthermore, the Visalia General Plan contains multiple polices, identified under Impact 3.6-2 of the EIR, that together work to reduce the potential for impacts to water quality. With implementation of these policies and the existing City standards, impacts to water quality will be less than significant.

b. The project area overlies the southern portion of the San Joaquin unit of the Central Valley groundwater aquifer. Development of the site will result in an increase of impervious surfaces on the project site, which might affect the amount of precipitation that is recharged to the aquifer.

c. The project will not result in substantial erosion on- or off-site.

d. The project will not substantially alter the existing drainage pattern of the site or area, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

e. The project will not create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

f. There are no reasonably foreseeable reasons why the project would result in the degradation of water quality.

g. The project area is not located within a flood zone.

h. The project area is not located within a flood zone.

i. The project would not expose people or structures to risks from failure of levee or dam. The project is located downstream from the Terminus Damn; in the case of dam failure, there will be 4 hours of warning to evacuate the site.

j. Seiche and tsunami impacts do not occur in the Visalia area. The site is relatively flat, which will contribute to the lack of impacts by mudflow occurrence.

XI. LAND USE AND PLANNING

a. The project will not physically divide an established community. Recharge basins are considered compatible uses in Agriculture Zone Districts. The site is located along Ave. 152, which is a County road. Agriculture land use designations bound this area. The City's General Plan Land Use Map designates the site as Agriculture. Staff concludes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

b. The project does not conflict with any land use plan, policy or regulation of the City of Visalia. The recently adopted General Plan did not rezone or otherwise disrupt residential communities or commercial areas, and provides additional space to accommodate any potentially displaced residents or businesses.

The City's General Plan Land Use Map designates the site as Agriculture. Staff concludes that the proposed recharge basin is consistent in nature and character with existing and future uses surrounding the project site.

c. The project does not conflict with any applicable habitat conservation plan or natural community conservation plan as the project site is vacant dirt lot with no significant natural habitat present.

XII. MINERAL RESOURCES

a. No mineral areas of regional or statewide importance exist within the Visalia area.

b. There are no mineral resource recovery sites delineated in the Visalia area.

XIII. NOISE

a. The project will facilitate the development of a recharge basin. Such development will not result in noise generation.. There will be noise generated by construction activity. However, there are no residences or sensitive receptors within ¼ mile of the project site.

Furthermore, the Visalia General Plan contains multiple policies, identified under Impact N-P-3 through N-P-5, that work to reduce the potential for noise impacts to sensitive land uses. With implementation of Noise Impact Policies and existing City Standards, noise impacts to new noise sensitive lands uses would be less than significant.

b. Ground-borne vibration or ground-borne noise levels may occur as part of construction activities associated with the development of the site. Construction activities will be temporary and will not expose persons to such vibration or noise levels for an extended period of time; thus the impacts will be less than significant. There are no existing uses near the project area that create ground-borne vibration or ground-borne noise levels.

c. Ambient noise levels will increase beyond current levels as a result of development of the project site, however these levels will be typical of noise levels associated with urban development and not in excess of standards established in the City of Visalia's General Plan or Noise Ordinance. Noise associated with the establishment of new urban uses was previously evaluated with the General Plan for the conversion of land to urban uses.

Furthermore, the Visalia General Plan contains multiple policies, identified under Impact N-P-3 through N-P-5, that work to reduce the potential for noise impacts to sensitive land uses. With implementation of Noise Impact Policies and existing City Standards, noise impacts to new noise sensitive lands uses would be less than significant.

d. Noise levels will increase during construction activities; however, there are no construction activities associated with this project.

e. The project area is not within 2 miles of a public airport. The project will not expose people residing or working in the project area to excessive noise levels.

f. There is no private airstrip near the project area.

XIV. POPULATION AND HOUSING

a. The project will not directly induce substantial population growth that is in excess of that planned in the General Plan. The addition of a recharge basin will assist in preserving available groundwater resources for planned City buildout.

b. Future development of the site will not displace any housing on the site.

c. Development of the site will not displace any people on the site.

XV. PUBLIC SERVICES

a.

i. Current fire protection facilities are located at the Visalia Station 52 and can adequately serve the site without a need for alteration.

ii. Current police protection facilities can adequately serve the site without a need for alteration.

iii. The project will not generate new students for which existing schools in the area may accommodate.

iv. Other public facilities can adequately serve the site without a need for alteration.

XVI. RECREATION

a. The project will not directly generate new residents.

b. The proposed project includes passive recreational facilities (a walking path). This recreational amenity will have a positive physical effect on the environment.

XVII. TRANSPORTATION AND TRAFFIC

a. Future development of the site and operation of the project site is not anticipated to conflict with applicable plans, ordinances, or policies establishing measures of effectiveness of the City's circulation system.

b. Development of the site will not result in increased traffic in the area, and will not cause a substantial increase in traffic on the city's existing circulation pattern. This site was evaluated in the Visalia General Plan Update Environmental Impact Report (EIR) for urban use.

c. The project will not result in nor require a need to change air traffic patterns.

d. There are no planned designs that are considered hazardous.

e. The project will not result in inadequate emergency access.

f. The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

XVIII. UTILITIES AND SERVICE SYSTEMS

a. Development of the site will assist in the City's stormwater management system, consistent with the City Stormwater Master Plan. The proposed project will therefore not cause significant environmental impacts.

b. The project will not result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

c. The project site will enhance the existing City storm water drainage lines that handles on-site and street runoff by containing stormwater flows before they contribute to urban stormwater flows downstream. Usage of the recharge basin for stormwater management is consistent with the City Storm Drain Master Plan. These improvements will not cause significant environmental impacts.

d. California Water Service Company has determined that

there are sufficient water supplies to support the site, and that service can be extended to the site.

e. The City has determined that there is adequate capacity existing to serve site within the City with projected wastewater treatment demands at the City wastewater treatment plant.

f. Current solid waste disposal facilities can adequately serve the site without a need for alteration.

g. The project will be able to meet the applicable regulations for solid waste. Removal of debris from construction will be subject to the City's waste disposal requirements.

XIX. TRIBAL CULTURAL RESOURCES

The proposed project would not cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a. The site is not listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

b. The site has been determined to not be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Further, the EIR (SCH 2010041078) for the 2014 General Plan update included a thorough review of sacred lands files through the California Native American Heritage Commission. The sacred lands file did not contain any known cultural resources information for the Visalia Planning Area.

Additionally, invitations for early consultation were sent on January 15, 2015 to the eight Native American tribes with a historic presence in the Visalia Planning Area. The representative of the Santa Rosa Rancheria Tachi Yokut Tribe responded to the early consultation letter pursuant to AB 52. The Tribal representative's recommendation was to ensure that a Tribal observer be on the project site during excavation activities. This has been made a mitigation measure. No subsequent information has been received. Therefore, the City, acting as the Lead Agency determined that this mitigation measure is adequate to mitigate potentialities as suggested by the Tribal representative.

Mitigation Measure 19.1 has been added to this MND and will be included as project conditions of approval. This measure requires that a qualified Tribal observer be present on-site during grading activities. The Measure also directs that if some potentially historical or cultural resource is unearthed during development all work should cease until a qualified professional archaeologist and potentially a qualified Native American Tribal Observer can evaluate the finding and make necessary disposition recommendations. In the event that potentially significant cultural resources are discovered during ground disturbing activities associated with project preparation, construction, or completion, work shall halt in that area until a qualified Native American Tribal observer, archeologist, or paleontologist can assess the significance of the find, and, if necessary, develop appropriate treatment measures in consultation with Tulare County Museum, Coroner, and other appropriate agencies and interested parties.

XX. WILDFIRE

h. The project will not, by itself, result in any impacts from wildfire.

i. The City of Visalia is relatively flat and the underlying soil is not known to be unstable, and therefore not in a location that is likely to exacerbate wildfire risks.

j. The project will not, by itself, result in any impacts from wildfire.

k. The project will not, by itself, result in any impacts from wildfire.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

l. The project will not affect the habitat of a fish or wildlife species or a plant or animal community. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia's Genera Plan Update for conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

m. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia General Plan Update for the area's conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

n. This site was evaluated in the Program EIR (SCH No. 2010041078) for the City of Visalia General Plan Update for conversion to urban use. The City adopted mitigation measures for conversion to urban development. Where effects were still determined to be significant a statement of overriding considerations was made.

DETERMINATION OF REQUIRED ENVIRONMENTAL DOCUMENT

On the basis of this initial evaluation:

___ I find that the proposed project **COULD NOT** have a significant effect on the environment. **A NEGATIVE DECLARATION WILL BE PREPARED.**

__X__ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on the attached sheet have been added to the project. **A MITIGATED NEGATIVE DECLARATION WILL BE PREPARED.**

___ I find the proposed project **MAY** have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.

___ I find that the proposed project **MAY** have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.

___ I find that as a result of the proposed project no new effects could occur, or new mitigation measures would be required that have not been addressed within the scope of the Program Environmental Impact Report (SCH No. 2010041078). The Environmental Impact Report prepared for the City of Visalia General Plan was certified by Resolution No. 2014-37 adopted on October 14, 2014. **THE PROGRAM ENVIRONMENTAL IMPACT REPORT WILL BE UTILIZED.**

December 5, 2019

Paul Scheibel, AICP
Environmental Coordinator

TULARE COUNTY

JUL 22 2020

ROLAND P. HILL
ASSESSOR/CLERK RECORDER
BY:

Notice of Determination **Environmental Document No. 2019-73**

To: ☐ Office of Planning and Research
PO Box 3044, 1400 Tenth Street, Room 222
Sacramento, CA 95812-3044

☒ County Clerk
County of Tulare
County Civic Center, Rm 105
Visalia, CA 93291

From: City of Visalia – Lead Agency
315 E. Acequia Avenue
Visalia, CA 93291
Attn: Brandon Smith
Phone: (559) 713-4636
Email: brandon.smith@visalia.city

Subject:
Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

Project Title: Mitigated Negative Declaration No. 2019-73 prepared for the Green Infrastructure Grant, Eastside Regional Park Site, Detention Basins D and E Project

(2019129021)	City of Visalia/City of Visalia	(559) 713-4636
State Clearinghouse Number	Lead Agency/Approving Agency	Area Code/Telephone/Extension

Project Location: (include county) The project site is located between Mill Creek and Oakes Ditch, between Road 152 to the East, and the logical extension of Tower Road to the west. The project site is located within the City of Visalia situated in Tulare County.

Project Description: The proposed project will consist of developing two basins that will be a part of the master planned, multi-purpose facility that will provide outdoor recreation benefits as a whole through integrating recreation activities with groundwater recharge and riparian valley oak forest habitat.

Name and Address of Project Applicant: City of Visalia, 315 E. Acequia Avenue, Visalia, CA 93277; Phone: (559) 713-4541; Email: rebecca.keenan@visalia.city

This is to advise that the ☒ City Council ☐ Planning Commission has approved the above described project on July 20, 2020 and has made the following determinations regarding the above described project:

1. The project ☐will ☒will not have a significant effect on the environment.
2. ☐ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☒A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures (☒were ☐were not) made a condition of the approval of the project.
4. A mitigation reporting or monitoring plan (☒was ☐was not) adopted for this project.
5. A Statement of Overriding Considerations (☐was ☒was not) adopted for this project.
6. Findings (☒were ☐were not) made pursuant to the provisions of CEQA.

This certifies that the final environmental document with comments, responses, and record of project approval is available to the General Public at the City of Visalia Planning Dept. located at 315 East Acequia Avenue, Visalia.

Brandon Smith, AICP
City of Visalia Environmental Coordinator

July 21, 2020
Date

Date received for filing at OPR:

Revised 2005
Governor's Office of Planning and Research

ASSESSOR/CLERK-RECORDER
COUNTY OF TULARE
County Civic Center – Room 103
Visalia, California 93291-4593

September 1, 2020

CITY OF VISALIA
315 E ACEQUIA AVE
VISALIA CA 93291

SUBJECT: Posting of Environmental Notices

NOTICE OF: DETERMINATION

RECEIPT # 54-07222020-186

PROJECT TITLE: MITIGATED NEGATIVE DECLARATION NO. 2019-73 PREPARED FOR THE GREEN INFRASTRUCTURE GRANT, EASTSIDE REGIONAL PARK SITE, DETENTION BASINS D AND E PROJECT

DATE POSTED: 07/22/2020

DATE REMOVED: 08/31/2020

IF YOU HAVE ANY CONCERNS REGARDING THE ENCLOSED DOCUMENT, PLEASE CONTACT OUR OFFICE (559) 636-5051.

by, _____
Deputy

Enc
Clerk Division
559-636-5051

Appendix R. Tulare County Cumulative Project List

CUMULATIVE PROJECT LIST
FOR THE
EAST SIDE REGIONAL PARK (VISALIA)

Project Number	Applicant	Location	Assessor Parcel Number	Distance from Project	Status	Acreage
TM 834 19 Lot Subdivision	Castlewood Partners.	Southwest corner of Noble Ave. & Road 156	101-090-014	½ mile east	Pending	18.5
PSP 14-064 – Contractor's Storage Yard	Helena Hughes	Avenue 272 & Santa Fe	126-380-017	3 miles south	Pending	2.66
PZV 14-004 & PSP 14-027 for Swap Meet parking	Karen Green	Mineral King Ave. & Road 152	103-090-052	Adjacent on east	Approved	6.56
GPI 14-003 – General Plan Amendment and Zone Change from AE-40 to R-A	Paula Simon	Road 140 & Avenue 328	079-190-017	4 miles north	Pending	27.83

6. Attachments to the Final EIR

Attachment A: Health Risk Assessment

HARP Project Summary Report 4/18/2023 9:32:40 AM

PROJECT INFORMATION
HARP Version: 21081
Project Name: ESRPCON
Project Output Directory: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON
HARP Database: NA

FACILITY INFORMATION
Origin
X (m):298696
Y (m):4024324
Zone:11
No. of Sources:1
No. of Buildings:0

EMISSION INVENTORY
No. of Pollutants:1
No. of Background Pollutants:0

Emissions
ScrID StkID ProID PolID PolAbbrev Multi Annual Ems MaxHr Ems MWAF (lbs/yr) (lbs/hr)
_____ CON 0 0 9901 DieselExhPM 1 433.53 0 1

Background
PolID PolAbbrev Conc (ug/m^3) MWAF
_____

Ground level concentration files (\glc\)
_____
9901MAXHR.txt
9901PER.txt

POLLUTANT HEALTH INFORMATION
Health Database: C:\HARP2\Tables\HEALTH17320.mdb
Health Table Version: HEALTH21221
Official: True

PolID PolAbbrev InhCancer OralCancer AcuteREL InhChronicREL OralChronicREL InhChronic8HRREL
_____ 9901 DieselExhPM 1.1 5

AIR DISPERSION MODELING INFORMATION Versions used in HARP. All executables were obtained from USEPA's Support Center for Regulatory Atmospheric Modeling website (http://www.epa.gov/scram001/) AERMOD: 18081
AERMAP: 18081
BPIPPRM: 04274
AERPLOT: 13329

METEOROLOGICAL INFORMATION
Version:
Surface File: C:\Users\jarredo\Documents\HARP\Visalia_93144\Visalia_2007-2010.SFC
Profile File: C:\Users\jarredo\Documents\HARP\Visalia_93144\Visalia_2007-2010.PFL
Surface Station: 93144
Upper Station: 23230
On-Site Station: 0
Start Date & Time: 7 1 1 1
End Date & Time: 10 12 31 24
Hours Processed: 35064
Calm Hours: 9717
Missing Hours: 1213

LIST OF AIR DISPERSION FILES
AERMOD Input File: \ESRPCON_AERMOD.inp
AERMOD Output File: \ESRPCON_AERMOD.out
AERMOD Error File: \ESRPCON_AERMOD.ERR
Plotfile list
_____
MAX1HRCON.PLT
PERIODCON.PLT

LIST OF RISK ASSESSMENT FILES
Health risk analysis files (\hra\)
_____
ESRP_CancerRisk.csv
ESRP_CancerRiskSumByRec.csv
ESRP_GLCList.csv
ESRP_HRAInput.hra ESRP_NCAcuteRisk.csv
ESRP_NCAcuteRiskSumByRec.csv
ESRP_NCChronicRisk.csv
ESRP_NCChronicRiskSumByRec.csv
ESRP_Output.txt
ESRP_PathwayRec.csv
ESRP_PolDB.csv

Spatial averaging files (\sa\)
_____

HARP2 - HRACalc (dated 21081) 4/18/2023 8:55:21 AM - Output Log

GLCs loaded successfully
Pollutants loaded successfully
Pathway receptors loaded successfully
****
RISK SCENARIO SETTINGS

Receptor Type: Resident
Scenario: All
Calculation Method: Derived

****
EXPOSURE DURATION PARAMETERS FOR CANCER

Start Age: -0.25
Total Exposure Duration: 7.62

Exposure Duration Bin Distribution
3rd Trimester Bin: 0.25
0<2 Years Bin: 2
2<9 Years Bin: 5.62
2<16 Years Bin: 0
16<30 Years Bin: 0
16 to 70 Years Bin: 0

****
PATHWAYS ENABLED

NOTE: Inhalation is always enabled and used for all assessments. The remaining pathways are only used for cancer and noncancer chronic assessments.

Inhalation: True
Soil: True
Dermal: True
Mother's milk: True
Water: False
Fish: False
Homegrown crops: False
Beef: False
Dairy: False
Pig: False
Chicken: False
Egg: False

********** INHALATION

Daily breathing rate: LongTerm24HR

Worker Adjustment Factors
Worker adjustment factors enabled: NO

Fraction at time at home

3rd Trimester to 16 years: OFF
16 years to 70 years: ON

****
SOIL & DERMAL PATHWAY SETTINGS

Deposition rate (m/s): 0.02
Soil mixing depth (m): 0.01
Dermal climate: Mixed

****
TIER 2 SETTINGS

Tier2 adjustments were used in this assessment. Please see the input file for details.
Tier2 - What was changed: ED or start age changed|
Calculating cancer risk
Cancer risk breakdown by pollutant and receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_CancerRisk.csv Cancer risk total by receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_CancerRiskSumByRec.csv Calculating chronic risk Chronic risk breakdown by pollutant and receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_NCChronicRisk.csv Chronic risk total by receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_NCChronicRiskSumByRec.csv Calculating acute risk
Acute risk breakdown by pollutant and receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_NCAcuteRisk.csv Acute risk total by receptor saved to: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_NCAcuteRiskSumByRec.csv
HRA ran successfully

*HARP - HRACalc v21081 4/18/2023 8:55:21 AM - Cancer Risk - Input File: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_HRAInput.hra

REC	GRP	NETID	X	Y	RISK_SUM	SCENARIO	INH_RISK	SOIL_RISK	DERMAL_F	MMILK_RI	WATER_RI	FISH_RISK	CROP_RISK	BEEF_RISK	DAIRY_RI	PIG_RISK	CHICKEN_F	EGG_RISK
1	SENSITIV		298628	4024249	4.77E-06	7.62YrCanc	4.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	SENSITIV		298632	4024180	5.10E-06	7.62YrCanc	5.10E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	SENSITIV		298631	4024137	5.16E-06	7.62YrCanc	5.16E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	SENSITIV		298870	4024332	1.13E-05	7.62YrCanc	1.13E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	SENSITIV		298991	4024258	7.71E-06	7.62YrCanc	7.71E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	SENSITIV		299277	4024033	7.18E-06	7.62YrCanc	7.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	SENSITIV		299521	4024122	1.75E-06	7.62YrCanc	1.75E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	SENSITIV		299846	4024095	8.45E-07	7.62YrCanc	8.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	SENSITIV		299533	4023619	4.61E-06	7.62YrCanc	4.61E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	SENSITIV		299740	4023547	2.33E-06	7.62YrCanc	2.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	SENSITIV		299787	4023505	2.11E-06	7.62YrCanc	2.11E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	SENSITIV		299761	4023438	2.43E-06	7.62YrCanc	2.43E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	SENSITIV		299819	4023355	2.22E-06	7.62YrCanc	2.22E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	SENSITIV		299590	4023244	6.99E-06	7.62YrCanc	6.99E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	SENSITIV		299540	4023028	1.23E-05	7.62YrCanc	1.23E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	SENSITIV		299529	4022967	1.41E-05	7.62YrCanc	1.41E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	SENSITIV		299656	4022915	5.35E-06	7.62YrCanc	5.35E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	SENSITIV		299530	4022861	1.34E-05	7.62YrCanc	1.34E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	SENSITIV		299775	4022906	3.37E-06	7.62YrCanc	3.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	SENSITIV		299520	4022384	3.13E-06	7.62YrCanc	3.13E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	SENSITIV		299141	4022484	4.88E-06	7.62YrCanc	4.88E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	SENSITIV		298856	4022601	7.55E-06	7.62YrCanc	7.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	SENSITIV		298801	4022610	8.89E-06	7.62YrCanc	8.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
24	SENSITIV		298637	4024081	5.48E-06	7.62YrCanc	5.48E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25	SENSITIV		298636	4024039	5.49E-06	7.62YrCanc	5.49E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	SENSITIV		298635	4023974	5.51E-06	7.62YrCanc	5.51E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	SENSITIV		298635	4023877	5.56E-06	7.62YrCanc	5.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	SENSITIV		298631	4023835	5.42E-06	7.62YrCanc	5.42E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	SENSITIV		298633	4023776	5.50E-06	7.62YrCanc	5.50E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	SENSITIV		298634	4023675	5.53E-06	7.62YrCanc	5.53E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	SENSITIV		298634	4023640	5.52E-06	7.62YrCanc	5.52E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	SENSITIV		298633	4023574	5.46E-06	7.62YrCanc	5.46E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
33	SENSITIV		298634	4023535	5.47E-06	7.62YrCanc	5.47E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
34	SENSITIV		298598	4023476	4.37E-06	7.62YrCanc	4.37E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	SENSITIV		298568	4023447	3.76E-06	7.62YrCanc	3.76E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
36	SENSITIV		298572	4023420	3.79E-06	7.62YrCanc	3.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	SENSITIV		298634	4023327	5.21E-06	7.62YrCanc	5.21E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	SENSITIV		298637	4023113	4.95E-06	7.62YrCanc	4.95E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	SENSITIV		298636	4023075	4.81E-06	7.62YrCanc	4.81E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	SENSITIV		298637	4022845	3.79E-06	7.62YrCanc	3.79E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	SENSITIV		298633	4023309	5.15E-06	7.62YrCanc	5.15E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42	SENSITIV		298636	4023288	5.23E-06	7.62YrCanc	5.23E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	SENSITIV		298634	4023271	5.12E-06	7.62YrCanc	5.12E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
44	SENSITIV		298634	4023254	5.08E-06	7.62YrCanc	5.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
45	SENSITIV		298635	4023232	5.08E-06	7.62YrCanc	5.08E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
46	SENSITIV		298634	4023216	5.02E-06	7.62YrCanc	5.02E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	SENSITIV		298634	4023195	5.00E-06	7.62YrCanc	5.00E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
48	SENSITIV		298636	4023176	5.04E-06	7.62YrCanc	5.04E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
49	SENSITIV		298633	4023156	4.89E-06	7.62YrCanc	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50	SENSITIV		298634	4023135	4.89E-06	7.62YrCanc	4.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51	SENSITIV		298634	4023056	4.67E-06	7.62YrCanc	4.67E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
52	SENSITIV		298634	4023039	4.62E-06	7.62YrCanc	4.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	SENSITIV		298634	4023019	4.55E-06	7.62YrCanc	4.55E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54	SENSITIV		298634	4022999	4.48E-06	7.62YrCanc	4.48E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55	SENSITIV		298636	4022866	3.89E-06	7.62YrCanc	3.89E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56	SENSITIV		298635	4022883	3.96E-06	7.62YrCanc	3.96E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	SENSITIV		298635	4022982	4.45E-06	7.62YrCanc	4.45E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	SENSITIV		298634	4022964	4.33E-06	7.62YrCanc	4.33E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59	SENSITIV		298636	4022941	4.30E-06	7.62YrCanc	4.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	SENSITIV		298635	4022923	4.18E-06	7.62YrCanc	4.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	SENSITIV		298636	4022905	4.12E-06	7.62YrCanc	4.12E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

*HARP - HRACalc v21081 4/18/2023 8:55:21 AM - Chronic Risk - Input File: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_HRAInput.hra

REC	GRP	NETID	X	Y	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE	RESP	SKIN	EYE	BONE/TEE	ENDO	BLOOD	ODOR	GENERAL	MAXHI
1	SENSITIV		298628	4024249	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.70E-03
2	SENSITIV		298632	4024180	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-03
3	SENSITIV		298631	4024137	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-03
4	SENSITIV		298870	4024332	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.04E-03
5	SENSITIV		298991	4024258	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.75E-03
6	SENSITIV		299277	4024033	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.56E-03
7	SENSITIV		299521	4024122	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.24E-04
8	SENSITIV		299846	4024095	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.01E-04
9	SENSITIV		299533	4023619	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.64E-03
10	SENSITIV		299740	4023547	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.31E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.31E-04
11	SENSITIV		299787	4023505	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.53E-04
12	SENSITIV		299761	4023438	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.66E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.66E-04
13	SENSITIV		299819	4023355	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.92E-04
14	SENSITIV		299590	4023244	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.49E-03
15	SENSITIV		299540	4023028	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.38E-03
16	SENSITIV		299529	4022967	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-03
17	SENSITIV		299656	4022915	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.91E-03
18	SENSITIV		299530	4022861	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.79E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.79E-03
19	SENSITIV		299775	4022906	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.20E-03
20	SENSITIV		299520	4022384	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.12E-03
21	SENSITIV		299141	4022484	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-03
22	SENSITIV		298856	4022601	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.69E-03
23	SENSITIV		298801	4022610	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.17E-03
24	SENSITIV		298637	4024081	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03
25	SENSITIV		298636	4024039	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03
26	SENSITIV		298635	4023974	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03
27	SENSITIV		298635	4023877	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.98E-03
28	SENSITIV		298631	4023835	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.93E-03
29	SENSITIV		298633	4023776	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.96E-03
30	SENSITIV		298634	4023675	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-03
31	SENSITIV		298634	4023640	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.97E-03
32	SENSITIV		298633	4023574	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03
33	SENSITIV		298634	4023535	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.95E-03
34	SENSITIV		298598	4023476	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-03
35	SENSITIV		298568	4023447	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.34E-03
36	SENSITIV		298572	4023420	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-03
37	SENSITIV		298634	4023327	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03
38	SENSITIV		298637	4023113	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.76E-03
39	SENSITIV		298636	4023075	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.71E-03
40	SENSITIV		298637	4022845	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.35E-03
41	SENSITIV		298633	4023309	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.84E-03
42	SENSITIV		298636	4023288	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.86E-03
43	SENSITIV		298634	4023271	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.82E-03
44	SENSITIV		298634	4023254	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-03
45	SENSITIV		298635	4023232	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.81E-03
46	SENSITIV		298634	4023216	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.79E-03
47	SENSITIV		298634	4023195	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.78E-03
48	SENSITIV		298636	4023176	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.80E-03
49	SENSITIV		298633	4023156	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.75E-03
50	SENSITIV		298634	4023135	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.74E-03
51	SENSITIV		298634	4023056	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.67E-03
52	SENSITIV		298634	4023039	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.65E-03
53	SENSITIV		298634	4023019	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-03
54	SENSITIV		298634	4022999	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.60E-03
55	SENSITIV		298636	4022866	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.39E-03
56	SENSITIV		298635	4022883	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.41E-03
57	SENSITIV		298635	4022982	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-03
58	SENSITIV		298634	4022964	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.55E-03
59	SENSITIV		298636	4022941	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.53E-03
60	SENSITIV		298635	4022923	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.49E-03
61	SENSITIV		298636	4022905	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.47E-03

*HARP - HRACalc v21081 4/18/2023 8:55:21 AM - Acute Risk - Input File: G:\Visalia_City of-1391\139114V3-East Side Park_DOCS\500 Environmental and Permitting\545 Sub Consultant Reports\HRA\ESRPCON\hra\ESRP_HRAInput.hra

REC	GRP	NETID	X	Y	CONC	POLID	POLABBRE'	SCENARIO	CV	CNS	IMMUN	KIDNEY	GILV	REPRO/DE'	RESP	SKIN	EYE	BONE/TEE'	ENDO	BLOOD	ODOR	GENERAL
1	SENSITIV		298628	4024249	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2	SENSITIV		298632	4024180	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3	SENSITIV		298631	4024137	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4	SENSITIV		298870	4024332	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5	SENSITIV		298991	4024258	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
6	SENSITIV		299277	4024033	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7	SENSITIV		299521	4024122	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8	SENSITIV		299846	4024095	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9	SENSITIV		299533	4023619	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
10	SENSITIV		299740	4023547	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
11	SENSITIV		299787	4023505	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
12	SENSITIV		299761	4023438	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
13	SENSITIV		299819	4023355	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
14	SENSITIV		299590	4023244	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
15	SENSITIV		299540	4023028	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
16	SENSITIV		299529	4022967	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
17	SENSITIV		299656	4022915	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
18	SENSITIV		299530	4022861	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
19	SENSITIV		299775	4022906	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
20	SENSITIV		299520	4022384	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
21	SENSITIV		299141	4022484	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
22	SENSITIV		298856	4022601	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
23	SENSITIV		298801	4022610	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
24	SENSITIV		298637	4024081	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
25	SENSITIV		298636	4024039	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
26	SENSITIV		298635	4023974	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
27	SENSITIV		298635	4023877	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
28	SENSITIV		298631	4023835	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
29	SENSITIV		298633	4023776	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
30	SENSITIV		298634	4023675	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
31	SENSITIV		298634	4023640	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
32	SENSITIV		298633	4023574	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
33	SENSITIV		298634	4023535	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
34	SENSITIV		298598	4023476	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
35	SENSITIV		298568	4023447	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
36	SENSITIV		298572	4023420	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
37	SENSITIV		298634	4023327	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
38	SENSITIV		298637	4023113	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
39	SENSITIV		298636	4023075	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
40	SENSITIV		298637	4022845	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
41	SENSITIV		298633	4023309	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
42	SENSITIV		298636	4023288	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
43	SENSITIV		298634	4023271	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
44	SENSITIV		298634	4023254	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
45	SENSITIV		298635	4023232	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
46	SENSITIV		298634	4023216	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
47	SENSITIV		298634	4023195	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
48	SENSITIV		298636	4023176	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
49	SENSITIV		298633	4023156	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
50	SENSITIV		298634	4023135	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
51	SENSITIV		298634	4023056	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
52	SENSITIV		298634	4023039	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
53	SENSITIV		298634	4023019	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
54	SENSITIV		298634	4022999	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
55	SENSITIV		298636	4022866	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
56	SENSITIV		298635	4022883	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
57	SENSITIV		298635	4022982	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
58	SENSITIV		298634	4022964	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
59	SENSITIV		298636	4022941	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
60	SENSITIV		298635	4022923	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
61	SENSITIV		298636	4022905	0	9901	DieselExhP	NonCancer	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Attachment B: Intersection Control Evaluation (ICE) for Houston Avenue (SR 216) and Tower Street

MEMORANDUM

DATE: October 3rd, 2017

TO: Caltrans, District 06: David Deel, Associate Planner

FROM: Jason Ellard, Transportation Engineer, VRPA Technologies, Inc.
Erik Ruehr, P.E., Director of Traffic Engineering, VRPA Technologies, Inc.

SUBJECT: Intersection Control Evaluation (ICE) for Houston Avenue (SR 216) and Tower Street

The California Department of Transportation's (Caltrans) Traffic Operations Division implemented Policy Directive associated with evaluation procedures used to justify the installation of traffic signal systems, yield-control (roundabouts), and multi-way stop control at state highway intersections and interchanges. Caltrans' ICE protocol requires the analysis of three intersection control strategies when a State Highway intersection or interchange requires full control. The three intersection control strategies, as noted above, include all-way stop control, roundabout control, and signal control. These three control strategies were analyzed in terms of intersection capacity, safety, and additional considerations, as described in the sections below.

INTERSECTION CAPACITY

Considering the Cumulative Year 2040 Plus Project, Cumulative Year 2040 Plus Project With Tower Street Interchange, and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 volumes documented in Figures 1a, 1b, and 1c, the intersection of Houston Avenue (SR-216) at Tower Street was evaluated for the four intersection control strategies. Figures 1a, 1b, and 1c also provide the lane geometry utilized for the analysis of the intersection control strategies and Table 1 provides the results of the analysis.

Results of the analysis show that the signalized and roundabout intersection control are the only strategy that provides LOS C or better operations for both the AM and PM peak hours for the three study scenarios evaluated. The one-way stop and all-way stop intersection control will provide LOS B for the Cumulative Year 2040 Plus Project scenario only. The one-way stop and all-way stop control strategy is expected to result in LOS F operations in the PM peak hours for the Cumulative Year 2040 Plus Project With Tower Street Interchange and Cumulative Year 2040 Plus Project With Tower Street Interchange – Alternative 1 scenarios.

SAFETY

Safety considerations for each of the intersection control strategies are described below:

- ✓ All-way stop control typically provides a relatively safe form of control since it requires all traffic to stop at an intersection and resolve conflicts at low speeds. However, this is not the case when all-

way stop control cannot provide the necessary capacity to serve traffic demands. In these situations, the resulting queuing due to the capacity deficiency becomes a safety problem. In the case of the Houston Avenue (SR 216) and Tower Street intersection, level of service F conditions are expected. Due to the speed of traffic along Houston Avenue (SR 216), the queuing would be expected to be especially problematic for safety considerations.

- ✓ The safety benefits of roundabouts are well documented for typical roundabouts that have adequate capacity to serve traffic demands. In this case, LOS C or better conditions are expected for the three study scenarios.

- ✓ Traffic signal control is considered to be a relatively safe form of control when the traffic signal is appropriate for the level of traffic demand and when there are no unusual features that would cause safety problems. In this case, the capacity analysis results indicate level of service B or better operating conditions for the three study scenarios. The site is on relatively flat ground and can de designed to current design standards. No unusual conditions exist that would cause a safety problem from the point of view of traffic signal control.

ADDITIONAL CONSIDERATIONS

For all-way stop and traffic signal control, intersection capacity and safety are the primary factors in the selection of a preferred intersection control type. Roundabouts are a different case due to their relative unfamiliarity in the U.S. The Federal Highway Administration (FHWA) report, Roundabouts: An Informational Guide (FHWA, 2000), lists a number of site-specific conditions that should be considered when evaluation the suitability of a roundabout installation. These are listed below:

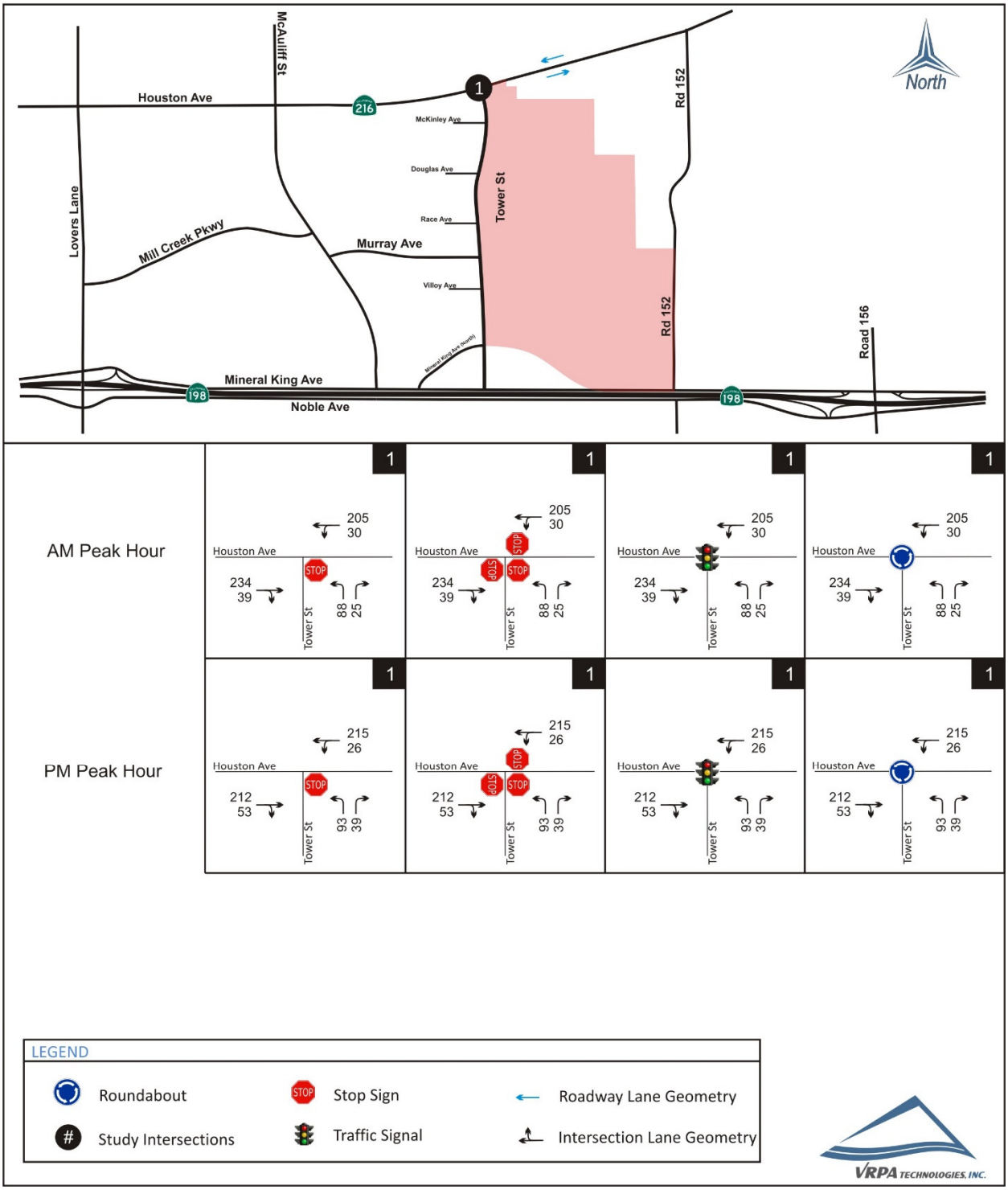
- ✓ Physical/geometric conditions
- ✓ Proximity of atypical traffic generators
- ✓ Proximity of traffic control devices requiring preemption
- ✓ Proximity of bottlenecks that would back up traffic into the roundabout
- ✓ Problems with grades
- ✓ Intersections with unacceptable delays
- ✓ Heavy bicycle or pedestrian traffic
- ✓ Intersections in a coordinated traffic signal network

CONCLUSION

In the case of each of the issues identified above (intersection capacity, safety, and additional considerations), traffic signal or roundabout intersection control are identified as the preferred traffic control options for the reasons noted above.

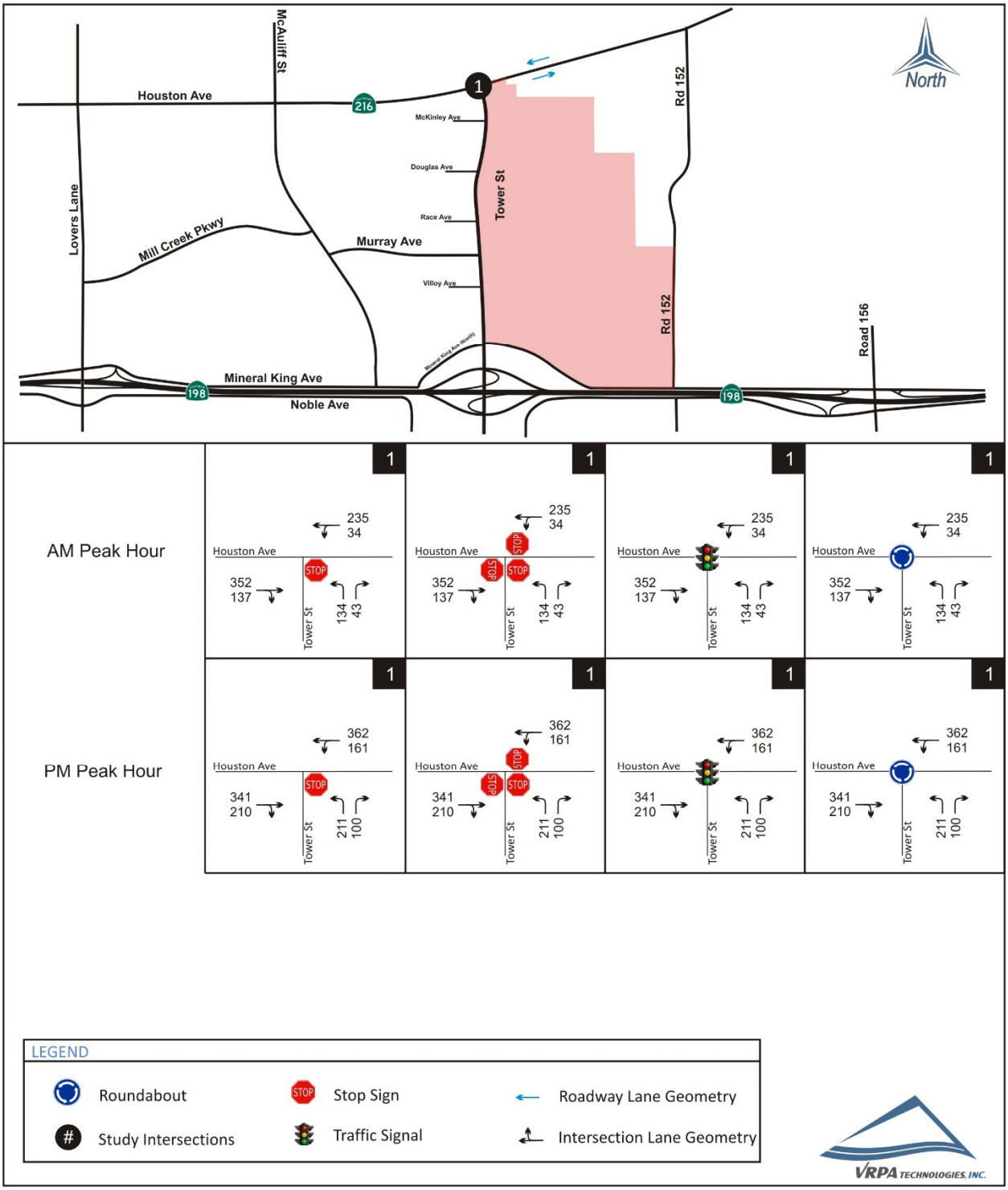
East Side Regional Park & Groundwater Recharge Facility ICE Analysis
Cumulative Year 2040 Plus Project

Figure 1a



East Side Regional Park & Groundwater Recharge Facility ICE Analysis
Cumulative Year 2040 Plus Project With Tower Street Interchange

Figure 1b



East Side Regional Park & Groundwater Recharge Facility ICE Analysis

Cumulative Year 2040 Plus Project With Tower Street Interchange - Alt 1

Figure 1c

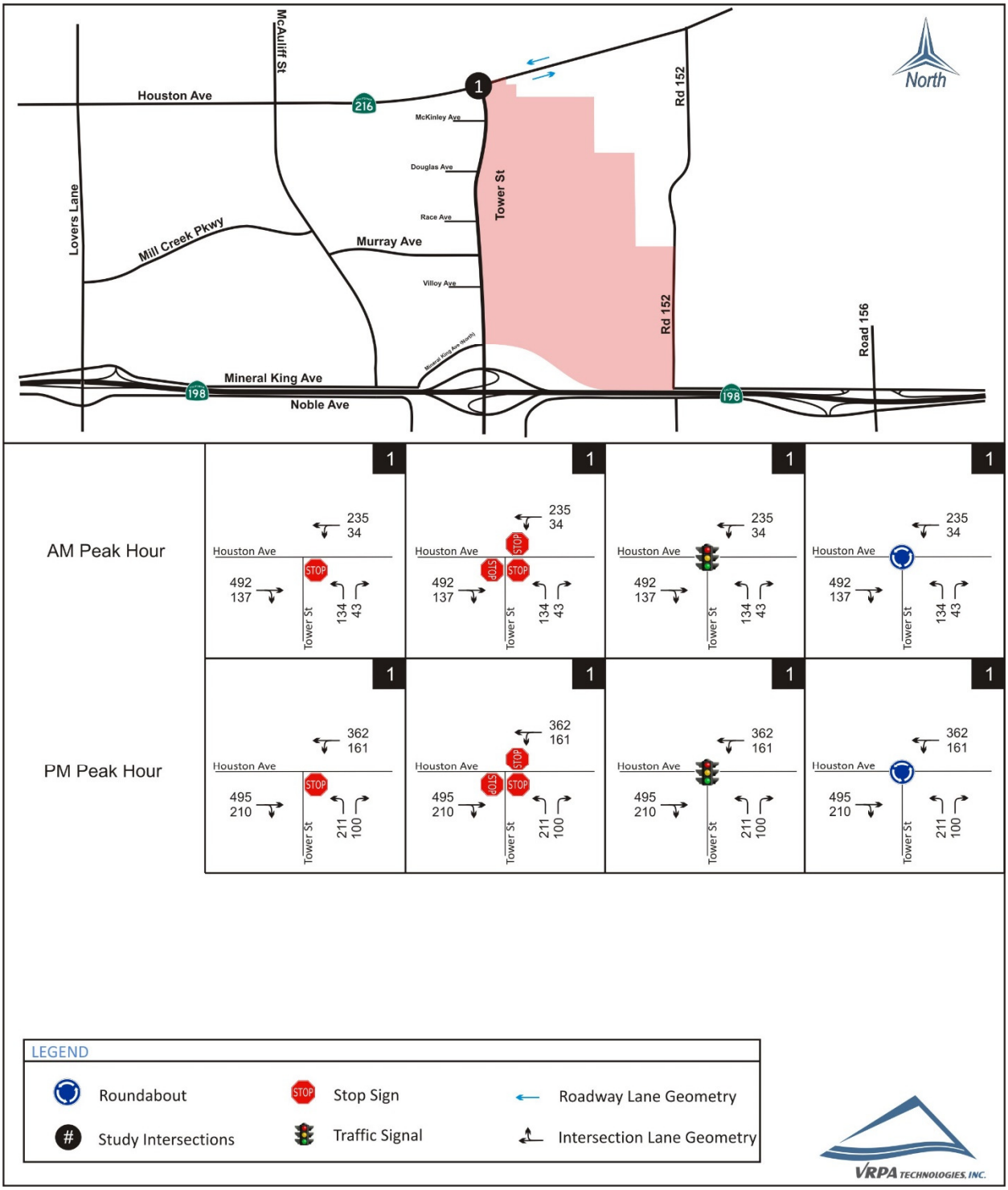


Table 1

Intersection Control Evaluation Analysis

INTERSECTION	CONTROL	TARGET LOS	PEAK HOUR	CUMULATIVE YEAR 2040 PLUS PROJECT		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE		CUMULATIVE YEAR 2040 PLUS PROJECT WITH TOWER STREET INTERCHANGE ALTERNATIVE 1	
				DELAY	LOS	DELAY	LOS	DELAY	LOS
Tower Street / Houston Avenue (SR 216)	One-Way Stop Sign	C	AM	14.6	B	22.8	C	**31.4**	**D**
			PM	14.4	B	**>50.0**	**F**	**>50.0**	**F**
	All-Way Stop Sign	C	AM	10.1	B	15.4	C	**29.7**	**D**
			PM	10.1	B	**>50.0**	**F**	**>50.0**	**F**
	Signalized	C	AM	6.0	A	6.4	A	6.6	A
			PM	6.0	A	9.6	A	12.5	B
	Roundabout	C	AM	6.0	A	8.2	A	10.5	B
			PM	5.9	A	13.1	B	18.3	C

DELAY is measured in seconds

LOS = Level of Service / **BOLD** denotes LOS standard has been exceeded

For signalized, all-way stop, and roundabout controlled intersections, delay results show the average for the entire intersection. For one-way stop controlled intersections, delay results show the delay for the worst movement.